



Regional Office for
Asia & the Pacific

FOURTH ICA JAPAN TRAINING COURSE FOR
STRENGTHENING MANAGEMENT OF AGRICULTURAL
COOPERATIVES IN ASIA, 1989-90

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COOPERATIVES IN ASIA. 1989 - 90

SET. 2

LIST OF PROJECT PROPOSALS SUBMITTED BY PARTICIPANTS

1. Rangpur Cooperative Tobacco Project
Mr Mohammad Nuruzzaman Bhuiyan, Bangladesh
2. Beijing - English Duck Feeding, Processing and
Marketing Project
Mr Jia Min Sheng, China
3. Development of Rush Mat Production Project
Mr Yang Bao Guo, China
4. Potato Development through Integrated Cooperatives
in Hassan Taluk.
Mr D.T.Rangaswamy, India
5. Feasibility Report on Marketing of Potatoes in Meerut.
Mr Lokendra Singh Rawal, India.
6. Fruit Processing Mill Project
Mr Sang Duck Lee, Korea
7. Feed Mill Project in Jeonnam Province
Mr Byung O Kang, Korea.
8. Dairy Development Project
Mr Abdul Razak Jamin, Malaysia
9. Pepper Processing and Marketing Project
Mr Abu Bakar bin Ujang, Malaysia.
10. Orange Fruit Processing and Marketing Project
Mr Tariq Hussain Nadeem, Pakistan
11. Integrated Paddy Processing and Marketing Project
Mr Adolfo M.Dela Pena, Philippines.
12. Bicol Integrated Co-operative Farming System
Mr Abundio V Felin, Philippines.
13. Dairy Project in Bandarawela
Mr Sam Deerasinghe, Sri Lanka
14. Sericulture Promotion and Raw Silk Production Project
Mrs Jansuda Watcharayon, Thailand
15. Soyabean Project
Ms Pornrat Saitongsuk, Thailand.



FOURTH ICA/ JAPAN TRAINING COURSE ON
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COOPERATIVES IN ASIA,
PART _ II, IDACA, JAPAN
FEBRUARY 26 , _ APRIL 26, 1990

Presentation Schedule of Projects by Participants:

27.2.90	FN	Mr Jia Min Sheng, China
	AN	Mr Yang Bao Guo, China
28.2.90	FN	Mr D.T.Rangaswamy, India
	AN	Mr L.S.Rawal, India
1.3.90	FN	Mr Sang Duck Lee, Korea
	AN	Mr Byung O Kang, Korea
2.3.90	FN	Mr Tariq H. Nadeem, Pakistan
	AN	Mr Sam Deerasinghe, Sri Lanka
3.3.90	FN	Mr Adolfo Delepena, Philippines
	AN	Mr Abundio V Felin, Philippines
5.3.90	FN	Mrs Jansuda Watcharayon, Thailand
	AN	Miss Pornrut Saitongsuk, Thailand
6.3.90	FN	Mr Abdul Razak Jamin, Malaysia
	AN	Mr Abu Bakar Ujang, Malaysia
		Mr Mohd.Nuruzzaman Bhuiyan, Bangladesh

Project Appraisal : Summary

(1)

Integrated Approach :

- a. Design Project with a view to " INCREASE INCOME OF THE FARMERS "
 - b. Focus on "OUTPUT, MARKETING AND PROCESSING.
 - c. Identify Anchor activity
 - d. OWNED AND MANAGED by Farmers.
Local leadership
 - e. Employ technically competent Persons and Professional Managers
- Define your project clearly.

2. Basic statistics :

About the region

- a. Production and Productivity
- b. Marketing of Farmers' Produce
- c. Income generating activities

Then, collect relevant, recent, adequate and useful data.

Interpret them and link with your choice of projects — reasons, viability etc.

3. Justification of Projects:

- Farmers' Problems
- Constraints in increasing income on their own
- How project would help in increasing income.

- Show Value addition to farmers' present position / income
- Role of farmers in organisation
 - Member participation
 - involvement
 - org. linkage with their activities and life
 - local leadership

Risk Protection:

- Does your project reduce farmers' ~~income~~ risk with regard to selling of items and price stability
- Most of the project reports believe that Society mgt. can handle project better than farmer
- Distribution of Surplus :- method

Project Planning:

1. Capacity Planning & its utilisation
 - availability of raw material and society's procurement abilities at a given price
2. Project Implementation
 - Choice of Technology
 - Flow chart for entire production process
 - PERT

- MKTG. of Produce

- Competition
- Risk - quantity and price variations
- Terms of Trade, credit Policy etc.
- Distribution of channels:

- Financial Planning & Analysis:

Investment Schedule

- Sources of funds (loan; Equity)

should include:

Pre-operative expenses

Margin money on working Capital

- Computation of working Capital

- Input: output table

Raw material & other inputs

Main products and by-products %

Spoilage

Their proportion

- Cost - (operating estimation)

Consider all relevant costs

most of you under estimated.

- Cash budget:

loan Repayment schedule

- Break-even Point

- Sensitivity Analysis
 - Concept of Risk
 - specific agro-based projects.
- Product-wise & Project Component \rightarrow Profitability
- Cross references in Text and appendices
- Assumptions should be clearly stated.
 - Soundness of assumptions?
 - Justity - give relevant data to support soundness of assumptions.
- Presentation & Tabulation
- Editing: Repeative Text, data and Tables.
- Computational errors
- Acknowledgement of data source
 - no mention or acknowledgement of people in the project area.

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BASIC INFORMATION ON FOLLOW-UP MATTERS IN RESPECT OF
PROJECTS PREPARED BY PARTICIPANTS.

1. Name of the Project :
2. Prepared by :
3. Country :
4. Location of the Project :
5. Organisation responsible for :
Project Implementation
6. Anchor Activity of Project :
(Commodity/Service)
7. Project Duration :
8. Area of Operation :
9. Total Capacity :
10. Target group / Farm :
Households to be covered
11. Name of new organisation :
for implementing the
project, if any.

12. Supporting Organisation :
(Financial)

13. Supporting Organisation :
TEchnical

14. Has your government approved :
the Project in principle?

15. Total Project Cost :

16. Equity Capital for Project :
from implementing Organisation

17. Other owned resources for :
Project

18. Sources of External Funds:

18.1 Government Fund / Capital/ :
Subsidies

Rate of Interest on above, :
if any.

18.2 Bank loans :

Interest rate :

18.3 Other sources :

Rate of interest :

18.4 Resources not yet ;
Identified

19. Technical know-how needed :
for Project Implementation

19.1 Whether locally available? :

19.2 If not, what part of :
technical know-how is desired
from outside the country.

20. Machinery and Equipement :

20.1 What percentage locally :
available?

20.2 What percentage to be :
imported?

20.3 If external assistance is :
available what specific
machinery/equipment would
be desired through such
assistance?

20.4 Can the project be started :
with locally available
material?

21. When the work could be started :
on the project? Please give
details.

22. Skilled Manpower for Project:

22.1 Trained personnel available
for operating the Project Yes / No

22.2 Whether training abroad is desired: Yes / No

22.3 If yes, in what specific areas? :

23. If the project is based on the :
on-going activity of a coop,
please give brief description of
the present activity.
Indicate when the new project
activity could be started.

24. After the training course will
you be able to help in further
improving the project?

25. After the training will you have
the opportunity to directly or
indirectly help in project
implementation?

26. Address to which we should
correspond with you in future
on project matters

27. Any other details you consider
important for follow up by ICA :

Note: Participants should revise the project during their stay
in IDACA on the basis of available information and com-
ments made by groups and resource persons. One copy of
the revised document should be given to me before leaving
IDACA. Another copy should be kept with you for follow-
up work in your country.

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	: RANGPUR COOPERATIVE TOBACCO PROJECT
<i>COUNTRY</i>	: BANGLADESH
<i>PROJECT PREPARED BY</i>	: M. NUREZZAMAN BHUIYAN MANAGER BANGLADESH SAMABAYA BANK LIMITED, DHAKA.

Funded by the Government of Japan

and

**Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and Korea**

ICA Management Training Project for Agricultural Cooperatives in Asia

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2. Dr. Saadat Husain, Registrar of Cooperative Societies,
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3. Mr.A.K.M.Zahirul Haque,
Chief Executive, Bangladesh Jatiya Samabaya Union.

(M.Nurezzaman Bhuiyan)
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Bangladesh Samabaya Bank Ltd.

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C H A P T E R - 1

S U M M A R Y

1. Name of the project : Rangpur Co-operative Tobacco Project.
2. Project area : Whole of Rangpur district.
3. Total project cost : 17.73 lacs.
4. Total initial investment : 15.78 lacs.
5. Working capital margin 1st year : 1.95 lacs.
6. Sources of fund : Equity - 1.38 lacs
Medium term loan (BSBL) 14.40 lacs.
7. Debt.Equity ratio : i) Fixed investment 92.5 : 7.5
ii) Working capital loan 90 : 10
8. Installed capacity : Single shift of 8 hrs/date & 300 working day/year.
a) Cigarette tobacco for marketing 475,000 kg
b) Leaf tobacco for processing 144,000 kg
c) Stem 144,000 kg
9. Expected capacity utilisation : 1st year 60%
2nd year 70%
3rd year 80%
4th year 90%
& onward.
10. Product : i) Cigarette tobacco for marketing.
ii) Processed tobacco 'A' & 'B' grade.
iii) Tobacco dust.
11. Implementation period : 1 year
12. Organisational Management : 12 members Board of Directors.
13. Operational Management : Manager, Staff & Labours (22)
14. Rate of interest : @ 15%
15. Instalment of loan : yearly Tk. 4.30 lacs.
16. B. C. R. : 1.14%
17. Net present value : 88.58 lacs.
18. I. R. R. : 100.001%
19. Pay back period : 1 year 2 months.
20. Project period : 10 years.

C H A P T E R - 2

2.0 BACKGROUND:

Agriculture plays a vital role in the economic development of Bangladesh. About 85 percent of the total population in the country depend directly or indirectly on agriculture for their livelihood. It contributes about 52 percent to the G.D.P. The major contribution comes from cash crops. The main cash crops are jute, tobacco, tea, sugarcane, oilseeds, pulses, spices etc. At present tobacco plays a dominant role in the economy. Every year Bangladesh exports tobacco mainly to USSR, FRG, Hongkong, Sweeden & China.

Different kinds of tobacco are cultivated **approximately** in 125,000 acres in the country. It is cultivated more or less in all the District & about 50,000 MT Tobacco is produced annually. Rangpur district is the leading tobacco growing district of the country. The climate & soil condition of Rangpur is very favourable for tobacco cultivation.

2.1 Overall situation of the project area:

The overall situation of the project area is mentioned below:-

- Area of Rangpur District	:	3705 Sq miles
- Population (as per 1981 census)	:	17,03,367
(a) Male	:	8,77,096
(b) Female	:	8,26,271
- Number of sub-districts	:	8
- Number of union councils	:	81

- Municipality	:	1
- Total Farm household	:	2,10,817 Nos.
- Total Agricultural Blocks	:	210 "
- High land	:	1,10,560 Acre
- Medium level land	:	31,545 "
- Actual cultivable land	:	4,18,651 "
(a) One crop	:	97,203 "
(b) Two crops	:	2,57,782 "
(c) Three crops	:	63,666 "
- Total irrigated land	:	1,23,708 "
(a) Under D.T.W.	:	47,959 "
(b) " S.T.W.	:	58,123 "
(c) " Power Pump	:	7,418 "
(d) " others	:	10,208 "
- Total irrigation equipment	:	7,410 Nos.
(a) Number of D.T.W.	:	864 "
(b) Number of S.T.W.	:	6,260 "
(c) Number of Power Pump	:	286 "
- Total Food Production	:	4,39,947 MT
- Total Demand for food	:	3,42,147 "
- Surplus food	:	97.800 "

2.2 Rangpur district is mainly tobacco growing area. The other crops are sugarcane, jute, paddy, vegetables etc. The tobacco cultivation in Rangpur is supported by Agricultural Extension Department, Tobacco Research Institute, Bangladesh Agricultural Research Institute, Bangladesh Tobacco Company & Nationalised Banks.

2.3 Production & Productivity, Cost & Benefit, Risk & Uncertainties:

The area & production of tobacco in Rangpur district during the year 1984 - 85 to 1988 - 89 is mentioned below :-

Year	Area under production		Total area under production (acre)	Production (MT)		Total production (MT)	Production per acre		
	Cigarette Tobacco (acre)	Local/other variety (acre)		Cigarette Tobacco	Local/other variety		Cigarette (MT)	Local (MT)	Remark
1984-85	23850	19750	43600	10000	8500	18500	0.419	0.430	
1985-86	25600	12600	38200	41300	6970	48270	1.613	0.553	
1986-87	22900	8960	31860	11950	3700	15650	0.521	0.412	
1987-88	23660	12450	36110	8250	3953	12203	0.348	0.318	crop damage
1988-89	25250	12350	37600	10370	4370	14740	0.410	0.354	

Source: Agricultural Extension Department Rangpur.

The mixed cropping pattern of 1 to 3 crops in a year is adopted by most of the farmers in this district. The cropping pattern & cost & production to farmers & net income for production of jute, tobacco, mugabeen, potato is given in the Annexure-3. The benefit cost ratio of production of tobacco is 4.20% & potato is 1.09%.

In comparison to other crops the tobacco is less affected by insects & disease. Ofcourse diseases like Mosaic & Leaf curl may often affect the crop. This crop is adversely affected only when there is hail storm & then the yeild becomes very poor.

2.4 Existing Marketing System:

Generally the farmers yeild the harvest in three different stages. Most of the tobacco growers sell out a major part of their produces to the local traders & stockist during the period from March to June. So they can buy their subsistence & daily necessities & also to pay back their loans. Generally the affluent farmers hold on their produces & sale it during off season & thus they get higher price.

Every year the Government fixes minimum price of tobacco Annexure-5. As the Government have no marketing arrangement, the growers cannot enjoy the benefit of minimum price as fixed by the Government. As such the private traders control the market according to their own advantage. Prevelent market price of the tobacco for the last 5 (five) years is mentioned below :-

(-) means not available)
(in rates for every 100 kg)
(Amount in Taka)

Kinds of Tobacco	Month	Year				
		1985	1986	1987	1988	1989
Joti (Local)	March	1593	1216	1380	-	-
	June	1184	800	1010	-	1675
	December	1466	1413	-	-	1976
Motihar(Local)	March	1533	1165	1582	-	-
	June	1322	1335	1418	-	1675
	December	1466	1630	-	-	2177
Cigarette Tobacco	March	-	1976	1778	1620	1635
	June	-	1066	1452	1784	1541
	December	-	1704	-	-	2211

Source: Agricultural Marketing Department, Rangpur.

2.5 Processing system:

Bangladesh Tobacco Company buys Cigarette Tobacco from their registered growers for manufacturing cigarettes. The other cigarette companies buy the cigarette tobacco from the local traders & stockist. A part of the cigarette tobacco & other tobacco goes is used to manufacture Bidi tobacco, Zardah, Gul & Kimam. In Rangpur & Haragoch areas there are number of tobacco crushing & bidi manufacturing factories. Besides, there are many well established Bidi Factories in Jessore, Barisal, Chittagong, Comilla, Noakhali & Mymensingh district. All these factories procure the crushed tobacco from Rangpur areas.

2.6 Credit & input supply:

Tobacco crop loan need of the farmers in the area is partly met by the nationalised commercial banks working in the project area. Bangladesh Tobacco Company also provides some financial support to their registered growers. Small & share croppers met their production cost out of their own & borrowings from local money lenders. Fertilizers are supplied by the BADC through their appointed dealers. Insecticides & pesticides are available in the open market. Allocation of tobacco loan to the nationalised Bank by Bangladesh Bank is mentioned below :-

(Figures in crore)

Particulars	Name of Bank	1986-87	1987-88	1988-89	1989-90
Short term Tobacco	Janata Bank	0.25	0.25	0.25	0.25
	Agrani Bank	0.10	0.20	0.25	0.25
	Bangladesh Krishi Bank	0.59	0.50	0.50	1.50
	Sonali Bank	-	1.00	-	0.50
	Rajshahi Krishi Unnayan Bank	-	0.20	0.50	0.50
	Total:		0.94	2.15	1.50	3.00

2.7 Existing Cooperatives & Membership:

At present there are 853 Primary Agricultural Cooperative Societies in the Rangpur district with membership of 47369. The amount of shares, reserves & deposit held by these societies are Taka 36.39 lac, Taka 9.15 lac & Taka 14.04 lac respectively. At present these societies are not getting any finance for providing production credit to the tobacco grower-members.

2.8 Area of Project:

The project will cover the whole area of Rangpur district. There are two primary tobacco growers cooperative societies namely Burirhat Tobacco Growers Cooperative Society & Betgari Tobacco Growers Cooperative Society in Rangpur District. These societies were organized in 1960 with the objective of providing production loan & marketing facilities to the member growers. These societies were under operation upto mid sixties & got necessary credit from BSBL. At present these societies are not functioning for want of financial support. It is essential that a well organized tobacco growers cooperative society with wider area of operation & membership should be formed so that the growers are assured of reasonable price for their produces.

It is necessary to revitalize & amalgamate the existing two cooperative societies to form a new cooperative society. At the initial stage the existing members of the primary cooperative societies of Rangpur district will be the member-owner of the project. The headquarter of the project will be situated at Burirhat (near Tobacco Research Centre) Rangpur which is well connected by metalled & katcha road with different parts of the district.

2.9 Problems faced by farmers:

- (a) Tobacco crop is harvested during the month of February & March which causes flush in the market. Farmers want immediate cash as soon as the crop is harvested for purchase of food, clothing & to plant his next crop paddy or jute.
- (b) Small, medium & share cropper farmers cannot maintain stock due to lack of financial resources.
- (c) The private traders exploit & do not provide remunerative price to the farmers.
- (d) There is no farmers organisation to provide credit, supply of input, processing & marketing of tobacco.

2.10 Need & justification for the project:

- (a) At present the farmers are selling their produce to local private traders at different local market. The maximum selling price of tobacco during the last 5 years can be seen in the previous paragraph. Thus the farmers get price around Tk. 17/- to Tk. 22/- per kg. The private traders after buying from the local market sale the tobacco leaves to the big traders, stock holders, processing mills at a higher price.
- (b) It is essential that existing two cooperative societies should be re-organized as Rangpur Tobacco Growers Cooperative Society to provide production credit & to ensure marketing & processing of tobacco for value addition to the growers.
- (c) With the implementation of the project, a better alternative for tobacco marketing will be possible & exploitation of the private traders will be curtailed.

- (d) The implementation of the project is to ensure remunerative returns to the grower members.
- (e) There is a good scope of employing labour in marketing related activities & processing business.
- (f) This will encourage the people to come under the fold of cooperatives to increase their income.

C H A P T E R - 3

P R O J E C T

3.1 Objectives:

The main objective is to increase the income of tobacco grower members in the Rangpur district. The objective will be achieved by promoting the following :-

- (a) To provide strong marketing channel for tobacco through proposed Rangpur Tobacco Growers Cooperative Society Limited.
- (b) To provide remunerative price to the tobacco grower members.
- (c) To procure, process & market the tobacco for value adding activity to grower members by way of distribution of profit as dividend & bonus.
- (d) To enable the grower member to retain the stock of tobacco & sell at an opportune time so as to get remunerative price.
- (e) To arrange for production credit & input supply through BSBL to Rangpur CCB Ltd. to the existing grower members of the primary cooperative societies.

3.2 Area of operation:

Burirhat Tobacco Growers Cooperative Society Ltd. and Betgari Tobacco Growers Cooperative Society Ltd. will be renamed as Rangpur/^{Tobacco}Growers Cooperative Society Ltd. with area of operation of the whole of Rangpur district. The head quarter of the society will be at Burirhat as because it is important place & at the same time the Tobacco Research Centre is also located there. The district headquarter of Rangpur is 10 kilometer from Burirhat & it is connected by metalled road. The existing members of the primary societies of Rangpur district will be the mem-

bers of the project & new members will be enrolled every year.

3.3 Project components:

There are three major components of the project, namely, procurement of Leaf Tobacco (all grades including stem) Processing (Crushing) & Marketing. Additional components is to arrange credit & input supply & farm guidance to the grower members through Rangpur CCB Ltd. & concerned Government agencies.

3.3.1 Procurement of Tobacco:

The society will start procurement of tobacco leaf & stem from the member societies & individual members. Price of Tobacco leaf & stem will be paid above the market rate & carrying cost @Tk.20 per quintal will be paid to the member. The procurement programme is given in the Annexure-12

3.3.2 Processing of Tobacco:

Processing will include grading & crushing of tobacco leaf & stem. Cigarette tobacco will not be processed & it will be sold to the Cigarette Companies directly. Local 'A', 'B', 'C' grade tobacco & stem will be processed. After processing there will be 3 kinds of processed tobacco namely 'A' grade, 'B' grade & dust.

3.3.3 Marketing:

The virginia tobacco leaf will be sold to cigarette manufacturing company & the processed tobacco & tobacco dust will be sold to Bidi & Zardah Factories & whole-salers & retailers of Rangpur, Barisal, Noakhali, Chandpur, Mymensingh & other districts.

3.3.4 Input supply:

The existing primary cooperative societies in the area are not providing credit & inputs to the tobacco growers. BSBL will arrange refinance from Bangladesh Bank for tobacco loan. The production credit (cash & kinds) will be provided through Rangpur CCB Ltd. to the members of the primary cooperative societies.

▲3.3.5 Farm Guidance:

In the project area there are 8 Upazillas & 210 Agricultural Blocks. In each Upazilla there are 5 agricultural officers of different ranks and in each block there is a block supervisor posted by the Government for providing extension service to the farmers. The society will co-ordinate with Agricultural Extension Department & the Tobacco Research Centre to educate the grower members for protection of tobacco crops from Mosaic & Leaf curl, wilt, Root Knot & other diseases.

C H A P T E R - 4

4.0 Details of operation:

The project will be implemented by jointly Rangpur Tobacco Growers Cooperative Society Ltd. & Bangladesh Samabaya Bank Limited. The project period will be 10 years. During implementation the society will provide a package of services. It will provide & arrange back-ward linkages such as transport cost, production credit extension etc. & will provide forward linkage such as processing & marketing of tobacco produces of member growers.

4.1 Procurement:

The society will procure tobacco from the grower member at a remunerative price. The price of the tobacco will be fixed by the Board of Directors of the society keeping in view the market trend. The society will procure cigarette tobacco for selling it to the cigarette companies during opportune times at higher price. The B & C grade cigarette tobacco & as well as other local varieties will be procured for processing (crushing) & marketing. The procurement programme at 100% efficiency in 300 working days in a year is mentioned in Annexure-12.

4.2 Processing:

It is proposed that the society will set up two tobacco crushing plant with crushing capacity of 80 kg. tobacco leaf & 40 kg. of tobacco stem per hour. Besides 50% of the leaf tobacco will be crushed manually.

The major steps involved in processing of tobacco are as follows :-

(a) Cleaning & washing:

Tobacco as and when harvested carries lot of micro objects which are quite undesirable & as such it has to be cleaned by manual labour before crushing.

(b) Crushing:

After cleaning the leaf tobacco & stem will be crushed in the cutting machine.

(c) Drying:

After crushing the leaf tobacco & stem will be dried in the sun separately.

(d) Grading & Finishing:

After drying the crushed tobacco & stem will be netted & dust portion is separated & thereafter the crushed tobacco & stem will be mixed in the ratio of 2 : 1

(e) Packaging:

The processed tobacco will be packed in 50 kgs gunney bags with trade mark.

The flow chart of processing of tobacco is shown in Annexure-20

4.3 Capacity:

The capacity of the crushing plant will be 144000 kg of tobacco leaf 144000 kg of tobacco stem annually for 300 working days. Taking into account the realities of production & the initial problems, the maximum utilization of the available capacity has been assumed as follows :-

<u>Year</u>	<u>% of utilization</u>
1	60
2	70
3	80
4 on ward	90

Net annual productivity at 100% efficiency will be as follows:-

Particulars	Productivity at 100%			Remarks
	Dust 12%	Shortage 8%	Net 80%	
a) Leaf Tobacco 'A' grade 144000 kg.	17280	11520	115200	50% of Leaf Tobacco will be crushed manually.
b) Leaf Tobacco B.C. Grade 144000 kg.	17280	11250	115200	
c) Stem 144000 kg.	17280	11250	115200	

4.4 Labour:

Labour cost are computed on the basis of prevailing situation in the country which will increase @ 5% from year to year. In addition to the stated salaries fringe benefit equivalent of 35% would also have to be provided.

C H A P T E R - 5

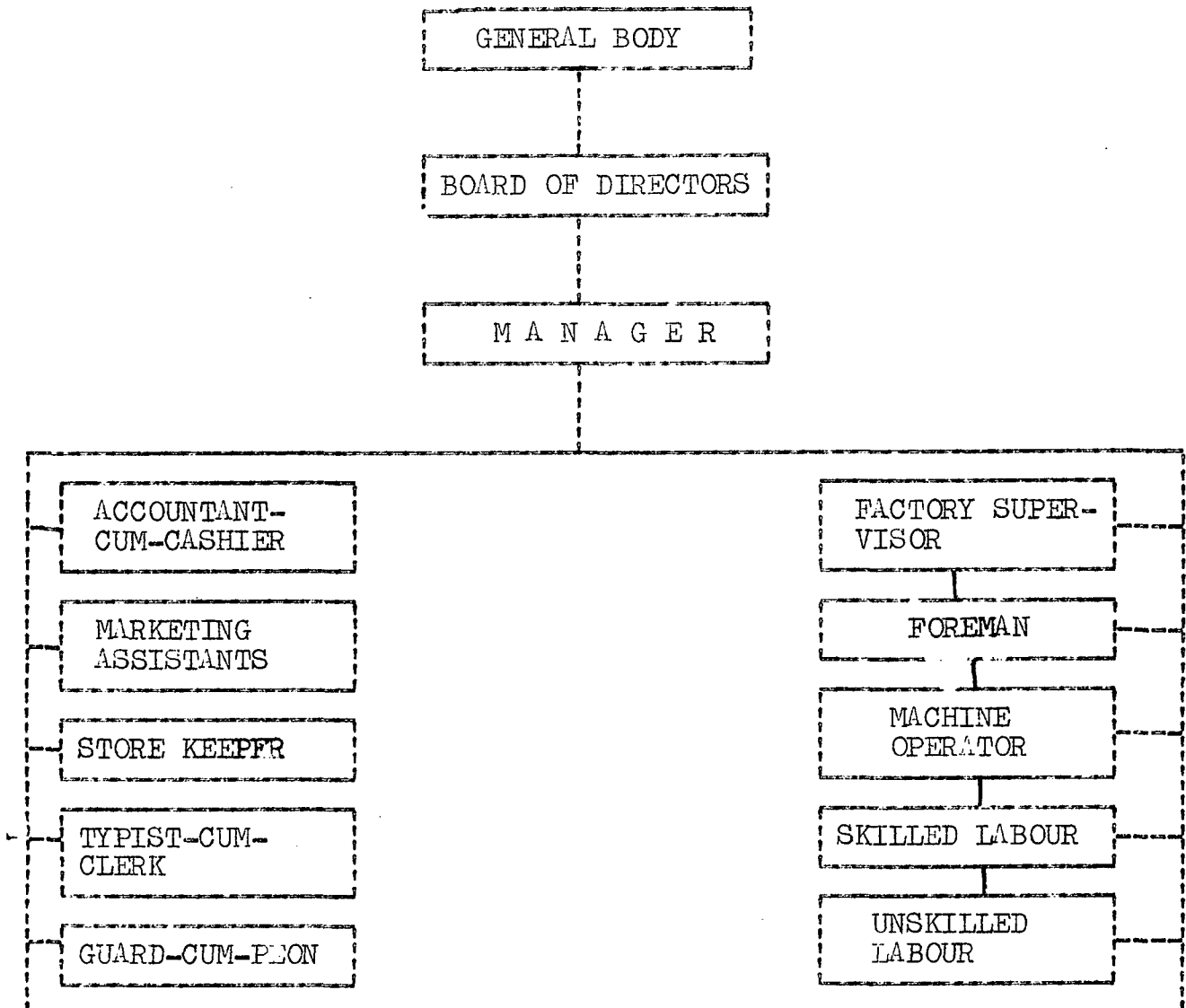
ORGANIZATION & MANAGEMENT

5.1 Organizational structure:

The project will be implemented by Rangpur Tobacco Growers Cooperative Society Ltd. (Re-organised) with the financial assistance from BSBL. The final authority of the society shall vest in the general body of members in general meeting. The management of the society shall vest in a Board of Directors consisting of 12 members. The one third of the Board of Directors will be nominated by the Government & the rest of the Directors including the Chairman & the Vice-Chairman will be elected from amongst the members by way of direct voting. The term of the Board of Directors will be two years. The powers, duties & functions of the Board of Directors will be as follows :-

- To admit members
- To raise funds, to invest funds
- To appoint salaried employees
- To receive & disburse money
- To prepare annual report & statement of accounts
- To convene annual general meeting. The Board of Directors will hold meeting atleast once in every two months. They will be entitled to a sitting fee of Tk.100/- & daily allowance of Tk. 100/- for attending each meeting.

The organisational structure of the society will be as under :-



5.2 Operational Management:

The whole of operation of the project will be managed by the employees under the guidance of the Board of Directors. Their duties & function will be as under :-

Manager: Bangladesh Samabaya Bank Ltd. will depute an officer to act as manager of the project. During the implementation period of the project the cost of the officer so deputed will be borne by Bangladesh Samabaya Bank Ltd. As and when the project will go in operation the cost of the officer will be borne by the project. The powers & function of the Manager will be as under :-

- Have control over the staff.
- Receive all money on behalf of the project.
- Pay all cost of management.
- Maintain proper & accurate accounts.
- Call meetings of the Board of Directors.
- Implement the decisions of the Board of Directors

Accountant-cum-Cashier:

The Accountant-cum-Cashier will receive & pay cash on all transactions & maintain all books of accounts & records.

Marketing Assistant:

There will be two Marketing Assistants in the project of which one will look after procurement & the other will look after sales. They will also maintain proper records in respect of procurement & sales.

Store Keeper: The Store Keeper will maintain the stock of raw materials & the finished goods & maintain the stock register.

Factory Supervisor:

The Factory Supervisor will supervise the work of the Foreman, Machine Operator & Labours. The salary structure of the employees is shown in Annexure-17.

C H A P T E R - 6
FINANCIAL ANALYSIS.

6.1 Details of Project Cost Components:

6.1.1 Land:

The cost of land measuring 7200 sft (one bigha) will be of the value of Tk. 375,000/- as per prevailing selling rate in Burirhat Bazar area. The stamp duty & registration fee for registration of the sale deed will be about Tk.75,000/-. The land will have to be raised upto road level & it is estimated that an amount of Tk.50,000/- will be required for earth filling.

6.1.2 Factory Shed, Godown, Office & Drying Space:

The Factory Shed, Godown & Office house will be constructed covering side of the plot. It will be semi pucca tin shed building consisting of different sections for accomodation of Factory, Godown & Office. The cost of construction is estimated at Tk. 6.18 lac. Details of construction with specification has been shown in Annexure-8.

6.1.3 Machinery & Equipments:

Two Tobacco crushing machine having crushing capacity of 80 kg leaf & 40 kg stem per hour will be procured from local markets, Electric Motors, Grading Machine & other equipments are also available in local market. It is estimated that the machineries & equipment will cost Tk. 1.27 lac including installation. Details of machineries have been shown in annexure-9.

6.1.4 Other Fixed Capital Requirements:

The cost of office furniture, fixture & equipment has been estimated at Tk.160,000/- the details of which shown Annexure-10.

6.1.5 Share Subscription to BSBL:

As per provision of the Co-operative Rules, the society will have to subscribe to the share capital of Bangladesh Samabaya Bank Ltd. equivalent to 2½% of the term loan. The society will subscribe to share of Bangladesh Samabaya Bank Ltd. for Tk. 33,000/- for a loan of Tk. 13.00 lac.

6.1.6 Pre-operative Interest:

Bangladesh Samabaya Bank Ltd. will release fund as per construction schedule. Interest on loan has been calculated for Tk.1.40 lac.

6.1.7 Working Capital:

Working Capital has been calculated as per requirement. Margin money of the working capital will be 10%. Working capital loan will be renewed every year. Details of working capital requirement is shown in Annexure-11.

6.2 Debt Equity Ratio:

The society will collect share money from the members at the rate 10% of the loan while it will subscribe to the share capital of Bangladesh Samabaya Bank Ltd. @ 2½% of the loan. Thus debt equity ratio will be 92.5% : 7.5%

6.3 Sales Revenue:

Details of Sales Revenue is shown in Annexure-14.

6.4 Variable Cost:

The variable cost for 10 years is shown in Annexure-15.

6.5 Fixed Expenses:

The fixed expenses for 10 years is shown in Annexure-16.

6.6 B. C. R.

On the basis of cash flow statement for the 10 year the B.C.R. at 15% comes at 1.14%. It indicates that value addition is more than sufficient in the project (Annexure-22).

6.7 Break Even Point:

Break even point of the project comes to 56.91% capacity utilisation & break even sales comes at Tk.82.71 lac. The project will break even from the 1st year of its running. Detailed calculation is shown in Annexure-21.

6.8 Net present value:

Net present value of the project has been calculated at 15% discount factor for 10 years for Tk.88.58 lac. Details of calculation is shown in Annexure-23.

6.9 I. R. R.

The internal rate of return becomes at 100.001%. Detail calculation is shown in Annexure-24. In this project the IRR is not meaningful. Because it is less capital intensive & its assets turn-over is very high. Operating cash flows are important for the viability of this project.

6.10 Term Loan Repayment Schedule:

Medium term loan (5 years term) of Tk.13.00 + 1.40) lac will be repaid in yearly instalments with interest. The instalment will be Tk.4.30 lac including interest. Interest accrued during the pre-operative period has been capitalised. Details in Annexure-26.

6.11 Debt Service Coverage Ratio:

Calculation of debt service coverage ratio is shown in Annexure-28.

6.12 Depreciation:

Depreciation value of assets will be almost equal amount for every year. Calculation is shown in Annexure-27.

6.13 Salvage Value:

Salvage value of machinery & equipment, furniture & other assets have been assumed at Zero at the end of 10th year of the project & building at 50%.

6.14 Profit distribution:

As per provisions of the Co-operative Act & Rules the profit will be distributed as follows :-

- i) Reserve fund 15%
- ii) Dividend (maximum) 50%
- iii) Contribution to Co-operative Development Fund 5%
- iv) Contribution to Charitable Purpose 10%
- v) Bonus 6.25%

6.15 Sensitivity Analysis: Assumed that the 10% price of raw materials i.e. Tobacco Leaf & Stem may increase due low production then the B.C.R, N.P.V. & I.RR will be 1.06%, 2042, 35% respectively.

C H A P T E R - 7

The Budget for the first five years has been given below :-

CASH BUDGET

(Figure in 000)

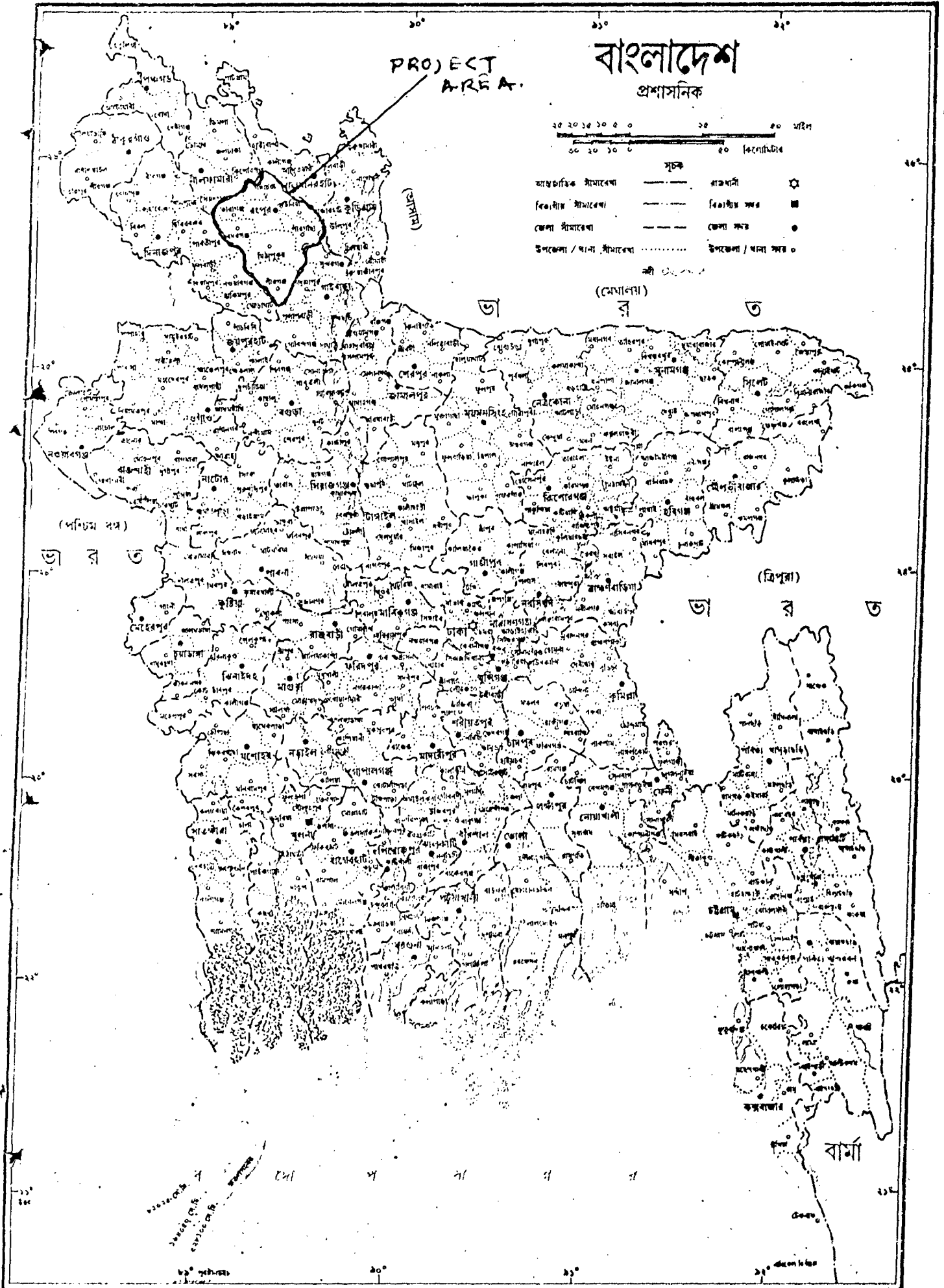
Particulars	Y e a r					
	0	1	2	3	4	5
<u>SOURCES</u>						
1. Equity	138	195	32	32	31	-
2. Bank loan	1300	-	-	-	-	-
3. Working capital loan	-	1755	286	285	287	3
4. Sales Revenue	-	14538	16960	19384	21807	21807
Total:	1438	16488	17278	19701	22125	21810
<u>USES</u>						
1. Fixed Investment	1438	-	-	-	-	-
2. Inventories	-	1861	310	310	310	-
3. Variable cost	-	12310	14361	16413	18463	18463
4. Fixed Expenses	-	739	775	881	849	889
5. Distribution of net profit	-	739	775	811	849	889
a) Dividend 50%	-	593	776	963	1151	1156
b) C.D.F. 5%	-	59	78	96	115	116
c) C.F. 10%	-	118	155	193	230	231
d) Bonus 6.25%	-	74	97	120	144	144
6. Payment of loan & interest	-	430	430	430	430	428
	-	16184	16982	19336	21692	21427
Cash	-	304	296	365	433	383
Opening balance	-	-	304	600	965	1398
Closing balance	-	304	600	965	1398	1781

As per Co-operative Rule the employees are entitled to bonus equal to one month's pay every year. It will not be possible to pay bonus in the 1st year. From 2nd year they may be paid bonus as per decision of the Board of Directors.

C H A P T E R - 8
RECOMENDATIONS

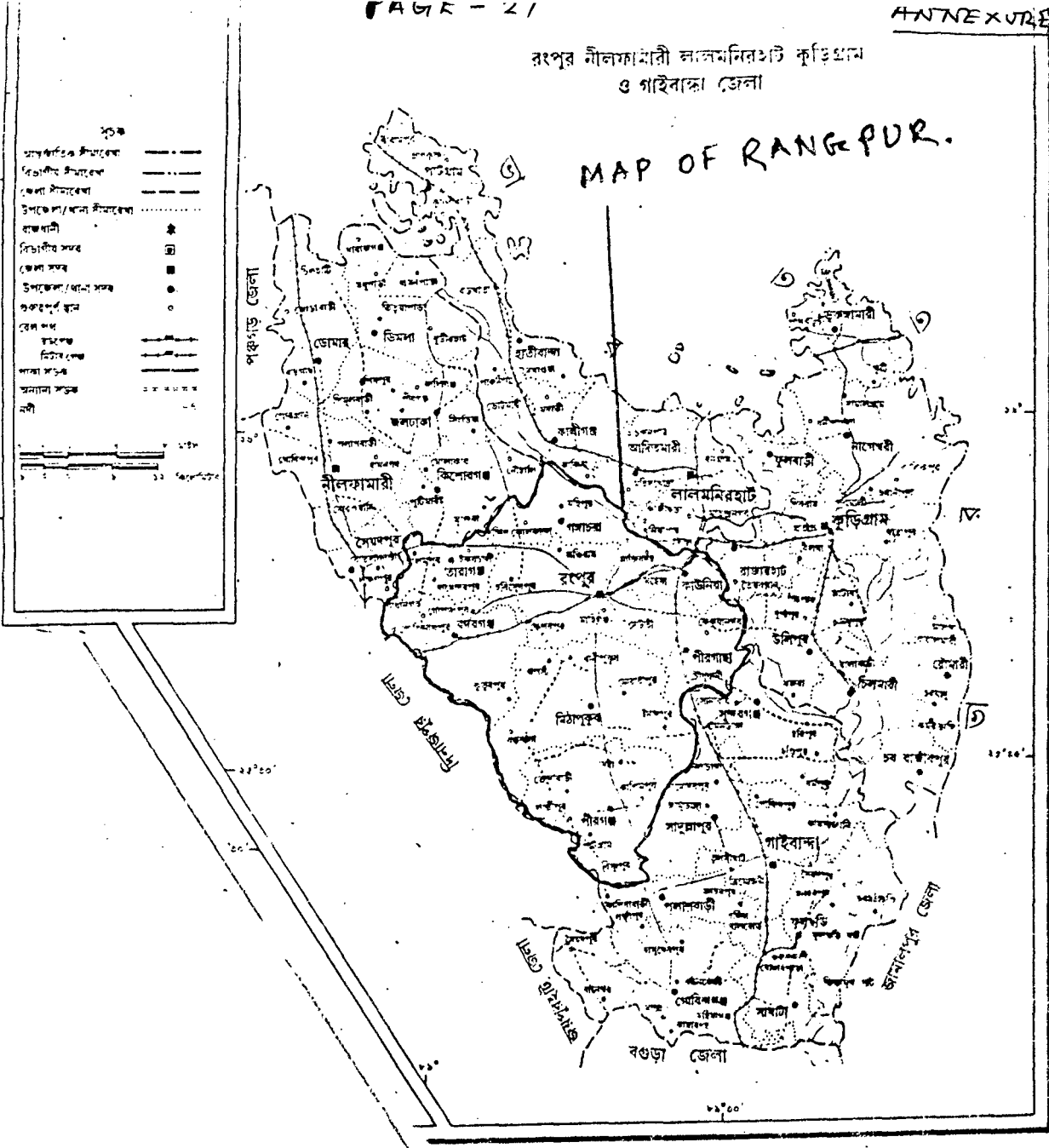
- 8.1 Co-operative should play a vital role in developing an **integrated** tobacco production, processing & marketing project. The project envisages supply of production credit to producer-members of the existing co-operative societies through Rangpur Central Co-operative Bank Ltd by Bangladesh Samabaya Bank Ltd. & setting up a tobacco processing plant with the financial assistance from Bangladesh Samabaya Bank Ltd.
- 8.2 The existing two primary tobacco growers co-operative societies be amalgamated & re-organised with the area of operation of the whole of Rangpur district. The Registrar of co-operative societies, Bangladesh should extend all necessary assistance in this regard.
- 8.3 Bangladesh Samabaya Bank Ltd. should assist the local co-operators for establishment of the project in the following ways :-
- a) Provide managerial help to organise the project.
 - b) Provide medium term loan to set up processing plant.
 - c) Provide cash credit for working of the project.
- 8.4 The project will establish a linkage with the different cigarette companies & Bidi Zardah factories of the country. Bangladesh Samabaya Bank Ltd. & the Registrar of co-operative societies may also help into the matter.

- 8.5 According to analysis the project is profitable & rewarding. It will increase the income of the members in providing better price, carrying cost & profit distribution.
- 8.6 Benefit of establishment of this project will be that the member-producers shall have an alternative and assured market & they will get rid of exploitation of the private traders. The success of the project will encourage the farmer-members for further process of tobacco by manufacturing Bidi & Zardah.
- 8.7 The project is agro-based & it is not capital intensive. . This is more of procurement & marketing with very little capital investment. Operational cash flows are very important in the project. A small change in operational cash flows can affect the I.R.R. & N.P.V. considerably. Therefore a better measure is benefit cost ratio to evaluate the project.



রংপুর নীলগামারী লালমনিরশাট কুড়িগ্রাম
ও গাইবান্ধা জেলা

MAP OF RANGPUR.



BENEFIT, COST AND MARGIN OF TOBACCO CULTIVATION
FOR THREE KINDS OF CROP PATTERN.

(Amount in taka)

Crop Pattern A.	Jute	Mugbean	Tobacco	Total
Gross benefit	15,597	5,640	44,225	65,462
Total variable cost	7,184	3,009	10,526	20,719
Gross margin	8,413	2,631	33,699	44,743
Benefit cost ratio	2.17	1.87	4.20	3.16
Yeild/Ton/Hactor	2.139	0.376	21.769	4.284
Yeild Duration/Days	12	63	107	282

Crop Pattern B	Jute	Fallow	Tobacco	Total
Gross benefit	14,109	-	33,150	47,259
Total V.cost	7,829	-	10,623	18,452
Gross margin	6,280	-	22,527	28,807
Benefit cost ratio	1.80	-	3.12	2.56
Yeild/Ton/Hactor	1.922	-	1.326	3.248
Yeild Duration/Days	139	-	112	251

Crop Pattern C	Jute	Fallow	Potato	Total
Gross benefit	15,178	-	18,846	34,024
Total V. cost	7,923	-	17,306	25,229
Gross margin	7,255	-	1,540	8,795
Benefit cost ratio	1.92	-	1.09	1.34
Yeild/Ton/Hactor	2.120	-	9.423	11.543
Yeild Duration/Days	142	-	92	234

Price per kg.	5	15	Tobacco 25
	1.15	-	Potato 2

Source: Bangladesh Agricultural Research Centre, Rangpur.

QUANTUM OF PRODUCTION LOAN FOR CULTIVATION OF TOBACCO
(PER ACRE)

PARTICULARS	QUANT.	AMOUNT
<u>FERTILIZERS.</u>		
i) Urea	44 K.G.	TK. 211/20
ii) T.S.P.	44 "	" 220/00
iii) M.P.	37 "	" 148/00
		TK. 579/20
<u>OTHER</u>		
i) Seed	-	TK. -
ii) Irrigation	-	TK. 300/00
iii) Insecticides	-	TK. 200/00
iv) Labour	50% cost	TK. 690/00
	Per acre loan	TK. 1769/00
Maximum loan ceiling for 2.5 acre per loanee		TK. 4420/00
Minimum Contribution of the loanee		TK. 875/00

Source : Bangladesh Bank Credit Norms for the year 1989-90

ANNEXURE-5

MINIMUM PRICE OF DIFFERENT KINDS OF TOBACCO FIXED
BY GOVERNMENT FOR THE YEAR 1988 TO 1991

SMOKING DRY	Price/per K.G.	Air Dry	Price/Per K.G.
<u>GRADE</u>		<u>GRADE</u>	
Bangla - 1	TK. 42/00	V-1	TK. 19/00
" 2	" 37/50	V-2	" 16/75
" 3	" 33/00	V-3	" 14/75
" 4	" 28/00	L-1	" 19/00
" 5	" 24/00	L-2	" 17/00
" 6	" 21/00	L-3	" 14/75
" 7	" 19/00	Motihar	" 21/75
" 8	" 17/00		

Sources : Ministry of Agriculture, Circular No.3748 Dt.18.12.88

ANNEXURE-6

INSTALLED CAPACITY OF TOBACCO CRUSHING ZARDAH & BIDI.

CAPACITY INSTALLED	CAPACITY UNDER WAY	ADDITIONAL CAPACITY
i) Tobacco Crushing 1965 M.T.	-	10 Million
ii) Zardah - 518 M.T. Worth TK. 6 Million. No of Unit 192	-	10 Million
iii) BIDI 172 Million Bundle Worth TK.68.5 Million No of Unit 1358	-	20 Million

Source : Bangladesh Small & Cottage Industries Corporation.

COST OF THE PROJECT

(Amount in 000)

Sl.No.	Particulars	Value
1.	<u>LAND AND BUILDING</u>	
	i) Land 7200 sft (including development)	500
	ii) Factory shed, office etc. including 10% contingency (Annexure- 8)	618
2.	Machinery & Equipment with cost of installation (Annexure- 9)	127
3.	Other fixed capital requirement (Annexure- 10)	160
4.	Share subscription to BSBL at the rate of 2½% of loan	33
5.	Interest during construction period (interest calculated as per construction schedule)	140
	Total initial fixed cost	<u>1578</u>
6.	Margin money of working capital (1st year) 10% of the working capital	195
	Total project cost	<u>1773</u>

ASSUMPTION

- Members of the society will subscribe to the share capital of the society @ 10% of the loan and the society will subscribe share capital of Bangladesh Samabaya Bank Limited @ 2½% of the loan as per provision of the cooperative rules.
- Debt, equity ratio - Debt - 92.5%
Equity - 7.5%
Total 100%

DETAILS OF FACTORY SHED AND OFFICE CONSTRUCTION

Sl. No.	Item	Specification	Site & area	Rate Tk/sft	Estimated cost(ooo)
1.	Factory shed-cum-godown	5" brickwal 10" x 10" 15" x 15" brick pillar alternately 5' apart C.I.sheet roof over wooden truss, bitunion floor over C.C.work, ceiling height - 16'	70' x 20' 1400 sft	225/-	315
2.	Office	5" brick wall, brick pillar, RCC column C.I. sheet roof over wooden truss, brick soiling floor 10' height.	30' x 20' 600 sft	195/-	117
3.	Drying ground	Brick Soiling & Plastering	50' x 40' 2000 sft	20/-	40
4.	Boundary Fencing	Wooden Pillar with gap of 7' and barbed wire 10' height.	165'	40/- per rft	7
5.	Toilet (two)	--	--	--	20
6.	Electrification & Sanitation	--	--	--	50
7.	Other works (including gate)	--	--	--	13
8.	Contigency 10%	--	--	--	56

Total: 618

=====

Source: Bangladesh Small & Cottage Industries, Rangpur.

LIST OF MACHINERIES AND EQUIPMENT

Sl.No.	Particulars of Machineries	Number	Value (in 000 Tk.)
1.	Tobacco crushing machine 16" size (local made)	1	20
2.	Tobacco crushing machine 18" size (local made)	1	25
3.	Electrical Motor 15 H.P, China	2	30
4.	Electrical fittings		20
5.	Grating machine (local made)	1	10
6.	Weighing Scale and Handling equipments		5
7.	Spare Parts		4
8.	Cost of installation 10%		13
<u>Total</u>			<u>127</u>
=====			=====

Source: i) Local Machinery - Market.

ii) Bangladesh Small & Cottage Industries
Corporation, Rangpur.

DETAILS OF OTHER FIXED CAPITAL REQUIREMENT

Sl.No.	Particulars	Number	Estimated value (Amount in 000)
1.	Full Secretariat table	2	10
2.	Half Secretariat table	5	15
3.	Cushion Chair	2	6
4.	Armed Chairm	10	12
5.	Iron safe	1	10
6.	Steel Almirah	5	20
7.	Reck	6	3
8.	Small table	4	1
9.	Electric fan	4	8
10.	Type-writer	1	20
11.	Calculator	2	6
12.	By-Cycle	1	6
13.	Sign Board	1	3
14.	Light Fittings	-	20
15.	Telephone	-	15
16.	Miscellaneous	-	5
Total:			160
=====			

WORKING CAPITAL REQUIREMENT

Sl. No.	Particulars	Amount at 100% capacity	1st year 60%	2nd year 70%	3rd year 80%	4th year 90%	5th year 90%	6th year 90%	7th year 90%	8th year 90%	9th year 90%	10th year 90%
1.	Raw materials (Annexure-13)	19539	1 month 977	1140	1303	1465	1465	1465	1465	1465	1465	1465
2.	Finished Product (Cost of goods sold)		7 days 281	328	375	422	422	422	422	422	422	422
3.	Bill receivable		15 "	603	703	803	904	904	904	904	904	904
4.	Salary, wages & other fixed exp. (Annexure-16)		1 month 62	65	68	71	74	78	81	85	89	93
5.	Electricity		1 "	15	18	20	23	23	23	23	23	23
6.	Packing, selling & lubricant		1 "	12	14	16	18	18	18	18	18	18
Total:-			1950	2268	2585	2903	2906	2910	2913	2917	2921	2925
	Margin money 10%		195	227	259	290	290	291	291	292	292	293
	Working capital loan		1755	2041	2326	2613	2616	2619	2622	2625	2629	2632
Total :-			1950	2268	2585	2903	2906	2910	2913	2917	2921	2925

TOBACCO PROCUREMENT FOR MARKETING & PROCESSING

(Single shift of 8 hours/day and 300 working day/year)

Sl. No.	Particulars	Procurement (kg.)	Net (Leaf 5% & Stem 10% shortage (kg))	Productivity at 100 %		Cigarette Tobacco & process Tobacco for marketing (kg.)
				Dust 12% (kg.)	Shortage 8% (kg.)		Net 80% (kg.)
1.	Cigarette Tobacco 'A' grade for direct marketing (no processing)	500,000	475,000			475,000
2.	Tobacco for Processing:					
	i) Cigarette Tobacco 'B' & 'C' grade	75,790	72,000	17,280	11,520	172,800 'A' grade
	ii) Local 'A' grade	75,790	72,000			
	iii) Local 'B' grade	75,790	72,000	17,280	11,520	172,800 'B' grade
	iv) Local 'C' grade	75,790	72,000			
	v) Stem	160,000	144,000	17,280	11,520	51,840 Dust.
	Total:	963,160	907,000	51,840	34,560	872,440

ASSUMPTION

- 1) Raw materials shortage after procurement -- Leaf = 5%, Stem = 10%.
- 2) Net productivity ratios - Dust = 12%, Shortage = 8%, Net = 80%.
- 3) i) Daily crushing capacity of machine - Leaf = 640 kg, Stem = 320 kg. Stem requires twice the time to crush than time taken for leaf.
- ii) 50% of the leaf crushing would be done manually.
- iii) In processed tobacco leaf & stem would be mixed in the ratio of 2 : 1.

ANNEXURE - 13

TOBACCO PROCUREMENT COST

(Amount in 000)

Sl. No.	Item	Quantity in kg	Unit price	C o s t				
				100%	1st yr 60%	2nd yr 70%	3rd yr 80%	4th yr 90%
1.	Cigarette Tobacco 'A' Grade	500,000	22	11,000	6,600	7,700	8,800	9,900
2.	Tobacco for Processing							
	i) Cigarette Tobacco 'B' & 'C' Grade	75,790	20	1,516	910	1,061	1,213	1,364
	ii) Local 'A' Grade	75,790	26	1,971	1,183	1,380	1,577	1,774
	iii) Local 'B' Grade	75,790	23	1,743	1,046	1,220	1,394	1,569
	iv) Local 'C' Grade	75,790	20	1,516	910	1,061	1,213	1,364
	v) Stem	160,000	10	1,600	960	1,120	1,280	1,440
3.	Carrying cost	--	--	193	116	135	154	174
	Total:	963,160	--	19,539	11,723	13,677	15,631	17,585

ASSUMPTION:

- 1) Carrying cost Tk. 20/- per Quintal.

SALES REVENUE

(Amount in 000)

Sl. No.	Item	Quantity in kg	Unit price	Revenue				
				at 100%	1st year 60%	2nd year 70%	3rd year 80%	4th year & onward 90%
1.	Cigarette Tobacco 'A' Grade	475,000	25	11,875	7,125	8,312	9,500	10,687
2.	Processed Tobacco 'A' Grade	172,800	40	6,912	4,147	4,838	5,530	6,221
3.	Processed Tobacco 'B' Grade	172,800	30	5,184	3,110	3,629	4,147	4,666
4.	Dust	51,840	5	259	156	181	207	233
Total:				24,230	14,538	16,960	19,384	21,807

Note: Retail price -- Processed Tobacco 'A' Grade per kg Tk. 50/--.
 " " " 'B' Grade per kg Tk. 40/--.

STATEMENT OF VARIABLE COST

(Figure in 000)

Sl. No.	Particulars	1st yr	2nd yr	3rd yr	4th yr	5th yr	6th yr	7th yr	8th yr	9th yr	10th
1.	Raw materials	11723	13677	15631	17585	17585	17585	17585	17585	17585	17585
2.	Electricity	180	210	240	270	270	270	270	270	270	270
3.	Lubricant Oil	1	1	2	2	2	2	2	2	2	2
4.	Packing	38	45	51	57	57	57	57	57	57	57
5.	Selling exp.	105	122	140	157	157	157	157	157	157	157
6.	Interest on working capital loan	263	306	349	392	392	393	393	394	394	395
Total:		12310	14361	16413	18463	18463	18464	18464	18465	18465	18466

ASSUMPTION

1. Electricity installed capacity at 100% is Tk. 25000 per month.
2. Packing (Gunnybag) @Tk.8/- per bag which contains 50 kgs.
3. Selling expenses @Tk.20/- per 100 kgs.

FIXED EXPENSES

(Figure in 000)

Sl. No.	Particulars	Y e a r									
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1.	Wages	336	353	371	390	409	429	450	473	497	522
2.	Salary	200	210	221	232	244	256	269	282	296	311
3.	Postage, Telegram & Telephone	20	21	22	23	24	25	26	27	28	29
4.	Printing & Stationery	15	16	17	18	19	20	21	22	23	24
5.	Travelling & Conveyance	50	53	55	58	61	64	67	70	73	77
6.	Advertisement	50	53	55	58	61	64	67	70	73	77
7.	Tax & Insurance	16	16	16	16	16	16	16	16	16	16
8.	Repairs & Maintenance	22	22	22	22	22	22	22	22	22	22
9.	D.A. & Sitting fee	14	14	14	14	14	14	14	14	14	14
10.	Honorarium of Chairman	6	6	6	6	6	6	6	6	6	6
11.	Miscellaneous	10	11	12	12	13	14	15	16	18	19
Total:		739	775	811	849	889	934	973	1018	1066	1117

ASSUMPTION:

1. Salary & Wages increase annually @ 5%.
2. Other expenses i.e. Postage, Printing, Travelling, Advertisement & Misc.increase @ 5%.
3. Directors will be paid D.A. & Sitting fee Tk. 200/- for attending each meeting.
4. Chairman will be paid honorarium of Tk. 500/- per month.
5. Repairs & Maintenance cost at the rate of 3% on building & machinery cost.

CALCULATION OF WAGES & SALARIES (DIRECT EXPENSE)A. FACTORY PERSONNEL:

(Amount in 000)				
Sl. No.	Designation	Number	Monthly salary	Annual salary
1.	Factory Supervisor	1	2.0	24
2.	Foreman	1	2.0	24
3.	Machine operators	3	1.5	54
4.	Skilled Labour	4	1.2	58
5.	Unskilled Labour	6	1.0	72
Total				232
Add: Fringe benefit @ 35%				81
Add: P.F.contribution @ 10%				23
Total:				336

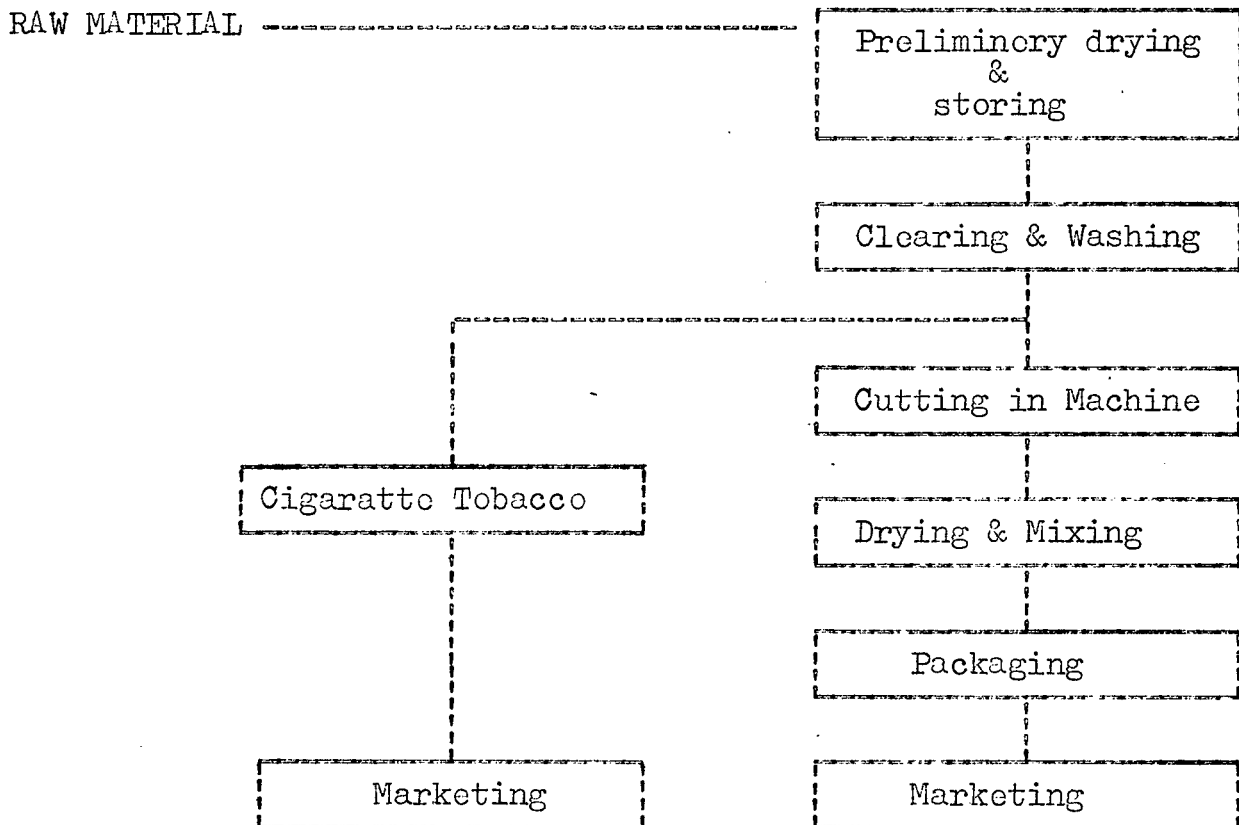
B. ADMINISTRATIVE PERSONNEL:

1.	Manager	1	3.0	36
2.	Accountant-cum-cashier	1	2.0	24
3.	Marketing Assistants	2	1.5	36
4.	Store Keeper	1	1.5	18
5.	Peon	1	1.0	12
6.	Night Guard	1	1.0	12
Total				138
Add: Fringe benefit @ 35%				48
Add: P.F.contribution @ 10%				14
Total:				200

PROJECT COMPLETION PERIOD

- | | | | |
|-----|--|---|------------|
| 1. | Land aquisition | = | 2nd month |
| 2. | Land development start | = | 2nd month |
| 3. | Land development complete | = | 3rd month |
| 4. | Factory & Office construction start | = | 3rd month |
| 5. | Factory & Office construction complete | = | 9th month |
| 6. | Order for Machinery & Furniture etc. | = | 8th month |
| 7. | Delivery of Machinery & Furniture complete | = | 9th month |
| 8. | Machinery Installation complete | = | 10th month |
| 9. | Trial | = | 11th month |
| 10. | Project ready to start | = | 12th month |
-

FLOW CHART



BREAK EVEN ANALYSIS:

1. BREAK EVEN POINT (1ST YEAR):

Fixed Cost + Capital Recovery Factor

Sales - Variable Cost

$$= \frac{739 + 529}{14538 - 12310} = \frac{1268}{2228} = 56.91\%$$

2. BREAK EVEN SALES (1ST YEAR):

Fixed Cost + Capital Recovery Factor

Sales - Variable Cost

Sales

$$= \frac{739 + 529}{14538 - 12310} = \frac{1268}{2228} = \frac{1268}{0.1533} = 8271$$

14538 14538

BENEFIT COST RATIO

Sl. No.	Investment	Benefits	Cost	Discount factor 15%	P.V. of benefit	P.V. of cost
0	- 1773					- 1773
1		14538	13049	0.8696	12642	11347
2		16960	15136	0.7561	12823	11444
3		19384	17224	0.6575	12745	11325
4		21807	19312	0.5718	12469	11043
5		21807	19352	0.4972	10842	9622
6		21807	19398	0.4323	9427	8386
7		21807	19437	0.3759	8197	7306
8		21807	19483	0.3269	7129	6369
9		21807	19531	0.2843	6200	5553
10		21807	19583	0.2472	5391	4841
					97865	85463

Total discounted P.V. of benefits = 97865

Total discounted P.V. of cost = 85463

Benefit cost ratio = 1.14%

CALCULATION OF NET PRESENT VALUE

(Amount in 000)

Year	Net cash flow	Discount factor at 15%	Net present value
0	- 1773	--	- 1773
1	1489	0.8696	1295
2	1824	0.7561	1379
3	2160	0.6575	1420
4	2495	0.5718	1427
5	2455	0.4972	1221
6	2409	0.4323	1041
7	2370	0.3759	891
8	2324	0.3269	760
9	2276	0.2843	647
10	2224	0.2472	550
TOTAL:			8858

CALCULATION OF I.R.R.

Year	Net cash flow	Discount factor 100'001%	Net present value
0	- 1773	1	- 1773
1	1489	.4997501	744.13
2	1824	.2497501	455.54
3	2160	.1248126	269.60
4	2495	.0623751	155.63
5	2455	.0311719	76.53
6	2409	.0155781	37.53
7	2370	.0077851	18.45
8	2324	.0038906	9.04
9	2276	.0019443	4.43
10	2224	.0009716	2.16

- 1773
+ 1773.04

∴ I.R.R. = 100.001%

LOAN REPAYMENT SCHEDULE

Instalment No.	Year	Amount of loan	Principal repayment	Interest repayment	Amount of instalment
0	0	1300	--	--	--
0	Construction period	(1300+140) = 1440	--	140	--
		1226	214	216	430
		980	246	184	430
		697	283	147	430
		372	325	105	430
		-	372	56	428

- | | | |
|--|---|-------------|
| 1. Total initial investment (excluding interest) | : | 1438 |
| 2. Equity 7½% | : | 105 |
| 3. Loan 92.5% | : | 1300 |
| 4. Rate of interest | : | 15% |
| 5. Construction period | : | 1(one) year |
| 6. Interest during the construction period | : | 140 |
| 7. Total initial fixed term loan | : | 1440 |
| 8. Loan repayment period | : | 5 years |
| 9. Instalment | : | Annually |
| 10. Capital recovery factor | : | 0.2983! |

ANNEXURE - 27

DEPRECIATION

Sl. No.	Assets	Value	Rate	Year										
				1	2	3	4	5	6	7	8	9	10	
1.	Building	714	5%	36	36	36	36	36	36	36	36	36	36	36
2.	Machinery & Equipment	147	10%	15	15	15	15	15	15	15	15	15	15	12
3.	Other fixed assets	184	20%	37	37	37	37	36	-	-	-	-	-	-
Total:				88	88	88	88	87	51	51	51	51	48	

Note: Preoperative interest on term loan capitalised with Assets proportionately.

DEBT SERVICE COVERAGE RATIO

(Figure in 000)

Particulars	Y e a r				
	1	2	3	4	5
Net profit	1185	1552	1925	2302	2312
Add: Depreciation	88	88	88	88	87
Add: Interest on Term loan	216	184	147	105	56
Total:	1489	1824	2160	2495	2455
Term Loan Instalment	214	246	283	325	372
Intt.on term loan	216	184	147	105	56
Total:	430	430	430	430	428
Debt Service Coverage Ratio	3.46	4.24	5.02	5.80	5.74

SALVAGE VALUE

Inventories	100%	=	2791
Land	100%	=	500
Building	50%	=	354
Total:			3645

BALANCE SHEET

(Amount in 000)

Particulars	0	1	2	3	4	5	6	7	8	9	10
ASSETS:											
Cash	-	304	600	965	1398	1781	2514	3235	3944	4639	5316
Inventories	-	1861	2171	2481	2791	2791	2791	2791	2791	2791	2791
Land	500	500	500	500	500	500	500	500	500	500	500
Building	714	678	642	606	570	534	498	462	426	390	354
Machinery	147	132	117	102	87	72	57	42	27	12	-
Other assets	184	147	110	73	36	-	-	-	-	-	-
Share of BSBL	33	33	33	33	33	33	33	33	33	33	33
Total:	1578	3655	4173	4760	5415	5711	6393	7063	7721	8365	8994

LIABILITIES:

Equity share	138	333	365	397	428	428	429	429	430	430	431
Reserve fund	-	178	411	700	1045	1392	1746	2094	2435	2769	3095
Term loan	1440	1226	980	697	372	-	-	-	-	-	-
Working capital loan	-	1755	2041	2326	2613	2616	2619	2622	2625	2629	2632
Undistributed profit	-	163	376	640	957	1275	1599	1918	2231	2537	2836
Total:	1578	3655	4173	4760	5415	5711	6393	7063	7721	8365	8994

ASSUMPTION:

- (1) Interest for pre-operative period for Tk. 140 has been capitalised to Building, Machinery & other assets proportionately.
- (2) Pre-operative period interest has been capitalised with principal amount of the term loan.

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

by Mr Mohd Nuruzzaman Bhuiyan, Bangladesh

(other those made by the groups)

- * Benefit cost ratio (BCR) is always calculated on ratio basis and not on percentage basis.
- * Leadership is the main problem for success of many cooperatives.
- * IRR is 100%. It should attract more investment. Hence risk analysis and consequent change in IRR should be indicated.
- * Though the society is supposed to cover a vast area, no vehicles for procurement or activities have been provided.
- * Procurement seems more than the capacity.
- * Processing cost per kg should be calculated and added.
- * Per unit cost of many items needed. Profitability componentwise should be worked out.

TOBACCO: Financial Analysis

7/3/90 G.A.

1. P. 23 FIXED INVESTMENT SHOULD BE 1578
INSTEAD OF 1438

BECAUSE INVESTMENT DURING CONSTRUCTION
SHOULD BE CALCULATED.

2. P. 23 AS MENTIONED BELOW, IN THE FIRST YEAR
BONUS SHOULD NOT PAY, BUT IT HAS BEEN
CALCULATED.

3. P. 23 ~~TOTAL NET PROFIT DISTRIBUTION SEEMS
TO BE WRONG.~~

4. P. 35 MARGIN MONEY OF WORKING CAPITAL
CALCULATION NOT CLEAR AFTER 2nd YEAR.

5. P. 44 SUGGESTION: BREAK EVEN SALES CALCULATION
BREAK EVEN POINT X SALES REVENUE

$$56.91 \quad \times \quad 14538 \quad = \quad 8273$$

6. P. 48 INTEREST 140 MAY NOT BE INCLUDED

IN AMOUNT OF LOAN principal.

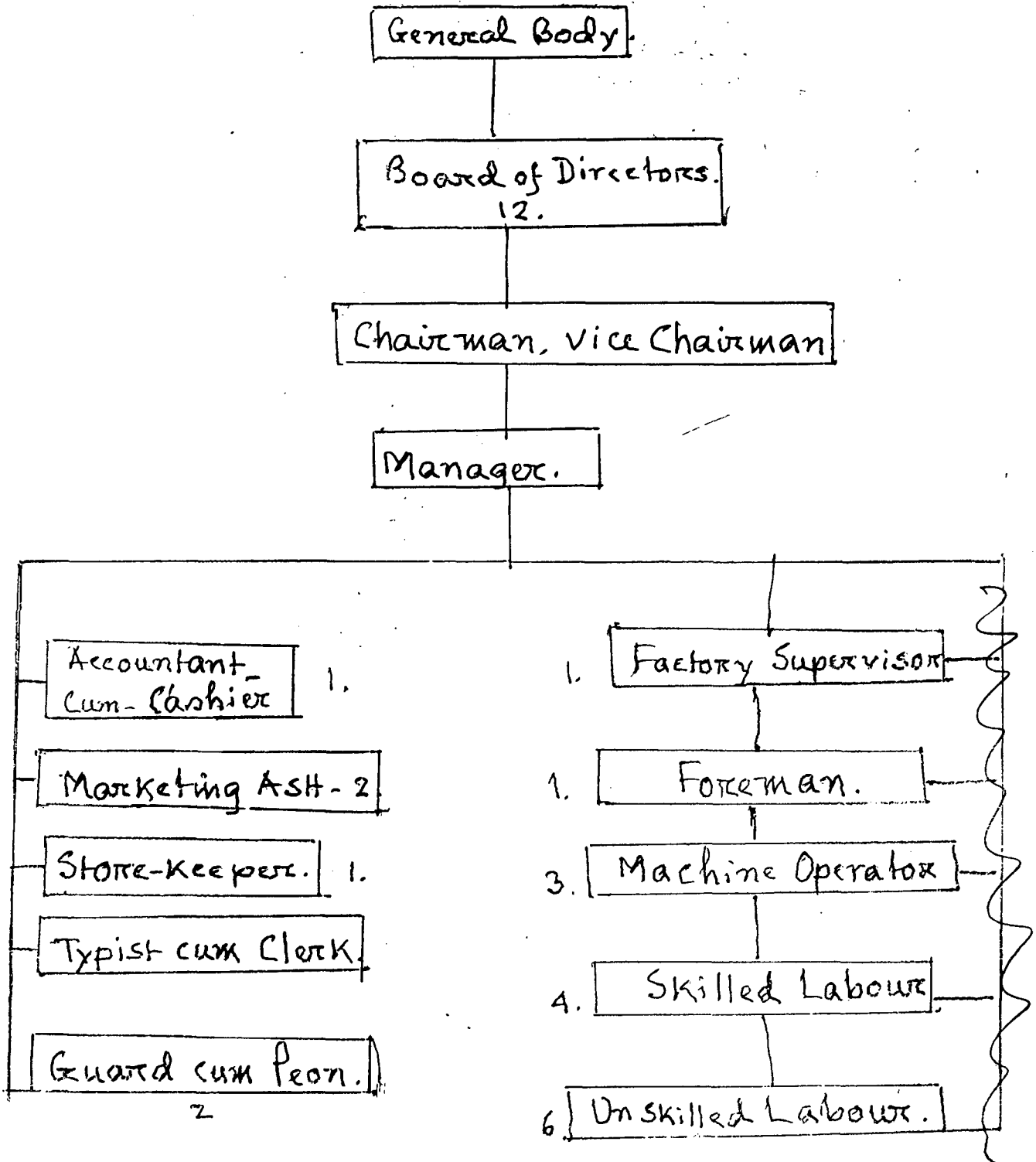
BUT MARGIN MONEY (P. 31) 195 MUST BE CONSIDERED.
INTEREST ON MARGIN MONEY IS MISSING.

GROUP - B ORGANIZATIONAL MANAGEMENT / MARKET
BANGLADESH

1. ALMOST ALL COUNTRIES HAVE CONTROL AND MONOPOLY ON TOBACCO PLANTATION LIKE CHINA & KOREA AND THIS PROJECT SEEN TO GIVE HIGH PROFITABILITY.
2. THIS PROJECT IS MORE LIKE A SUBSIDIARY OF BANGLADESH SAMABAYA BANK LIMITED (BSBL) AS THE MANAGER OF THE PROJECT IS APPOINTED BY THE BANK AND FOUR DIRECTORS FROM OUTSIDE. FARMERS ARE SEEN TO BE CLIENT OF THIS PROJECT.
3. THE PRODUCE OF THIS PROJECT CANNOT BE SEND TO THE CONSUMER DIRECTLY. IT NEED CONTRACT TO MARKET ITS PRODUCE TO TABACCO FACTORY
4. MARKETING COMMITTEE IS NECESSARY TO LOOK ON THE PRICE AND GRADE OF TOBACCO SENT BY THE FARMERS
5. THIS PROJECT NEEDS QUALITY CONTROL AND THUS A LABORATORY IS NECESSARY UNDER THE ORGANIZATIONAL.
6. MERGER OF TWO COOP. SOCIETIES IS SEEM TO BE DIFFICULTY AS THE INTEREST OF BOTH SOCIETIES ARE DIFFERENT.

7. SOCIALLY THE COUNTRY DISCOURAGE
SMOKING AND THE PROJECT WOULD NOT
HAVE LONGER LIFE SPAN.

ORGANISATIONAL STRUCTURE.



Group-C Comments/Suggestions to Rangpur Cooperatives Tobacco Project. By M. Nurezzaman Bhuiyan

1. While selecting the project it is stated that at present the two selected societies are not functioning for want of financial support, there is no need to amalgamate these societies, there can just be provided with financial support then the project can be implemented.
2. In the proposed project area there are already existing 853 Agricultural Coop. Primaries w/c are working, therefore there is no need to propose a new organization instead anyone of them can be chosen to carry out the project.
3. The role of Bangladesh Tobacco Co. is not explained.
4. The qty. of exported tobacco to other countries in the previous years is not given, therefore there is no basis for the project to calculate if there is any possibility of exporting tobacco.
5. The benefit of the farmer from this project is not given.
6. It reads there is no farmers org. to provide credit & input supply, etc. but there are already 853 existing primary agricultural coops.
7. Exploitation by private traders may not arise since the price of tobacco is fixed by the gov't

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	:	BEIJING-ENGLISH DUCK FEEDING , PROCESSING AND MARKETING PROJECT
<i>COUNTRY</i>	:	CHINA
<i>PROJECT PREPARED BY</i>	:	JIA MIN SHENG

Funded by the Government of Japan

and

**Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and Korea**

ICA Management Training Project for Agricultural Cooperatives in Asia

INTERNATIONAL COOPERATIVE ALLIANCE

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CHAPTER 1 SUMMARY

Xianghe County of Hebei Province of China is located at south of Yan Mountain. The total area is 458 square Km. Total population is 280,000 and 93 percent of them are farmers. Xianghe County is surrounded by rivers and the land is flat and rich, abound with wheat, corn, cotton, fruit and vegetable. It is a good place to develop the breeding.

Xianghe County Supply and Marketing Cooperatives was set up in 1950. It is a mass economic organization base on the 17 primary supply and marketing cooperatives. It has 62,132 farmer members (household) and account for 98 percent of the whole farmers. The function of the Xianghe County Supply and Marketing Cooperatives is to supply the means of agricultural production and livelihood to the rural people, purchase, process and market agricultural and sideline products, provide comprehensive service to the farmer members.

At the beginning of 1990, Xianghe County Supply and Marketing Cooperatives according to requirement of rural economic development and nature condition of planting and breeding decided to cooperate with Cherry Valley Farms Limited of Britain and Large Ship Limited Company of Taiwan Province for developing Beijing--English duck feeding, processing and marketing project. The plan of total investment is 15,787,700 yuan. The register capital is 7,893,840 yuan. The Xianghe County Supply and Marketing Cooperatives

own 75 percent of total register capital. This is a integrate project which component consist of :

- Set up a new shed of breeding duck.
- Set up a new shed of commercial duck.
- Set up a new feed processing plant.
- Set up a new processing workshop of roast duck.
- Set up a new cold storage and a new slaughter house .
- Set up a new eiderdown processing workshop
- Set up a new eiderdown clothing factory.

The capacity of the project is to process 2 million ducks one year.

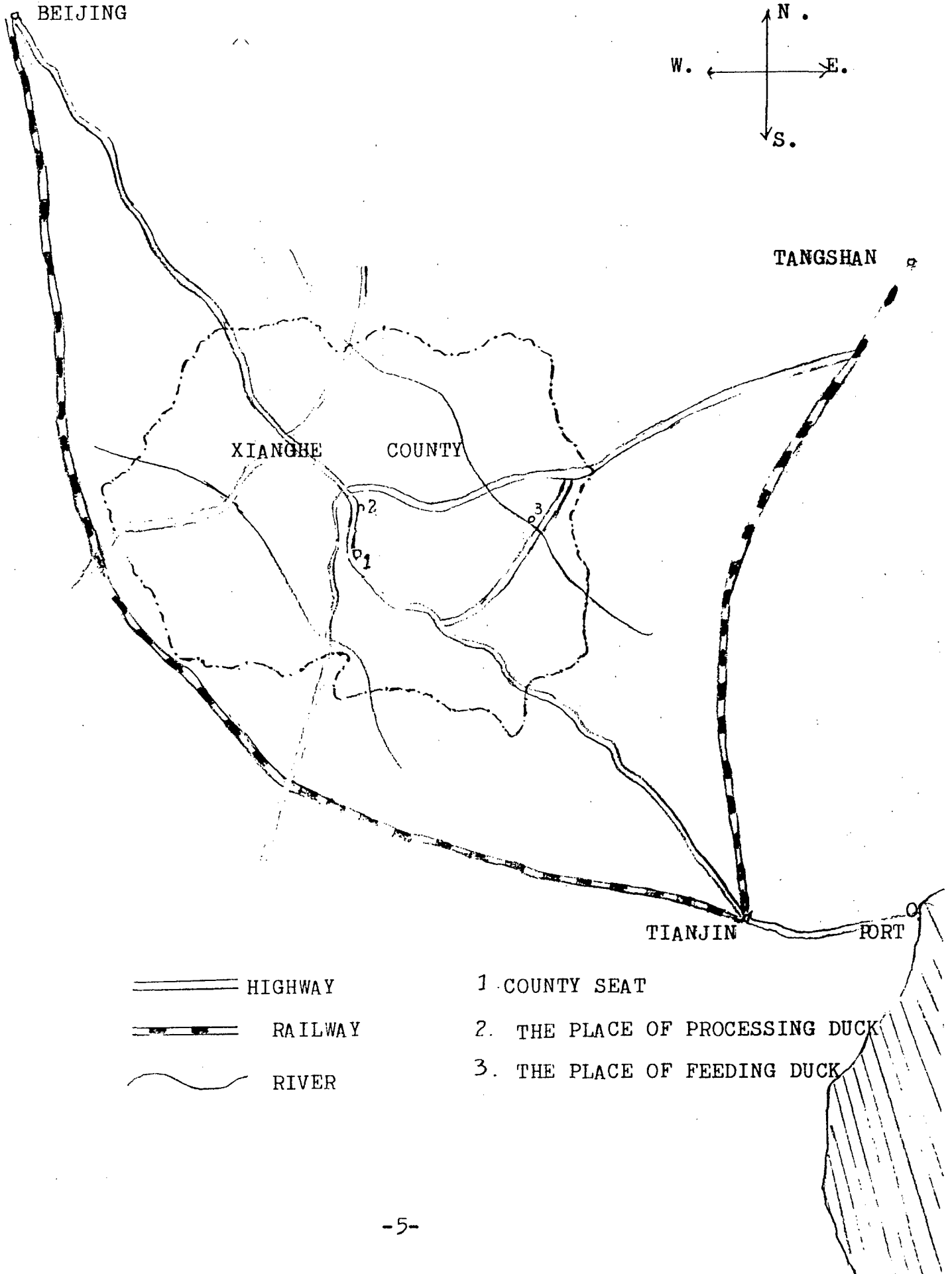
The aim of the project is to use the parent stock of Cherry Valley Duck and adopt advanced and favorable technology and scientific management in order to open up a new breeding of ducks and get economic efficiency which benefit the integrate enterprise and the farmer members.

According to the financial and economic analysis of the project, we can get main data relate to the project are as follows :

- The period of the project is 10 years.
- The total cost of the project is 448,113,100 yuan .
- The total revenue of the project is 512,719,000 yuan.
- The internal rate of return is 47.25% .
- The break-even point is 37.42 %.
- The break-even quantity is 748,409 .
- The payback period is 2 years .

The new enterprise was named Xianghe County Beijing-English duck feeding, processing and marketing Company limited
(brief in Cooperative Co.)

THE MAP OF PROJECT AREA



CHAPTER 2 BACKGROUND

2.1. ECONOMIC SITUATION OF XIANGHE COUNTY .

In recent years, the economy of Xiang County have made a good progress . The total productional value of industry and agriculture of the County have been increasing year after year, the average income of the farmers also have been raising in successive years :

TABLE 1 : ECONOMIC DEVELOPMENT OF XIANGHE COUNTY

YEAR	ITEM	GROSS OUTPUT VALUE OF IND. AND AGR.	GROWTH RATE	THE AVERAGE INCOME OF FARMERS	GROWTH RATE
1986		390,400,000 yuan	21.3%	578 yuan	5%
1987		491,390,000 yuan	25.9%	614 yuan	6.2%
1988		618,990,000 yuan	26 %	656 yuan	6.8 %
1989		737,480,000 yuan	19.1 %	700 yuan	6.7 %

2.2. ECONOMIC DEVELOPMENTAL STRATEGY OF THE LOCAL GOVERNMENT

In order to speed the economic development of the county, the government of Xianghe County have put forward an important strategy of economic development according to economic policy of central government and economic superiority of locality. It means to develop breeding and expand foreign economic cooperations. The Beijing-

English duck feeding , processing and marketing project fit into the direction of economic developmental strategy made by the County Government, thus, the project will be supported by the government.

2.3. THE PROBLEMS FACED BY THE FARMERS AND THE REQUIREMENT OF THE FARMERS .

Xianghe County is a producing area of grain , and the farmers have 50000 ton surplus grain to sell every year . Alongside the steady growth of rural commercial economy , the farmers want to get more income from processing agricultural products and livestock products . The project will provide a new way for increasing income of the farmers through transforming crop protein into animal protein , so the farmers will join the project positively .

2.4. THE SITUATION OF BEIJING-ENGLISH DUCK AND DEMAND ANALYSIS .

The Beijing-English duck is a hybridizable strain which cross the Beijing duck with the English ducks . This duck has many fine characteristics , such as good adaptability on weather , short period of feeding , less expenditure , acquired immunity , high quality of meat , and so on . Xianghe County is near Beijing and the source of water is rich , the Beijing-English duck which grow in Xianghe County will have strong competitiveness on the market .

How about the demand of ducks ? There are some information as follows :

- There are not ducks breeding in Xianghe County before , it has great potentialities to sell ducks in the Xianghe market.
- Xianghe County is close to Beijing, Tianjin and Tangshan .

city which have a great demand for ducks . The three big citys will become major market of Beijing-English duck .

-- The selling price of Beijing-English duck is cheaper than chicken's and other kinds of duck's .

-- The project made by three parts , according to the agreement , the Xianghe County Supply and Marketing Cooperatives will be responsible for opening domestic market; the Cherry Valley Farms Limited of Britain will sell all of duck tongues, duck feet and duck feather on the international market ; the Large Ship Limited Company of Taiwan Province will be responsible for selling 30 percent duck meat of total quantity and the part of duck viscus and duck wings .

All information of above-mentioned explain that it will ensure to market the ducks .

1.5. THE SITUATION OF TRAFFIC AND LABOUR .

Xianghe County is situated among Beijing, Tianjin and Tangshan citys . There are four railway stations around the County and the highways radiate in directions. Tianjin port and Qinhuangdao port are both close to the County. So , the traffic of Xianghe County is very convenient .

There are 120,000 agricultural labour in Xianghe County , but the cultured fields of average person is only 1.6 Mu (correspond to 0.11 hectare) . It means that there are many latent agricultural labour in Xianghe County .

1.6. THE XIANGHE COUNTY SUPPLY AND MARKETING COOPERATIVES HAVE THE CONDITION TO MAKE THE PROJECT .

The XIANGHE County Supply and Marketing Cooperatives

is a collective economy organized with state support by the farmers on voluntary , mutually-beneficial , democratic and service-oriented basis . Since 1978 , the Xianghe County Supply and Marketing Cooperatives have conducted reform of organizational system which major tasks is to further strengthen the SMC by broadening their mass participation , democratizing their management and increasing their operational flexibility . Through all these efforts , the Xianghe County Supply and Marketing Cooperatives has been making rapid progress in service scope and economic strength . The following data is the economic situation of Xianghe County Supply and Marketing Cooperatives in 1989

- Total value of marketing agricultural produce is 3,210,000 yuan .
- Total value of selling is 91,737,000 yuan .
- Total value of processing is 2,708,000 yuan .
- Total value profit is 1,302,000 yuan .
- Total circulating capital of self is 4,290,000 yuan .
- Total fixed capital of self is 5,390,000 yuan .
- The business loan from bank is 9,770,000 yuan .
- Total employees are 1182 .

IN view of the above ,The Xiang County Supply and Marketing Cooperatives has ability to finish this project .

CHAPTER 3 PROJECT

3.1. OBJECTIVE

- To increase the income of the farmer members through feeding , processing and marketing Beijing-English duck.
- To introduce a new and fine variety of duck and absorb advanced and favorable technology for feeding and processing ducks .
- To strengthen the scientific management of the enterprise of cooperatives .
- To solve the problem of surplus labour in Xianghe County .
- To develop the foreign trade .
- To promote development of the rural economy .

3.2. AREA OF OPERATION

The project will hold land about 183 mu which divide into two parts . One is located at the north of Qianwang village of Xianghe County and it hold 100 mu. The east of this place is Xiang-shan highway and the west is near by Chaobai river . It is a good place to feed ducks. The shed of breeding duck and the shed of commercial duck will set up here . Another part is located at the centre of Xianghe County , it hold land 83 mu . This place is near by main highway of the County , and there are some old building which can use for the project on it . It will be used to set up feed processing plant ,

a killing house , a cold storage , a roast duck processing workshop , a eiderdown processing plant and a eiderdown clothing processing plant .

At the same time , it will organize the farmer members to feed ducks in the 17 villages and towns of the County

3.3 TECHNOLOGY AND EQUIPMENT

Beijing-English duck is a fine variety introduced from England . The Cherry Valley Farms Limited of Britain will supply technology for feeding and processing the ducks . The details are as follows :

- To supply the parent stock and the specification for feeding parent stock .
- To provide training in hatchery management methods and incubation techniques .
- To provide training in commercial ducks' management and husbandry .
- To provide general recommendations for preventing disease , its control and treatment for parent stock ducklings and commercial meat ducks .
- To provide training in slaughtering , eviscerating, processing and freezing .
- To provide training in feather recovery , washing ,
- To provide all the advanced , scientific forage specifications from duckling to duck .
- To provide feed analysis service .

-- To provide technical services in veterinary medicine and untrition .

The project also select advanced and favorable various equipment , some of them made in China such as feed processing equipment , refrigerant equipment and water and electricity equipment ; some of them will be import from foreign country such as slaughter equipment , eiderdown and eiderdown clothing processing equipment These equipment have good performance and quality and can ensure for quality .

The situation of parts of importation are as follows:

Killing and plucking line

Stork overhead conveyor , type heavy duty

Stork killing shackles , type DD

Stork suspensionrods , type D

Stock automatic scalding , type 10- SW

Stock automatic plucker , type D-86 D

Stork automatic plucker/finisher , type F- 86D

Stork automatic shackle washer

Installed power :2X0.37 kw

Water :0.4m³/hour

Stork head puller type HD

With suspension frame

Waxing line

Stork wax immersion and melting tank

Dimensions : 3600×1200 mm

Stork wax cooler tank , type K-7.5

Stork automatic wax peeler , type f F-8p

Stock wax transport system

Belt width :450 mm

Installed power : 1x0.75 KW

Stork leg de - skinner , type DLS

Eviscerating line

Stork vent gun . AIR :15 Nm³/h , WATER :06m³/h ,
VACUUM :0.18m³/h .

Stork automatic eviscerator , type P-15D

Stork lung suction gun

Stork automatic leg cutter , type LC-11

Vacuum transport for blood and lungs .

Set of PVC transport pipes

Stork combined vaccum installation

Sorting and packing line

Moba weight grading machine , type 1200

Stork mobile packing tables

Vacuum packing machine incl .

3.4. PROJECT COMPONENT AND OPERATIVE RELATION .

This is a integrate project which is composed of feeding , processing and marketing . The operative relation is as follows :

FEEDING DUCK

IMPORT PARENT STOCK

Cherry Valley Farms Limited will supply 160 units of advanced and suitable parent stock in five batches

FEEDING PARENT STOCK

The parent stock will lay at 26 weeks of age, the term of laying is 40 weeks. The capacity is 22560.

HATCH COMMERCIAL DUCKLING

SELLING DUCKLING TO FARMER MEMBERS

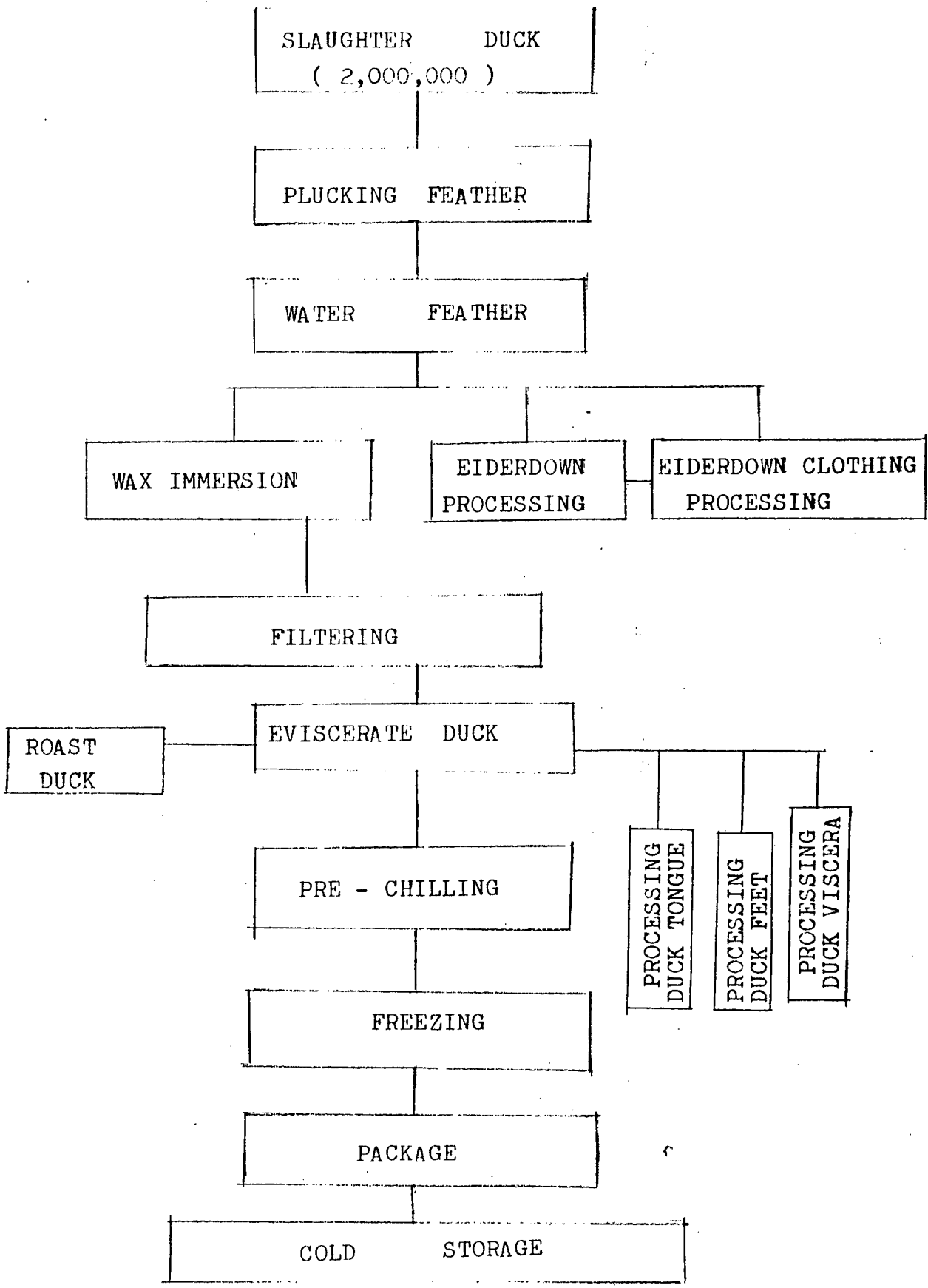
FEEDING COMMERCIAL DUCK BY FARMERS. THE CAPACITY IS 1,7000,000

FEEDING COMMERCIAL DUCK BY COOPERATIVE CO. THE CAPACITY IS 300,000

PURCHASEING MEAT DUCK FROM FARMERS BY COOPERATIVES CO.

TOTAL COMMERCIAL MEAT DUCK FOR PROCESSING(2,000,000).

PROCESSING DUCK



MARKETING DUCK

Marketing the ducks and its by-product will be divide into two parts : one is to sell products and by-products on the domestic market ; another is to sell the products and by-products on the international market . The details are as follows :

SELLING ON THE DOMESTIC MARKET .

PRODUCTS	QUANTITY
FROZEN DUCK MEAT	3920 TONS

SELLING ON THE INTERNATIONAL MARKET .

PRODUCTS	QUANTITY
FROZEN DUCK MEAT	720 TONS
ROAST DUCK	300,000
DUCK TONGUE	12 TONS
DUCK FEET	130 TONS
DUCK FEATHER	50 TONS
DUCK VISCERA	2,000,000
EIDERDOWN CLOTHING	60,000

3.5. The PLAN OF PERFORMABLE PERIOD

According to the plan , the project will begin construction in march , 1990 . The breeding duck shed , commercial duck shed , feed processing plant , roast duck processing workshop ,and cold storage will be complete before October , 1990 .The eiderdown processing plant , eiderdown clothing factory and slaughter house

will be complete before end of 1990 . The project will go operation in Jaunary , 1991 .

CHAPTER 4 ORGANIZATION AND MANAGEMENT

4.1. THE CHARACTER OF THE NEW ENTERPRISE

The new enterprise was named Xianghe County Beijing-English duck Feeding , Processing and Marketing Company Limited (brief in Cooperative Co.) This is a pool capital enterprise composed of three parts base on Xianghe County Supply and Marketing Cooperative . The situation of the three parts are as follows .

Xianghe County Supply and Marketing Cooperatives make an investment of 5920380 yuan and make up 75 % of the total register capital . It will be responsible for handing affairs such as applying for the permit of registration , licence etc. to the relevant departments ; going through the formalities of obtaining the right of land use ; implementing the design construction of duck rearing shed and other engineering facilities , and also the fundermental facilities concerning water , electricity and transportation ; helping the Cooperative Co.with advertising for managing staff , skilled workers and other necessary

personnel in the local region ; selling duck meat in the domestic market .

Cherry Valley Farms Limited make an investment of US\$60,000 , converting into RMB 223,200 yuan and make up 2.8 % of the total register capital . It will be responsible for supplying parent stock and technology transfer ; selling the duck feather , duck tongues and duck feet in the international market .

Large Ship Limited Company make an investment of 1,750,260 yuan and make up 22.2 % of the total register capital . It will be responsible for managing the sources of equipments ; supervising installation and adjustments of the equipment ; selling duck viscus and 30 % of duck meat abroad ; purchasing the feed materials in short supply on domestic market from abroad .

4.2. THE LEADERSHIP

The Cooperative Co. will set up the Board of Directors . The Board of Directors is the highest authority of the Cooperative Co. .

The Board of Directors shall consist of five members. Three of the members will be appointed by Xianghe County Supply and Marketing Cooperatives and two of the members will be appointed by The Large Ship Limited . The term of office for the directors is four years .

All the important matters should be approved by the Board of Directors . Its function and power are as follows :

-- To resolve and approve the important reports presented by the General Manager (such as production and business programme annual business report , fund and fund supplying etc.)

-- To approve the annual report forms of finance , income and expense , budget plan of annual benefit distribution ,

-- To adopt the Cooperative Co. rules and regulations

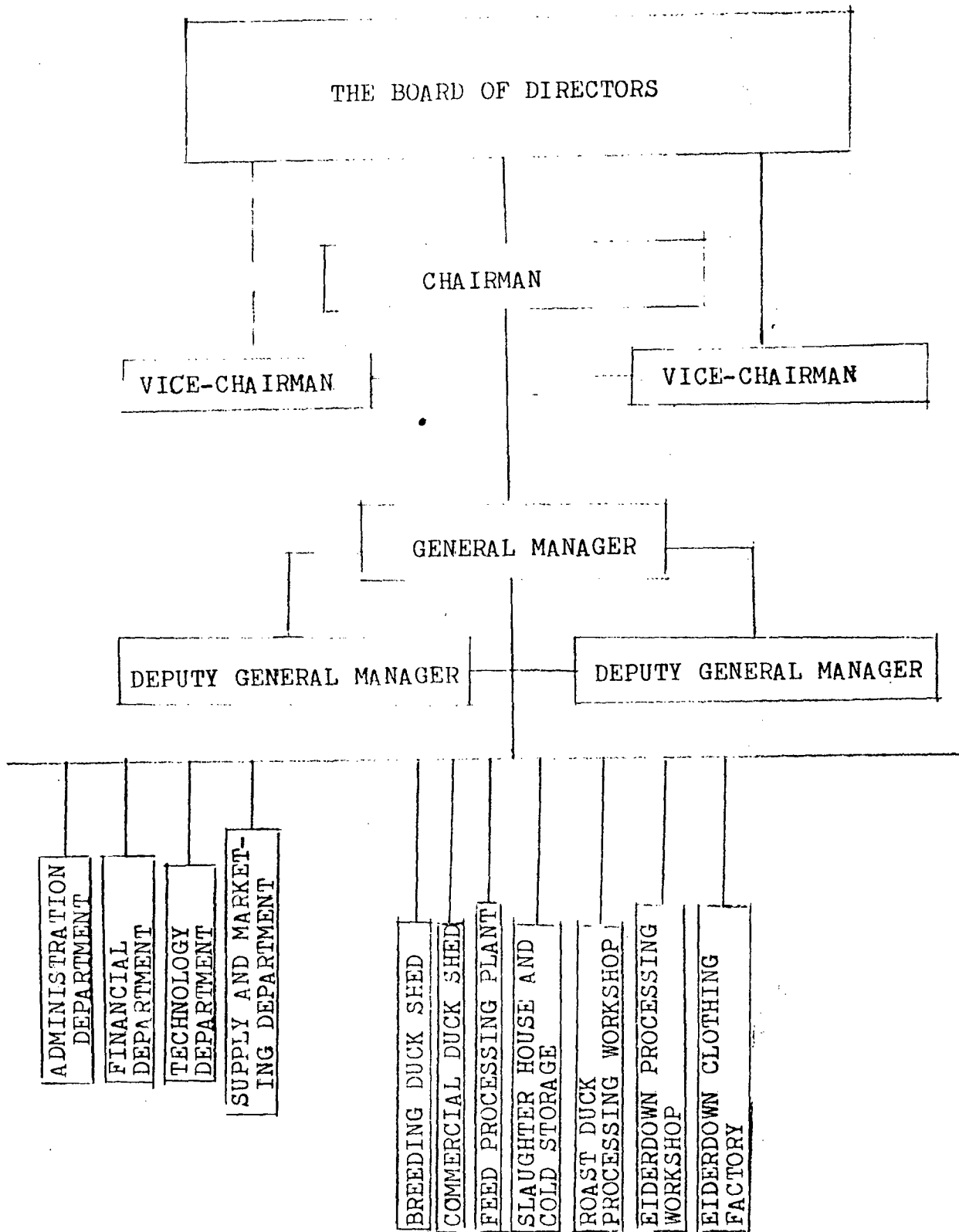
-- To resolve to set up branch organs

-- To resolve to engage senior personnel such as general manager , chief engineer , chief accountant , chief auditor .

The Chairman of the Board of Directors shall be appointed by Xianghe County Supply and Marketing Cooperatives and the vice-Chairman of the Board of Directors shall be appointed by The Large Ship LIMITED

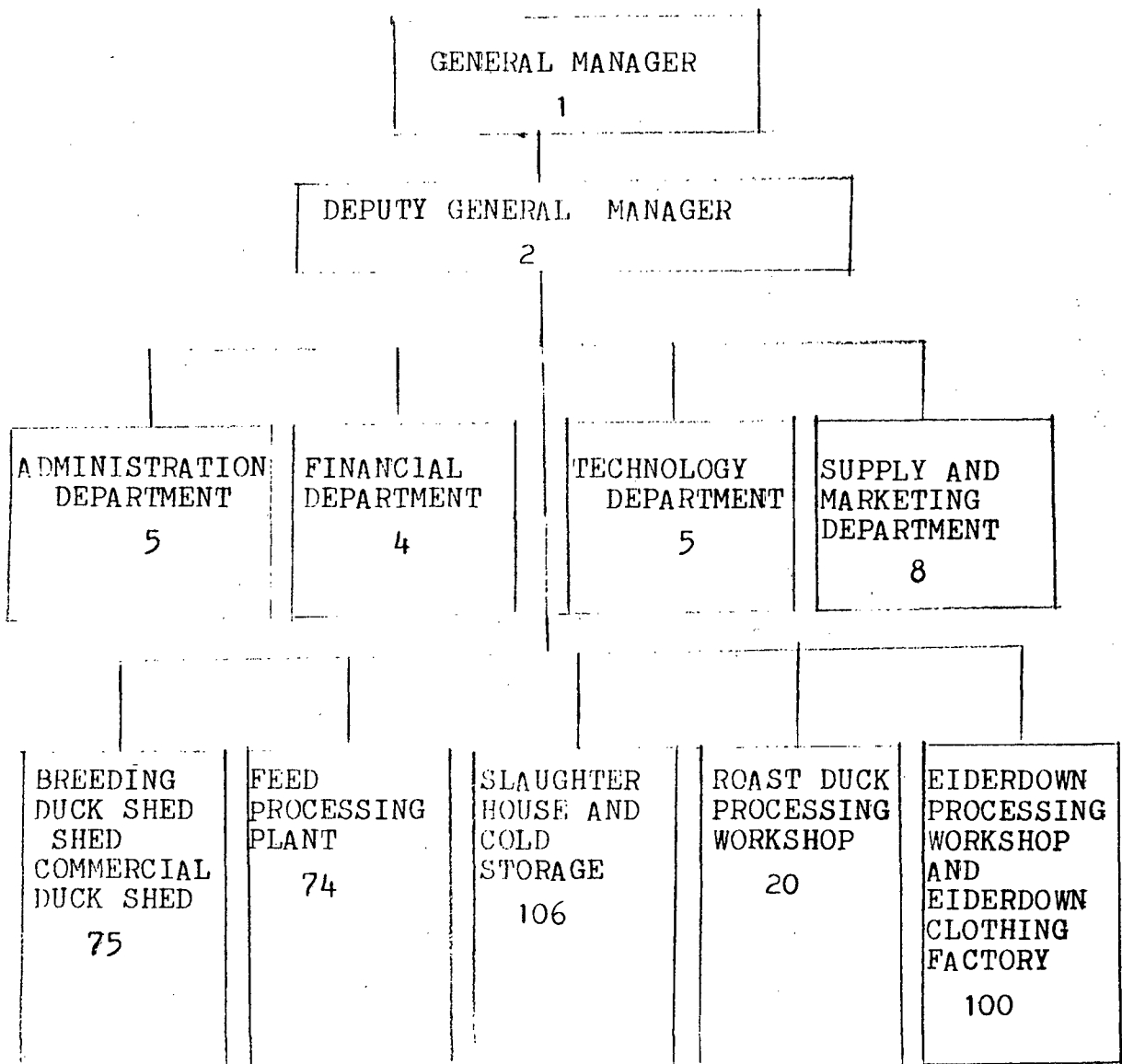
The Board of Directors shall convene two meetings each year . The meeting of the Board of Directors shall be convened and presided over by the Chairman of the Board of Directors , when the Chairman is absent ,the Vice-Chairman shall call and praside over the meeting .

4.3. INSTRUCTURE OF THE ORGANIZATION



4.4. PERSONNEL REQUIREMENT

The Cooperative Co. will engage 50 persons as administrator and will employ 350 persons as labour . The total persons were required 400 . The detail distribute as follow :



4.5. MANAGEMENT SYSTEM

The Cooperative Co. will engage one general manager and two deputy general managers who have rich administrative experience .

The duty of the general manager is to carry out the resolutions raised in the board meeting , lead and organize the daily work of business management . The deputy general manager assist the general manager in his work .

A number of departmental managers are put in charge of the departments' work and handle duties assigned by the general manager and deputy general managers .

The employment , discharge , wage , labour insurance, living , welfare and reward and punishment of the company's employees are formulated by the contract made collectively or individually through the organisation of the Cooperative Co. and its labour union , according to the Sino-Foreign Cooperative Enterprises Labour Management Stipulations of the People's Republic of China . The labour contract will be put on record in the local department after its formulation .

CHAPTER 5 FINANCIAL ANALYSIS

5.1. BUDGET INVESTMENT

THE USE OF INVESTMENT	AMOUNT OF MONEY
1. CIVIL CONSTRUCTION	
A. BREEDING STOCK SHED. 10560m ² . 150/m ²	1,584,000
B. COMMERCIAL DUCK SHED. 10000m ² . 100/m ²	1,000,000
C. FEED PROCESSING PLANT. 300m ² . 500/m ²	150,000
D. SLAUGHTER HOUSE. 900m ² . 400/m ²	360,000
E. COLD STORAGE. 600m ² . 1000/m ²	600,000
F. ROAST DUCK PROCESSING	
WORKSHOP . 500m ² . 700/m ²	350,000
G. EIDERDOWN PROCESSING	
WORKSHOP. 350m ² . 400/m ² .	140,000
H. EIDERDOWN CLOTHING PROCESSING	
PLANT. 500m ² . 400/m ² .	200,000
I. OFFICE AND LIVING QUARTERS	200,000
J. BOILER ROOM	211,400
2. PURCHASE DOMESTIC EQUIPMENT	3,742,800
3. PURCHASE BREEDING STOCK	223,200
4. PURCHASE IMPORT EQUIPMENT	6,586,300
5. CIRCULATING FUND	440,000
TOTAL INVESTMENT	15,787,700

5.2. SOURCE OF FUNDS

The total investment is 15,787,700 yuan , half of them originate from the three parts of investment , half of them originate from the loan . The bank loan divide into two kinds , one is long-term loan , another is short-term loan . The interest of the long-term loan is 10% and the interest of the short-term loan is 12% . The detail is as follow :

SOURCE	TOTAL INVESTMENT:15,787,700
OWNER PORTION: 7,893,850	$\frac{1}{3}$
CREDIT PORTION: 7,893,850	$\frac{2}{3}$
LONG-TERM LOAN : 7,453,850	$\frac{1}{4}$
SHORT TERM LOAN : 440,000	

5.3 THE DATA RELATE TO PROJECT

A. The fixed cost : 5,323,135 .

- | | |
|-------------------------------|----------------|
| (1) Depreciation charge | 1,272,680 yuan |
| Building 4,795,400/20years | 239,770 yuan |
| Equipment 10,329,100/10years | 1,032,910 yuan |
| (2) Repair funds | 516,455 yuan. |
| (3) Wages and salary | 1,020,000 yuan |
| (4) The fee of hold land | 240,000 yuan |
| (5) Insurance | 53,100 yuan |
| (6) management expense | 100,800 yuan |
| (7) welfare funds | 80,500 yuan |
| (8) Labour protection | 76,800 yuan |
| (9) Business tax | 980,000 yuan |
| (10) Working capital interest | 52,800 yuan |
| (11) The interest of loan | 745,000 yuan |
| (12) The others fee | 185,000 yuan |

B. The variable cost	:	37,046,700	yuan
(1) Raw of feed		2,950,000	yuan
(2) Raw of meat duck		21,310,000	yuan
(3) Feeding cost of duckling		1,600,000	yuan
(4) Packing fee		486,700	yuan
(5) Transport ation		315,000	yuan
(6) Fuel		286,000	yuan
(7) Water and electricity		257,000	yuan
(8) Storage		30,000	yuan
(9) Raw of eiderdown clothing		9,812,000	yuan

C. The total revenue	:	51,271,900	yuan
(1) Duckling		3,400,000	yuan
(2) Duck meat		23,912,220	yuan
(3) Roast duck		6,249,600	yuan
(4) Duck tongue		4 01,760	yuan
(5) Duck feet		532,320	yuan
(6) Duck feather		744,000	yuan
(7) Duck viscera		2,232,000	yuan
(8) Eiderdown clothing		13,800,000	yuan

D. The break even quantity :

Break-even quantity= Fixed expenses divided by
contribution per unit

$$\frac{5,323,135}{(51,271,900-37,046,700) \div 2,000,000} = 748,409$$

E. The break even point = 37.42 %

(Calc B.E.P.)

F • THE SITUATION OF CASHFLOW (IN '0000 YUAN)

YEARS ITEM	0	1	2	3	4	5	6	7	8	9	10
INVESTMENT	-1578.77										
CASH INFLOW		5127.19	5127.19	5127.19	5127.19	5127.1	5127.19	5127.19	5127.19	5127.19	5127
CASH OUTFLOW		4305.9	4305.9	4305.9	4461.79	4461.79	4461.79	4627.06	4627.06	4627.06	4627
NET CASHFLOW		821.29	821.29	821.29	665.4	665.4	665.4	500.13	500.13	500.13	500.
CUMULATIVE CASHFLOW	-1578.77	-757.48	63.81	885.2	1550.6	2216	2881.4	3381.53	3881.66	4381.79	4881.5

G • Payback period : 2 years •

H .Intenal rate of return : 47.25 %

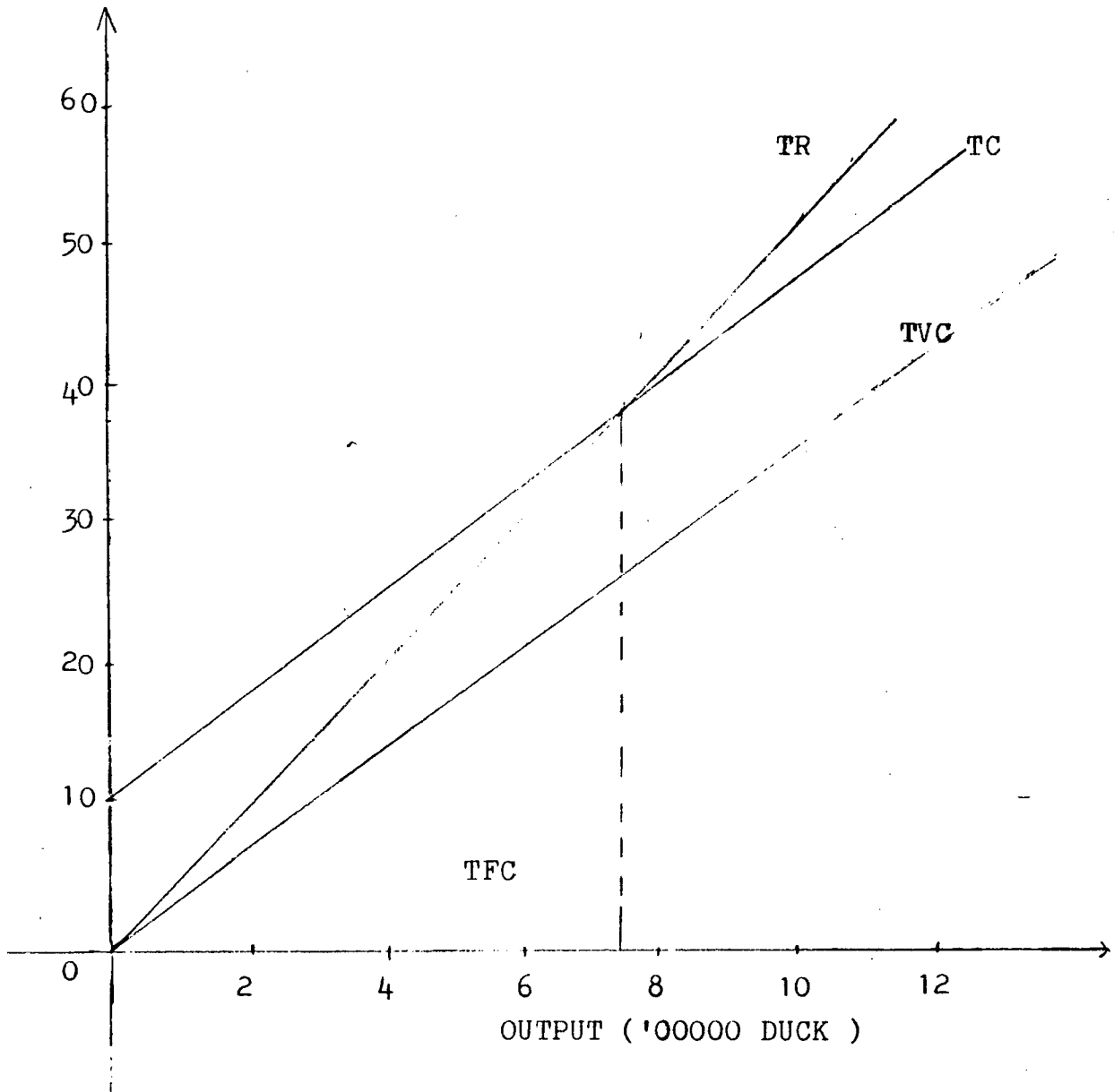
(In '0000 yuan)

YEAR \ ITEM	NET CASHFLOW	NPV : 47.2 %		NPV : 47.3 %	
		* D.C.	NPV	* D.C.	NPV
0	-1578.77		-1578.77		-1578.77
1	821.29	0.679	557.66	0.679	557.66
2	821.29	0.462	379.43	0.461	378.61
3	821.29	0.314	257.89	0.313	257.06
4	665.4	0.213	141.73	0.212	141.06
5	665.4	0.145	96.47	0.144	95.82
6	665.4	0.098	65.21	0.098	65.21
7	500.13	0.067	33.51	0.066	33.01
8	500.13	0.045	22.51	0.045	22.51
9	500.13	0.031	15.51	0.031	15.51
10	500.13	0.021	10.50	0.021	10.50
TOTAL			1.66		-1.82

47.3 % > IRR > 47.2 %

*D.C. :DESCOUNTED COEFFICIENT

LINEAR BREAK-EVEN GRAPH



5.4. THE SENSITIVE ANALYSIS

Suppose the price of the raw and processed materials (include feed , meat duck , materials of eiderdown clothing) go up 5% , the variable cost will increase 1,703,500Y, the net cashflow will decrease to 6,509,400Y(the first year) , but the IRR will still reach about 29% . This data is higher than the interest rate of the bank at present , so the project also will be done .

Suppose the price of the products (include duck meat , roast duck , eiderdown clothing) decrease 5% , the total revenue will decrease 2,198,090Y, the net cashflow will decrease to 6,014,810 Y , the IRR will reach about 25% . It means the project can get more profit after pay interest of the bank .

Suppose the capacity of the project decrease 10% , the total revenue will decrease 4,300,000 Y , the total cost also will decrease 1,800,000 Y the net cashflow will decrease 2,500,000 Y , the net cashflow of the first year will be 5,712,900 Y , the IRR will still reach about 21% . Even then the project will have life-force .

*Cross verification
essential - not fully
but cause of generalization*

CHAPTER 6 ECONOMIC ANALYSIS

6.1. ECONOMIC EFFICIENCY OF THE PROJECT

According to the IRR of the project , we can get the present value of benefit , the present value of cost and ratio of benefit/cost .

The present value of benefit is 291,537,700 yuan .

The present value of cost is 250,934,700 yuan .

The ratio of benefit/cost is 1:1.16 .

These data of above explain that the project will be efficient .

6.2. SOCIAL ECONOMIC EFFICIENCY

Besides bringing the benefit to the Cooperative Co. , the project will still more increase income of the farmers directly .

The average cost of feeding one duck is 11.09 yuan , the average procurement price of one duck is 12.60 yuan . The net income of the farmers from feeding one duck is 1.51 yuan , the feeding capacity of the farmers is 1,700,000 , the farmers will get net income of 2,567,000 yuan from feeding ducks every year .

In addition , the farmers will even more get income of labour from the Cooperative Co. .

CHAPTER 7 RECOMMENDATIONS

As was mentioned early that the Beijing-English duck feeding , processing and Marketing Project is a action which aim at increasing income of the farmers

The project adopt advanced and favorable technology and scientific management in order to open up a new breeding of duck and get efficiency which benefit the Cooperative Co. and the farmer members .

The project will be favorable to arrange latent surplus agricultural labour of the countryside . It has important significance in China

The project will be favorable to expand foreign economic cooperation .

The project will be favorable to promote development of cooperative's cause .

The project will be favorable to promote development of agricultural economy.

Of course , there are some risks in the project such as marketing duck meat , perhaps it will be trade competition between duck and chicken , but according to financial analysis and market analysis , there is no problem for marketing duck meat in international and domestic market .

Because of above , I think the project is worth to recommend .

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

by Mr Jia Min Sheng, China:

Points made in addition to group points.

1. Comprehensive costs for feeding, processing for local and English ducks should be given.
2. Working capital calculations should be rechecked.
3. Benefit to individual farmer not worked out, only total given. Unit cost for one duck should be given.
4. Adequate data regarding input/output ratio, cost per unit, salaries and wages not given.
5. Cross checking of financial data is not possible with the given data.
6. Per unit cost data is missing.
7. Role of farmers in the project not specified.
8. Marketing details such as distribution channels, campaigns etc. should be elaborated.
9. Financial analysis - source of data not given.
10. Income from domestic and international markets should be given separately to calculate risk analysis.
11. Capacity at various places is missing.
12. Benefit/cost ratio, net present value, sensitivity analysis should be re-checked and worked out.
13. No margin money, at least 10% has been provided.
It will affect the calculations of working capital.
14. Cash break even point needs to be worked out.
15. Interest cost on working capital as open cash outflow should be provided.

PROJ. DUCK FEEDING.

G. A.

27/2/90

SUGGESTION

1. THEY HAVE NOT MAKE ANY PROVISION FOR FUNDS FOR EXTENSION EDUCATION ACTIVITY IN THIS PROJECT.
2. PER UNIT EXPENDITURE MUST BE UNIFIED BY KILOGRAM.
3. NO DIVIDEND IS GIVEN TO THE FARMER.
4. ON DATA OF DEPRECIATION CHARGE AND INTEREST OF LOAN ARE NOT CONSIDERED CASH FLOW.

SOURCE OF FUND

LRKUP-05-
27.2.90

Members equity not received, so we feel in this project members are not participating. Then ~~that~~ ^{How} the project will increase the income of farmers which is main objective.

It is feel all the BOD are from the company's and are selected/appointed.

Raw material is some problem, because capacity is 2 Million, production is 2 Million it means same, it is unstable, farmers grows only 2 Million, if produce less, How can utilised the full capacity?

- Cash in flow is fixed every year. How it is possible, due to variation in situations.

27. 2. 90

Page no. 14.

1. Capacity planning regarding rearing of Duck, laying of eggs, output of ducklings, average time required for breeding etc should be clarified.

Fixed costs:

Detail of imported equipment with cost

- " Local Working Capital require
- " Wages & Salaries.
- " Management cost.

V. C.

COST of ^{each} duck to be purchased from market

Cash Budget is required.

GROUP C

Beijing-English Duck

27.2.90
—

1) Show the relationship between the live weight and the processed output weight relationship.

2) Cost of duck \rightarrow Realizing

\rightarrow ~~Realizing~~ value of product

Processing cost

Value additions / duck

Increasing income of the farmers

} should be showed.

3) Capital formation and extract of Balance sheet should be shown on.

4) Working Capital requirement is not clear.

- Variable cost / duck 198 ¥
- Life time 49 days
- No. of duck growing capacity 400,000

$$\left(\frac{2,000,000}{49} \right)$$

- Working capital requirement

At least ¥ $19 \times 400,000 = 7,600,000$

~~Based~~ safety of margin: - viable

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	:	DEVELOPMENT OF RUSH MAT PRODUCTION
<i>COUNTRY</i>	:	CHINA
<i>PROJECT PREPARED BY</i>	:	YANG BAO GUO

Funded by the Government of Japan

and

**Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and Korea**

ICA Management Training Project for Agricultural Cooperatives in Asia

INTERNATIONAL COOPERATIVE ALLIANCE

**Headquarters:
Route des Morillons 15
CH 1218, Le Grand Saconnex
Geneva, Switzerland**

**Regional Office for Asia:
43 Friends Colony (East)
New Delhi 110 065
India**

Acknowledgement

This project proposal for "The Development of Shanghai Xinbang Rush Mat Sewing Plant" is a requirement for the accomplishment of the "Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia."

By the writing of this project proposal, I'd like to express my deep feelings to the Director of the project, Mr. Madane and I'd also like to thank Professor, Mr. Gupta, Mr. Oza and the other experts who helped me during this training course in India.

In addition, I'd like to express my thanks to Songjiang Supplying And Marketing Cooperative, Shanghai Daily Use Company and Shanghai Xinbang Rush Mat Sewing Plant for their useful data and informations about this project.

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Chapter 5: Organisation and management

5.1 Implementation organisation

5.2 Management

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Chapter 1 Summary

This project started in 1988. Its life is 5 years. The product is a kind of rush mats which are used for decorating the house. It covers an area of 3200 mu cultivated land and involves 600 farmers.

It is a compensation trade business. The machines and equipments have been provided by the foreign company. The total cost including 5% interest of these things is YUAN 482726. It will be paid off within 4 years from the second year.

As it is a government initiated project, Shanghai Xinbang Rush Mats Sewing Plant can get a good marketing price from the implementing agency whose name is Shanghai Import and Export Company. The unit price is YUAN 18 per piece. Since the utilized capacity is 350000 pieces of rush mats during 5 years, the total sales revenue will come up to YUAN 6300000 by the end 5 years.

The implementation organisation is the Board of Directors which comprises of 6 persons. It takes responsibilities for all types of the activities of the project. The Directors of the Board come from the three partners, one is from Songjian County Supply and Marketing Cooperative, the other is from Shanghai Daily Use Company and the third is from the participating farmer members. It is a joint project within Shanghai Cooperatives.

This project has been beneficial to the farmers. The rush mat sewing plant gives a good price to the participating farmer members. Considering of this, the Board of Directors is taking account of increasing the utilized capacity of the production which may involve more participating farmer members.

2.1 OVERALL SITUATION

Shanghai XTANban Rush Mat Sewing Plant is a compensation trade project which started in 1988. It manufactures a rush mat used for decorating the house. It covers an area of the cultivated land of 3200 mu (15 mu is equal to 1 hectare) and involves 600 participating farmer members.

The project life is valid for 5 years. The implementation agency is Shanghai Import and Export Company. The machines and equipments have been provided by the foreign company. The total cost of these machines and equipments is worth of U 482726. It will be paid off within 5 years in proportion as 20%, 30%, 40%, and 10%. The interest rate is 5%, which will be paid off by the end of each of the 5 years.

Table 1

Currency: yuan

year / term	interest 5%	cost of machines	
1988	15639		15639
1989	20852	83408	104260
1990	16682	125113	126775
1991	10426	166817	177243
1992	2085	41740	43789
Total	65684	417042	482726

As it can increase the incomes of the farmers, the project has been initiated by Shanghai Federation of Supplying and Marketing Cooperatives. So, it was required to be run in partners within the Cooperatives by the Federation. The partners are from the three parts, one is from Songjiang Supplying and Marketing Cooperativ, the other is from Shanghai Daily Use Company and the third is from the participating farmer members. The three partners are responsible for and manage the project together with each other during the implementation of the project.

Considering the stable international market of the products, the plant is now taking account of doubling the production capacity for the next 5 years' project. It will be expected to be 700000 pieces of rush mats during the 5 years. As the existing project has been carefully analysed in details, the extension project for the next 5 years in this article.

2.2 Area of Project

It is situated in Xinbang, Songjiang County in the western of suburb of Shanghai. It covers an area of 475000 sq.km, out of which 46000 mu is the cultivated land. The land is fertile and the climate is vary good. In April, May and June, the average temperature is about 18 centi-degree. It is suitable for growing rush paddy and vegetables. It has efficient transportation facilities.

It is easy to get to the down city by railway or road lines.

2.3 Problem Faced by farmers

The only problem faced by the farmers is lack of technique about growing rush. although the farmers here have had the experiences about growing Chinese rush, it is not in the same way to grow as the foreign rush.

2.4 Need and Justification

--The main objective is to increase the extra incomes for the participating farmer members. The details about incomes of the farmers can be seen from the following calculations.

Production Cost /mu: (in yuan)

Seedlings	50
Net	31.5
Wood	31.5
White Soil	40
Pesticides	30
Fertilizers	308.8
Organic Manure	22.5
Irrigation	8
Taxes	15
Others	12
Total Cost	411.20

It is easy to get to the down city by railway or road lines.

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Irrigation	8
Taxes	15
Others	12
Total Cost	411.20

Yield/ mu	650 kg.
Procurement price	130
Sales Revenue	$130 \times 650 = 845$
Net profit	$845 - 411.20 = 433.8$

--This project provides an opportunity of employment with the farmers.

--As the project can increase the income of the farmers , the plant is now taking account of increasing the capacity of the production which may benefit more farmers in this area.

Chapter 3 Project

3.1 Objective

The main objective is to increase the income of the farmers.

It will be implemented by promoting the follows:

- To provide the farmers a stable marketing channel
- To provide the better price for the raw materials
- To provide tecknicle know how guidance
- To supply production materials such as net, rush seedlings and fertilizers, etc.
- To set up a rush mat sewing plant for the valau addition
- To provide the other services

3.2 Area of operation

As the farmers in this area have the experiences of growing the rush before, this area has been chosen to undertake this project. This project covers an area of cultivated land of 600 mu and the soil is fertile and the climate is suitable for growing the rush.

3.3 Project component

--Input supply

In order to procure the better quality, s rush from the farmers, the plant, with its all efforts, provides the farmers all

necessary materials for growing the rush such as net, pesticides, fertilizers, rope and rush seedlings etc. Some are cheaper than usual.

-- Farming guidance

In order to help the farmers solve the problems of growing rush, the rush mat sewing plant organized a technical group after the project had come into operation. The activities are as follows

A. Often to have a meeting to discuss the technical problems which the farmers may face during the period of the growing of the rush.

B. To provide the farmers technical know-how for growing the rush

-- Procurement

The manufacturing capacity is 350000 pieces of rush mats. It needs 2100000kg. of raw rashes during period of 5 years.

-- Manufacturing

The plant has 11 rush mat sewing machines. The utilized capacity is 350000 pieces of rush mats during 5 years.

-- Marketing

As it is a compensation trade project, the marketing channel is fixed. All the rush mats manufactured during the period of compensation must be sold to the international market through Shanghai Import and Export Company.

Chapter 4 Details of Operation

4.1 Implementation

The project life is valid for 5 years. The Board of Directors is the project implementation organization. It takes responsibilities for all types of activities of the project. During the period of the implementation, the rush mat sewing plant will provide forward and backward linkage services such as the marketing channel, procuring the raw materials, technical guidance, increase in yield, increase in area under rushes and transportation services, etc. In order to procure the rushes of good quality, the horizontal linkage services will be provided such as supply of fertilizers, pesticides, net, rope, seedlings and other necessary materials.

4.2 Procurement

The rush mat sewing plant procures the rushes directly from the participating farmer members. It is based on the agreement between the plant and farmers. In previous year, the plant signs an agreement with the farmers to decide the quantity to be procured next year. When the harvesting season comes, the farmers will send the rushes directly to the rush mat sewing plant.

The price is fixed by the Board of Directors. It depends on the quality, weight and size of the rush. The farmers will be paid immediately after they send the rushes to the plant.

4.3 Marketing

The rush mat sewing plant does not worry about the marketing channel. It is fixed for 5 years. Shanghai Import and Export Company is responsible for the marketing channel. The utilized capacity during 5 years is 350000 pieces of rush mats.

Table

year	1988	1989	1990	1991	1992
quantity	20000	70000	80000	90000	90000

4.4 Marketing price

It is based on the quality, weight and size. The average price is RMB Yuan 18 per piece. It is decided through the discussing between the rush mat sewing plant and Shanghai Import and Export Company.

4.5 Transportation

The area of operation is located in Xinbang, Songjiang County in the western suburb of Shanghai. It has efficient transportation facilities. It is easy to get to the downtown city by traffic lines or by railway lines. The fee of the transportation is not

expensive. It costs RMBYUANG 0.30 per ton by trucks.

4.6 Manufacturing capacity

The rush mat sewing plant has 11 sewing machines and 7 equipments. Its capacity is 118800 pieces per year with 3 shifts.

Table

Quantity/Term	Machines	Working Time	Capacity
Unit	1	1 shift	12 pieces
Unit	1	3 shifts	36 pieces
Unit	11	3 shifts	396 pieces
Unit	11	3 shifts/300 days	118800

4.7 Utilized capacity

It is fixed during the period of 5 years of the project. The total utilized capacity is 350000 pieces of rush mats for 5 years.

Table

Year	Quantity
1988	20000
1989	70000
1990	80000
1991	90000
1992	90000

4.8 Procedure in production

It can be divided into following 7 operations:

- Checking the colour to make sure the rushes have the same colour. Then
- selecting the rushes to keep them the same size, after that,
- sprinkling water on the rushes for avoiding from drying up, when the above is finished,
- beginning to sew the rush mats with the sewing machines, and
- checking the size to make sure it comes up to the production standard, in order to prevent the finished products from mildewing and rotting,
- the finished products must be dried up and
- sent to the storage.

4.9 Investment

The investment of the existing project is RMB YUAN 482726.

Table

land and Building taxes		
building cost	yuan	188000
machines and equipments cost	yuan	417042
furnitures cost	yuan	12000
interest on the machines and equipments	yuan	65684

4.10 Depreciation

The depreciation on the building and machines is 6% within 15 years. During the period of 5 years, it will cost about RMB YUAN

Table

Item	Depreciation cost 6%
Buildings	
Office furnitures	
machines and equipments	

4.11 Sales realisation

The marketing price of the rush mats is RMB YUAN 18 per piece. The total cost of one piece is RMB YUAN 17.55425. So, the sales realisation is RMB YUAN 0.44575 per piece. According to the utilized capacity, the sales realisation will be:

table

Item/year	1	2	3	4	5
Utilized capacity	20000	70000	80000	90000	90000
Realisation	8915	372477	453589	517902	517902

4.12 Period and extension of the project

The project life is valid for 5 years. Now the plant is discussing with the foreign company. It wishes to double the existing production capacity for the next 5 years.

Chapter 5 Organization and management

5.1 The project implementation organization is the Board of Directors. It comprises of 6 persons. As it is a joint project within the Cooperatives, the 6 persons are selected from the three partners, one is Songjiang Supplying and marketing Cooperative, the other is Shanghai Daily Use Company and the third is the participating farmer members. The Board of directors takes responsibilities for the activities of the project. Its main function is to make policy, extension job, marketing channel and to make a selling and procuring price etc.

5.2 Management

The Board of the Directors has Employed a full-time manager. He is from a farmer. The manager is in charge of the management of the rush mat sewing plant. Besides, there are 6 other full-time persons employed. They are

Deputy manager	2 persons
Workshop manager	1 person
Cashier	1 person
Maintenance and repair	2 persons

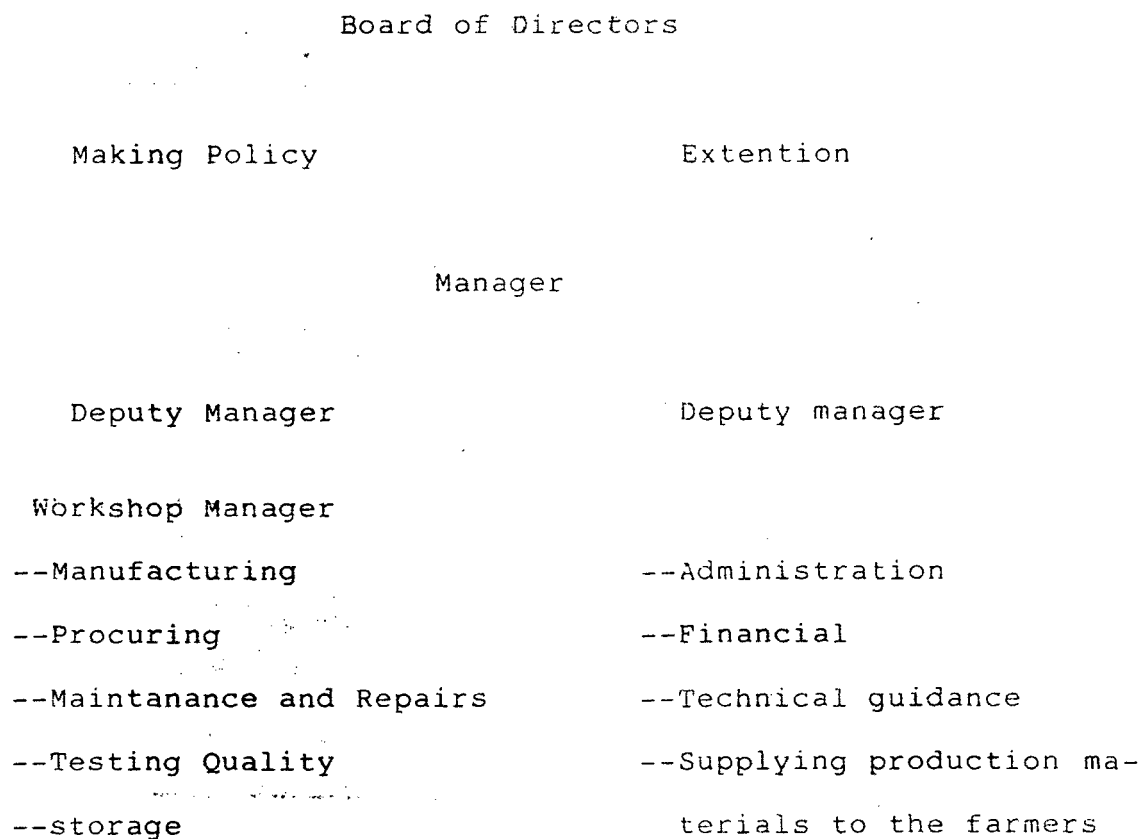
Investment
 Sensitive Analysis (in yuan)

Year	1	2	3	4	5
Investment	682726				
Capacity	20000	70000	80000	90000	90000
Sales Price	18/piece				
Cash Inflow	360000	1260000	1440000	1620000	1620000
Cash Outflow	351085	887523	986411	1102089	1102089
Net Cashflow	-682726.8915	372477	453589	517902	517902
Cumulative	-691085	-318608	134981	652883	1823668
Pay Back Period	3years				

IRR	27.1% 34.08%	PV Benefit	Cost	Benefit Cost Ratio
NPV 30%	71600	754326	682726	1.105
NPV 35%	-16093	666633		
BEQ		11761		

The deputy managers' duty is to help the manager manage the production activities such as manufacturing, procuring, financial and technical guidance activities, etc. The workshop manager is in charge of the manufacturing of the rush mat. He must make sure of fulfilling the task of the production of which quality must come up to the production's standard.

5.3 Organization and Management Chart



Year		1	2	3	4	5
Investment.	682726					
Capacity		20000	70000	80000	90000	90000
Variable cost/piece						
Rush	7.8	156000	546000	624000	702000	702000
Cotton thread	0.66	13200	46200	52800	59400	59400
Electricity	0.59	11800	41300	47200	53100	53100
Water	0.04	800	2800	3200	3600	3600
Subsidy for farmer	0.32	6400	22400	25600	28800	28800
Welfare	0.22	4400	15400	17600	19800	19800
Packing	0.25	50000	17500	20000	22500	22500
Trans.	0.10	2000	7000	8000	9000	9000
Interest on W.c.		4995	17483	19981	22478	22478
Taxes	5%	16480	41430.5	46020	51410	51410
Total		221057	751513	856401	972088	972088
Fixed cost						
Salaries	97500					
Ensurance	8000					
Maintanance and repair	6000					
Technical guidance	3600					
Administraction	14910					
Total	130010					

Long-term loan (in yuan):

Land and building taxes

Building	1024 m ²	188000
--Workshop	288 m ²	
--Warehouse	736 m ²	
Machines and equipments	18 sets	417042
--Sewing machines	11 sets	302400
--Equipments	7 sets	11462
Interest on machines		65684
and equipments		65684

Short-term loan :

Working capital for 5 years:

1988	176190
1989	616684
1990	704797
1991	792874
1992	792874

Interest on W.C. 11.45% (0.945% per month)

Cost of machines and equipments:

Year/term	Interest of machines 5%	Cost of machines	
1988	15639		15639
1989	20852	83408	104260
1990	166823	125113	126775
1991	10426	166817	177243
1992	2085	41740	43789
Total	65684	417042	482726

Capacity:

Quantity/term	Machines	Working time	Capacity
Unit	1	1 shift/day	12 pieces
Unit	1	3 shifts/day	36 pieces
Unit	11	3 shifts/day	396 pieces
Unit	11,	3 shifts/300 days	118800 pieces

Utilized Capacity:

Year	1988	1989	1990	1991	1992
Quantity	20000	70000	80000	90000	90000

Chapter 7 Budget (in yuan)

Year	1	2	3	4	5
Investment	682726				
Utilized Capacity	20000	70000	80000	90000	90000
Variable Cost	221057	751513	856401	972088	972088
Fixed cost	130010				
Total Cost	351085	887523	986411	1102089	1102089
Sales Price	18/piece				
Cash Inflow	360000	1260000	1440000	1620000	1620000
Contributions	138943	508487	583599	647912	647912
Net Cashflow	-682726	8915	372477	453589	517902
Cumulative	-691085	-318608	134981	652883	1823668
Pay Back Period	3 years				

8.1 From the previous calculations, it can be seen that the farmers have been benefited from the project. The procurement price from the rush mat sewing plant is Yuan 1230 per kg. The rush yield is 1300 kg. per mu. The total sales revenue is Yuan 845 per mu, compare with the production cost of Yuan 411.20 per mu, the net profit is 50% more than the production cost.

8.2 The financial analysis reveals that the total investment is Yuan 482726, benefit cost ratio is 1.105 with the IRR of 34.082 and pay back period of less than 3 years.

8.3 This project life is valid for 5 years which total utilized capacity of the production is 350000 pieces of rush mats. The farmers and plant have been benefited from the profitability of this project. Therefore, it is reasonable that the project can be carried out and the extension idea can be successful.

Calculations about NPV

$$\text{NPV} = \frac{8915}{(1+30\%)} + \frac{372477}{(1+30\%)^2} + \frac{453589}{(1+30\%)^3} + \frac{517902}{(1+30\%)} + \frac{517902}{(1+30\%)} - 682726$$

$$= 8915 \times 0.769 + 372477 \times 0.592 + 453589 \times 0.455 + 517902 \times 0.350 + 517902 \times 0.269 - 682726$$

$$= 754326.33 - 682726$$

$$= 71600$$

$$\text{NPV} = \frac{8915}{(1+35\%)} + \frac{372477}{(1+35\%)^2} + \frac{453589}{(1+35\%)^3} + \frac{517902}{(1+35\%)} + \frac{517902}{(1+35\%)} - 682726$$

$$= 8915 \times 0.749 + 372477 \times 0.549 + 453589 \times 0.406 + 517902 \times 0.301 + 517902 \times 0.223 - 682726$$

$$= -16093$$

Calculations about IRR

$$\text{IRR} = \frac{8915}{(1+30\%)^1} + \frac{372477}{(1+30\%)^2} + \frac{453589}{(1+30\%)^3} + \frac{517902}{(1+30\%)^4} + \frac{517902}{(1+30\%)^5}$$

$$= 754326$$

$$\text{IRR} = \frac{8915}{(1+35\%)^1} + \frac{372477}{(1+35\%)^2} + \frac{453589}{(1+30\%)^3} + \frac{517902}{(1+35\%)^4} + \frac{517902}{(1+35\%)^5}$$

$$= 666633$$

$$754326 - 682726 = 71600$$

$$754326 - 666633 = 87693$$

$$\frac{71600}{87693} \times (35 - 30)\% = 4.082\%$$

$$\text{IRR} = 30\% + 4.082\% = 34.082\%$$

When $\text{IRR} = (30 + 4.082)\%$, $\text{TPV} = 682726$.

Year	Net Chashflow	r=30%	r=35%	(1)x(2)	(1)x(3)
1	8915	0.769	0.741	68855.635	6606.015
2	372477	0.592	0.549	220506.38	204489.87
3	453589	0.455	0.406	206382.99	184157.13
4	517902	0.269	0.223	181265.7	155888.54
5	517902	2.296	0.223	139315.63	115492.14
Total				754326.33	666633.65

Year / term	Interest of machine 5%	Cost of machines	
1988	15639		15639
1989	20852	83408	104260
1990	16682	125113	126775
1991	10426	166817	177243
1992	2085	41740	43789
Total	65684	417042	482726

Table 2

Capacity:

Quantity/term	Machines	Working Time	Capacity
Unit	1	1 shift/day	12 pieces
Unit	1	3 shifts/day	36 pieces
Unit	11	3 shifts/day	396 pieces
unit	11	3 shifts/300days	118800pieces

Table 3

Utilized Capacity:

Year	1988	1989	1990	1991	1992
Quantity	20000	70000	80000	90000	90000

Fixed Assets			
Land	1104.5	m ²	
Building	1024	m ²	
--Workshop	288	m ²	
--Warehouse	736	m ²	
Machines and Equipments	18	sets	417042 yuan
--Sewing Machines	11	sets	302400 yuna
--Equipments	7	sets	11462 yuan
Current Assts (cash)			10000 yuan
Labour and labour cost			
Manager	1	person	
Deputy manager	2	persons	
Workshop manager	1	person	
Financial	1	person	
Maintanance and repair	2	persons	
Entrance Guard	2	persons	
Book-keeper	1	person	
Carpinter	1	person	
Worker	54	persons	
Total Salaries for one year			97500 yuan

Year	1	2	3	4	5
Capacity	20000	70000	80000	90000	90000
Marketing price/piece		18			
variable cost	221057	751513	856401	972088	972088
Fixed cost	130010				
Cash inflow	360000	1260000	1440000	1620000	162000
Cash out flow	351085	887523	986411	1102089	1102089
Net profit	8915	372 477	453589	517902	517902









Cost of rush production/mu (in yuan):

Sedlings	50
Net	31.5
Wood	31.5
White Soil	40
Pesticides	30
Fertilizers	308.8
Organic Manure	22.5
irrigation	8
Taxes	15
Others	12
Total	411.20

江



杭州
图例

-  公共汽车起讫站
-  郊区汽车站
-  郊区汽车路线
-  长途汽车路线
-  铁路火车站
-  公路
-  轮渡线及渡口
-  浦江游船路线

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

by Mr Yang Bao Guo, China:

(other than those included in group presentations).

1. Since the project is only an expansion plan project, position of existing project, expansion programme and life after expansion should be explained. Justification for the projects needs more explanation.
2. Role of members in the project is minimal. They are like clients only.
3. Financial data of existing coop necessary to judge expansion benefits, feasibility, viability etc.
4. Re production processes, flow chart is necessary.
5. Financial analysis needs restructuring. Details are needed.
6. Lot of computation errors are there in the project. It reduces the credibility of the project.
7. BEQ : Fixed costs not included. e.g. depreciation, interest on investment, capital recovery factors etc.

COMMENTS

1. THIS PROJECT HAD ALREADY STARTED IN 1988 AND THIS IS NOT PRACTICAL PROJECT BECAUSE THE MAIN PROJECT IS ALREADY WORKING AND HE HAS NOT GIVEN ANY DETAILS REGARDING PREVIOUS PROJECT BECAUSE IT IS EXPANSION OF THE PROJECT.
2. THE INTEREST OF NPV IS TOO HIGH AS COMPARE WITH THE INTEREST OF WORKING CAPITAL THAT IS 11.46 %. IT MUST BE CALCULATED AS 12 % ONLY. ALSO HERE IS NOT MENTIONED HOW TO CALCULATE WORKING CAPITAL.
3. INTEREST ON WORKING CAPITAL COMES WRONG RESULTS AS SHOWN ON PAGE 17.
4. BUDGET OF THIS PROJECT IS NOT CLEAR IT IS ONLY CASH FLOW ON PAGE 20.
5. PARTICIPATION OF THE FARMER MEMBER IS NOT CLEARLY MENTIONED ESPECIALLY ON THE CONTRIBUTION.
6. SOURCE OF FUND HAS NOT CLEARLY MENTIONED. AND ALSO REGARDING MARGIN MONEY FOR GETTING LOAN HAS NOT MENTIONED.
7. BREAK EVEN POINT MUST BE CONTAINED DEPRECIATION COST. WITHIN FIXED COST.

$$\text{depreciation} = (\text{investment} \div \text{period}) \times 6\%$$

Group B

Development of Rush Mat Production

The following are our comments with regards to the above project proposal:

1. Sources of fund for the project not available either from existing structure or creating new equity.
2. Production flow chart not provided and clear.
3. Nett productivity analysis is required. example percentage of wastage.
4. Pricing policy should be determined because end product depends on quality, weight and size of the rush.
5. Details of salaries/wages not mentioned. % of increment/benefits should be mentioned.
6. Marketing channels not mentioned where the produce will be sell.
7. Repayment ^{Schedule} not mentioned.
8. No sensitivity analysis be made.
9. Interest/depreciation depreciation of building and machine not calculated.
10. As per page 18 ^{as per schedule given} the interest on working capital as per 11.45% should be as follows:

1988 -	20,173
89 -	70,610
90 -	80,700
91 -	90,850

11. As mentioned on page 5 the total cost is 411.20
compared with nett profit of 433.8.

GROUP C

Rush Mat

1) Operating Cost, inflation factor should be considered.

2) Break-Even Point

year	1	2	3	4	5
price	18	18	18	18	18
VC	$\frac{11}{7}$	$\frac{10.7}{7.3}$	$\frac{10.7}{7.3}$	$\frac{10.8}{7.2}$	$\frac{10.8}{7.2}$
F.C.	130,010	?	?	?	?

at 1 year B.E.P = $\frac{FC}{P-VC} = \frac{130,010}{18-11} = 18,573$

3) Source of fund is not mention.

4) Working Capital requirement not shown in detail.

5) NPV } has to calculate at ~~possible~~ interest rate which is
B.C. rate } the cost of fund. (capital cost not given)

6) No risk identified and no sensitivity analysis done.

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	: POTATO DEVELOPMENT THROUGH INTEGRATED COOPERATIVES IN HASSAN TALUK, HASSAN DIST. KARNATAKA STATE.
<i>COUNTRY</i>	: I N D I A
<i>PROJECT PREPARED BY</i>	: D.T. RANGASWAMY

Funded by the Government of Japan

and

Executed by the ICA in collaboration with its Member Organisations in

India, Thailand, Japan and Korea

ICA Management Training Project for Agricultural Cooperatives in Asia

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ACKNOWLEDGEMENTS

The ICA/Japan Training Programme for strengthening Management of Agricultural Cooperatives in Asia organised from 23.10.1989 to 10.5.1990 at New Delhi, Bangkok, Tokyo and Seoul provided me an opportunity to study various aspects of strengthening the Management of Cooperatives and also the techniques of formulation and implementation of agricultural projects in cooperative sector.

During this training programme, a project entitled "POTATO DEVELOPMENT THROUGH INTEGRATED COOPERATIVES IN HASSAN TALUK, HASSAN DISTRICT, KARNATAKA" is prepared.

I am very grateful to Shri M.V. Madane, Project Director, ICA Regional Office, New Delhi, Professor Kalro, Professor V.R. Gaikwad and Professor V.K. Gupta of IIM Ahmedabad, who helped me in bringing out this project.

I take this opportunity to express my sincere gratitude to Sri M.C. Nanaiah, MLC, President, Sri B.A. Coutinho, IAS, Managing Director and the Board of Directors of the Karnataka State Cooperative Apex Bank Limited, Bangalore, in nominating me to undergo the training programme and also extending me the support and cooperation in formulating this project.

I am very much thankful to Sri C.N. Badarinath, Secretary, Sri K.V. Reddy, Chief General Manager, Karnataka State Cooperative Apex Bank Ltd., Bangalore, who rendered all valuable services in bringing out this report.

I also take this opportunity to extend my sincere thanks to Sri N.K. Narayana, Assistant Commissioner, Hassan who helped me to collect the valuable information for formulating this project.

D.T. RANGASWAMY
MANAGER, KSC APEX BANK
AND
IV ICA/JAPAN MANAGEMENT TRAINEE

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A N D

A P P E N D I C E S

* * *

CHAPTER - I

SUMMARY

0.1 The Project focusses on design and rationale of Integrated Marketing & Processing Society Ltd., Hassan Taluk, Hassan District in Karnataka State.

0.2 The main object of the Society is to create a better marketing alternative for potato growers by organising their own Cooperative Society which will procure 25% of the total production in the project area.

0.3 For a better procurement & transport facilities, the society will procure potatoes at farm gate & transportation & bagging cost shall be borne by the Marketing Society itself. The farmers will be getting Rs 1,500/- per tonne upto 5 years & Rs. 1,700/- after 6 years as compared to the present price of Rs 1,000/- per tonne.

0.4 Project demands a minimum price of Rs 1,500/- per tonne to the grower member as their farm gate price & increase of Rs 1,700/- per tonne during the sixth year of operation. These prices have been assumed on normal production & market conditions.

0.5 The project considers the need to have a cold storage unit with a minimum capacity of 1060 metric tonne.

0.6 The processing unit to be established for making chips one at the beginning year & the other at the 5th year will handle 30 MT each annually & helps the Society in accruing some benefits.

0.7 A capital investment of Rs 8,700/- thousand for necessary infrastructure is made which will be raised as equity from members of Rs 450 thousand (5%), equity from State Government & NCDC of Rs 3900/- thousands (45%). The remaining amount of Rs 4,350 thousand (50%) by way of long term loans from the credit institutions.

0.8 The benefits cost ratio of the project at 15% comes at 1.14 & IRR at 54.14%. The Net present value @ 15% comes to Rs 24926.96 thousands.

0.9 While attempting sensitive analysis, the IRR comes at 24% & the net present value at 15% comes at Rs 3,986 thousands, assuming 10% decline in benefits.

0.10 The repayment of loan starts after 5 years of the commencement of the project which is adjudged as moratorium period. The interest accrued in the first five year is added to the loan and the annuity for the remaining 10 years at 10% is computed. Thus, the loan amount plus the accrued interest during the moratorium period will be extinguished at the rate of 985 thousands per annum over 10 years period.

0.11 The breakeven point is estimated at 15402 tonnes per annum as against the estimated quantity handled of 21014 tonnes. The capacity of the plant comprising, procuring 36750 tonnes for marketing & storing, 1060 tonnes under cold storage & 60 tonnes for making chips adds upto a total 37870. Thus, the present capacity utilisation would be in the region of 73% & the breakeven point at around 44% of the rated capacity.

0.12 The project will motivate the farmers towards increasing the potato production in the project area.

CHAPTER-II
BACKGROUND

2.1 INTRODUCTION

Potato is one of the important commercial vegetable in India. The cultivation of Potato is traced back to 200 A.D. The crop was introduced in India in 17th Century. Potato crop is regarded as poor man's food and it is quite a cheap food provided wholesome diet. During 1988 the contribution of Potato to the national basket was 14,138 thousand Million Tonnes of tubers produced from an area of 15,968 thousand hectares* In Karnataka State nearly 33,000 hectares is under Potato cultivation with an annual production of 3,26,530 Tonnes (Annexure-1).

2.2 LOCATION

Hassan District is situated in Karnataka State in Southern part of India(Annexure-2 & 2-A). The total population of the District as per 1981 Census was 13,57,014 and 25.85% of the total population or 75.5% of total workers are engaged in agriculture. The percentage of small and marginal farmers is quite substantial. The total area of the District is 6,814 Sq.Kms. and lies between 12°31' and 13°33' North latitude and between 75°33' and 76°33' East longitude.

The Soils of the District consists of Sandy loam, black and red type of soils. The total geographical area of the District is 6,62,602 hectares out of which the net area sown is 3,66,722 hectares (55.35%). An area of 54,029 hectares(8.15%) is covered by forest and 76,844 hectares(11.60%) is fallow land. The net area irrigated is 49,836 hectares(7.52%). The various irrigation sources are tanks, Wells, Tubes, Borewells, Canals. The high water table is favourable for digging borewells. The average rainfall in the District is 794.2mm. Potato is one of the main crops in Hassan District with a production of 1,05,700 Metric tonnes(Annexure-3), spreading over an area of 10570 hectares and the crop worth of Rs.2642lakhs is marketed in India. In the project area of Hassan Taluk itself, there is a production of 64,000 Metric tonnes spreading over an area of 6400 hectares. The crop worth of 1600 lakhs is marketed in India(Annexure-4).

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* Reference - FAO Year Book Vol.42(1988)

2.3

The total population of Hassan Taluk is 2,66,206 out of which 1,34,271 is contributed by male and 1,31,935 is contributed by female. Total cultivators and Agricultural labourers in the taluk are 58,441 and 6,738 respectively. It comprises of 399 villages covering an area of 91,818 hectares. The total number of households is 45,568. The total area now under cultivation for various crops is shown in Annexure-5. There are nearly 20,000 Agricultural families are engaged in Potato cultivation. The average holding in the area is 1.54 HA*.

2.4 AVAILABILITY OF PRODUCE

At present a total yield of 1,05,700 Tonnes of Potato is expected from an area of 10,570 hectares. Now, the Potato is mainly grown in Kharif season as rainfed crop. The crop duration is 95-100 days only. It is observed that only single crop is taken during Kharif season due to poor irrigation facilities in the District. With better facilities of irrigation as well as marketing, there is every chance of increasing the production of Potato in the District.

2.5 LABOUR

The project area is having sufficient labour potential for Potato cultivation and other allied activities like harvesting, processing and marketing. Since, Potato is a seasonal crop, sowing takes places in the month of May-June and during this period, there will not be any problem of labourers. If the local labour is trained and used in harvesting and processing, it will provide better employment opportunities to them. As the female labour is mostly used in Potato sowing, harvesting and processing activities, the local female labour should be trained for these works.

2.6 SEEDS

Presently, the farmers are getting seeds from Jullandar(Punjab) and Himachala Pradesh(Simla). There is no agency either from the Cooperative sector or from the Government sector to supply seeds to the farmers of this District. As a result, the farmers has to pay very high price for the seeds. It costs about Rs.350-500 per quintal as against the actual price of Rs.250-300. The middlemen/Private traders plays dominant role in the distribution of seeds. They are making heavy profits during sowing season of Potato.

2.7 EXISTING MARKETING SYSTEM

Two crops can be taken up one in Kharif and one in Rabi season. But in this region, due to poor irrigation facilities second crop is not grown. So only one crop is grown during Kharif season, which begins from the month of May-June and harvesting takes place after 95-100 days i.e. in the month of August. Therefore, the main marketing season for Potato starts from the month of August. Sometimes, the Potato growers sell their produce to the private traders before harvesting. During this process, the price will depend upon the standing crop but normally the price paid to the farmers will be 15% to 20% lower than the market price prevailing during that time. Even the contracted amount will be paid to the growers in instalments. Since Potato is a seasonal crop, harvesting is done at one stroke, due to this, heavy market glut will be observed. The prices received by the growers for last 10 years is shown in Annexure-6. As there are no storage facilities in the District resulting in a steep fall in Potato prices. In order to pay back the loan raised from the Banks and other money lenders, the growers will go for distress sale at throw away prices. Due to fluctuating market prices, even though the farmers production is high, they cannot meet their investment. The cost of production of Potato per hectare of land comes to Rs.11,500.00 (Annexure-7). As the markets are distant from Hassan, transportation cost is high. As there are no seed multiplication Centres in the project area, farmers have to pay high prices for purchase of seeds to the private traders and middlemen; most of the time, private traders sell poor quality seeds and misguide the farmers by saying that the seeds are brought from Jullandar and Simla.

2.8 STORAGE FACILITIES

Potato is a perishable crop. It cannot be stored for longer period without cold storage facilities. At present the project area is having a cold storage capacity of 120 Metric tonnes which is controlled and managed by Horticulture Department. At present, it cannot meet the demands of the project area as the production is 64,000 Metric Tonnes. So, there is a need for setting up of a cold storage with a minimum capacity of 5000 Metric tonnes.

2.9 TRANSPORT FACILITY

Hassan is situated on the National Highway No.4 which connects Mangalore to Bangalore. It has got railway line connecting to Mangalore and Miraj. The Potato grown in this region is being marketed at Bangalore, Bombay, Mangalore and Hyderabad. The transportation cost from Hassan to Bangalore is around Rs.800/- per load(100 quintals) particularly during harvesting season, due to non-availability of transport facilities, the farmers will have to pay high price for the transport.

2.10 POTATO GROWERS MARKETING & PROCESSING COOP.SOCIETY,HASSAN

At present, there is no marketing and processing Society for the Potato growers in the area. Therefore, it is required to organise a Marketing system for the growers so that they can get reasonable price for their produce. Such an organisation will ensure good returns to farmers. providing appropriate marketing avenue and also provide backward and forward linkages to further increase in their income by increasing their productivity.

2.11 NEED FOR PROJECT AREA

- (i) Due to present availability and anticipated growth in the potato production in the project area of Hassan Taluk and adjoining areas in other taluks, it is necessary that a Cooperative organisation with the involvement of Potato growers is to be established to ensure marketing of their produce at remunerative prices.
- (ii) With the organised marketing and processing facility, the available labour in the area can be provided with employment opportunities.
- (iii) There is a scope for employing labour at the time of harvesting for packing and transporting the produce.
- (iv) With the organisation of Potato growers Marketing & Processing Cooperative Society, the monopoly of middlemen and private traders could be avoided.
- (v) The objective of Cooperative is not to maximise profits at the cost of growers or the consumers. Its main objective is to ensure remunerative return to the Potato growers and fair price to the consumers.

- (vi) Potato is a perishable commodity. Its production is seasonal and demand is prevalent althrough the year. Hence, its proper storage is an economic necessity for the marketing Society. By providing storage facilities to the growers, the Society can increase the economic returns of the Potato growers in the area.
- (vii) There is an area of 1749 of fruits cultivation and 2667 hectares of vegetable kcultivation in the project area and other adjoining areas. With the establishment of cold storage by the Potato Growers Marketing and Processing Cooperative Society, there is a scope for storing fruits and vegetables also, during slack period of Potato procurement. Thus the capacity of the cold storage can be utilised all through the year.

CHAPTER-III

PROJECT

3.1 OBJECTIVES

The primary objective is to increase the income of Potato growers in Hassan Taluk. This objective will be achieved by promoting the following activities.

- (a) To provide a strong and a sound marketing channel for Potato which will be run and controlled by the growers themselves.
- (b) To improve the productivity of Potato by providing better technical knowhow, plant protection and disease control to the growers.
- (c) To provide marketing and processing facilities for value addition.
- (d) To establish seed multiplication centres to supply seeds to the members at a reasonable prices.
- (e) To establish research centre to introduce high yield variety seeds for increasing production
- (f) To motivate Potato growers through inter-action and involvement to develop local leadership for developing the economic and social activities.
- (g) To provide market information to the Potato growers in District.

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

3.3 AREA OF OPERATION

Potato is the main crop grown in Hassan Taluk with an area of 6400 hectares of Potato cultivation. The project area covers 16 Mandals and one Town Municipal with a total area of 942 Sq.Kilometers. Hassan Taluk is having 399 villages. The average rainfall of the area is 730.5mm(Annexure-8). Total geographical area is 91,818 hectares out of which net sown area is 41,737 hectares. Total irrigated area is 1,908 hectares. The block is having a total net work of 48 Km. rail length and 911 Km of road length, Which facilitates the easy transport to the block headquarters. So with all these infrastructure facilities, the Hassan Taluk is proposed as the project area. Total radius of the area of operation will be 10 Kms from the centre of Society.

3.4 PROJECT COMPONENT

The following are project components:

(a) Farm guidance Unit

At present there is no adequate farm guidance available to the Potato growers. Therefore, it is essential to have a separate farm guidance Cell comprising of Horticultural Extension Officers and Horticultural Extension workers. Through the services of Horticultural Extension Officers and Workers, the Potato growers will be educated with advance techniques of productions, use of machinery and plant protection measures. So that the Potato production will be increased.

(b) Input supply

The Primary Agricultural Cooperative Societies are providing inputs to the Potato growers in this area. But these Societies are not providing Seeds to the Potato growers. Therefore, the Society has to arrange for supply of seeds to the growers at reasonable rates by establishing Seed multiplication Centre in the Project area. This will help growers to reduce the cost of production and to increase the total production.

(c) Marketing

(i) The Society will procure 25% of the total production in the project area. The private traders are also purchasing Potato from the growers and selling the same to the consumers. Since the society has taken up procurement activities it helped to regularise the marketing practices thereby it is able to control the market and create healthy atmosphere of competition between private traders and cooperatives. This will result in achieving the goal of economic benefit to the producers.

(ii) The Society initially will pay an average price of Rs.1500/- per Metric Ton to the Potato growers as against Rs.1000/- per Metric Ton getting by them at present and this will be increased to Rs.1700/- per Metric Ton after 5 years of project. This will increase the income of the farmers of the project area.

- (iii) The Society has planned to plough back in the form of additional price of 25% of gross profit to the grower members in the ratio of produce sold by them to the Society.

3.5 PROCESSING

- (1) It has been proposed to undertake the processing plant for making chips with the initial capacity of 30 MT. The Society can increase the capacity to 60 MT after 5 years. Potato is available in sufficient quantity as a raw-material for processing.
- (2) Plant & Location. The location of the processing plant is in the premises of the Society itself. This being the headquarter of the District is well connected by rail and road. Most of the Potato growing villages in the District are within the radius of 50 Kms.

3.6 MARKETING POTENTIAL

There is a huge potential for production of Potatoes in Hassan Taluk. At present, the production is 64,000 MT and this would increase to 1,50,000 MT in the 10th year. Now, the trade is carried out by the middlemen and private traders. As a result, the Potato growers are not getting the real advantage of increased production. The prices are being fixed by the private traders to their advantage. Therefore, there arises a need to organise Potato Growers Marketing and Processing Cooperative Society in Hassan Taluk which has been taken as a project area. The Society would require Rs.8700 thousands for purchase of land, construction of Office building, godown, cold storage and processing unit(Annexure-9 & 9a). A cold storage of 1060 MT capacity is proposed to provide better market avenues and good quality seeds by procuring the seeds in time, by the Society.

3.7 PROCESSING POTENTIAL

In order to add value to the produce and also to meet the demands of consumers, it is proposed to establish a processing Unit for Potato. The project cost required for establishing Processing unit is shown in Annexure-9b). Sufficient raw-material is available in the project area for processing of Potatoes into Chips.

CHAPTER-IV
DETAILS OF OPERATION

4.1 IMPLEMENTATION AND EXTENSION

The project implementation agency will be potato growers Marketing and Processing Cooperative Society Ltd., Hassan Taluk. The project period will be for a period of 15 years. During implementation the Society will provide package of services to farmers. It will provide backward linkages such as supply of Seed tubes, extension, coordination, transport services, supervision of members Potato fields, increase in area of production and increase in yield. It also provides forward linkages for marketing, storage and processing of their produce.

4.2 PROCUREMENT

The Society will procure Potato 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 of market trend. All costs from transportation of Potato from farm gate to storing and processing of the produce is met by Society. It has been projected to pay a price of Rs.1500/- Per MT upto 5 years and Rs.1700/- per MT after 5 years. The growers will be given an additional price at the end of each year in relation to value of Potato handed over to Society. But in the beginning of 4 years it will be credited into their share capital contribution to the Society.

4.3 MARKETING

It is planned to sell the procured produce in the wholesale market with the assistance of Karnataka State Cooperative Marketing Federation and NAFED. As the internal cost of transportation and maintenance cost is met by the Society, the selling price is estimated at Rs.1800/- per Metric Ton on first five years and Rs.2100/- Per Metric Ton from 6th year onwards.

4.6 COLD STORAGE

On the basis of the arrival and despatches of Potato, a storage plan is prepared to ensure the maximum utilisation of cold storage. During the period of May-August, the vacant space in the cold storage

can be utilised for storing of fruits and vegetables. A chain of procurement, processing, marketing and storing is to be followed so as to increase the bargaining strength of the Potato growing members of the Society.

4.5 PROCESSING

Anchor activity - The Society will start processing activity soon after the office building and the processing unit is completed. The procedures such as preparation of project, getting loan from the financing Institutions, recruitment of staff and arrangements for marketing of Chips could be made.

The processing of Potato into chips will be undertaken at 30 Tonnes per month. The processing of Potato into chips involves the following steps.

- Washing and cleaning of Potatoes
- Peeling of Potato by peeling machine
- Cutting into slices
- Boiling in salt water
- Drying
- Frying
- Salt mixing
- Packing into consumer packs of 50/100/200 gms.

Generally, Potato slices are dehydrated before making fried chips. (1) Regular shaped and fresh Potatoes are washed thoroughly in water. (2) Thereafter, it is peeled off by using a Potato peeling machine. During this process water is continuously poured onto the Potatoes, so that whatever is peeled off is continuously removed. These peeled and washed Potatoes are kept in 0.10% solution of Sodium Metabisulphate so that it does not get discoloured. Now, any soiled part of Potatoes is removed manually with knives. (3) The peeled, washed and cleaned Potatoes are put into the chipping machine. The blade of the machine is so adjusted that chips obtained are of thickness $\frac{1}{16}$ of an inch. Chips are kept in a solution of 5% Common salt and 35 PPM of SO_2 for 2 to 3 minutes. (4) Water is drained out and fried in hydrogenated oil or refined oil. (5) The fried Potatoes are packed in Polythene bags for marketing. To extend the storage life, chips can be packed in time with inert gas.

4.6 (i) Sales realisation

There is a good market for Chips as the Chips are used in Bakeries, Hotels, Confectionary etc. It is expected a revenue of Rs.263 thousand per annum in the first 5 years and a revenue of Rs.526 thousand after 6th year onwards.

(ii) Depreciation

The depreciation on building has been assumed at 2.5% and 10% on machinery.

(iii) Project Period .

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

(iv) Training

It is proposed to give training to farmer members regarding adoptability of modern techniques in order to increase production and to reduce cost of cultivation. The farm guidance staff will be given training by deputing them to training courses conducted by State Horticulture Department and other Training Centres, so that they should know the latest trend of agricultural techniques;

CHAPTER-V
ORGANISATION AND MANAGEMENT

5.1 The Society will be established under the Karnataka Cooperative Societies Act with the objectives of increasing the income of Potato growing farmers through better marketing channels as well as processing facilities. The another task of the society will be of providing backward linkages including the farm guidance to the Potato growers of the project area. The various activities of the society will be performed by Management Committee.

The Managing Committee will comprise of 13 members, out of which 9 members will be elected from the grower members. Representation will be given to one each from SC/ST, Small and Marginal farmers and women growers. The term of the management committee is for a period of 3 years. Office bearers will be elected once in a year. The General Manager shall work as Member Secretary of the Committee, other three members will be nominated as under:

- (a) Representative of Registrar of Coop. Societies
- (b) Representative of District Horticultural Officer and
- (c) Representative of State Coop. Bank/Dist. Cent. Coop. Bank.

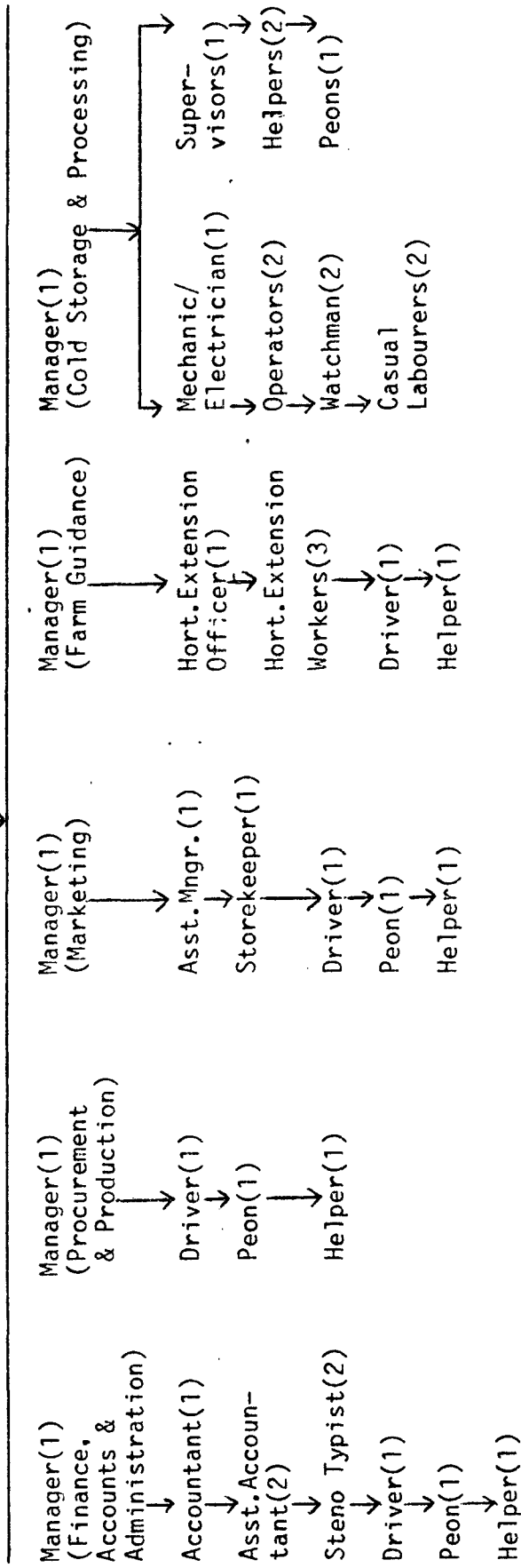
5.2 The organisation structure of the Society is broadly classified as follows:

- (a) General Manager
- (b) Finance, Accounts and Administration
- (c) Procurement and production
- (d) Marketing
- (e) Farm guidance
- (f) Cold storage
- (g) Processing

5.3 General Manager is vested with the power of project execution and day-to-day management of the Society. He will work according to the policies and directions taken by the Managing Committee from time to time.

5.4 The organisational structure of the Society will be as shown in the following chart.

M E M B E R S
 BOARD OF DIRECTORS
 GENERAL MANAGER(1)



5.5 The General Manager will be assisted by various Officers as indicated below.

(a) Manager - Finance, Accounts and Administration

The Manager is responsible for arranging finance, banking, adjustment of sales realisation, monitoring and evaluation and maintenance of all accounts. This wing is assisted by two Accountants and two Asst. Accountants. He will assist the General Manager in the matter of administration, general supervision, recruitment, training etc.

(b) Manager(Procurement & Production)

The Manager will look after the whole procurement and production aspects of the Society and he is responsible for supply of inputs, arranging seeds to the farmers in time. He should work in coordination with the Manager(Marketing).

(c) Manager(Marketing)

He is assisted by one Asst. Manager. As the Society proposed to undertake marketing activities with the assistance and support of KSCMF/NAFED, in arranging the stock required by them, he is responsible for despatch of Potatos to the NAFED/KSCMF and other wholesale Merchants operating in the project area. He should have good coordination with Manager(Procurement and Production).

(d) Manager(Horticulture)

Manager(Horticulture), will be assisted by Horticultural Extension Officer and Extension workers. The task vested with this division is to carry out Potato development programme which involves teaching, research and extension to farmers. At village level, Horticultural Extension workers will visit, assist and guide the individual Potato growers. They disseminate the technical knowhow and conduct demonstrations to the farmers. Taking farmers to Krishimela conducted by University of Agricultural Sciences or Krishi Vignana Kendras etc., will also look after by this division.

(e) Manager(Cold storage and Processing)

He is incharge of the Cold storage. He will lookafter the maintenance of Plant capacity with the help of Mechanic and Operators working under him. He will keep coordination with the Marketing Manager, Manager(Procurement) for proper utilisation of the plant capacity.

He will lookafter the maintenance, production schedule, utilisation of plant capacity etc., with the help of Supervisor working under him. He should study the demand in the market and produce quality processed products so that they can stand in market. He is responsible for the quality control of the product. the Manager will lookafter the advertisement and sales chart of the product. He will also keep watch on similar products of other competitors in the market.

CHAPTER-VI
FINANCIAL ANALYSIS

6.1 BENEFITS

With the establishment of Potato growers Marketing & Processing Cooperative Society, in the project area, the Society will initiate various socio-economic benefits to the farmers so that the income level of farmers will be increased. Apart from increasing the procurement price, the Society can also give extra benefits to the farmers by way of bonus or dividend; as Potato is perishable in nature, by establishing a cold storage and Processing unit, the object of increasing the production of Potato, to process and preserve them shall be fulfilled. Hassan Taluk is considered as industrially backward area. Therefore, by locating the project in this area there will be direct contribution to the enterprenurial and industrial development.

Due to the presence of farm guidance staff, the Potato growers will be able to understand the technical knowhow and also recent Potato production systems. Thereby, Potato growers will become conscious about high yielding varieties, quality of produce and importance of storage for better market prices. As the Society will procure nearly 25 percent of the annual production at the end of the 9th year(Annexure-10), it will be in a position to control market and thereby farmers will get competitive prices for their produce when compared to prices paid by private traders.

With the completion of Yagachi Dam which is under construction in the District, there is lot of potential in bringing the Potato crop under irrigation. Increase in area of Potato production will increase the handling volume of Potato by the Society. This in turn will provide direct employment opportunities to the surplus labour in the season of planting as well as harvesting.

The Society will provide permanent employment to several persons like Managerial, Technical, Skilled and unskilled to work in the Society. We can reduce the wastage due to better transport adopted by the Society. This will create the extra income generation to the farmers of the project area. On the consumers

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side, due to the planned and continuous discharge of produce, they will get the produce at reasonable price, year round.

A better marketing alternative to Potato growers and a Cooperative atmosphere in the project area will be introduced by the Society. Farmers will be motivated by extending the Potato growing area as they will be ensured minimum price even in the period of market gluts. To end with, the project will certainly acts like a economic ladder and contributes to the upliftment of economic standards of farming community in the area of operation.

6.2 It has been envisaged that upto 5th year, the Society will procure Potatos at Rs.1500 per ton and from 6th year onwards, procurement price of Rs.1700 per ton has been estimated. Apart from dividend of 10 percent to the members, the Society will also plough back 25 percent of the gross profit as a patronage dividend. After 5 years, the return per ton will range from Rs.264/- to Rs.358/- per ton. However from first year to 5th year no benefits will be given to farmers because of capital investment of procurement, cold storage and processing by the society.

6.3 Process

A detailed financial analysis has been made keeping the following assumptions.

1. The life of the project is 15 years. Plant life is 10 years.
2. Investment of Rs.147 thousand towards the cost of construction of processing unit and investment of Rs.2442 thousand for starting procurement activities in the beginning of 1st year and Rs.4148 thousand towards cost of investment on cold storage unit and Rs.1033.80 thousand towards cost of construction of Building of Society will be made.
3. The establishment cost of Cold storage unit, marketing Society and processing has been estimated at Rs.374 thousand and Rs.689 thousand and Rs.242 thousand will increase by 5% every year.

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- (4) Salvage value of buildings, plant and machinery has been assumed at Zero at the end of the project, with the assumption that salvage cannot be utilised in increasing the liquidity of the Society immediately and the project will continue to use it even after the end of Project life.
- (5) For processed produce i.e. Chips, the marketing channel will be through contractors at 3 per cent commission on sale. The society will also advertise its produce under the trade name of 'POTCHIPS'.
- (6) In case of inflationary situation, the inflation will have impact on costs as well as benefits.

6.4 COLD STORAGE

A detailed analysis has been made with the following assumptions.

- (1) The procurement of Potato will be for 9 months every year.
- (2) Salvage value of buildings, plant and machinery has been assumed at Zero at the end of the project with the assumption that salvage cannot be utilised in increasing or facilitating the liquidity of the society immediately and the project will continue to use it even after the end of the project period.
- (3) It has been assumed that the life span of the plant and equipments including refrigeration plant, generator set and other miscellaneous equipments to be at 10 years. Hence from 11th year onwards replacement of these machinery is needed.

6.5 On the above assumptions

FIRR comes to 54.14 percent and NPV at the end of project period comes to Rs.24,927 thousands. The benefit cost ratio(BCR) at 15% comes to 1.14(Annexure-11).

- 6.6 The break even point of the project comes to 15,402 M.Tons Potato marketing and processing. Returns on investment has been worked out in Annexure-12.

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6.7 Sensitivity analysis

Assuming 10 percent decline in benefits because of decrease in prices of Potatos, the NPV would be Rs.3986 thousands at 15% and the IRR would be 24.5%. The benefit cost ratio at 15% works out at 1.02(Annexure-13).

6.8 Repayment schedule and bankability

The interest accrued during the first 5 years of the project is added to the loan and annuity for the remaining 10 years at 10% interest is computed. Thus the loan amount plus the accrued interest during the moratorium period will be extinguished at the rate of Rs.985 thousands per annum over 10 years. The provision of Rs.1500 per M.Ton is envisaged to meet the working capital required and short term commitments such as procurement and other incidental charges. The capital cost required and the sources of finance raised for implementation has been worked in Annexure-14.

6.9 Economic analysis

As the capital investment of society is low and area of operation is limited, it is difficult to measure the impact on National economy or Society as a whole. However, the following direct and indirect economic benefits can be enumerated.

Direct benefits

With the integrated cooperatives and intensive efforts of horticulturists, adequate supply of inputs and farm guidance, the following benefits can be enjoyed by the Potato growers.

(a) Increase of economic life of processing as well as storage plants, which is at present 10 years, can be further extended to 15 years.

(b) Reduce loss due to stoppage and transportation

In absence of cold storage facilities, there was 2 percent wastage and another 2 percent due to poor transportation. So this wastage is saved. Cold storage facilities contribute to the income generation of the farmer.

(c) Increase productivity

At present the average yield per hectare in the area is 10 tons. But a few farmers, by adopting improved practices, have successfully harvested 25 tonnes per hectare. Thus, there is a scope of increasing the productivity per unit area by providing intensive cultivation system. This will also increase the value of their output.

A secured and continuous demand for Potato would involve the growers to going for increasing the total production. By doing so, the farmers would take up the Potato cultivation more as a business than subsistence way of life which earlier they were practicing. Besides above, with the existence of cooperative, the market price of Potato will increase as the monopoly of the private traders will be restricted and in turn this enhances 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 income and employment will be generated by organising the society and take up the activities of cold storage and processing.

CONSUMERS BENEFIT

The project will envisage a planned continuous supply of Potato to consumers at a reasonable price even at the off-seasons, while processing the Potato into chips, the consumers taste and other interests taken care of.

CHAPTER-VII

7.1 BUDGET FOR FIRST FIVE YEARS IS SHOWN BELOW

(Amount in '000)

SL. No.	Item	Years				
		I	II	III	IV	V
1.	Capital Investment	1180.80	-	-	4148.00	147.00
2.	Operating cost	3131.00	6373.45	9914.72	14133.40	19518.62
3.	Revenue	2866.00	6613.00	10716.00	15610.00	22,067.00
4.	Surplus	-1445.80	240.55	802.28	-2671.40	2401.38
5.	Distribution of 25% of surplus	-	60.14	200.28	-	600.35
6.	Net Revenue	-	180.41	601.71	-	1,801.03
7.	Tax @ 30%	-	54.12	180.51	-	540.31
8.	Surplus available for repayment	-	126.29	421.2	-	1,260.72
9.	Repayment of loans with interest on capital investment	-	-	-	-	-
10.	Dividend @ 10%	-	-	-	-	-
11.	Statutory Reserve @ 25%	-	31.57	105.30	--	315.18
12.	Other reserves	-	94.72	315.90	-	945.54

7.2 Tax in I & IV year will not be paid because the net revenue in these two years will be deficit because of capital investment of Rs.1180.80 thousands and Rs.4148.00 thousand respectively.

7.3 Though, the surplus available for repayment in II and III year, the repayment will not be made, as it will be adjudged as Moratorium period and the interest will be capitalised for first five years.

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

CHAPTER VIII

RECOMMENDATIONS

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

8.1 By creating & strengthening "Potato Growers Marketing and Processing Cooperative Society", it can be possible to provide an efficient & economical marketing system, the exploitation of farmers by the middlemen and private traders be avoided. Therefore, State Cooperative Bank should come forward to provide the long term loan through NCDC Scheme for setting up of a cold storage and processing units.

8.2 The Society should get assistance from Agriculture & Horticulture Departments to impart technical knowhow to the farmers. The University of Agricultural Sciences, Bangalore should come up with the high yielding as well as disease & pest resistant varieties.

8.3 Various arrangements should be made in a stepwise manner so that the proposed cold storage units & processing units should be established.

8.4 State Government should provide proposed share of equity & subsidy for the processing & cold storage units & also give guarantee to the long term financing institutions.

8.5 The procurement of potato should increase gradually by increasing the plant capacity, So that the processing as well as storage of potato will be increased.

8.6 University of agricultural Sciences, Bangalore should develop a seed multiplication centre in the area so that the seeds can be purchased by the Society at the proper time & supplied to the farmers with minimum cost. Because, at present the seeds are purchased from Simla & Jallundar by paying high cost of transportation.

8.7 The processing activity of potato can be extended from chips to patties, starch, flour etc so that, increase in adaptability of potato is achieved to the full extent.

8.8 In order to create acceptability of the potato product, it is desirable that the processed produce must have attractive colour, & good taste so as to fetch better price & quick acceptability in the market.

8.9 It is desirable that suitable steps should be taken to reduce the transportation cost & digging losses during the harvesting period.

8.10 The Society should tie up its marketing activities with institutions like Horticultural Producers Marketing Cooperative Society Ltd., Bangalore, NAFED, NDDB to increase marketing of chips.

8.11 State Government should help for obtaining registration and required licence for cold storage & processing units.

8.12 State Government should allot the required land and provide necessary facilities to the Society, so that, the Society could serve the farmers in the project area in a better way to increase their income.

8.13 The proposed society can accept term deposits from members & non members in order to become financially strong.

8.14 The Society should enroll all the growers as members in the project area.

8.15 The Society can create good communication between members & management concerning the immediate activities & short & long term goals of cooperatives.

ANNEXURE - 1

District-wise Area & Production of Potato in Karnataka: 1989-90

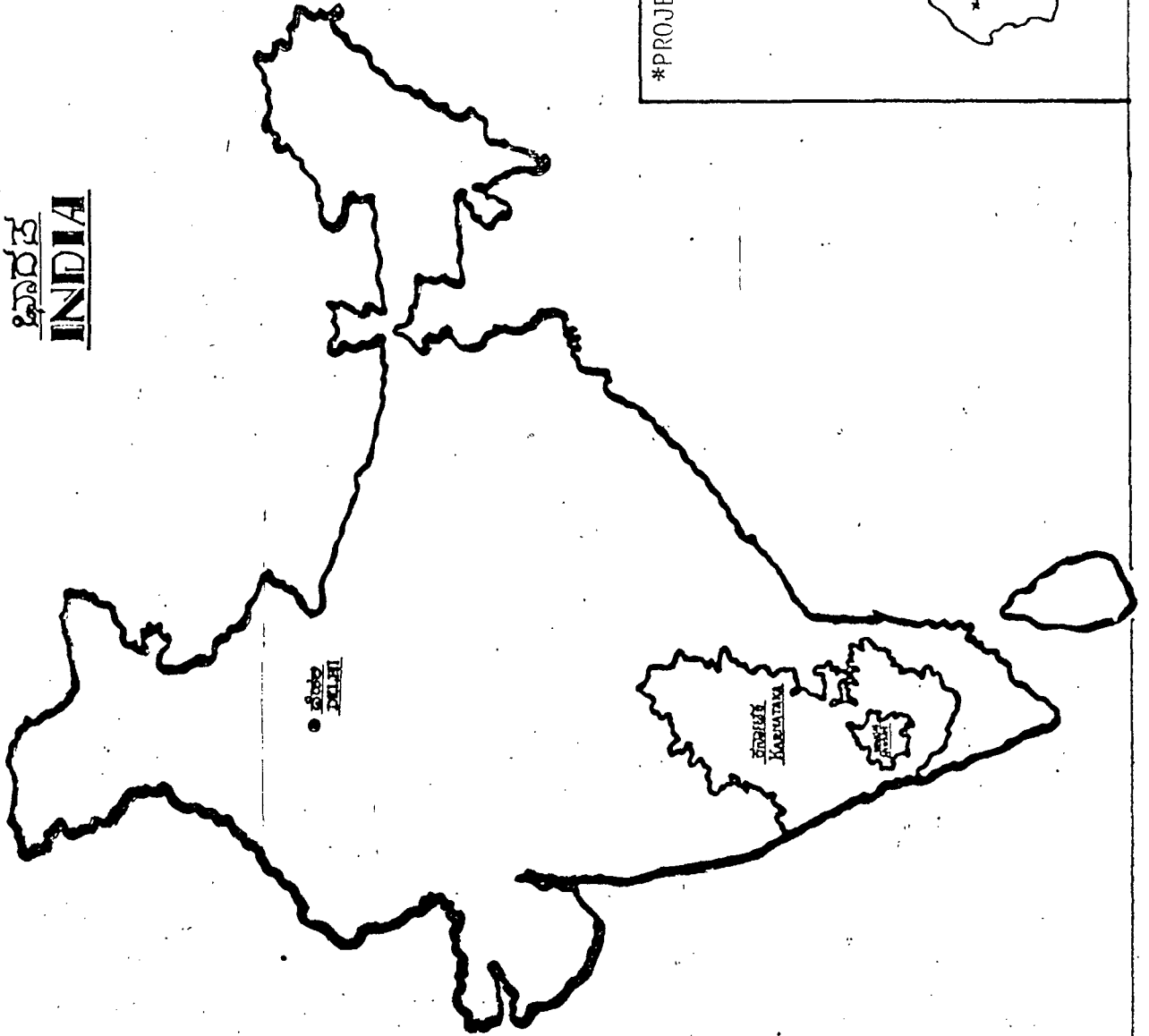
- Area in Hectares

- Production in Tonnes

Sl. No.	District	Season		Total Area	Total Production
		Khariff	Rabi		
1.	Hassan	9800	770	10570	105700
2.	Kolar	175	5478	5653	56530
3.	Dharwad	6080	680	6760	67600
4.	Belgaum	6863	900	7763	77630
5.	Chikmagalur	900	-	900	9000
6.	Bangalore	295	487	782	7820
7.	Others	225	-	225	2250
T O T A L		<u>24338</u>	<u>8315</u>	<u>32653</u>	<u>326530</u>

SOURCE: Deputy Director, Horticulture Department, Bangalore.

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INDIA



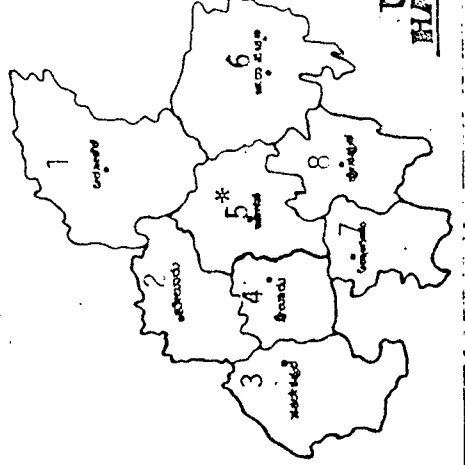
INDEX

Distance

1. Delhi to Bangalore 2463 kms
2. Bangalore to Hassan 194 kms



*PROJECT AREA: H A S S A N
TALUK.



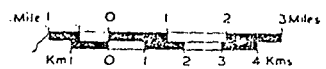
1. Arsikere
2. Belur
3. Sakleshp
4. Alur
5. Hassan
6. Channarayana
7. Arkalgudi
8. Holenarasip

ಹಾಸನ
HASSAN

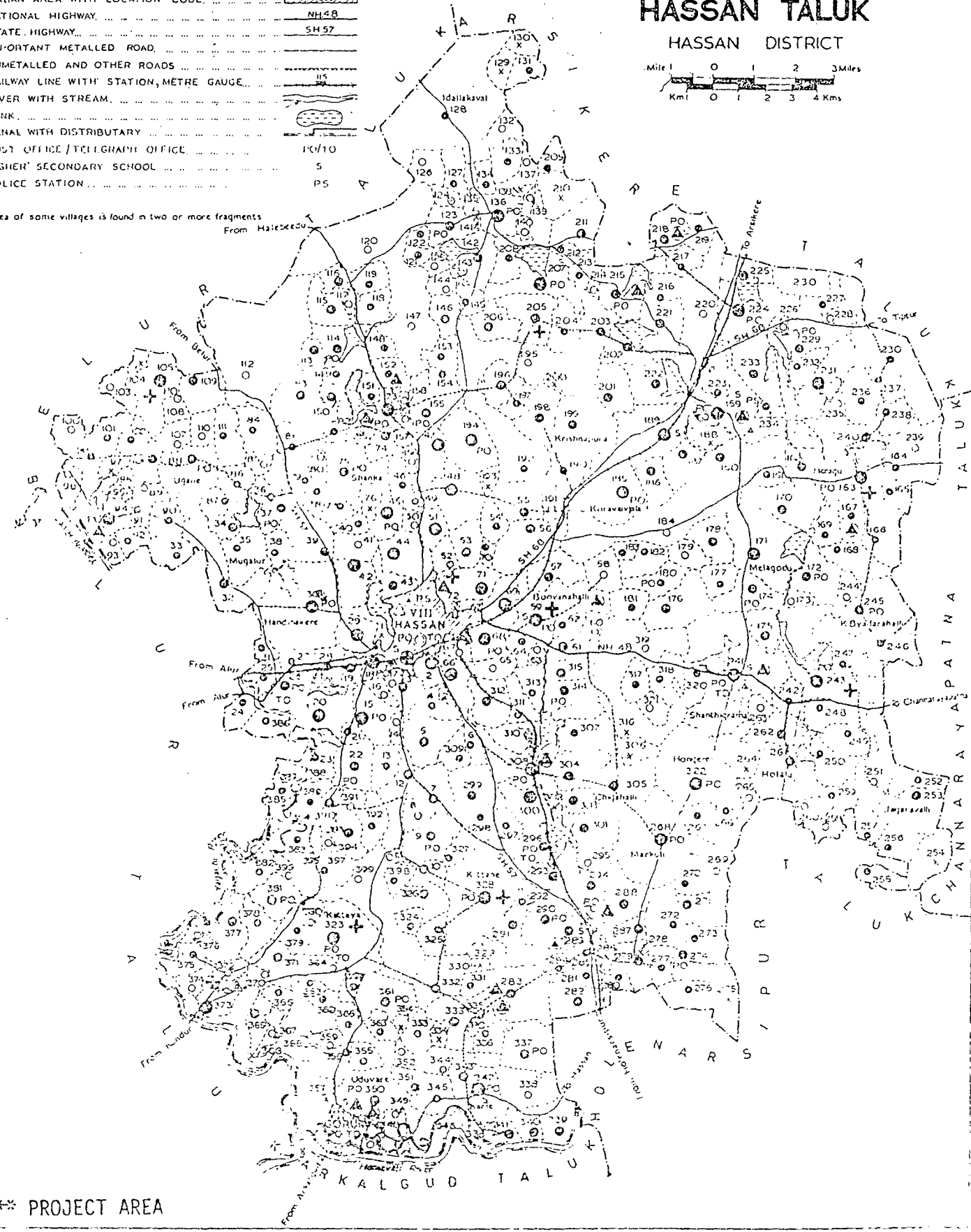
BOUNDARY, TALUK	.....
VILLAGE WITH LOCATION CODE NUMBER	..... 71
HEADQUARTERS: TALUK	.....
VILLAGES WITH POPULATION SIZE: BELOW 200; 200-499; 500-999; 1000-4999	.....
UNINHABITED VILLAGES WITH LOCATION CODE	..... X76
URBAN AREA WITH LOCATION CODE	..... VIIII
NATIONAL HIGHWAY	..... NH 48
STATE HIGHWAY	..... SH 57
IMPORTANT METALLED ROAD	.....
UNMETALLED AND OTHER ROADS	.....
RAILWAY LINE WITH STATION, METRE GAUGE	.....
RIVER WITH STREAM	.....
TANK	.....
CANAL WITH DISTRIBUTARY	.....
POST OFFICE / TELEGRAPH OFFICE	..... PO/TO
HIGHER SECONDARY SCHOOL	..... S
POLICE STATION	..... PS

HOSPITAL, PRIMARY HEALTH CENTRE/PRIMARY HEALTH UNIT, DISPENSARY, FAMILY PLANNING CENTRE..... ⊕, ⊙, ⊕, ⊙
 IMPORTANT VILLAGE MARKET/HAT (SHANDY), MANDIES..... ⊕, ⊙

KARNATAKA
HASSAN TALUK ***
 HASSAN DISTRICT



Area of some villages is found in two or more fragments From Halebeka



*** PROJECT AREA

A N N E X U R E - 3

Taluka-wise Area & Production of Potato in Hassan District:
1989-90

- Area in Hectares

- Production in Tonnes

Sl. No.	Taluk	Total Area	Total Production
1.	Alur	500	5000
2.	Arkalgud	500	5000
3.	Arsikere	-	-
4.	Belur	1620	16200
5.	Channarayapatna	-	-
6.	Hassan	6400	64000
7.	Holenarasipura	1550	15500
8.	Sakaleshpura	-	-
T O T A L		<u>10570</u>	<u>105700</u>

SOURCE: District Statistical Office, Hassan.

A N N E X U R E - 4

Taluk-wise Area, Production, Amount in Hassan District: 89-90

- Area in Hectares
- Production in Tonnes
- Amount in lakhs

Sl.No.	Taluk	Total Area	Total Production	Total
1.	Alur	500	5000	125.00
2.	Arkalgud	500	5000	125.00
3.	Arsikere	-	-	-
4.	Belur	1620	16200	405.00
5.	Channarayapatna	-	-	-
6.	Hassan	6400	64000	1600.00*
7.	Holenarasipur	1550	15500	387.50

SOURCE: District Horticulture Officer, H A S S A N

* Average Price is assumed at Rs.2500/Tonne.

ANNEXURE - 5

CROP-WISE & TALUKA-WISE AREA UNDER DIFFERENT CROPS IN HASSAN DISTRICT: 1988-89

Sl. No.	Name of the Crops	T A L U K S							Total Area	
		Alur	Arkalgud	Arsikere	Belur	Channara- patna	Hassan	H.N Pura		Saklesh- pur
1.	Paddy	5722	8744	511	6179	3141	6519	6401	13150	50367
2.	Finger Millet(Ragi)	5335	13873	33064	15482	33773	25579	15166	80	142352
3.	Jowar	94	756	4586	1712	2929	728	940	-	11745
4.	Minor Millets	-	7	190	-	68	45	-	-	310
5.	Bengal Gram	-	-	18	25	-	9	2	-	54
6.	Red Gram	30	197	1534	1485	457	338	110	-	4151
7.	Other Pulses	861	6531	8417	6030	7206	5365	7698	99	42207
8.	Sugarcane	63	24	5	1002	1593	179	156	5	3027
9.	Groundnut	173	239	684	1357	675	607	284	19	4038
10.	Cotton	65	1	700	1701	4	141	-	-	2612
11.	Potato	850	662	24	205	17	4520	196	-	6474
12.	Onion	-	4	18	8	10	22	-	-	62
13.	Mango	10	105	31	33	112	83	15	25	414
14.	Banana	24	47	322	105	46	132	44	412	1132
15.	HVY Crops	6568	16313	21813	22459	30825	29472	11692	11892	151034

SOURCE: District Statistical Office, H A S S A N.

A N N E X U R E - 6

ARRIVALS & MODEL PRICES OF POTATOS IN A.P.M.C, H A S S A N:

Sl. No.	Year	Arrivals(In Qntls)	Model Price(in Rs.)/Qntls.
1.	1979-80	17374	* 103/-
2.	1980-81	16070	* 177/-
3.	1981-82	11558	100/-
4.	1982-83	13685	163/-
5.	1983-84	26127	172/-
6.	1984-85	39181	132/-
7.	1985-86	33479	195/-
8.	1986-87	77375	205/-
9.	1987-88	87342	173/-
10.	1988-89	82098	157/-

* Average Price

SOURCE: Agriculture Produce Market Committee, Hassan.

A N N E X U R E - 7

Cost of Cultivation of Potato per hectare

	<u>Unit Cost</u>	<u>Total Cost</u>
(a) Cost of Seed @ 1500 Kgs cut tubers/HA	Rs.3500/- Tonne	5250.00
(b) Land Preparation(4 Ploughings)	Rs.25/-ploughing	100.00
(c) Sowing & Applying Fertilizers (4 Ploughings & 50 Labourers)	Rs.10/-Labour	600.00
(d) FYM(10 Tonnes/HA)	Rs.100/Tonne	1000.00
(e) Fertilizers & PP Chemicals (150 N + 100 P + 100 K)	-	2750.00
(f) Intercultural operations(Harrowing, Earthing up & weeding)(80 Labourers & 8 Bullock Pairs)	-	1000.00
(g) Harvesting, Cleaning & trans- portation(8 Bullock Pairs & 60 Labourers)	-	800.00
		<u>11500.00</u>

SOURCE:Discussion with the Farmers in Hassan Taluk &

District Horticultural Officer, H A S S A N.

A N N E X U R E - 8

Rainfall during last 5 years in
HASSAN TALUK

KARNATAKA(INDIA)

S1. No.	Year	Rainfall in MM's
1.	1984	878.9
2.	1985	518.9
3.	1986	1439.6
4.	1987	742.3
5.	1988	730.5

SOURCE: District Statistical Office, Hassan.

MARKETING UNIT - SUMMARY OF COSTS

Sl.No.	Particulars	Amount(Rs.'000)
I. <u>FIXED COSTS</u>		
A. <u>Land & Buildings</u>		
	(a) Land - 10000 M ² at Rs.10/-M ²	100.00
	(b) Office Building - 150 M ² @ Rs.860/M ²	129.00
	(c) Godown - 180 M ² @ Rs.860/M ²	154.80
	(d) Boundary Wall	25.00
	(e) Garages	50.00
	(f) Furniture & Fixtures	20.00
	(g) Miscellaneous	50.00
	SUB-TOTAL OF A	<u>528.80</u>
B. <u>Vehicles</u>		
	(a) Car - 1	125.00
	(b) Jeep - 2	200.00
	(c) Lorry - 1	180.00
	SUB-TOTAL OF B	<u>505.00</u>
	TOTAL OF A + B	<u>1033.80</u>
II. <u>OPERATING COSTS</u>		
1. <u>Salaries - Staff</u>		
	(a) General Manager(1)	36.00
	(b) Manager(Procurement & Production) - (1)	30.00
	(c) Manager(Marketing) - (1)	30.00
	(d) Manager(Farm Guidance) - (1)	30.00
	(e) Manager(Finance, Accounts & Admn.)- (1)	30.00
	(f) Asst. Manager(Marketing)	24.00
	(g) Hort.Extension Officer(1)	24.00
	(h) Hort.Extension Worker(3)	54.00
	(i) Accountant(1)	12.00
	(j) Storekeeper(1)	12.00
	(k) Accounts Assistants(2)	24.00
	(l) Steno/Typist(2)	24.00
	(m) Peons(2)	14.00
	(n) Drivers(4)	38.00
	(o) Helpers(4)	17.00
	2. Travelling Allowance & Dearness Allowance Expenses	25.00
	3. Vehicle Maintenance	30.00
	4. Office Maintenance & Stores	25.00
	5. Miscellaneous Expenses	10.00
	6. Cost of training to the farmers for 400 every year	200.00
	T O T A L	<u>689.00</u>
III. <u>DEPRECIATION COSTS</u>		
	- Building @ 2.5%	10.70
	- Vehicles @ 5%	25.00

A N N E X U R E - 9(a)

COLD STORAGE UNIT - SUMMARY OF COSTS

(Amount in '000)

<u>Sl.No.</u>	<u>Particulars</u>	
	<u>FIXED COST</u>	
A.	<u>Building Costs</u>	
	i) Cost for building for cold storage plinth area - 2014.62 M ² for 1060 MT Capacity	1440.00
	ii) Other Civil Works	242.00
	iii) Architects Fee	58.00
B.	<u>Plant & Equipment</u>	
	i) Installed cost of Refrigeration Plant & installation of cold rooms & 9 cold store doors	1650.00
	ii) Services	
	a) Power Lines to Plant Deposit	55.00
	b) Electrical Systems, Control Panel	50.00
	c) General Electrical & Other Utility Services	30.00
	iii) Generator Set	190.00
	iv) Miscellaneous Equipments	24.00
C.	<u>Other Fixed Assets:</u>	
	Furniture & Fixtures and also Office Equipments	32.00
	TOTAL FIXED CAPITAL	3771.00
	Contingency	377.00
	T O T A L	<u>4148.00</u>

OPERATING COST

(Rs. in '000)

<u>A. UTILITIES</u>	
1. Power	
(a) 52.5 KW for 16 Hrs. for 365 days @ 0.040/KWH	123.00
(b) Demand Charges @ Rs.24/-KWH	14.00
2. Fuel for 52.5 KW Generator Set at 0.27 Lt/KW for 300 Hrs.	15.00
3. Water - 200 Lt/day for 365 days	1.00
<u>B. MANPOWER COST</u>	
1. <u>Salary</u>	
(a) Manager(1)	30.00
(b) Mechanic/Electrician(1)	12.00
(c) Operators(2)	19.00
(d) Watchman(2)	14.00
(e) Casual Labourers(2)	4.00
2. Administrative Expenses	10.00
<u>C. PLANT OVERHEADS</u>	
1. Maintenance(a) Building - 2%	28.00
(b) Plant - 3%	60.00
2. Insurance @ 1%	33.00
3. Taxes 0.5%	10.00
4. Licence Fee	1.00
TOTAL OPERATING COSTS	<u>374.00</u>
<u>D. DEPRECIATION</u>	
(a) Building @ 2.5%	43.5
(b) Plant and Machinery @ 10%	186.40
E. HIRE CHARGES @ Rs.60/Ton/Month for 1060 MT/Month	636.00

SOURCE: CFTRI, MYSORE.

PROCESSING UNIT - S U M M A R Y OF C O S T S

<u>Particulars</u>	(Rs. in '000)
I. <u>FIXED COSTS</u>	
A. Building Cost - covering an area of 150 M ² at Rs.860/M ²	129.00
B. Machinery & Equipment:	
(a) Potato Pealer - 1 HT Motor	5.00
(b) Gravity Feed Slicer	5.00
(c) Heating & Frying Arrangements	1.00
(d) Aluminium Vessels, Trays	1.00
(e) Work Table with Aluminium Sheet(2 Nos.)	2.00
(f) Heat Sealers(1 No.)	1.00
(g) Weighing Balance 100 Kg.Cup	1.00
(h) Miscellaneous Equipments, Counter Balance etc.	2.00
	18.00
TOTAL FIXED COST	<u>147.00</u>
II. <u>OPERATING COSTS</u>	
A. Raw Material Per Annum	
(a) Potatos 30 Tonnes @ Rs.2,000/-Tonne	60.00
(b) Refined Oil 2,400 Kgs. @ Rs.30/-K.G	72.00
(c) Chemicals, Preservatives, Salts & Packing Materials	6.00
	<u>138.00</u>
B. Staff-Salary	
(a) Supervisor(1)	29.00
(b) Peon(1)	
(c) Helpers(2)	
C. Other Expenses(Power, Postage, Consumable Stores, Maintenance etc.)	55.00
D. Selling Cost of Chips	20.00
TOTAL OPERATING COSTS	<u>242.00</u>
<u>Depreciation</u>	
On Building @ 2.5%	3.2
On Machinery @ 10%	2.0
III. Expected Turnover/Production per annum(selling at the rate of Rs.35/-K.G - 7.5 Tonnes	263.00 Per Annum

A N N E X U R E - 10

Year-wise estimate of procurement & marketing of Potatos by the Potato Growers Marketing & Processing Coop. Society, H A S S A N Taluk, H A S S A N D I S T R I C T, K A R N A T A K A S T A T E (I N D I A)

Quantity in Tonne
Rs. in '000

Sl. No.	Production (Tonnes)	Procurement(%)	Procurement in tonnes	Procurement cost	* Handling bagging & transportation charges †	Qty. available for marketing	Wastage Qty.2%	Sale** Value	+ Total Cost
1.	65,000	2.5	1625	2438.00	4.00	1592	33	2866.00	2442.00
2.	72,000	5.0	3600	5400.00	8.00	3528	72	6350.00	5408.00
3.	79,000	7.5	5925	8888.00	13.00	5807	118	10453.00	8901.00
4.	87,000	10.0	8700	13050.00	19.00	8526	174	15347.00	13069.00
5.	96,000	12.5	12000	18000.00	27.00	11760	240	21168.00	18027.00
6.	1,05,000	15.0	15750	26775.00	35.00	15435	315	32414.00	26810.00
7.	1,16,000	17.5	20300	34510.00	45.00	19894	406	41777.00	34555.00
8.	1,27,000	20.0	25400	43180.00	57.00	24892	508	52273.00	43237.00
9.	1,39,000	22.5	31275	53168.00	70.00	30650	625	64365.00	53238.00
10.	1,50,000	25.0	37500	63750.00	84.00	36750	750	77175.00	63834.00
11.	1,50,000	25.0	37500	63750.00	84.00	36750	750	77175.00	63834.00
12.	1,50,000	25.0	37500	63750.00	84.00	36750	750	77175.00	63834.00
13.	1,50,000	25.0	37500	63750.00	84.00	36750	750	77175.00	63834.00
14.	1,50,000	25.0	37500	63750.00	84.00	36750	750	77175.00	63834.00
15.	1,50,000	25.0	37500	63750.00	84.00	36750	750	77175.00	63834.00

* Rs.1500/- tonne upto 5 Years & Rs.1,700/- tonne after 5 years

** Rs.1800/-Tonne upto 5 years and Rs.2100/- tonne after 5 years.

† Estimated at the cost of Rs.2.25/tonne for bagging, handling & transportation(Internal)

ANNEXURE-11

CASH FLOW OF POTATO GROWERS MARKETING & PROCESSING COOPERATIVE SOCIETY LTD.,

HASSAN TALUK

Sl. No.	Contents	(AMOUNT ' 000) / QTY IN TONNES														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A Fixed Cost																
a)	Cost of establishing Marking society	1033.80	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b)	Cost of cold storage unit	-	1472.00	1950.00	726.00	-	-	-	-	-	-	-	-	-	-	-
c)	Cost of processing unit	147.00	-	-	-	147.00	-	-	-	-	-	-	-	-	-	-
Sub Total A		1180.80	1472.00	1950.00	726.00	147.00	-	-	-	-	-	-	-	-	-	-
B Variable costs																
a)	Recurring cost of Markg. Society	689.00	732.45	759.62	797.60	837.48	879.35	923.32	969.49	1017.96	1068.86	1122.30	1178.42	1237.34	1299.21	1364.17
b)	Recurring cost of Cold Storage	-	-	-	-	374.00	392.70	412.34	432.96	454.66	477.34	501.21	526.27	552.58	580.21	609.22
c)	Recurring cost of Processing Unit	-	242.00	254.10	266.80	280.14	294.15	308.86	324.30	340.52	357.54	375.42	394.19	413.90	434.59	456.32
d)	Procuring cost of Potatoes	2442.00	5408.00	8901.00	13069.00	18027.0	26810/-	34555.0	43237.00	53238.00	63834.00	63834.00	63834.00	63834.00	63834.00	63834.00
Sub Total		3131.00	6373.45	9914.72	14133.40	19518.62	283376.36	36199.44	4963.75	55051.09	65737.74	65832.93	65932.88	66037.82	66148.01	66263.71
Total A & B		4311.00	7845.45	11864.72	14859.40	19665.62	28376.20	36199.52	44963.75	55051.09	65737.74	65832.93	65932.88	66037.82	66148.01	66263.71
C Benefits																
a)	Sale value of potato	2866.00	6350.00	10453	15347	21168	32414	41777	52273	64365.00	77175.00	77185.00	77175.00	77175.00	77175.00	77175.00
b)	Hire charges - Cold storage	-	-	-	-	636.00	636.00	636.00	636.00	636.00	636.00	636.00	636.00	636.00	636.00	636.00
c)	Chips making cost	-	263.00	263.00	262	263.00	526.00	526.00	526.00	526.00	526.00	526.00	526.00	526.00	526.00	526.00
Total		2866.00	6613.00	10716	15610	22067.00	33576.00	42939.0	53435.00	65529.00	78337.00	78337.00	78337.00	78337.00	78337.00	78337.00
Net Benefits		(1445.00)	(1232.45)	(1148.72)	(750.60)	2401.38	5199.80	6739.48	8471.25	10475.91	12599.76	12504.07	12404.12	12299.18	12188.99	12073.29

IRR - 54.14%
NPV @ 15% 24926.96

Benefits cost ratio @ 15% = $\frac{\text{Dis. Ben.}}{\text{Dis Cost}}$ = 1.14
213280 / 187356

A N N E X U R E - 12

Income Statement(Returns) - Potato Growers Marketing & Processing
Cooperative Society, Hassan Taluk.

(at 7th Year)

(Amount in '000)

A. REVENUE 42939.00

B. VARIABLE COSTS

a) Procurement Cost - 20300 MT X 1700	34510.00
b) Handling & Transportation	45.00
c) Wastage	690.20
d) Utilities	153.00
e) Raw-materials for processing	138.00
f) Marketing Cost of Chips	20.00
g) Interest on W.C @ 14%	4263.00

T O T A L 39819.20

C. FIXED COST

a) Overheads	1024.00
b) Depreciation on Land & Building @ 2.5%	57.40
c) Depreciation on Plant & Machinery @ 10%	188.20
d) Depreciation on Vehicles @ 5%	25.00
e) Loan repayment	985.00

2279.60

Operating Profit 3120.00

Net Profit 840.40

Fixed Costs per annum 2279.60

Profits over variable cost(Price received per
unit) less variable cost per unit =
2043 - 1895 = 148

Break Even Point = $\frac{2279.60}{148}$ = 15,402 MT

Quantity handled = 21014.0

Rated Capacity = 37870.0

Capacity Utilisation = 73%

Break Even Point as a proportion
to capacity = 44%

A N N E X U R E - 13

SENSITIVITY ANALYSIS(ASSUMING 10% DECLINE IN BENEFITS)

(AMOUNT IN '000)

Sl. No.	Fixed Cost	Operating/ Maintenance Cost	Total Cost	Gross Benefit	Net Benefit
1.	1180.80	3131.00	4311.00	2579.40	(1731.60)
2.	1472.00	6373.45	7845.45	5951.70	(1893.75)
3.	1950.00	9914.72	11864.72	9644.40	(2220.32)
4.	726.00	14133.40	14859.40	14049.00	(810.40)
5.	147.00	19518.62	19665.62	19860.30	(194.68)
6.	-	28376.20	28376.20	30218.40	(1842.20)
7.	-	36199.52	36199.52	38645.10	(2445.58)
8.	-	44963.75	44963.75	48091.50	(3127.75)
9.	-	55051.09	55051.09	58974.30	(3923.21)
10.	-	65737.74	65737.74	70503.30	(4765.26)
11.	-	65832.93	65832.73	70503.30	(4670.57)
12.	-	65932.88	65932.88	70503.30	(4570.42)
13.	-	66037.82	66037.82	70503.30	(4465.48)
14.	-	66148.01	66148.01	70503.30	(4355.29)
15.	-	66263.71	66263.71	70503.30	(4239.59)

IRR - 24%

NPV at 15%- 3986.0

B.C Ratio = 1.02
at 15%

ANNEXURE - 14

Loan requirement & Bankability

(Amt. '000)

A CAPITAL COSTS

I Year + W.C(I)	1180.80 + 3131.00	4311.80
II "	1472.00	1472.00
III "	1950.00	1950.00
IV "	726.00	726.00
V "	147.00	147.00
TOTAL PROJECT COST		8606.80
Say around		<u>8700.00</u>

B SOURCE OF FINANCE

I. Share Capital of members(5%)	450.00
II. Share Capital assistance from State Government & NCDC(45%)	3900.00
III. Loan borrowed from Credit Institutions	4350.00
TOTAL PROJECT COST:	<u>8700.00</u>

C MODE OF FINANCING

Source	Year				
	I	II	III	IV	V
Project Cost	4311	1472	1950	726	147
Farmers' Contribution	216	74	98	36	7
Share from Government & NCDC	1940	662	877	327	66
Loan - Long Term	2155	736	975	363	74

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

by Mr D T Rangaswamy, India.

(other than those included in group presentation)

- * Basically a marketing project as large portion is sold in open market and the cold storage is a minor component.
- * Cross checking is not possible due to absence of cross references.
- * Assumptions of price and quantity affect the project. IRR can change by change of assumptions.
- * Wastage of 2% seems on the lower side. Handling charges of Rs.2.75 per ton is inadequate.
- * Prices to be paid to farmers should be included. Competitive trade must be estimated and protected.
- * If above done, sensitivity analysis will also change.
- * Commercial aspects like market tie up etc. should be elaborated.
- * Working capital - inadequate, societies do not survive due to shortage of working capital. W/C should be given more emphasis in calculations.
- * Intt on working capital is not included in calculation of cash outflow, NPV, and IRR. Profitability would come down and project may not be viable.
- * Some costs are underestimated and need revision.
- * Pay back period not computed.
- * Processing unit: sale price of potato chips and sales commn. on it seems unrealistic.
- * Project has three segments: marketing, chips and cold storage chips is too small segment. Is it profitable to include?
- * Processing working capital and intt thereon not included.
- * 5th year operating cost for 2nd unit needs checking up.
- * P 23, cash budget should not have tax. should go to operating cost.
- * Value addition to farmers should be calculated separately by increase in production, procurement price and shared benefits by way of dividends etc.

1. TITLE OF THE PROJECT IS NOT ^{quite} APPROPRIATE.

IT SHOULD BE " INTEGRATED MARKETING AND PROCESSING OF POTATO IN HASSAN DIST. KARNATAKA.

2. VALUE ADDITION / ACRE IS NOT INCLUDED IN THIS PROJ.

3. PROCESSING UNIT IS NOT WORKING THROUGH OUT THE YEAR, AND THE STORAGE IS NOT SUFFICIENT ACCORDING TO THE CAPACITY OF THE PLANT.

4. 25% PRODUCTION OF THE AREA WILL BE PROCURE AND THE CAPACITY IS ONLY 1060 MT. OF COLD STORAGE, AND HOW MUCH QUANTITY IS MARKETING BY THE SOCIETY?

5. PROFIT FROM MARKETING OF POTATOES AND AFTER PROCESSING MARKETING OF PRODUCT IS NOT CLEAR.

6. THE YEARS OF CAPITAL INVESTMENT ARE DIFFERENT BETWEEN P. 23 AND ANNEXURE 11, AND FIXED COST AND CAPITAL INVESTMENT ^{big} HAVE DIFFERENT MEANING.

7. THE CALCULATION OF WC. AND ITS INTEREST IS NOT CLEARLY MENTIONED. THE PERIOD OF MONEY TURNOVER SUCH AS PROCESSING, MARKETING PERIOD ETC. SHOULD BE GIVEN.

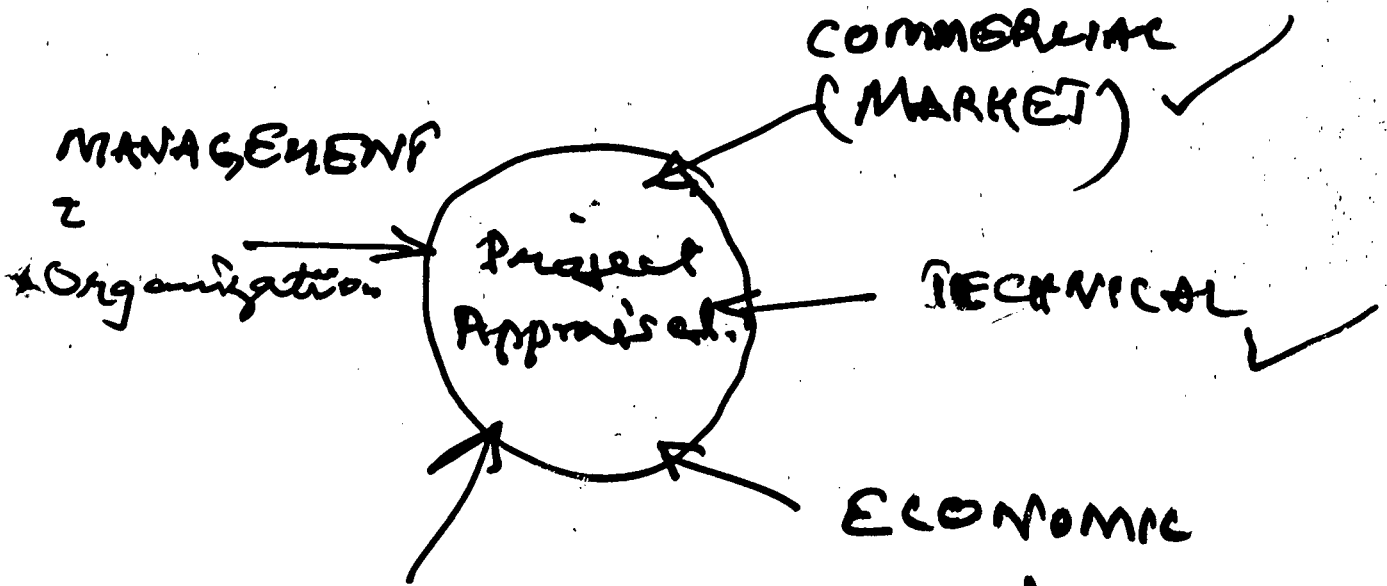
Group B - India

The following are our comments:

1. Repayment schedule not given.
2. Calculation of Working Capital requirement have not being made as Annexure 14 with cashflow chart as shown.
3. Sensitivity analysis have not being made.
4. Refer Annexure 11 - the charges (Cold Storage) should be considered as cost.
5. Project objective to increase productivity of potatoes but no information mention about how this could be achieved.
6. Recurring cost on operating cost on % increase not mentioned. (wages etc)
7. Cost of managing committee meeting have not being provided.
8. Depreciation rate of building very low at 2.5%.
9. IRR mentioned in Annexure 11 is 54.14% while in Annexure 13 is -24%.
Assuming 10% decline in benefits is not sensitivity analysis.
10. Payback period not mentioned.

GROUP C

Potato : Hassan Tatum



FINANCE

NPV 15% - 3,986 thousands

IRR: 24.5% / 8700

B.C. Ratio: 1.02
at 15%

N: 41.40

M: 100

B: 1741.40

B: 1700 + 41.40

146
NPV

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	:	FEASIBILITY REPORT ON MARKETING OF POTATOES, IN MEERUT
<i>COUNTRY</i>	:	<u>INDIA</u>
<i>PROJECT PREPARED BY</i>	:	LOKENDRA SINGH RAWAL AREA MANAGER KRISHAK BHARATI COOPE- RATIVE LTD., MEERUT (U.P)

Funded by the Government of Japan

and

Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and Korea

ICA Management Training Project for Agricultural Cooperatives in Asia & Pacific

INTERNATIONAL COOPERATIVE ALLIANCE

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A C K N O W L E D G E M E N T S

This project has been prepared as a '4th ICA Training Course for Strengthening Management of the Agricultural Cooperatives in Asia' sponsored by International Cooperative Alliance from 23rd October 1989 to 11th May 1990 at **INDIA, THAILAND, JAPAN & KOREA**, founded by Government of JAPAN.

The conceptual inputs given by the COURSE DIRECTOR **Shri M.V. MADAME** and the course faculty from Indian Institute of Management, Ahmedabad and Vaikunth Mehta National Institute of Cooperative Management, PUNE.

During our training course, I received the kind of Cooperative Management and Integrated approach from Professor of Indian Institute of Management, Ahmedabad and Vaikunth Mehta National Institute of Cooperative Management, Pune and also Sri G.K. Sharma, Director of ICA, Sri M.V. Madame, Project Director and Sri A.M. Ganesan, Project Secretary. I convey my sincere gratitude to them.

A special word of thanks to Dr. K.K S. Chauhan, Managing Director, **KRIBHCO** for providing this opportunity I convey my sincere gratitude to him.

I am also thankful to Sri Y.N. Singh, General Manager, Dr. J.P. Singh, Senior Manager, Sri D.P. Singh, SMM (UP) and Dr. Gularia, Dy, Manager, **KRIBHCO**, who has very kindly guided me at every stage.

I am also thankful to Sri Mahandra Singh, Director, **NAFED**, for giving me proper guidance in this regard.


(L.S. RAWAL)

AREA MANAGER,
KRIBHCO, MEERUT (U.P)

C O N T E N T S

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CHAPTER - I

SUMMARY

- 0.1 The main objective of the project is to: Marketing and Processing of Potatoes so as to retain remunerative prices to the Potato growers.
- 0.2 The project process on design and rational of Integrated Marketing of Potatoes in Meerut Distt. of U.P. State.
- 0.3 The Project envisage a better Marketing alternatives for growers by organizing their own cooperative which will procure total potato produce and will be marketed in Delhi, Bombay mandi as well as in local Meerut Mandi.
- 0.4 The Area of operation of the project is in 30 villages within a radius of 5 Kms. of Nagli Kethor, block Machara Distt. Meerut and will be benefited to 400 farmers member by generating higher income for them.
- 0.5 At initial stage the project will be implemented by cooperative marketing Society, Kesarganj, Meerut because potato growers farmers cooperative society is a part of a Cooperative Marketing Society, Kesarganj. The Chairman will be elected from the delegates of potato growers Society, Marketing Society and Cold Storage. The Secretary will be from Coop. Deptt. of U.P.Govt.
- 0.6 P.C.F. Cooperative Society in association with State Farm, Horticulture Deptt. U.P., NSC and Pant Nagar university will supply potato seed to the farmer growers during the month of Sept. and October.

6	26800
3800	20000
6200	17500
10000	543000
	77
	780100

543000
380100
800000

54300
54300
108600

- 0.7 P.G.F. Coop. Society Nagli Kithore, in association with KRIBHCO, Meerut will arrange input supplies like Fertilizers and pesticides to the farmer growers during the month of September and October.
- 0.8 P.G.F. Cooperative Society with KRIBHCO will arrange intensive farm guidance and extension education thereby induce its farmer members for adopting recommended pre and post harvest practices.
- 0.9 P.G.F. Coop. Society in association with NAFED will sale their produce at Delhi and Bombay Mandi and pay 3% service charges to the NAFED.
- 0.10 P.G.F. Cooperative Society in association with local primary Credit society and Distt. Coop. Bank, Meerut shall arrange timely supplies inputs on credit basis to the farmer members.
- 0.11 P.G.F. Coop. Society will purchase land from Marketing Society Kesarganj at Nagli Kithore and construct their own building for official purposes costing about Rs. 1,85,000 approximately.
- 0.12 A Society will purchase 8000 MT potatoes from the growers members from January to April at Nagli Kithore Cold Storage Cate. Their potatoes will be graded and damaged stocks will be returned to the growers.
- B. The stocks will be graded in a grade, Grade A (25 to 45 cm) for export as well as upcountry Marketing, Grade B, Smaller than (25 cm) for seed, Grade C, above 45 cm, for processing purposes and Grade D, damage stock to be returned to farmer or disposal in very low rates.
- 0.13 A The Society will purchased potatoes @ Rs. 600/MT on the basis of last year 1988-89 market t

trend and 80% payment will be released at spot and rest 20% will be released at final and II instalment payment.

B. For the first 5 years, Society will not do credit business, after 5 years Society will be having their own sufficient funds approximately Rs.64,00,000 lacs then Society will supplies inputs on credit basis.

0.14 P.G.F.C. Society will store 4000 MT potatoes in rented Cold Storage of the Society @ Rs. 270/MT for the period from February and October (9 months).

0.15 Society will sale their produce, 1600 MT in Meerut, 5900 MT in Azadpur Mandi, New Delhi and 500 MT seed directly to the growers @ 2700/MT. Selling price at Delhi and Meerut mandi on the basis of 1988-89 trend will be sold out. It is presumed that 2% storage losses will be there.

0.16. Regarding loan from the Bank, 1st, 2nd and 3rd year loan will be required but for the 4th year, Society will be having their own sufficient funds.

0.17. It is presumed that society will distribute its 50% cash profits to their farmer members every year and rest 50% will be deposited in reserve funds.

0.18 PGFC Society will make value addition to their produce.

a) By minimizing handling, storage, and transportation losses by at least 4%, through close supervision and quality controls.

b) Purchase of the stocks in Flush season about @ Rs.600/MT and release the stocks

in lean season when price is high from Rs.1350 to 1650/MT.

c) By increasing productivity upto ¹⁵25% through pre and post harvest techniques with the association of KRIBHCO.

0.19 Upto 5th year Society will do marketing business. After that the capacity of the cold Storage would be increased from 4000 MT to 9000 MT then the Society will be able to handle 15,000 MT potatoes. Then society can also go for processing business after 5th year by which above and large size (45 cm) potato can be utilised.

0.20 By implementation of this project farmer will get Rs. 747.25/MT due to value addition against Rs. 600/MT and cost effectiveness achieved by implimentation of this project.

Check on price policy and supply & demand relation in Market

CHAPTER- II

BACK GROUND

INTRODUCTION

The Republic of India is a vast country and biggest Democratic Country in the world. It measures 3214 kms. from North to South and 2933 kms. from East to West. It has an area of 32,80,483 sq. km. with a population of 750 millions in 1981 and 80% of them are residing in rural areas. it comprise 24 States and 9 union Territories. Total land areas is 328 million hectare, about 35 million hectare lies mountain, nearly 95% of which is unsuitable for agriculture plain covers 141.6 million hectares suitable for circulation.

Potato is one of the few foods capable of measuring on large number of population. Besides it supplies Nitrogen and Proteins for a healthy growth of a body. It also provides valuable minerals, vitamins, fats and Proteins. Comparative nutritive value of potato can be seen in Annexure 2 & 3 which is the almost same as Banana and Apple.

Potato is grown in varying Agro-climatic zone of the country. The planting and marketing period of potato in the country can be seen at Annexure 2.5 x 2.6. It has been estimated that 80% of the crop is harvested during the month of January to march which cause glut in the market. The area under cultivation and production is given at Annexure 2.4.

under Annexure 2.4, total cultivation under potato was 9,30,000 hectares in 1988-89. Followed by 8,85,000 hectares were in 1987-88 and the production was 14892000 MT in 1988-89 followed by 1,40,46,000 MT in 1987-88 in the country.

Potato cultivation is steadily increasing from 17 lakhs MT in 1950-51 to 148 lakhs MT in 1988-89. U.P. is major producer with a production share of 60,12,000 MT in 1988-89. More over the average yield of potato of U.P. is 19 MT/Hect is more than the national average of 13 MT/Hectare.

The major producing states in the country is U.P. with the production capacity of 60,12,000 MT followed by West Bengal 43,45,000 MT, Bihar 14,72,000 MT and Punjab 5,13,000 MT. In the year 1988-89 (Annexure 2.4). As per the production figures about 40% of total production is contributed from U.P. only.

The main potato growing areas of U.P. are shown in a map at Annexure 2-1. Meerut Distt. is one of the major producing district of potato in U.P. Total area under potato cultivation were 7030 Hect. in 1988-89 and expected production would be 1,94,200 MT in 1988-89 which is about 27.6 MT/Hectare. (Annexure 2.9).

In Meerut Distt. there are 4 Tehsils and 18 Blocks Head Quarters, out of 4 Tehsils i.e. Meerut, Baghpat, Sardhana and Mawana, Meerut Tehsil produces potatoes 65.5% of total produce of Meerut district, followed by Mawana 16%, Sardhana 13% and Baghpat 5%.

Total production of potato in Meerut is 1,89,000 MT. In 1988-89 and also 50,000 MT comes to Meerut from nearby districts both for storage and sales. As against total availability of potato i.e. 2,40,000 MT we are having only 1,08,000 MT of Storage Capacity,

In Cooperative Sector, we are having 3 Cold Storage having a capacity of 12,000 MT in different place of Meerut district followed by 35 Cold Storage in private sector having a capacity of 96,000 MT. In different places of Meerut district (Annexure 2.12).

Meerut Tehsil is having major share of capacity about 87%, followed by Mawana 8.1%, Baghpat 2.25, and Sardhana 2.7%, with regard to area and production, Meerut Tehsil is having 65.5% of production followed by Sardhana 13.1%, Mawana 16.0% and Baghpat 5.10%.

LOCATION AND COVERAGE:

Meerut District is situated on Delhi to Roorkee Road about 70 Kms. away on main road. It is Commissionary Head Quarter consisting of six district i.e. Meerut, Ghaziabad, Bulandshahr, Muzaffarnagar, Saharanpur and Haridwar. It is in between Ganga and Yamuna rivers. Geographical area of Meerut is 3911 Sq. km. with a population of 27,67,000 living in 920 villages of the district and the total area under cultivation is 3,12,000 hectares.

The Cooperative Marketing Society Ltd., Kerargaon, registered under Multi Cooperative Society Act 1970 at Meerut with registration No. 1596. The total membership of the Society is 5889. The members of the society are farmers as well as non-farmers. The share capital of the Society is 9,54,913 with own funds of Rs. 1,63,965/- The Society is not having any deposits.

The main business of the Society is consumer goods and also has a shop in Mandi, working as Commission Agents of Gur and Wheat they are purchasing and selling in the market.

The Society is also under taken the Distribution of fertilizers through U.P. State Cooperatives Limited to the primary Cooperative Societies. From their it is distributed to the farmers. The Society is having its own building for office in Kesarganj Mandi. The area of operation is 2 tehsils i.e. Meerut and Mawana.

Kesarganj Society is having its own Cold Storage at Nagli, Kethore, with a capacity of 4000 MT on Meerut Garh Road about 27 kms. away from Meerut, and also having 1 hectare of land also situated there. Cold Storage Building was constructed in 1987. They are having 298 members,

Share capital of Rs. 29,900/- in 1987. They have distributed Rs. 3,51,000 loans to the member farmers and all have been recovered. In 1987, 1988 and 1989 in Cold Storage 2,587 MT, 3,891 MT and 4,130 MT of potato were stored. They earned a profit of Rs.21,396/- in 1987, loss of Rs. 22,416/- in 1988 due to shortage of Electricity.

The following staff is working in Society as well as in Cold Storage.

Marketing Staff

1. Secretary	1
2. Vice-Secretary	1
3. Salesman	4
4. Peon	1

7 Persons

Cold Storage Staff

1. Manager	1
2. Godown Keeper	1
3. Accountant	1
4. Operator	3

6 persons

Nagli Kithore Cold Storage constructed with the help of World Bank Loan of Rs. 44,00,000/-. The Society will not charge from ~~25%~~ to 35%/Qtls. Storage charges from growers upto 1993. According to the agreement with the NCDC, the Society is also providing a pledge loan to the farmers. Last year they have financed Rs. 3500,000/-

At initial stage, Marketing Society will work on behalf of potato grower farmers Cooperative Society. When all the formalities will be completed then Society will work independently. It will register 400 members and work in 30 villages within the radius of 5 km. from Nagli-Kithore.

The Society will purchase 1000 sq. yards of land from Marketing Society at Nagli-Kithore where the Cold Storage is situated.

Society will construct their office building on the land purchased at Nagli-Kithore.

- The Society will supply inputs like seed, fertilizers and pesticides etc.
- Society will purchase all produce of farmer growers and 4000 MT will be stored in Cold Storage, rest will be disposed off in the local market as well as Up country market.
- Society will have contacts with processing units of potato supplies.
- The Society will also purchase one Tempo/Matador Van for input supplies as well as for marketing purposes.
- The Society will go in agreement with NAFED for export purpose and international trade purpose.
- Society will do business worth 8000 MT of potato for first 5 years and then increase their business upto 20,000 MT/Year, because the Society is also trying to increase its Cold Storage capacity from 4000 MT to 9000 MT. Proposal and Report has also been submitted to NCDC, New Delhi.
- The Society will increase its membership from 400 to 1000 and also will increase their area of operation from 5 km. to 10 km.
- in future the Society can also go for their own processing plant by which value addition may be given to farmer growers.
- The Society will distribute dividend/patronage rebate to their members every year depending on the profitability.

PROBLEMS FACED BY THE FARMERS IN MEERUT DISTRICT

1. High yield variety seed is not available at the time of sowing or it always short. Mostly farmers has to depend on local varieties, available in the area.
2. Lack of awareness about the use of scientific pre and post harvest and handling practices.
3. Lack of adequate scientific Cold Storage facilities in Cooperative Sector, Private Cold Storage owners charges high rates and do not even bear losses during storage period.
4. Lack of marketing facilities provided by the Cooperatives.
5. Excessive losses and damages of potato during storage and transportation.
6. There is no processing and value adding facilities so that remunerative prices is not received by the growers.
7. Increase margin of private trade in potato marketing and consequent poor return to the farmers.

COST OF PRODUCTION AND NET INCOME/AREA

On the basis of the Data collected after discussion with farmers at Nagli-Kithore, Meerut District, the cost of cultivation and net income generated through Society is summarised as under:-

<u>S.No.</u>	<u>OPERATION</u>	<u>COST OF CULTIVATION/ACRE</u>	
1.	Land Rent	Rs.	400.00
2.	Land Preparation	Rs.	400.00
3.	Seed	Rs.	1,400.00
4.	Fertilizers	Rs.	1,200.00
5.	Irrigation	Rs.	360.00
6.	Sowing	Rs.	390.00
7.	Plant Protection	Rs.	400.00
8.	Harvesting, Grading, Packing and Weighing	Rs.	650.00
9.	Other over-head expenses & Supervision expenses	Rs.	250.00
I.	TOTAL COST OF CULTIVATION	Rs.	5,450.00/Acre
II	Average production/Acre	100 ^{OHG.} /Acre	
	Cost of Production/Acre	Rs.	54.50/Acre

Total cost of production comes to Rs.54.50/Acres

which is fluctuative time to time mainly depends upon the cost of fertilizer and seeds.

Net income from produce can be compaired in 3 ways-

1. When farmer produce, they sell directly in local market without storing in Cold Storage.
2. When the farmers sell their produce through Cooperative Societies after storage in local market at Meerut.
3. When the farmers sell their produce through Cooperative Society after storage in the up-country market i.e. Delhi, Calcutta etc. (Bimbaray)

I. SALES IN LOCAL MARKET, MEERUT WITHOUT STORING IN COLD STORAGE

S.No. OPERATION EXPENSES INCURRED BY GROWERS

1.	Transportation charges from Farms to Mandi	=	Rs. 3/-Qtls.
2.	Octroi	=	Rs. 1/-qtls
3.	Unloading (Labour) charges		Rs. 0.50/Qtls.

TOTAL EXPENSES **Rs. 4.50/Qtls**

4. Average Rates/Qtls in the market = Rs.65/-qtls

5. **NET PROFIT/QTLS** = **TOTAL COST - (EXPENSES INCURRED
IN MARKET+
COST OF CULTIVATION)**

$$65 (54.50 + 4.50) = 65-59$$
$$= \text{Rs. } 6/- \text{ Qtls.}$$

II. SALES THROUGH SOCIETY IN UP-COUNTRY MARKET AFTER
STORING IN COLD STORAGE

S.No. OPERATION EXPENSES INCURRED BY THE GROWERS

1.	Transportation from Farm to Cold Storage	Rs. 1/- qtls.	
2.	Gunnies cost	Rs. 6/- "	
3.	Storage Cost	Rs. 27/- Qtls	<i>6/7 months. Rs</i>
4.	Transportation from Storage to Mandi	Rs. 3/-qtls.	<i>changed to 1/2e</i>
5.	Transportation charges from Meerut to Delhi	Rs. 7/- qtls	
6.	Octroi charges	Rs. 1/- Qtls.	
7.	Market Expenses(unloading)	Rs. 0.50/qtls	
8.	Other expenses	Rs. 1/- Qtls	

Rs. 43.50/Qtls

Total Expenses/qtls

Average prevailing rates/Qtls Rs. 165/- qtls.

Net profit/Qtls Rs. 165/-(43.50+54.5)

= Rs. 165 - 98

= Rs. 67 /- Qtls

III. SALES THROUGH SOCIETY IN LOCAL MARKET

<u>S.No.</u>	<u>OPERATION</u>	<u>EXPENSES INCURRED BY CROWER</u>
1.	Transportation charges from Farm to Cold Storage	Rs. 1/- Qtls
2.	Gunnies charges	Rs. 6/- qtls.
3.	Cold Storage	Rs. 27/-
4.	Transportation charges from Cold Storage to Mandi	Rs. 3/- Qtls
5.	Market Expenses and Octroi	Rs. 1.50 /qtls.
6.	Miscellaneous expenses	Rs. 1/- Qtls
	TOTAL EXPENSES/QTLS	Rs. 39.50/Qtls
7.	Average Cost/Qtls (Selling Rate)	Rs. 150/-
	Net profit/Qtls	Rs. 150/- (39.50+54.5)
		= Rs. 56/- qtls

COMPARATIVE CHART OF SURPLUS GENERATED

<u>S.No.</u>	<u>OPERATION</u>	<u>DIRECT SALES THROUGH FARM LOCAL MARKET</u>	<u>SALES THROUGH THROUGH THE SOCIETY IN LOCAL MARKET</u>	<u>SALES THRO SOCIETY IN UPCOUNTRY MARKET</u>
1.	Net Price paid to the farmers/ Hect.	Rs. 6/-	Rs. 56/-	Rs. 67/-
2.	Net price paid to the farmers/ hect/	Rs.1500/-	Rs. 14000/-	Rs. 16750/-
3.	Surplus generated/ Hect.		Rs. 12500/-	Rs. 15250/-

NOTE:- Average yield 250 cwt/hectare.

JUSTIFICATION OF THE PROJECT

The steady and rapid increase in production of potato in India has created numerous marketing problems owing to the situation that the infrastructure like, transport, storage, processing etc. required for taking care of surplus has not correspondingly developed in the country. The problem of storage is more acute where as on the one hand, farmers inability to retain the stock to sell at an opportune time is being exploited by the traditional trade, on the other hand, the consumers are not able to get the commodity at fair price. In order to tide over this unpleasant situation, the co-operatives had to enter and increase their support in potato marketing in big way.

(i) FARM GUIDANCE:

The majority of the potato growers still adopt age old pattern and practices of production which results in low yield. The Society will provide all latest technical know how of production as well as farm inputs which will increase the production by 10%.

(ii) ^{cold}~~ed~~ STORAGE

Potato being a perishable commodity has to make utilisation of Cold Storage. The total production of potato in Meerut District is about 1,90,000 MT. and about 50,000 MT comes from nearby districts i.e. a total of 2,40,000 MT comes for storage as well as sale. There is 1,08,000 MT storage capacity which includes private storage also. This is nearly 45% of the total storage facility available. The farmer growers do not get space for long time so lot of their produce is lost by perishing. They are so poor that they are unable to take space

at private Storage. There is only 4000 MT capacity of storage at present. The Society, which the Society has already moved after for extension of this capacity by another 5000 MT when this materialises the storing of good quality can be done. This will facilitate the borrowing strength of the grower, which will further help them in improving the margin of profit by 10% at least.

(iii) MARKETING:

Existing Marketing System Plan:-

At present the marketing system is very shabby. There are two seasons for potato marketing. The potato which is harvested during December to March, is marketed by individual farmer through private contractors, this covers glut in the market and consequently the prices are low. These contractors pay the contracted amount mostly in two or three instalments. 25% to 30% of payment is made while the contract is made and remaining at the time when the potato is sold in the whole sale market. As the farmers are generally unaware of the actual value of their produce and rates prevailing in different markets of the country. Thus their ignorance on market trend bring less returns. Further, these farmer do not want to incur harvesting and transportation cost by taking risk. They get satisfied by given to the contractor even if they fetch lower price. These contractors have links with whole sale agents in the up-country markets as well as local markets. They act as middle men between growers and whole sale Agent. If this potato growers Society is formed will help the grower in their sale return. The Society can take up the marketing and storage problems of their member growers and thus help in yielding higher returns for their produce. Thus, the Society will also help in restricting the monopoly of private contractors in this trade.

FUTURE PLAN:

As you are aware that the marketing Society at present is having only 4000 MT of capacity for Cold Storage, they have already applied for expansion by another 5000 MT project plan to NCDC. If this materialises, then they can have more storage facility as well as farmer member growers. At this stage they will have only 400 farmer grower as members and can deal with ~~20000~~ 8000 MT of potatoes. Once the expansion plan gets approved then the Society can increase its membership of farmers. As well ~~more~~ ~~as~~ ~~of~~ ~~to~~ they can increase upto 20,000 MT of potato handling. They can store upto 9000 MT and about 4000 MT for marketing and the remaining they can go for processing. The processed potato marketing raises the level of income and also increase rate of employment to the people of the area. it is therefore, in the plan of the Society to have a processing unit in the near future.

CHAPTER- III

P R O J E C T

1. OBJECTIVE OF THE PROJECT:

1. To increase the income of Potato growers members of the Society.
2. To provide a strong and a sound alternative market channel for potato growers members produce.
3. To improve the productivity of Potato by providing best Technical knowledge regarding Plant protection, disease control and organic practices and reduce wastage.
4. To provide better quality of Seeds to the member growers of the society.
5. To provide Fertiliser and pesticide to the member growers of the society.
6. To enable the growers to retain the stocks of Potato produce and sell at optimum time so as to get the remunerative price of the produce.
7. To induce the coop. spirit and active participation of members farmers in existing society to develop local leadership.
8. Timely procurement of Potato from the member growers on minimum guarantee period.
9. To coordinate with National Organisations like NAFED regarding Marketing as well as export of the produce.
10. To coordinate with KRIBHCO, National organisation regarding inputs supply as well as technical know how?
11. To create scientific storage facilities in order to minimize storage losses at least by 10%.
12. To provide processing facilities for value addition.
13. To increase job opportunities of the farmer members.

2. COVERAGE AND AREA OF OPERATION:

1. The project will cover 400 Farmer members of potato growers cooperative society, Nogli Kithore, Distt. Meerut. The farmers members of 30 villages located within 5 kms. in radius of KITHORE villae. The project will be restricted only to the area of operation of Potato growers Cooperative Society which is 30 kms. away from Meerut to Moradabad Road.

PROJECT COMPONENTS: (Annexure -III 1)

1. Extension Services:

Society will get the assistance for extension programme from KRIBHCO, a National level organisation. With the help of KRIBHCO a compact scheme will be chalked out on the basis of educational communication, service oriented and welfare programmes for the development of farmer as well as the society as a whole.

Supplies of Inputs (Annexure III 2)

2. Seed and fertiliser are the main input for Potato cultivation. Input supplies and credit facility to the farmers shall be undertaken by the society, in association with the district cooperative Bank, Meerut, good quality of Potato seeds will also be supplied to farmers chemical fertilisers and pesticides of high quality will be procured from KRIBHCO and supplied to Farmers at the time of sowing on credit basis.

3. Procurement of Stocks:

Potato will be procured from the members of the society at remunerative price, which will be fixed before procurement keeping in view the prevailing rates at the market by the committee.

4. Cold Storage:

The society will store their purchases in the Cold Storage of the marketing society. The capacity of the cold storage is 4000 MT. The potato growers society will have an agree-

ment with Marketing Society for 10 years for hiring of the storage. During the vacant period the space will be utilised for Mango as well as vegetable storage.

5. **Marketing of the Produce:**

Marketing of Potatoes will be done with the help of NAFED for export as well as up-country marketing in Bombay, Delhi and Calcutta etc. NAFED is a National level marketing organisation in cooperative sector, which is having its marketing offices in Bombay, Delhi and Calcutta. Local marketing will be done in Meerut market. If the market rise in other parts of the country we can go for marketing through private traders also.

6. **Transportation:**

When the prices increase in the upcountry the Transportation of stocks will be done by society itself by road under strict supervision i.e. for Delhi etc. But for Calcutta and Bombay market transportation can also be done by the Rail.

7. **Payments:**

The first payment will be done at the time of procurement of potatoes to the growers, 80% of the total price will be advanced at the spot. The second and final payment will be made after disposal of entire stock, Society will work out profit and loss of entire operation. If profit comes the distribution of 2nd payment will be released to the member growers according to the procurement of their produce.

8. **Patronage rebate:**

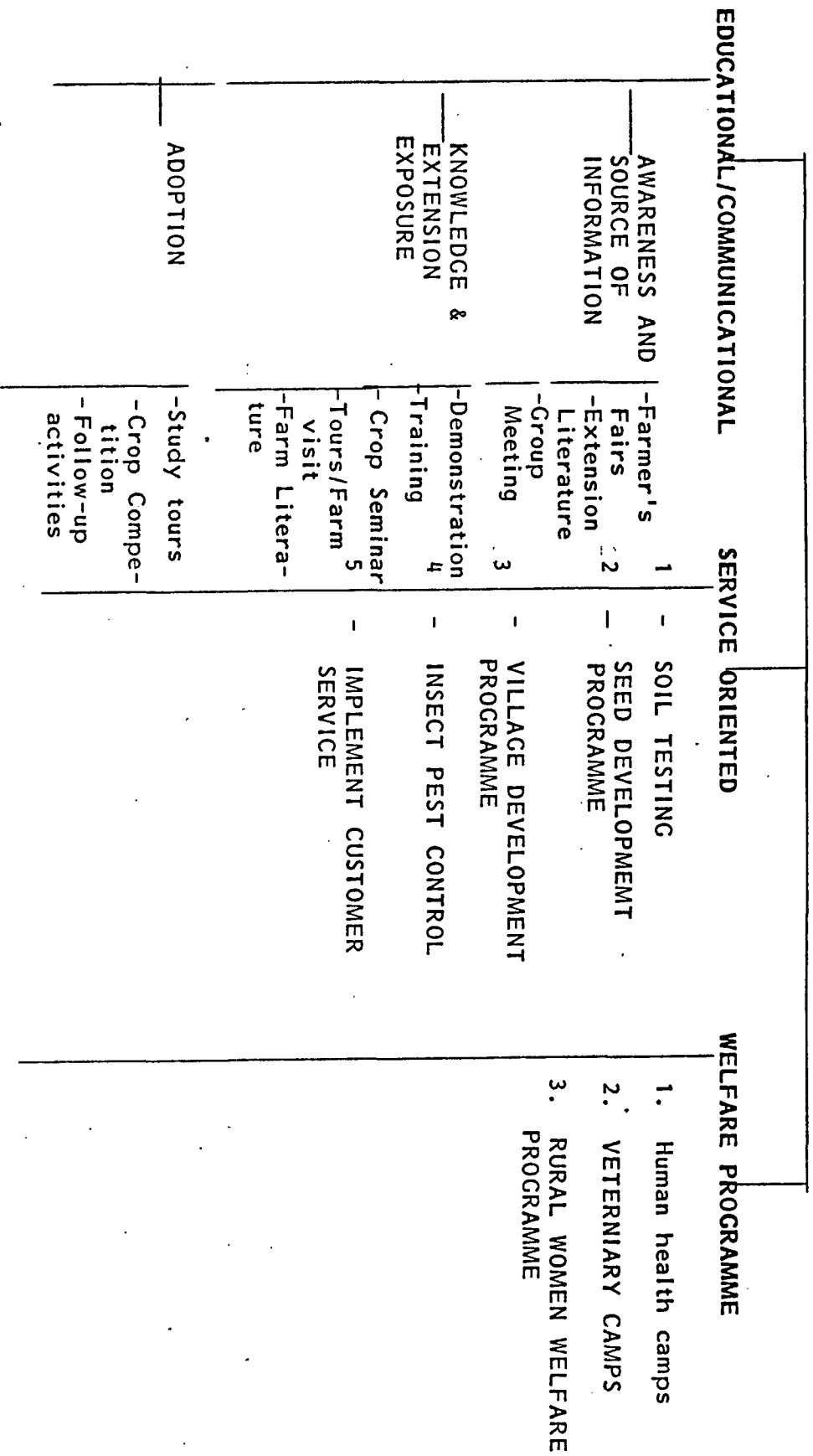
When the entire operation is completed the society will release the second payment to the growers on the basis of profits earned by it in profitable disposal of the produce. The society will also create a price fluctuation fund which will absorb losses if any in the entire operation.

9. Generating higher income:

Generating higher income depend on following factor:-

- (a) By establishing direct linkage or adopting latest technology of pre and post harvest of cultivation to increase the productivity of Potato.
- (b) Higher value realisation in upcountry market by selling stocks at demand centres in lean season.
- (c) Reduction of transportation losses at least 3 to 5% by better coordination with railways and close supervision while transporting by road will be maintained.
- (d) Reducing the storage losses at least by 10% and consequently higher realisation of the quality of Potato handled.
- (e) Elementary middle man can be avoided by reaching the ultimate consumer directly.

EXTENSION PROMOTIONAL PROGRAMME



CHAPTER - 4

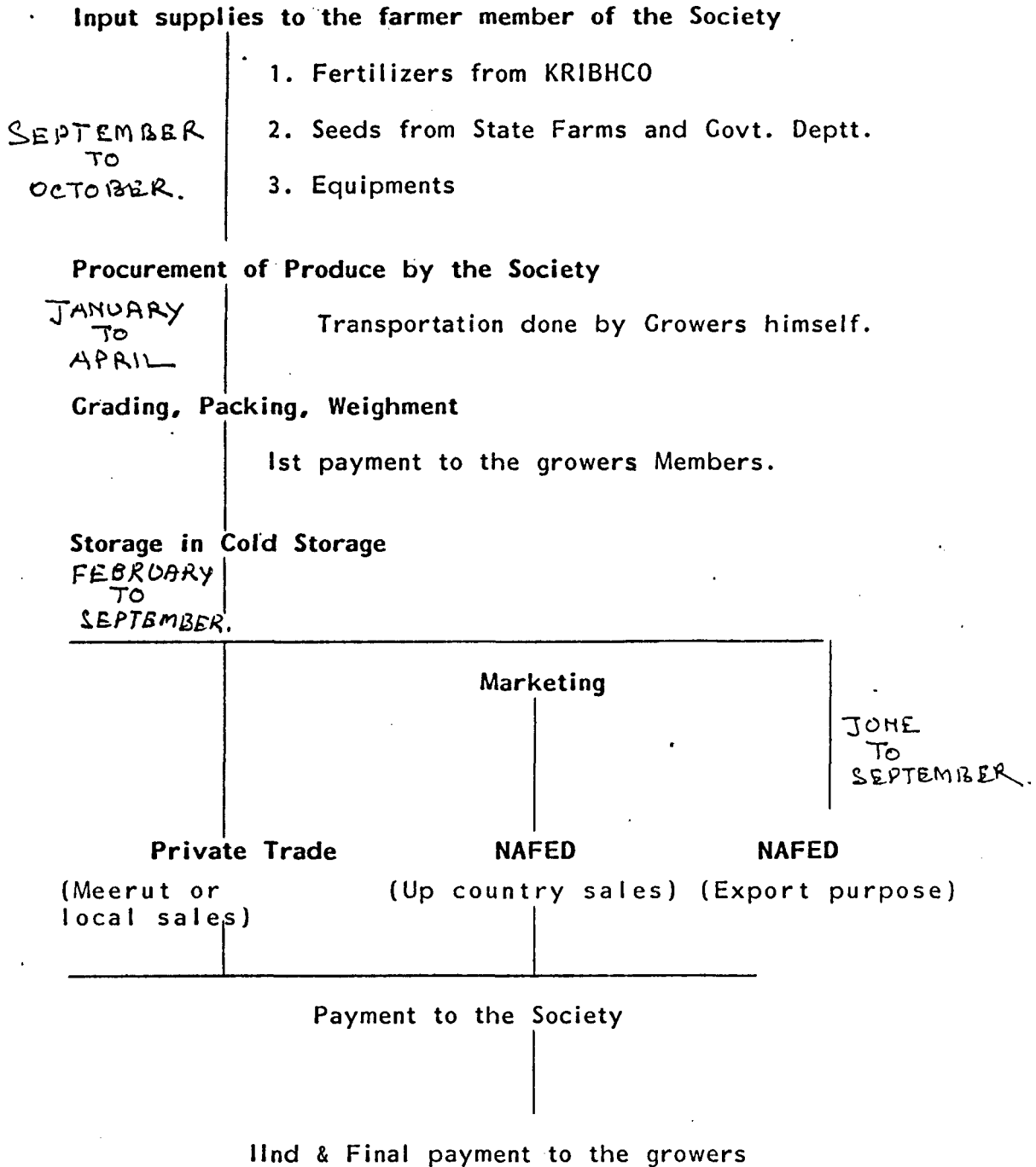
DETAILS OF OPERATION:

4.1 FARM GUIDELINES (Extension Services):

The project envisage increasing the productivity and value of farmers produce by storing it under scientific conditions in model storages, through the services of agricultural supervisors. The Potato growers will be educated by implementation and extension activities based on educational/Communicational programmes, services oriented programmes, welfare programmes. Which creates awareness among the potential farmer members regarding the following:-

1. Use of scientific and modern techniques of storage method.
2. Use of techniques of agricultural practices for increasing the productivity.
3. Proper storage, grading and packing according to specification given for export purposes as well as up country market.
4. Use of plant protection and soil testing measures and know how. Agriculture supervisor will look after the extension work because he will be from rural background. He will be incharge of 20 villages in the command area where the main activities will be taken up for extension and education.
 - (A) Selection of atleast one demonstration plot in each village for use of pre and post harvest techniques.
 - (B) ~~Society~~ will hold internal meeting in the village and disseminate information regarding scientific pre and post harvest technology.
 - (C) ~~Society~~ will arrange free distribution of Minikits of seeds, fertilizrs or pesticides in association with KRIBHCO.

FLOW CHART OF OPERATION



- (D) With the association of KRIBHCO soil testing, plant protection campaigns and seeding programme will be organised.
- (E) With association of KRIBHCO & State Govt. Deptt. welfare programme will be organised in villages.
- (F) Educational literature will also be distributed, crop seminar Crop competition & study field tours will also be organised with the assistance of KRIBHCO.

4.2 SUPPLY OF INPUTS:

(A) SEED:

Deptt. of agriculture Govt. of Uttar Pradesh has recommended Kufari variety of Potato to grow in Northern plains of U.P.

1. Early Variety: Kufari Chandermukhi - 20 qtls/Seed/Hect.
2. Late Variety: Kufari Sindhuri, Kutari Culab- 20 Qtls/Seed/Hect. required.

High yielding variety of Potato seeds will be provided to the grower every year, for seed multiplication potato seeds. We required about 8000 qtls. of seed for cultivation in 400 hectares of land. ANNEXTURE

- a) Society will distribute 100 MT Chandermukhi Potato seed every year for seeding programme under supervision to the member farmers.
- b) High yielding variety seed will be purchased from Pusa, State farms as well as from Manali seed grower's cooperative society.
- c) By which every year we can grow seed according to requirements of the members.
- d) At least one farmer from every village will get

high yielding variety seed and motivated to grow seeds.

- e) This quantity of seed will be purchased by the society and again distributed to the growers next year.

(B) Fertilizers:

In association with district cooperative Bank and Primary agriculture credit societies of the area, society will arrange timely supply of fertilizers to the members. They will get the fertilizers from KRIBHCO. Potato growers farmers cooperative society can also get directly fertilizers from KRIBHCO on credit basis and that fertilizers can be supplied to the members of the society.

4.3 Procurement of Potatoes:

Society will procure potatoes from growers members at remunerative price, which will be fixed before procurement. Keeping in view the prevailing rates at the market, the prices will be decided by the managing committee according.

1. Farmers will bring their produce at cold storage, where the stock will be weighed, graded according to their size, and good quality of potato, will be kept for storage in cold storage. Sub standard quality will be sold in local market as well as upcountry market like Delhi & Bombay immediately.
2. 80% of the price will be paid in cash to the growers at the spot and rest amount will be released at the time of final payment.
3. Transportation cost from their field to the cold storage, (collection point) will be borne by the grower himself.
4. At the time of grading, packing and weighment, whatever quantity of unsaleable/damaged will be returned to the growers.

5. In case the procured stock falls short according to cold storage capacity, then, the society has the right to purchase potatoes from non-member also at the market prevailing rates.
6. For the stocks procured from non-members, the facilities will not be provided as given to members and the payments will be released in full at the spot.

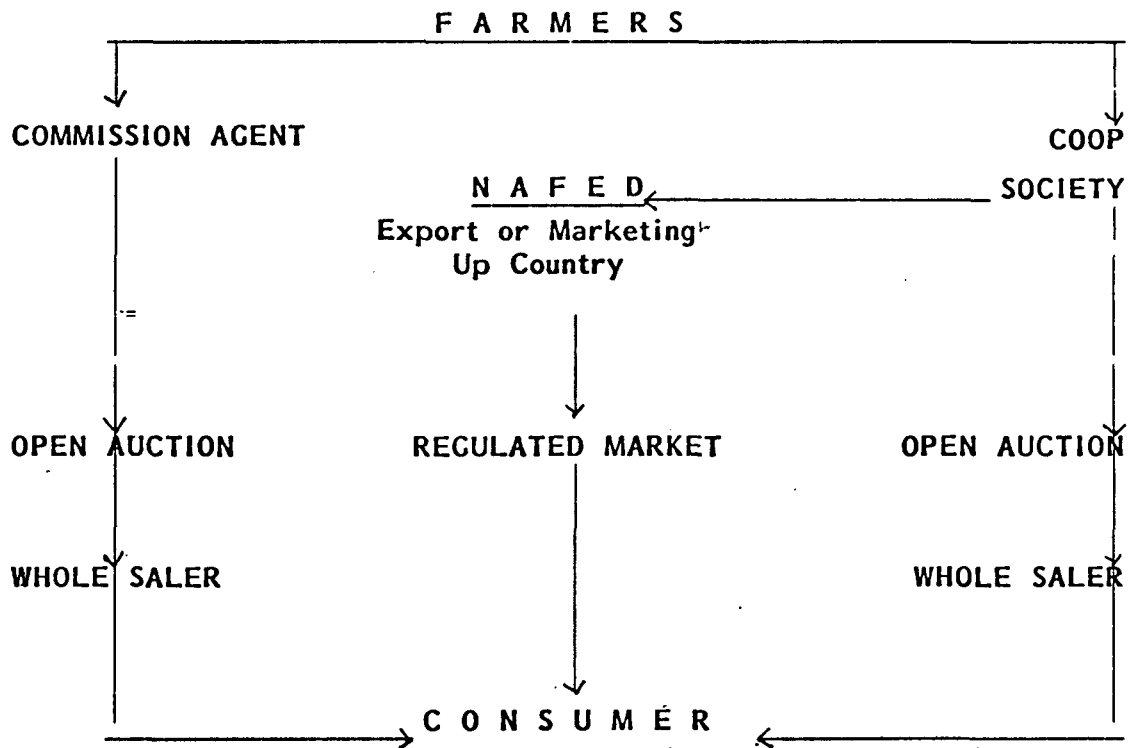
4.4 STORAGE:

Storage is going to play anchor role of the project, cooperative cold storage is having 4000 MT capacity which potato grower farmers society have to fulfill at any cost. The potato growers farmers cooperative society will go with an agreement to the marketing society for 10 years for hiring of the storage. Against the storage capacity potato growers farmers cooperative society has to pay the rent to the cooperative society as decided by the managing committee. All other expenses are to be borne by the cold storage itself i.e. salaries, maintenance expenses etc. etc.

1. This marketing cold storage is constructed in 1987-88 with the loan taken from World Bank amounting to Rs. 44,00,000/-.
2. Marketing society has an agreement with the World Bank. The society will not charge ^{more} the storage charges from the farmers for 25 to 35 qtls. upto 1993 i.e. for 5 years (Five years) according to expenditure.
3. Last year i.e., 1988-89 cold storage charges were Rs. 24/- qtls. But the private cold storage charges were Rs. 27/- qtls. which is more than the cooperative cold storage charges. vere Rs.
4. In private cold storage, they are also not providing any facilities to the growers and also are not giving any type of assistance for damages during the course of storage period of potatoes.

5. During the last 3 years from 1987-88 and 1989 they have stored 2587 MT, 3891 MT and 4130 MT against the capacity of 4000 MT of potatoes.
6. Society has also submitted their project report to MCDC for expansion the capacity from 4000 MT to 9000 MT of their Cold Storages. (5000MT more)

MARKETING OF POTATOES
FLOW CHART



4.5 MARKETING

A. To maintain stock and market intelligence:

15000 MT potato will be purchased from farmer growers during the month of January to March. Out of this 15000 MT, 4000 MT of good quality will be stored in cold storage under scientific condition and with due care, P.G.F.C. Society in association with NAFED will collect daily market intelligence regarding price trends at, Delhi, Bombay, Calcutta as well as at Meerut.

B. Disposal of Stocks:

The stocks will be released gradually for disposal depending on the market condition it will be done at 2 places.

1. Local Market, Meerut (2) Upcountry Markets, Delhi and Calcutta and Bombay.

1. Local Market, Meerut:

At the time of procurement, grading will be done, while doing so, 10% of stocks will be received below and above the standard size, good quality of potato will be stored in cold storage for up country marketing and export purpose and rest more than 4000 MT of stocks will have to be disposed off locally, as well as in the up country markets, due to its perishable nature. It can not be stored for a longer period. From kethore collection point upto Meerut Mandi transportation charges by truck is Rs. 300/- MT. After grading and segregation small and over size potatoes, about 4000 MT has to be sold in local as well as up country market. There are some expenses which are to be borne by the farmers (Sealers) as well as by the purchaser, which are as follows:-

<u>S.No.</u>	<u>Expenses</u>	<u>Incurred by purchaser</u>	<u>Incurred by farmer (Sellers)</u>
1.	Octroi	-	Rs. 1/-Qtls.
2.	Market fee	1%	-
3.	Weightment Charges	0.25/- bag of 80 kg.	-
4.	Loading & Unloading(Labour)	0.50/- bag 9loading)	0.50/- per bag (Unloading)
5.	Brokerage	-	-
6.	Commission	3%	-
7.	Deduction in kind any		
8.	<u>Other Exp.</u>		
	a) Sutli & Sewing	0.35/qtls.	
	b) Filling		
	c) Stacking		
	d) Stencilling		
9.	Loading into Truck	0.35/qtls	-
10.	Sales Tax	-	-
11.	Mode of payment	Cash & Credit	Cash
12.	Period of Payment	-	Cash
13.	Misc. Exp.	-	-

Potatoes being a perishable commodity, it can not be stored in an ordinary way of storage, it will spoiled. If it is not stored in a scientific cold storage at a particular temperature for a particular time.

The total production of potatoes in Meerut district is 1,90,000 MT and about 50,000 MT comes from near by districts for storage as well as for sales in local market, so total availability of potatoes comes to 2,40,000 MT/year but we are having only 1,08,000 MT storage facilities in Meerut. In this way, we are having only 45% storage capacity against total produce and about 10% spoiled during transportation and storages period. So far rest 45% produce except selling in local market, there is no other alternative i.e. during

the month of December and February arrivals always more and market rates always low (Annexure 4.5-IV & V) but another side when the market rates are high, the supplies always less (Annexure 4.5-III), during the month of July to October.

The society will procure their produce in the month of Jan. to March for storages purposes and sell during the month of July to September, when the prices will be high.

2. Up-country Market;

The stock may be despatched to the up country demand center like Delhi and Bombay for disposal through NAFED on ^{CONSIST} basis.

These are main Mandies for Meerut Potatoes. The details of expenses are as follows at Delhi Market:-

A. NAFED CHARGES:

1.	<u>Service charges</u>	Rs. 3%
2.	<u>Labour charges</u>	Rs. 1.25/80 kg. bag.
	i) Unloading	Rs. 0.60/-bag
	ii) Weighment	Rs. 0.50/-bag
	iii) Stitching & Sutli charges	Rs. 0.15/-bag
		<hr/>
		Rs. 1.25/-bag
		<hr/>
3.	Freight	Actual
4.	Octroi	Actual
5.	Cartage	Rs. 10/0 truck
6.	Bank charges	Rs. 2/- thousand of Bank draft wanted.
7.	Postage charges	Rs. 6.50/registry

B. Agent Charges:

1.	Service charges	5 to 6%
2.	Labour charges	1.50 to 2/-bag
3.	Freight	Actual
4.	Octroi	Actual
5.	Cartage	Rs. 10/- Truck
6.	Bank charges	Rs. 2/- one thousand 9if draft required)
7.	Postage	Rs. 6.50 registry

Market rates depends upon demand and supply principal, when in the market siupplies more, demand reduce which will effect rates consequently rates reduce when supplies reduce, demand more, will effect rates consequently rates increased in Delhi (Annexure 4.5- I & II) mandi during the month of June to August 1989 i.i. Rs. 135/- to 165/- qtls. instead of Rs. 70/- to Rs. 95/- qtls. from January to March and Rs. 130/- to Rs. 70/- qtls. from October to December in other side when rates rise supplies reduce i.e. in the month of June to August rates Rs. 165/- qtls. maximu7m as supplies minimum i.e. 19,570 MT to 25,839 MT.

So we have to manage in such a way that we should sale our stocks in themonth of June to August when the rates maximum and procure when the rates is less i.e. from December to February. So in this way society will get maximum profite and can score the objectives of the society.

4.6 TRANSPORTATION

There are 2 ways for dispatching the potatoes to the upcountry markets by road or by rail. From Meerut to Delhi Mandi dispatches by road is convenient because the distance is near about 80 kms. only and it can reach within time. If we dispatches by Rail to Delhi Mandi, it will take more time and wastage will be more in comparison with road dispatches because loading and unloading activities with increase and availability of wagons is also not certain. In season it is very difficult to get the wagons in time.

The Transportation charges by Road from Meerut/Kithore collection point to upcountry markets.

<u>S.No.</u>	<u>From</u>	<u>To</u>	<u>Quantity</u>	<u>Rates in Rs.</u>
1.	Meerut	Bombay	10 MT	6,200.00
2.	Meerut	Delhi	10 MT	700.00
3.	Meerut	Calcutta	10 MT	6,400.00
4.	Kithore	Meerut	10 MT	300.00

OTHER EXPENSES

a)	Octroi charges for Delhi	Rs. 0.30/- qtls.
	Octroi charges for Bombay	Rs. 0.30/- qtls.
b)	Loading into Truck	Rs. 0.50/- bag
	Unloading from Truck	Rs. 0.50/bag

TRANSPORTATION CHARGES [RAIL]

<u>S.No.</u>	<u>From</u>	<u>To</u>	<u>Rates</u>
1.	Meerut	Hawrah	Rs. 34/- -19/- tls.- Fair Rs. 03/- taxes <hr/> Rs. 37.19/-qtls.
2.	Meerut	Bombay	Rs. 34.19 Qtls. Fair Rs. 18.00 Taxes
	Total		<hr/> Rs. 52.19/-Tls. <hr/>

NOTE: Minimum capacity of the wagon is 180 qnpls
Maximum capacity of the wagon is 2450 qnpls.

Other Expenses:-

Loading into the wagon Rs. 1.00/-bag
Unloading from the truck Rs. 1.00/-bag
Direct loading from Truck- Rs. 1.50/- bag into the wagon.

NOTE: If the consignment is FOR basis than 5% extra fare will have to be paid.

In Meerut truck availability is not a problem from up-country, specially for Bombay and Delhi. For Delhi market consignment reaches next day morning (3 hrs. time only) and will be sold by the same day but for Bombay it will take 3rd to 4th day for reaching the consignment and if we despatch by Rail than, it will take near about 7 to 15 days time to reach Bombay, in this period the quality can be deteriorated or spoiled. So Road Transportation is better with regards to time but costly than Rail transportation. ~~Due to perishable nature, We cannot hold for a long time, we ^{have} ~~cannot~~ to sell as early as possible.~~

4.7 RELEASE OF SECOND PAYMENTS

After disposal of entire stock (0000 MT) of Potatoes, will work out its prifit and losses of entire operation, in case of profits the distribution of surplus will be as under:

1. Price stablization fund/Risk fund	50%
2. Patronage rebate/second payment	50%
Total	<u>100%</u>

In case of losses, the amount will be debited to the price stabilization funds/risk fund.

CHAPTER- V

ORGANISATION AND MANAGEMENT:

Though Marketing Society 'KESARGANJ', Meerut would act as promoter in the initial stages, a Potato Growers Farmers Cooperative Society is proposed to be formed to take over control of the project. The society will procure required quantity of Potatoes from grower members at remunerative prices. The marketable stock of Potatoes will be stored in cold storage of marketing society. Potato growers society will go in agreement with marketing society for hiring the 4000 MT capacity cold storage for 10 years at least. It will establish backward linkage through farm extension services and facilities of seeds, fertilisers with the help of KRIBHCO. Transportation of produce of the members will also be taken up. The society will establish horizontal linkages with NAFED and other institutions for Exporting avenues of marketing its produce for efficient operation of the project.

The society would employ professionally skilled and experienced managerial and technical personnels at various levels, depending upon the organisational requirements.

An elected body of the Society with its Chairman would look after the management of the society, while the Manager (who is professional) would be authorised to look after the day to day management of the society with the consultations of the Secretary of the society. The estimate of manpower required and their salaries are as follows:-

			<u>Salaries in Rs./per month</u>
1.	Manager	1	1500/-
2.	Supervisor	2	2000/-
3.	Accountant	1	1000/-
4.	Clerk	1	600/-
5.	Peon	1	500/-
6.	Driver	1	800/-
7.	Helper	1	500/-
TOTAL			<u>6900/-</u>

400 potential farmers of the Area would be enrolled as members to make the project viable and collect required quantity of storage of good quality of potato for them.

The area of operation may be extended from 5 KM to 10 KM in radius of KITHORE in future.

The Secretary is the chief executive of the society. He has to act according to the policies laid down by the board. He is responsible for all commercial as well as transaction operations of the society.

POWERS AND RESPONSIBILITIES:

1. Secretary:

He will be over-all incharge of member ship enrolment, extension activities, procurement, storage, construction, maintenance, market intelligence, disposal of stocks, finance and accounts of the society. He will be assisted by the manager of the society and also input supplies will be under his charge.

2. Manager:

He will be incharge of procurement of produce, Input supplies, Seed Purchases, Transportation and second payments to farmers members profitable disposal of potatoes and market intelligence.

3.(A) Supervisors: (Marketing)

He will be responsible for procurement of produce from farmers, grading, packing, weighment, storage, transportation and marketing in up-country markets like Delhi, Bombay etc. He will also look after the stocks at Cold Storage time to time.

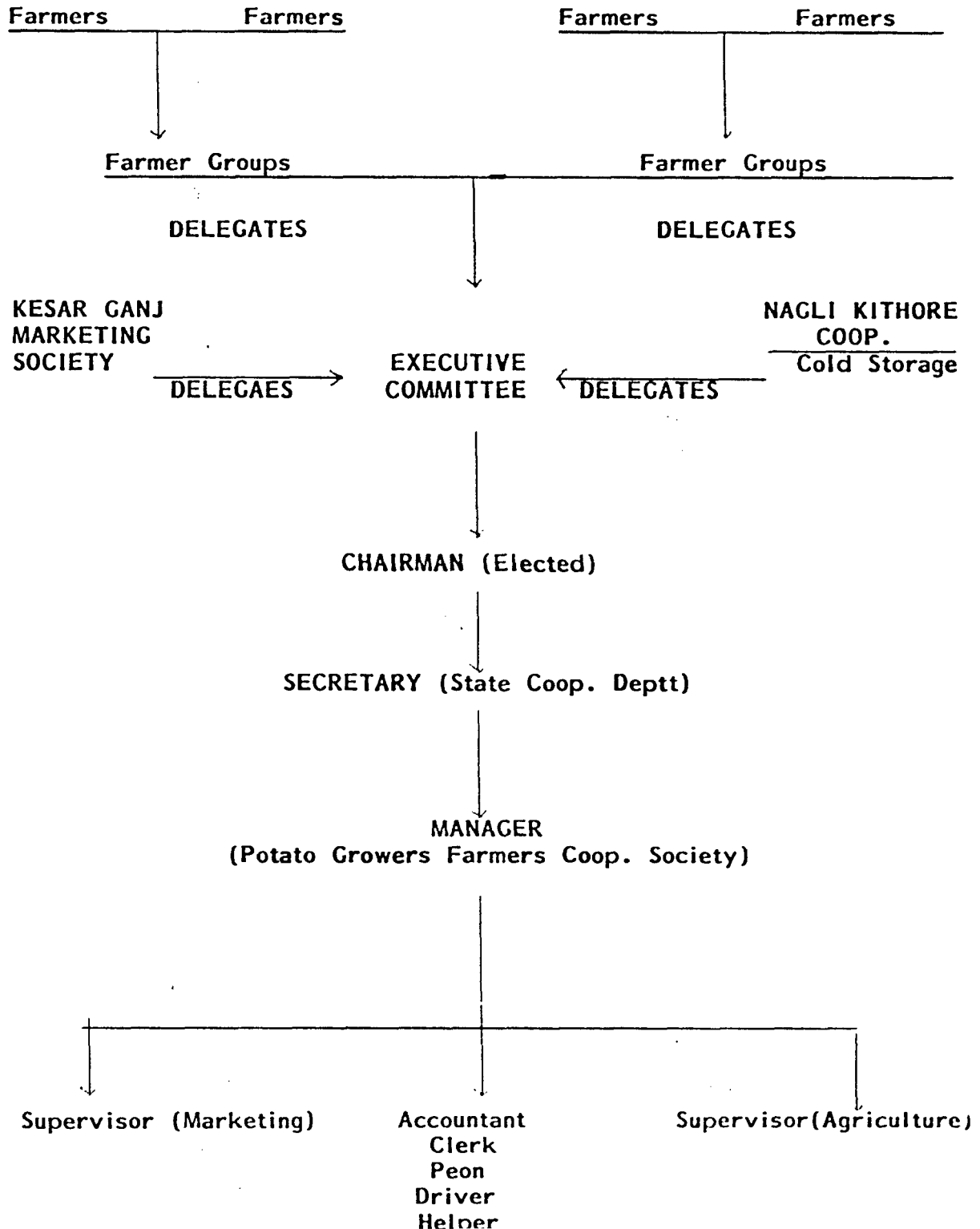
(B) Supervisor: (Agriculture)

He will be responsible for promotional programme input supplies and input procurement of fertilisers from KRIBHCO as well as seeds from State Farms. He will also arrange credit facilities to farmers at the time of procurement when they come with the produce.

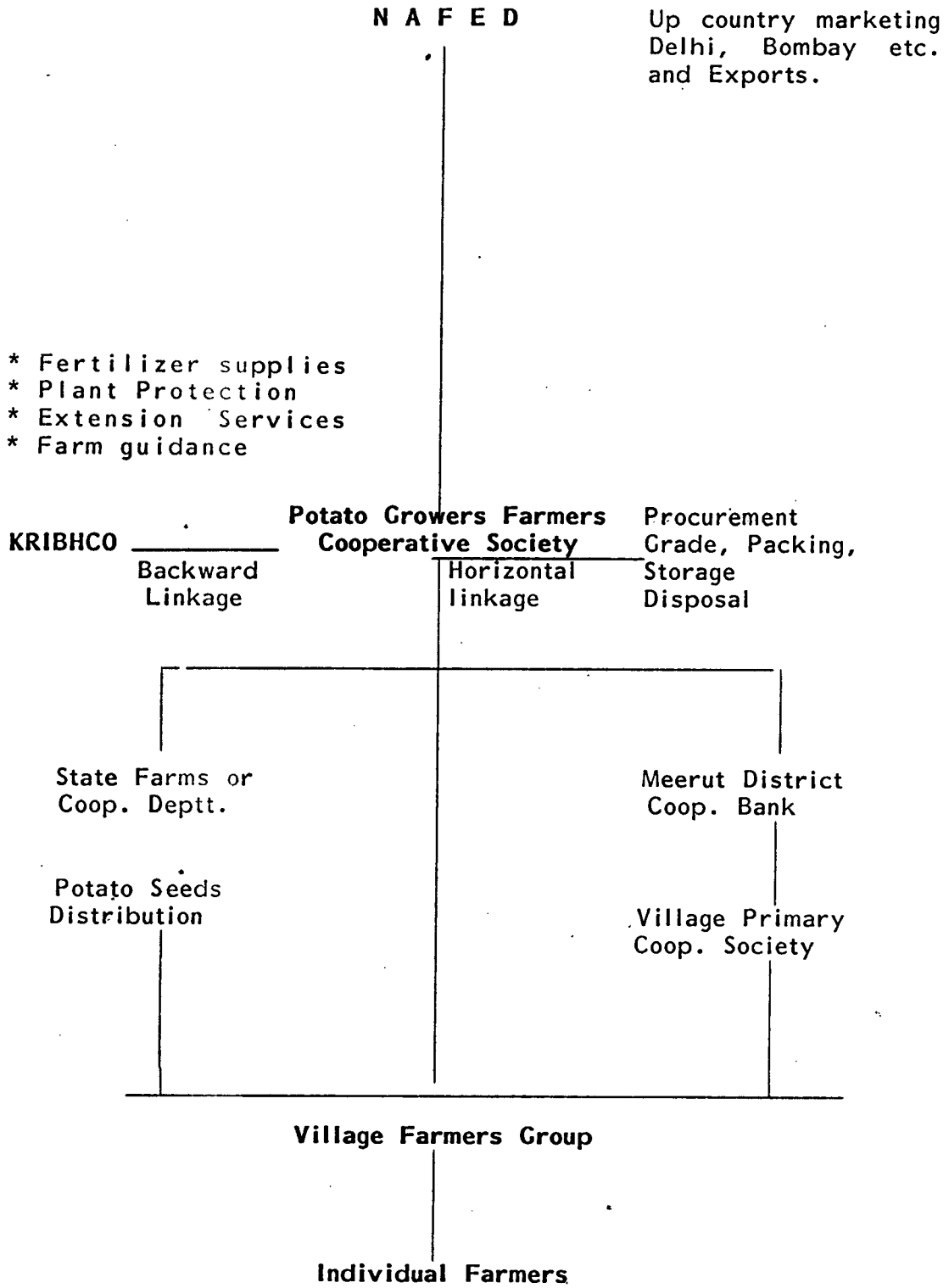
4. Accountant:

He will maintain records of all transactions, receipts and payments. He will open separate ledger for each farmer member and keep records for second and final payment made.

ORGANIZATION AND MANAGEMENT CHART



LINKAGES



5. Clerk:

He will be responsible for all correspondence and maintenance of records and assist the Manager and Secretary on day to day workings of the Society.

(A) Backward Linkages:

Backward linkage will be established with farmers through KRIBHCO in extension services and fertiliser supplies. The Seed will be purchased from State Farms or Government Department of States or Cooperative Society mainly.

1. Extension programme like demonstration will be laid out in the villages under their supervision by using recommended practices.
2. Society will undertake seed production programmes at farmers field.
3. Distribution of fertiliser and pesticides to farmers who volunteer for demonstration and Seed production programme.
4. Plant protection campaign will also be organised with the help of KRIBHCO.

5. Dessiminating pre and post harvest technology of Potato by informal meeting.

(B) Forward Linkages:

Society will undertake storage and marketing of potatoes with the association of NAFED for disposal to demand centres like Delhi, Bombay, Calcutta and local market. Meerut Society will also offer for export to NAFED.

- (C) Horizontal Linkages: Potato Growers Cooperative Marketing Society will keep close coordination with district Cooperative Bank, Branch at KITHORE and other primary credit cooperative Society, for supply of credits and other inputs to the farmers. Once the membership of the society increases over a thousand, efforts will be made to make a farmer group in each village. These groups will work as focal points.

C H A P T E R- VI
FINANCIAL ANALYSIS

6.1 BASIC ASSUMPTION:

1. Prices:

Selling and Purchasing prices have been estimated as per the trend noted in Delhi & Meerut Markets during 1988-89. Rates for Seeds have been taken as per notification of the Horticulture Deptt. (Govt. of U.P). Selling prices have been considered on conservative basis due to the fact that 1988-89 year was one of the worst year.

2. Storage Losses:

It is presumed that 2% stocks will be spoiled during storage, hence deducted from Sale Realisation.

3. Cold Storage Rent:

Only 4000 MT stocks will be put in Cold Storage @ Rs. 270/-MT because total capacity is 4000 MT.

4. Transportation Cost:

Varies in Delhi and Meerut Market.

5. Market Expenses:

Varies in Delhi and Meerut Markets.

6. NAFED Commission:

Is presumed to be given only for Sales made in Delhi market at Rs. 3% on sale prices.

7. Full cost on Working Capital Loan:

Is considered only to the extent of cash shortage during January to August outstanding at the end of each month. During 1st year, the Loans will be as under:-

January Rs. 6.00 lacs, February Rs. 12.00 lacs, March Rs. 19.00 lacs, April Rs. 27.50 lacs, May Rs. 29.50 lacs, June Rs. 31.00 lacs, July Rs. 19.00 lacs, August Rs. 7.00 lacs,

The interest @ 14% per year is provided on above loans, these loans will be taken from Cooperative Bank/NABARD.

Similarly, interest has been provided for Expected loan amount during 2nd and 3rd year. By the beginning of the 4th year, the project have generated its own bank balance to the Loan of Rs. 34.00 lacs.

8. Profit distribution to the Members:

It is presumed that every year Society will distribute its 50% cash profits to its members. If the Society decides not to distribute profits till all loans are repaid ;and substantial interest cost can be saved by not raising any working capital loan.

6.2 Capital Cost of the Project: ANNEXURE-6.2

1.	1000 Sq. meter @ Rs. 25/- sq. mt.	25,000.00
2.	Cost of Development of land fencing etc.	10,000.00
3.	Cost of construction of a house	1,40,000.00
4.	Cost of Electricity/water supply and other expenditure	10,000.00
5.	Cost of furniture	20,000.00
6.	Cost of 2 Potato graders with conveyer belts @ 12,000/- grader	24,000.00
7.	Cost of 2 generators @ Rs.3000/- generator	6,000.00
8.	Cost of one Matador/Mini Truck	2,50,000.00
9.	miscellaneous Expenses	15,000.00
	TOTAL	5,00,000.00

6.3 Fixed Administrative Cost:

1. Salaries of Staff Members @ Rs. 6,900/- month	Rs.	82,800.00
2. TA/DA/Etc. @ 250/ Month	Rs.	3,000.00
3. Postage/Telephone/Telegrams @ Rs. 250/- month	Rs.	3,000.00
4. Other incidental expenses like (Inputs free kits distribution)	Rs.	5,000.00
5. Other Miscellaneous Expenses @ Rs. 500/- month	Rs.	6,200.00
	Rs.	1,00,000.00

6.4 Profit and Loss Account

Page No-44.

6.5 Balance Sheet

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6.6 Contribution/MT

A. <u>Sales</u>	<u>Delhi Mandi</u>	<u>Meerut Mandi</u>	<u>Seed</u>
(i) Sales (Average sales during the year)	1168	819	270
(ii) NAFED Commission	35	-	
Net Realisation	1133/MT	819/MT	2700/M
(B) <u>Direct Cost:</u>			
(i) Average procurement price	600	600	60
(ii) Cost Storage Rent	270	-	27
(iii) Gunny Bags	6	6	
(iv) Transportation	70	30	
(v) Labour	15	15	1
(vi) Market Expenses	15	15	1
(vii) Octroi	10	10	
TOTAL	986	676	89
(C) Contribution (A-B)	147/MT	143/MT	1809/M

6.7 Break-Even Point (MT)

Break-Even Point at Delhi Mandi	1966 MT
at Meerut Mandi	2121 MT
by seeds	160 MT
TOTAL	4147 MT

6.8 Pay Back Period

Cash flow of the project becomes positive in 9th months of the 1st year. Hence Pay back period is 9 months. Although temporary loans will be required to be raised during 2nd and 3rd year to overcome temporary out flow due to concentrated purchases during 1st 4 months and sales spread over till 10th months at the year.

These temporary out flows can alternatively be overcome provided Society yields at the 50% cash profits every year.

6.9 Sources of Funds, Repayments Schedules

1. Share capital of Rs. 2.00 lacs will be collected from 400 potato growers member during 1st 3 months of the year @ Rs. 500/- Member share.
2. Similarly a fixed deposits of Rs. 1.00 lacs bearing 14% interest will be invited from members during 2nd/3rd month of the 1st year.
3. Temporary working capital loan will be obtained from Cooperative Bank/NABARD and will be repaid in same calendar year.
4. No term loan are projected in the project.

6.10 Net Present Value:

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Inflow	97.25	94.25	94.25	94.25	94.25
Outflow	70.69	69.68	69.40	69.27	69.40
NET	26.56	24.27	24.85	24.98	24.85

Net present value at 12%	90.73
Net present value at 15%	84.42

6.11 BENEFIT COST RATIO

Benefit cost ratio at 15% present value of project
is as under:

Present value of Benefits	316.02
Present value of cost	239.18

Ratio is 1:32

6.12 Internal rate of Return comes more than 100% because
there is no negative inflow of funds.
So on the basis of above, the project is viable.

B U D G E T
PROFIT AND LOSS ACCOUNT (RS. IN LACS)

I S T Y E A R

JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC TOTAL

A. INCOME

SALES- POTATO

MEERUT	1.95	2.60	1.95	-	-	2.20	2.20	2.20	-	-	-	13.10
DELHI	5.60	8.00	8.00	2.40	-	12.40	12.40	12.40	7.75	-	-	68.95
SEED	-	-	-	-	-	-	-	13.50	-	-	-	13.50
GROSS SALES	7.55	10.60	9.95	2.40	-	14.60	14.60	28.10	7.75	-	-	95.55
Less 2% Shortage Losses	-	-	-	-	-	0.29	0.29	0.56	0.16	-	-	1.30

TOTAL "A"

Net Sales	7.55	10.60	9.95	2.40	-	14.31	14.31	27.54	7.59	-	-	94.25
Reliasation	-	-	-	-	-	-	-	-	-	-	-	-

B. EXPENDITURE

Direct Cost	12.00	15.00	15.00	6.00	-	-	-	-	-	-	-	48.00
Purchase	-	-	-	-	-	-	-	-	-	-	-	-
Cost Storage	-	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	-	-	10.80
rent	0.12	0.12	0.12	0.12	-	-	-	-	-	-	-	0.48
Gunny Bags	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.47	-	-	4.61
Transportation	0.06	0.07	0.07	0.07	-	-	-	-	-	-	-	0.27
Labour	0.15	0.21	0.20	0.04	-	0.15	0.15	0.15	0.15	-	-	1.20
Market Exp.	0.17	0.24	0.24	0.07	-	-0.36	0.36	0.77	0.23	-	-	2.44
Comm. to NAFED	12.96	17.30	17.29	7.96	1.66	1.66	2.17	2.58	2.05	-	-	67.80
TOTAL	0.08	0.09	0.08	0.08	0.08	0.09	0.09	0.08	0.09	0.88	0.08	1.00
Fixed Cost	0.14	0.22	0.22	0.32	0.34	0.36	0.22	0.08	-	-	-	1.75
Working Capital loan	0.07	-	-	-	-	-	-	-	-	-	-	0.14
ON Member's Dep. Intt. @ 14%	-	-	-	-	-	-	-	-	-	-	-	0.14

TOTAL B

	13.11	17.53	17.59	8.36	2.08	2.11	2.47	2.34	2.66	2.14	0.08	0.22	70.69
--	-------	-------	-------	------	------	------	------	------	------	------	------	------	-------

C. PROFIT

D Profit Distributed to the members (50%)	-	-	-	-	-	-	-	-	-	-	-	-	23.56
Carried over to Reserve Fund (50%)	-	-	-	-	-	-	-	-	-	-	-	-	11.78

BUDGET

PROFIT AND LOSS ACCOUNT FOR 5 YEARS (RS. IN LACS)

S. No.	Item	1	2	3	4	No. of Years 5
A	Income Net Sales realisation	94.25	94.25	94.25	94.25	94.25
B.	Expenditure	67.8	67.8	67.8	67.8	67.8
	Direct Cost	67.80	67.80	67.80	67.80	97.80
	Fixed Cost	1.00	1.10	1.21	1.33	1.46
	On Working Capital Loan	1.75	0.94	0.25	-	-
	On Member's Intt. @ 14%	0.14	0.14	0.14	0.14	0.14
	TOTAL	70.69	69.98	69.40	69.27	49.40
C	Profit	23.56	24.27	24.85	24.98	24.85
D	Profit Distri- buted to Members (50%)	11.78	12.13	12.43	12.49	12.43
	Carried over to Reserve Fund (50%)	11.78	12.14	12.42	12.49	12.42

BALANCE SHEET

LACS RS.

LIABILITIES

Y E A R S

	<u>1</u>	2	3	4	5
Capital	2.00	2.00	2.00	2.00	2.00
Fixed Deposits-Members	1.00	1.00	1.00	1.00	1.00
Reserve Profit	11.78	23.92	36.34	48.83	61.25

14.78 26.92 39.34 51.83 64.25

ASSETS

land/Building/Equipment	5.00	5.00	5.00	5.00	5.00
Bank Balance	9.78	21.92	34.34	46.83	59.25

14.78 26.92 39.34 51.83 64.25

CHAPTER- VIII

RECOMMENDATIONS

- 8.1 In Intensive Collection Zone, marketing Society Kesarga should develop Potato growers Farmers Cooperative Socie at Nagli Kithore to take up procurement and stor facilities for Export or UP country Marketing ll Delhi, Bombay and so on by which growers should assured of a reasonable price of their produce.
- 8.2 By strengthening the 'Growers own Marketing Institutio to provide a better alternative of marketing and exploita of the farmers by the contractors will be eliminated.
- 8.3 Procurement operation may be executed during fl season and for which infrastructure like well trai procurement staff, grading facilities and adequ working capital may be organized well in advance the Society.
- 8.4 In association with State farms/ Pant Nagar Universi NATIONAL Seeds Corporation and Pussa, Society sho arrange good quality of seeds to the farmer every y and also seeding program should be started.
- 8.5 In association with KRIBHCO, society should organi extension as well as education programs in the villages.
- 8.6 In association with KRIBHCO inputs as well as pl protection, chemicals should arrange well in time which productivity can be increased. in this way adopting pre and post harvest techniques about 10 25% productivity can be increased.
- 8.7 In association with NAFED market intilegence servi may be develped.
- 8.8 Marketing Society should persue ~~NCDC~~ for 5000 MT n capacity of storage of which plan and project has b submitted to ^{NEP}~~NCDC~~ by which more farmer can be benefited.

- 8.9 in addition to 5% wastage at farmers level about additional wastage at storage and transportation level this is more, so some desirable steps should be taken to reduce this high % of wastage.
- 8.10 Marketing Society should start working with the objective of establishing processing units by the end of 5 years of Marketing operation for utilizing the substandard quality of potatoes.
- 8.11 State Govt. should provide its proposed share of equipment and subsidy for the processing unit and also give guarantee for long term financing and license for processing units.
- 8.12 After profitable disposal of the farmers produce, 5% of the surplus generated will be distributed to the farmers as 2nd or final price.
- 8.13 A price fluctuation fund will be created by putting a balance 50% of surplus generated. Loss, if any, in a particular year, may be debited to this fund.

Annexure

PLAN FOR PROCUREMENT OF POTATOES IN MEERUT

S.No.	Month	Total Qty	After grading different grades potatoes will receive			
			Grade A	Grade B	Grade C	Grade D
1.	January	2000	1000	-	960	40
2.	February	2500	1000	100	1350	50
3.	March	2500	1000	200	1250	50
4.	April	1000	500	200	280	20
		8000 MT	3500	500	3840	160

Plan for Marketing of Potatoes in Delhi/Meerut Mandies

S.No.	Month	Total Qty to be sold	Delhi Mandi	Meerut Mandi	Seeds
1.	January	1000	700	300	-
2.	February	1400	1000	400	-
3.	March	1300	1000	300	-
4.	April	300	300	-	-
5.	May	-	-	-	-
6.	June	-	-	-	-
7.	July	1000	800	200	-
8.	August	1000	800	200	-
9.	September	1000	800	200	500
10.	October	1000	500	-	-
11.	November	-	-	-	-
12.	December	-	-	-	-
		8000 MT	5900 MT	1600 MT	500 MT

(1) Cost of Procurement of Potatoes from the Growers:

<u>S.No.</u>	<u>Month</u>	<u>Quantity</u>	<u>Rate/M.T.</u>	<u>Total Cost in Rs.</u>
1	January	2000	Average	
2.	February	2500	rate/M.T.	
3.	March	2800	@ Rs.600/-	48,00,000
4.	April	1000	M.T.	
		<u>8000 MT</u>		

On the basis of last year 1988-89

(A) Income from Potato Sale in Local Market

<u>S.No.</u>	<u>Month</u>	<u>Quantity to be sold</u>	<u>Rate/M.T.</u>	<u>Total Cost in Rs.</u>
1.	January	300		
2.	February	400	Average	
3.	March	300	Rs. 550/-M.T.	6,50,000/-
4.	April	-		
5.,	May	-		
6.	June	-		
7.	July	200	Average	
8.	August	200	Rs. 1100/MT	6,60,000/-
9.	September	200		
10.	October	-		
11.	Novembr	-		
12.	December	-		
		<u>1600</u>		<u>13,10,000/-</u>

(B) Income from Potato sales in Delhi Mandi:

<u>S.No.</u>	<u>Month</u>	<u>Quantity to be sold</u>	<u>Rate/M.T.</u>	<u>Total Cost in Rs.</u>
1.	January	700		
2.	February	1000	Average	
3.	March	1000	@ 800/-M.T.	24,00,000
4.	April	300		
5.	May	-		
6.	June	-		
7.	july	800		
8.	August	800	Average	
9.	September	800	@ 1550/ M.T.	44,95,000
10.	October	500		
11.	November	-		
12.	December	-		
			<u>Total</u>	<u>68,95,000</u>

C. Income from Potato Seeds Sales

Potato Seeds will be sold @ Rs. 2700/- MT

Income = 500 x 2700 = Rs. 13,50,000/-

NOTE: On the basis of U.P. Horticulure Deptt.
Selling price (Govt. of U.P)

TOTAL INCOME FROM POTATO SALES

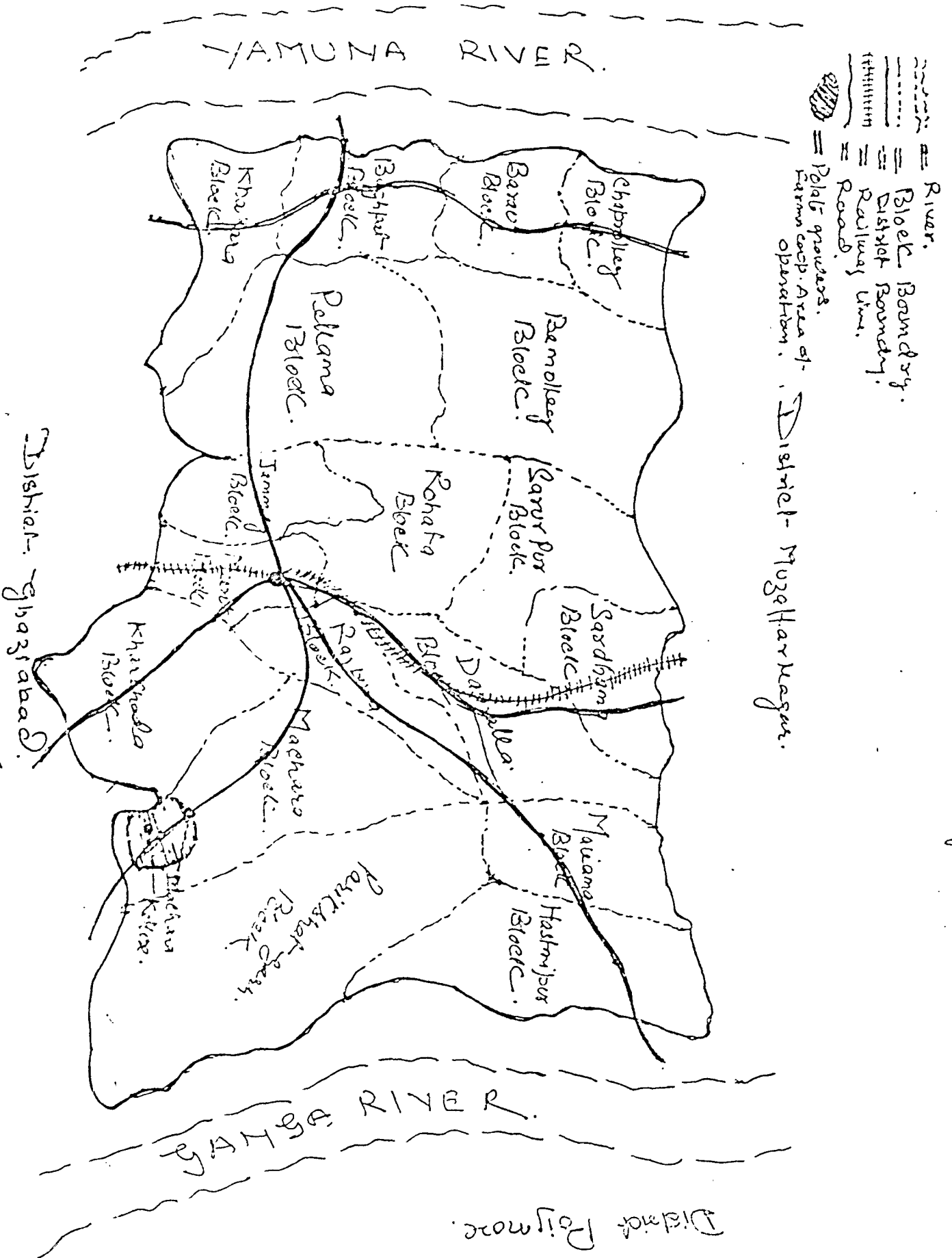
A.	Sales at Meerut	Rs. 13,10,000
B.	Sales at Delhi	Rs. 68,95,000
C.	Seeds Sales	Rs. 13,50,000
		<hr/>
		Rs. 95,55,000
		<hr/>

ANNEXURE - 2.1



HARYANA STATE.

Map of Meerut Distt. showing the Blockes and quarters.



NUTRATIVE VALUE OF POTATO IN COMPARISON WITH OTHER VEGETABLES

Name of vegetable & Fruits	Proteine (G)	Carbohydrate (G)	Fat (G)	Calories (G)	Minerals (G)
1. Potato	1.6	22.6	0.1	97	0.6
2. Onion	1.2	11.0	-	49	0.04
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
FRUITS					
1. Mango	0.6	11.8 to 21.1	.1 to .9	50 to 89	.3 to .6
2. Banana	0.8	29.4	0.8	107	0.8
3. Orange	0.6	7.3	0.2	33	0.3
4. Guava	0.9	11.2	0.3	51	0.7
5. Pineapple	0.4	10.8	0.1	46	0.4
6. Grapes	0.5	16.5	0.3	71	0.6
7. Apples	0.2	14.9	0.5	65	0.4
8. Pears	0.3	13.4	0.3	58	0.4
9. Peaches	12	10.5	0.3	50	0.8
10. Apricote	1.0	11.6	0.3	53	0.7

CULTIVATED AREA AND PRODUCTION IN THE STATES OF INDIA FROM 1986-89

STATES	AREA IN '000' HECTRES			PRODUCTION IN '000' HECTRES		
	86-87	87-88	88-89	86-87	87-88	88-89
1. Andhra Pradesh	0.6	0.7	0.5	1.7	4.2	3.6
2. Arunachal Pradesh	3.0	2.5	2.5	20.7	20.9	20.9
3. Assam	56.3	54.0	57.9	337.9	328.8	345.9
4. Bihar	133.8	144.0	147.0	1324.5	1523.1	1472.0
5. Gujrat	11.0	9.4	15.1	253.6	197.9	314.5
6. Haryana	9.0	9.9	9.0	131.5	154.5	142.0
7. Madhya Pradesh	14.3	13.8	19.0	37.8	25.0	110.0
8. J & Kashmir	1.8	1.7	1.7	6.7	2.0	2.8
9. Karnataka	19.6	23.0	25.0	214.4	173.7	217.3
10. M. Pradesh	28.2	30.2	30.7	349.6	354.4	342.5
11. Maharashtra	11.1	11.7	12.2	51.9	59.8	50.9
12. Manipur	2.5	2.0	2.0	20.9	11.4	11.4
13. Mizoram	0.2	0.2	0.3	0.8	1.0	2.3
14. Nagaland	1.1	1.1	0.9	6.8	6.0	5.0
15. Orissa	9.8	8.7	8.7	96.7	78.7	78.7
16. Punjab	24.6	28.1	24.9	251.5	540.9	513.8
17. Rajasthan	1.9	2.0	2.2	9.9	17.2	28.2
18. Sikkim	5.0	5.0	5.5	26.4	26.0	31.6
19. Tamil Nadu	8.3	8.7	4.6	168.3	209.7	104.6
20. Tripura	2.5	2.8	3.0	40.2	46.8	54.4
21. Uttar Pradesh	294.5	326.8	359.3	5695.2	6331.4	6012.8
22. West Bengal	173.0	179.0	188.0	3542.0	3787.0	4345.0
23. Delhi	0.2	0.2	0.1	1.2	1.34	0.4
ALL INDIA	831.5	885.1	920.0			

STATE WISE SOWING & HARVESTING PERIOD OF POTATO IN INDIA (SUMMER)

S.No.	STATE	H I L L S		P L A I N S	
		SOWING	HARVESTING	SOWING	HARVESTING
1.	Assam	Feb-March	May- June	-	-
2.	Haryana	Jan- Feb	June	Sept- Oct	Dec- July
3.	Himachal Pradesh	March-May	Dec-July	Jan-Feb	-
4.	Jammu & Kashmir	April-May	Sept-Oct	-	-
5.	Karnataka	March-June	Sept- Oct	March- June	Sept- Oct
6.	Madhya Pradesh	Apr- May	August-Sept	Jun-Jan	Sept-April
7.	Maharashtra	Jun-Aug.	Sept-Nov.	June-Aug.	Sept- Dec.
8.	Orrissa	-	-	July	October
9.	Punjab	Jan-Feb	June	Jul-Aug	Sept-Oct.
10	Tamil Nadu	March-May	Dec-July	Sept-Oct	Dec-July
11	Uttar Pradesh	Apr-July	Jul-Nov.	Jan-Feb	Aug- Sept
		Sept- Oct	Nov- Dec.	April-May	Nov- Dec.

All India Feb- July (Sowing) Jan- May (Harvesting)

STATE WISE SOWING AND HARVESTING PERIOD OF POTATO IN INDIA (WINTER)

S.No.	STATE	H I L L S		P L A I N S	
		SOWING	HARVESTING	SOWING	HARVESTING
1.	Andhra Pradesh	-	-	Oct-Nov.	Jan-Feb
2.	Assam	Oct-Nov.	Jan-Feb	Oct-Nov	Jan-Feb
3.	Bihar	-	-	Oct-Feb	Dec-March
4.	Gujrat	Nov-Dec.	Feb-March	Oct-Nov.	Feb-March
5.	Haryana	Sept-Oct	Jan-Feb	Sept-Nov	Nov-Jan
6.	Himachal Pradesh	Jan-Feb	June-July	-	-
7.	Jammu & Kashmir	June-July	Oct-Jan	Sept-Oct	Dec-Feb
		Sept-Oct	Feb	June-July	October
8.	Karnataka	-	-	July-Jan.	Sept-June
9.	Kerala	-	-	-	-
10.	Madhya Pradesh	Oct-Nov.	Feb-March	Oct-Nov.	March-Nov.
11.	Meghalaya	Oct-Nov.	Jan-Feb	Oct-Nov.	Jan-Feb
12.	Orrissa	-	-	Oct-Nov.	Jan-Feb
13.	Punjab	Sept-oct	Jan-Feb	Sept-Octq	Nov-Jan
14.	Tamil Nadu	Sept-Dec	Dec-May	Oct-Nov	Feb-March
15.	West Bengal	-	-	Sept-Oct	Jan-April
16.	Uttar Pradesh	Nov-Dec.	March	Sept-Oct	Nov-Feb.

All India August-December = Sowing Jan-May = Harvesting

PRINCIPAL ASSEMBLING MARKETS FOR POTATO IN MAIN PRODUCING STATES

<u>S.No.</u>	<u>STATES</u>	<u>ASSEMBLING & CONSUMING MARKETS</u>
1.	Uttar Pradesh	Farrukhabad, Kasganj, Karimganj, Jaunpur, Haldwani, Dehradun, Meerut, Hapur, Lucknow and Kanpur.
2.	Delhi	Azadpur
3.	Bihar	Patna and Biharsharif
4.	West Bengal	Sheoratuki, Mamari, Kalana, Burdwan, Jamalpur, Chapudang, Asansol, Calcutta
5.	Maharashtra	Bombay
6.	Haryana	Ambala, Jagadhari, Bhiwani, Kussar, Faridabad, Rohtak, Karnal, Panipat, Sahabad, Sirsa, Pepli and Fatehbad.
7.	Punjab	Jallandhar, Amritsar, Batala, Ludhiana

NO. OF REGULATED MARKETS OF POTATO IN THE COUNTRY

<u>S.No.</u>	<u>STATES</u>	<u>NO. OF MARKETS</u>
1.	Andhara	71
2.	Bihar	26
3.	Gujrat	15
4.	Haryana	77
5.	Madhya Pradesh	5
6.	Maharashtra	10
7.	Karnataka	12
8.	Orrissa	19
9.	Punjab	91
10.	Rajasthan	6
11.	Uttar Pradesh	69
12.	Delhi	1
13	Chandigarh	1
	TOTAL	402

AREA AND PRODUCTION OF POTATO IN MEERUT DISTRICTFROM 1986-90

<u>S.No.</u>	<u>1986-87</u>	<u>1987-88</u>	<u>1988-89</u>	<u>1989-90</u>
1. Area in Hactre	6390	6850	8424	7030
2. Production in M.T.	163400	210783	189845	194200
3. Average Production Year	21.8 MT/ Hact.	30.7 MT/ Hact.	22.5 MT/ Hact.	27.6 MT/ Hact.

AREA AND PRODUCTION OF POTATO IN MEERUT DISTRICTBLOCK WISE FOR THE YEAR 1988-89

<u>S.No.</u>	<u>TEHSIL</u>	<u>BLOCK</u>	<u>AREA IN HACTOR</u>	<u>PRODUCTION IN MT</u>
1.	MEERUT	Meerut	2000	5440
		Rajpura	1408	28000
		Rohata	310	6200
		Kharkhoda	930	18600
		Janni	866	17320
				<u>124520.00</u> in (65.5%)
2.	BAGHPAT	Pilana	107	2675
		Khakera	62	1550
		Baghpat	133	3325
		Baraut	715	720
		Chhaprauli	26	720
				<u>9820.00</u> in (5.1%)
3.	SARDHANA	Benolly	60	1600
		Sarurpur	313	6900
		Daurala	400	9900
				<u>24940.00</u> in (13.1%)
4.	MAWANA	Hastinapur	150	3335
		Mawana	730	14600
		Parikshitgarh	176	3520
		Machra	435	9110
				<u>30565</u> in (16.0%)

DETAILS OF COLD STORAGE IN MEERUT DISTT, TEHSIL MEERUT

<u>S.No.</u>	<u>Name of Cold Storage</u>	<u>Sector</u>	<u>Capacity IN M.T.</u>
1.	M/s Giraje Cold Storage, Hapur Road	Private	5,054.00
2.	M/s G.D. Cold Storage, Meerut	-do-	3,001.00
3.	Sajadain Cold Storage, Meerut	-do-	3,350.00
4.	Riyauddin Cold Storage, Meerut	-do-	5,730.00
5.	Hindustan Cold Storage, Meerut	-do-	4,151.00
6.	Cooperative Cold Storage, Kharkhoda	Coop.	4,116.00
7.	D.P.F. Cold Storage, Meerut	Private	6,039.00
8.	Nassin Cold Storage, Meerut	-do-	4,135.00
9.	Coop. Cold Storage,	Coop.	3,937.00
10.	M. Cold Storage, Nagli, Kithore	Private	1,721.00
11.	Phula Cold Storage, Suraj Kund	-do-	3,285.00
12.	Gokul Cold Storage, Meerut	-do-	3,056.00
13.	Rama Cold Storage, Lisari Gate, Meerut	-do-	1,054.00
14.	R.K. Cold Storage, Meerut	-do-	2,776.00
15.	Ganesh Cold Storage, Meerut	-do-	2,825.00
16.	Ice & General Milk Cold Storage, Meerut	-do-	3,184.00
17.	Meerut Cold Storage, Meerut	-do-	1,781.00
18.	Kisan Cold Storage, Meerut	-do-	1,244.00
19.	S. Cold Storage, Meerut	-do-	2,144.00
20.	M. Cold Storage, Meerut	-do-	2,128.00
21.	S. Raj Singh Cold Storage, Meerut	-do-	3,678.00
22.	Cooperative Cold Storage, Meerut	Coop.	1,509.00
23.	Kuldeep Cold Storage, Meerut	Private	999.00
24.	Manohar Cold Storage, Meerut	-do-	7,753.00
25.	Bhawani Cold Storage, Meerut	-do-	2,843.00
26.	Nambardar Cold Storage, Meerut	-do-	2,792.00
27.	Mahal Cold Storage, Meerut	-do-	2,843.00
28.	Noor-Jehan Cold Storage, Meerut	-do-	3,778.00
TOTAL			93,964.00

TEHSIL MAWANA

1.	M/s S.P. Cold Storage,	Private	2,363.00
2.	M/s Chatobhuj Cold Storage	"	1,766.00
3.	M/s Tejpal Singh Cold Storage	"	1,694.00
4.	M/s Vishambher Sahai Cold Storage		1,734.00
5.	M/s Chaudhary Cold Storage	"	1,116.00
		TOTAL	8,673.00 MT

TEHSIL BAGHPAT

1.	M/s M. Cold Storage	Private	1,139.00
2.	M/s Palson Cold Storage,	"	1,332.00
			2,471.00

TEHSIL SARDHANA

1.	M/s D. Cold Storage	Private	1,629.00
2.	M/s Agarwal Cold Storage	"	1,332.00
		TOTAL	2,961.00

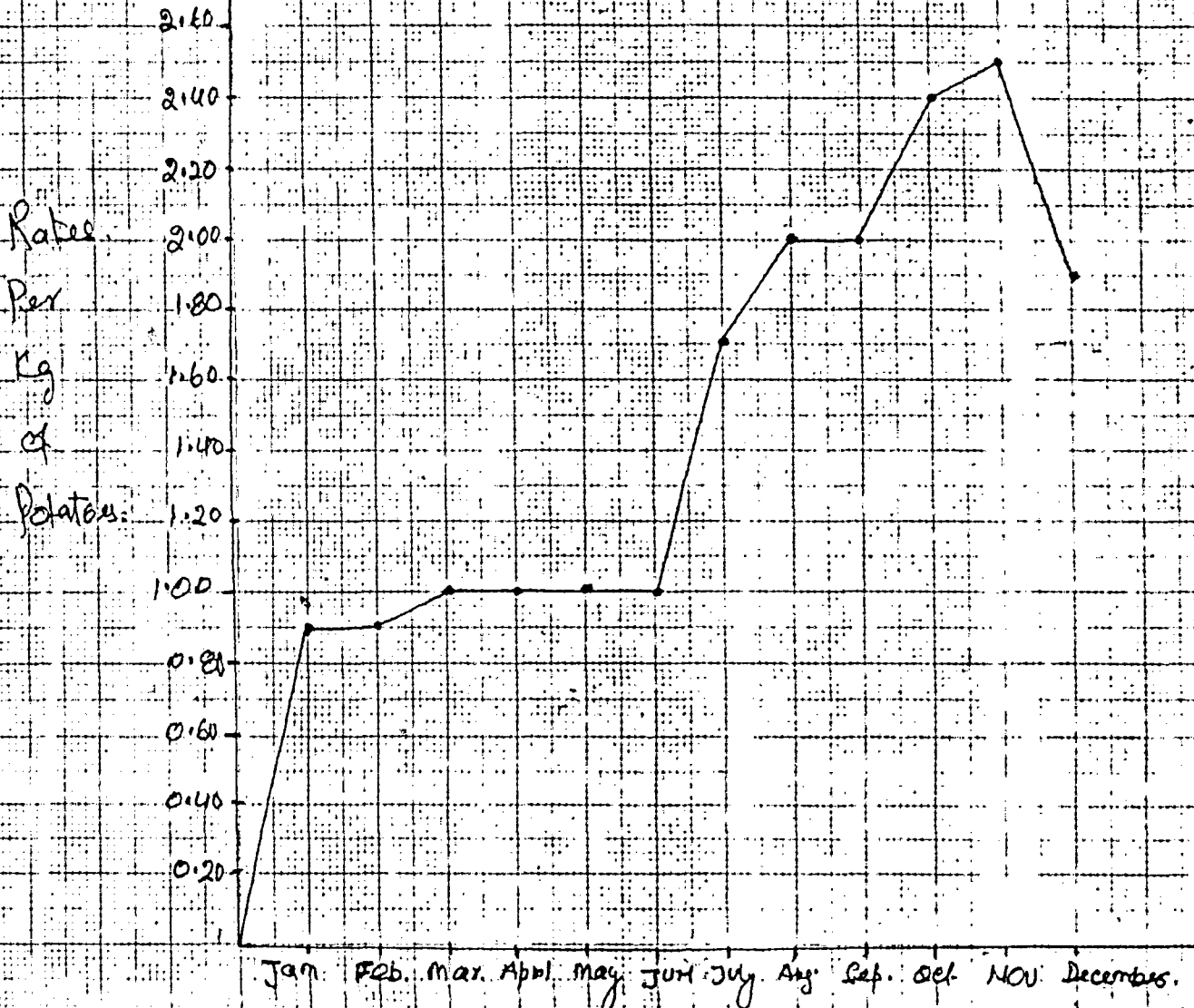
Total Capacity of the Cold Storage
in Meerut District **TOTAL 1,08,069.00**

In Cooperative Sector 3 Cold Storage = 12010.00 MT Capacity
are working.

In Private Sector 35 cold storage = 96059.00 MT Capacity
are working

TOTAL 108069.000 MT

RETAIL PRICE OF POTATO IN Rs PER KG IN MEERUT



YEAR 1988-89

Annexure -4.2=1

I. PRODUCTION OF SEED BY STATE FARM IN 1987-89

<u>S.No.</u>	<u>Variety</u>	<u>Classification</u>	<u>Production in MT</u>	
			<u>1987-88</u>	<u>1988-89</u>
1.	Kufari Chandra Mukhi	Foundation	349 MT	394 MT
2.	kufri Badshah	Foundation	383 MT	353 MT
		Certified	200 MT	231 MT
3.	Kufri Jyoti	Foundation	NR	242 MT
		Certified	226 MT	186 MT

Note: Rates/qtls in 1988-89 for Kufri Badsaha. (Foundation)
2 Rs. 375/- qtls and certified @ Rs. 320/- qtls.

II. POTATO SEED DISTRIBUTION THROUGH HORTICULTURE DEPOT
IN MEERUT AND RATES/QTLS DURING 1988-1990

<u>S.No.</u>	<u>Item</u>	<u>1987-88</u>	<u>1988-89</u>	<u>1989-90</u>
1.	Potato seed supplied	1300 MT	1235 MT	2696 MT
2.	Rates/Qtls	Rs. 240	270	255

Source: Head Office of State Farm, Nehru place, New Delhi
and Horticulture Depot of U.P. Meerut Office.

MARKET RATES OF POTATO AT BOMBAY, DELHI AND MEERUT IN Rs./Qtls. FROM 1986-1989

Month	1985-86		1986-87		1987-88		1988-89	
	Meerut	Delhi	Meerut	Delhi	Meerut	Delhi	Meerut	Delhi
1. January	85	110	92	100	NR	NR	70	70
2. February	95	105	75	100	NR	NR	66	85
3. March	160	200	80	90	NR	NR	80	95
4. April	180	240	82	105	NR	NR	85	80
5. May	NR	235	NR	135	NR	NR	130	135
6. June	215	290	NR	137	NR	NR	157	165
7. July	250	240	NR	135	135	150	150	165
8. August	250	265	175	125	145	130	145	165
9. September	250	290	120	125	260	140	115	130
10. October	NR	300	220	100	200	200	100	130
11. November	NR	235	165	NR	125	150	NR	NR
12. December	NR	150	80	90	128	80	NR	NR

Source: Directorate of Economic and Statistics Deptt., Govt. of India.

ANNEXURE- 4.5.II

ARRIVAL OF POTATO IN DELHI MANDI FROM DIFFERENT
PART OF THE COUNTRY (1988-89)

<u>S.No.</u>	<u>Month</u>		<u>Quantity (MT)</u>	<u>Rates/Qtls</u>
1.	JANUARY	89	38,976.06	70
2.	February	89	27,369.00	85
3.	March	89	37,483.00	95
4.	April	89	27,905.00	80
5.	May	89	29,452.00	135
6.	June	89	23,929.00	165
7.	July	89	19,570.00	165
8.	August	89	25,839.00	165
9.	September	89	27,125.00	150
10.	October	89	35,090.00	130
11.	November	89	72,801.00	80
12.	December	89	62,447.00	70

Source- Azadpur Mandi office, Delhi.

ARRIVALS AND RATES/Quintals IN MEERUT MANDI
FOR THE YEAR (1988-89)

<u>S.No.</u>	<u>Month</u>	<u>Arrival in (MT)</u>		<u>Rates/Quintals IN Rs.</u>	
		<u>1987-88</u>	<u>1988-89</u>	<u>1987-88</u>	<u>1988-89</u>
1.	January	NR	25529	58	50
2.	February	NR	13070	65	60
3.	March	NR	12240	92	70
4.	April	NR	10965	81	70
5.	May	NR	7716	82	80
6.	June	NR	7789	110	70
7.	July	8566	9386	120	100
8.	August	10162	11530	200	115
9.	September	8803	12675	250	115
10.	October	8337	18661	200	110
11.	November	13705	19375	150	100
12.	December	25562	24721	60	70
		TOTAL		173857 MT	

Source: Mandi Samiti Office at Meerut

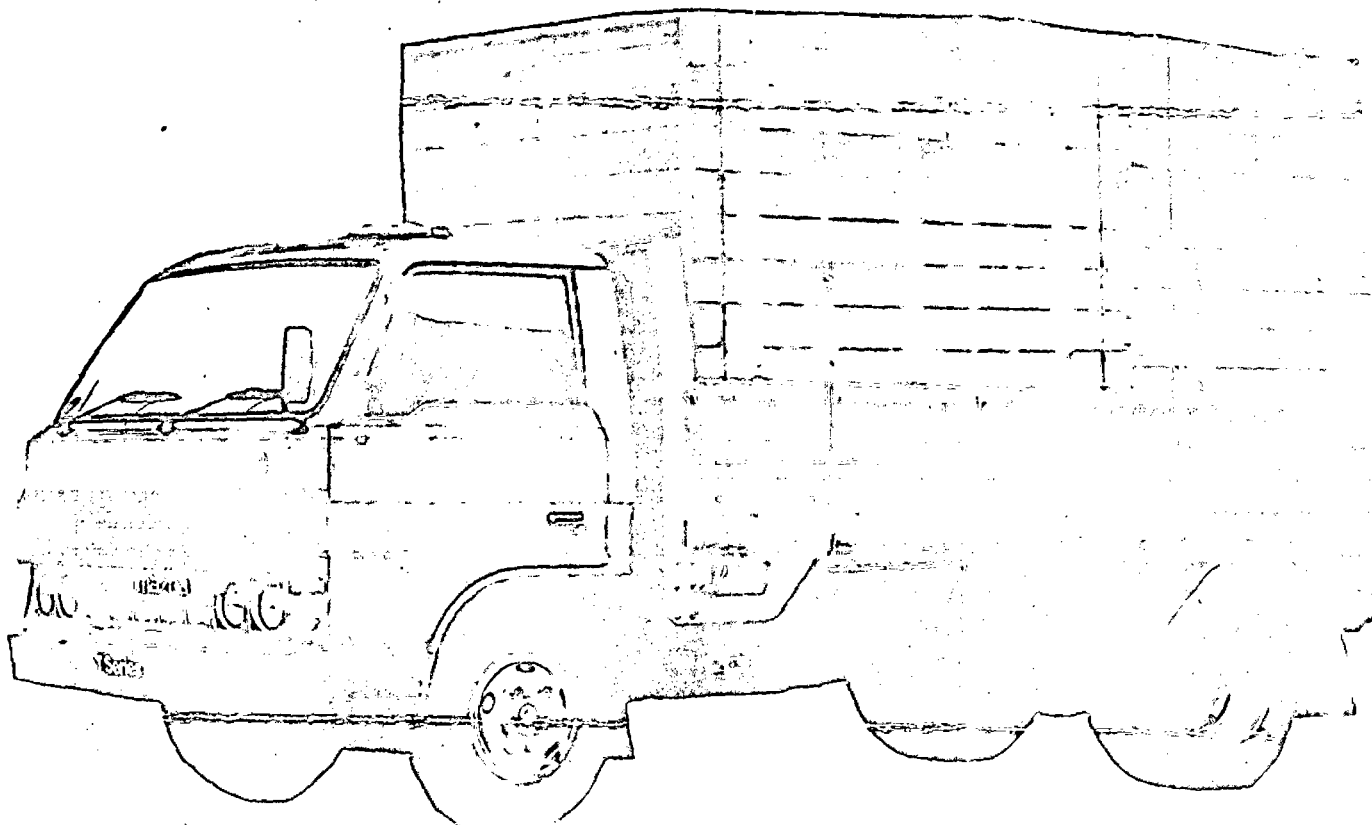
APPROXIMATE - COST

6.2

NAME OF ROOM	NO.	SIZE (feet)	AREA (sq ft)	AMOUNT (Rs.)
Meeting Room	1	18' X 13'	234	234 X 160 = 37,44
Varandha	1	12' X 8'	96	96 X 160 = 15,36
Manager Room	1	10' X 13'	130	130 X 160 = 20,80
Toilet	2	5' X 5'	2 X 25 = 50	50 X 200 = 10,00
Staff Room	1	17' X 10'	170	170 X 160 = 27,20
Staff Room	1	12' X 6'	72	72 X 160 = 11,52
Store Room	1	10' X 10'	100	100 X 160 = 16,00
				<u>TOTAL = 1,38,32</u>

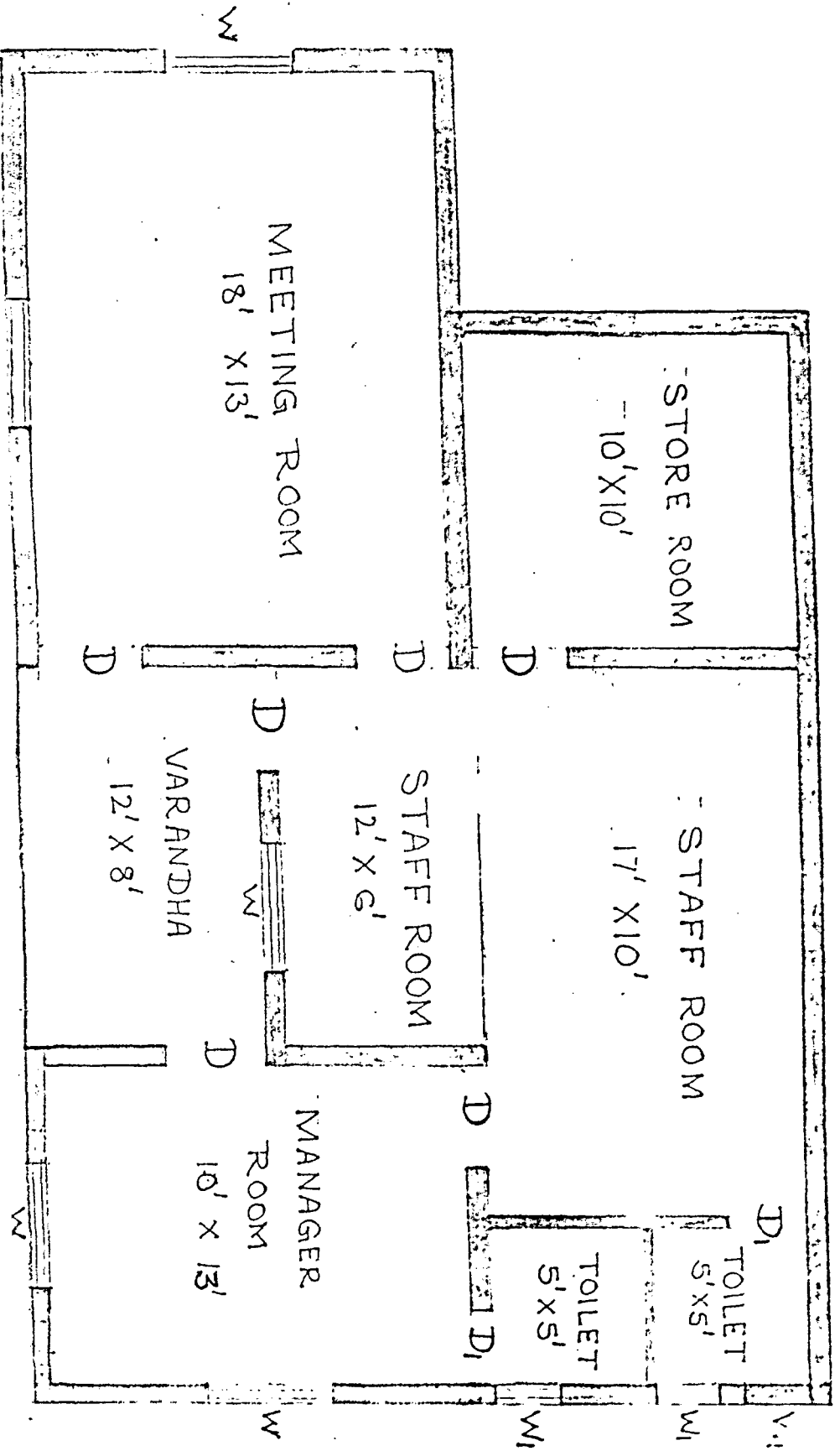
Approximate cost of office Building (Rs.) = 1,38,32
 @ 160/sq. Ft

II - COST OF A TRUCK Rs. 2,50,000/-
SWARAJ MAZDA.



OFFICE BUILDINGS MAP

REFERENCE -
 D = DOOR = 1.00 X 2.00 M²
 D₁ = DOOR = 0.75 X 2.00 M²
 W = WINDOW = 1.20 X 1.50 M²
 W₁ = WINDOW = 1.00 X 0.50 M²
 WALL THICKNESS = 9" (CINCHES)



4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared
by Mr L.S.Rawal, India.
(excluding those made by groups)

- * Some functions also are included in objectives. Need separation.
- * Break even point needs rechecking.
- * working capital should include intt on w/cap. loans also. needs rechecking.
- * Average holding and potato production for project area is missing.
- * Percentage of potato to be procured by society out of total production not given. Commodity movement information would be useful.
- * Procurement price of Rs.650 per ton seems inadequate.
- * Farmers as focal point of project not kept in mind.
- * Financial analysis is different. No heavy investment initially. Only training is emphasized. If no initial investment is there no need for IRR/NPV/pay back period etc. Profit & Loss Act. should have been sufficient.
- * Emphasis on detailed cash budget/stock management needed.
- * cost for services not included in project.
- * working capital estimation needs revision.
- * risk factor/price variation between procurement and sale should be restudied. Farmers will not accept risk sharing.
- * 2% wastage provided is too low. Must be revised.
- * Sensitivity analysis also need revision in the light of above comments.
- * Larger projects have more chance of success and such projects should be attempted.
- * Agro-processing based project will have a better chance of success than a marketing oriented project. Many marketing societies in India have failed due to competition and bad management. Small farmers need protection and rich farmers can take care of their requirements on their own.

POTATO-MEERUT PROJ.

28/2/90 G. A

1. WORKING CAPITAL OF THE PROJECT WAS NOT CLEARLY MENTIONED.

2. CASH FLOW SHOULD BE MORE EMPHASIZED.

3. BREAK EVEN POINT IS NOT CLEAR.

"THE PART OF FINANCIAL ANALYSIS ARE CONFUSING."

Group B - India

The following are our comments:

1. On page 3 it is mentioned the losses is 2% on weight of potatoes but when referred to income statement, no deduction has been made. While on the Budget deduction was made on gross sale beginning July.
2. Due to the perishable crop of potatoes how it is made possible to store potatoes from Feb - Sept (8 months).
3. It is advisable that the society constructed it's own cold storage (as the project cycle is one year and the society is earning more than 100% profit).
4. The project has many objectives - 13 of them. Which are the most priority?
5. On page 44 'Budget' total inflow 94.25 while on page 42 the inflow 97.25
6. Members interest loan is calculated for 1 year basis whereas the loan taken only for 2 months. (Refer 42/45)
7. There is no cashflow analysis made in this project.
8. The cost for gunny bags is wrong. It should be calculated according to procurement plan (pages) in 'Budget' it has ~~been~~ ^{been} calculated on average basis.

GROUP C

Potato : Meerut

- 1) The total production of potato and the average farm holding in the project area is not shown in the feasibility report.
- 2) There is already cooperative society are functioning in the project area therefore. There is no need to create this society instead of that the existing - society activity could be strengthened. This society becomes the dual society in the area.
- 3) P 8, para. 2 not clear.
- 4) What is the quantity of seed required / acre is not shown.
- 5) There are 28 cold storage in Meerut. This society will have many competitors. (p. 61)
- 6) p. 3, para. 5 is not clear.
- 7) Capacity of the plant utilisation is not shown.
- 8) The total area of the propose feasibility report is not there.
- 9) B.E.P. calculation ^{is} not clear.
- 10) How much percentage of procurement of potato will be done by this society is not shown.

—

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

TITLE OF PROJECT : *Fruit Processing Mill*

COUNTRY : *Korea*

PROJECT PREPARED BY : *Sang Duck, Lee*

Funded by the Government of Japan

and

Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and Korea

ICA Management Training Project for Agricultural Cooperatives in Asia

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ACKNOWLEDGEMENTS

The fourth ICA/Japan course for strengthening management of agricultural cooperatives in Asia (October 23th, 1989 – May 11th, 1990) was a very good opportunity in understanding the concept of the integrated cooperatives and the management for me.

Also it has given me a good chance to understand various aspects of Agricultural cooperatives of south-east Asia countries and have more interested in the ways of increasing the farmers' income as well as the agricultural situations and the management problems.

The Fruits Processing Mill Project of the Sam Rang Jin Primary Agricultural Cooperative was prepared under this course-programme.

For giving me this valuable opportunity, I would like to express my gratitude to the staff members of I.C.A. R.O. in New Delhi and the professors of I.I.M. in Amedabad, and specially to project director of I.C.A., Mr. M.V. Madane.

I am also grateful to the chairman and the staffs of NACF and agricultural cooperative college who gave me a chance to participate in this course.

And I convey deep thanks to Sam Rang Jin primary cooperative and Mr. Jee Young Yun, who is NACF's processing division chief for providing me valuable informations and commentations for this project.

February in 1990

Sang Duck Lee.

I. SUMMARY

1.1 This project deals with the Fruit Processing Mill to be constructed by the Sam Rang Jin PAC, about 360Km southern area of Seoul, as follows.

1.1-1 Main Raw Materials:

- o Strawberry, peach, chestnut and perishable fruits.

1.1-2 Methods of Project

- o Cold warehouse: Trust custody
Purchase custody
- o Freezing warehouse: Processing
Custody
- o Processing mill: Trust processing
Purchase processing

1.1-3 Capacity

Classification	Unit	Cold Warehouse	Freezing Warehouse	Mill	Land	Total
Area	Pyeong	439	100	301	10,000	10,840
Daily Capacity	M/T	800	250	20		1,070
Capacity Per Year	M/T	8,000	5,000	3,600		16,600

* 1m² = 0.325 pyeong

Mill working days = 180 days

1.1-4 Investment

('000 Won)

Land	Buiding				Mach- inery	Others	Total
	Warehouses	Mill	Equipment	Sub-Total			
100,000	550,813	254,450	54,245	859,508	809,773	100,057	1,869,338

1.1-5 Production

(Unit: M/T)

Classification		1	2	3	4	5	6	7	8
Cold Warehouse		3,500	5,100	6,700	6,700	6,700	6,700	6,700	6,700
Freezing Warehouse	Process	1,000	1,300	1,500	1,600	1,700	1,800	1,900	2,000
	Custody	1,000	1,500	2,000	2,100	2,200	2,300	2,400	2,500
Mill		1,200	2,000	2,500	2,600	2,700	2,800	2,900	3,000
Total		6,700	9,900	12,700	13,000	13,300	13,600	13,900	14,200

1.1-6 Various Kinds of Fruits are grown in this area, and most of such Fruits as strawberry, peach, chestnut, persimmon, etc, are sold through the brokers and the marketing channel of Sam Rang Jin PAC to big cities.

1.1-7 However, due to the problems of storability, relatively high Risk in handling and short man-power of the cooperative, most of these Fruits are sold to the brokers on the field at the low prices which considerably reduces the growing farmers' income.

1.1-8 Realizing such problems The Sam Rang Jin PAC is considering carefully to launch a new project of Fruit processing mill and custody business for the purpose of increasing farmers' farm and non-farm income and at the sametime to provide farmers with more services.

1.1-9 Because the agricultrual products processing industry became new government supporting industry, and NACF decided to expand and support processing business, this project is judged to be optimistic and prosperous.

1.1-10 This project will start, at first process strawberry and gradually process peaches, and chestnut.

1.1-11 The government will provide PAC with 375 million won as a long-term Loan at 8% interest rate, and NACF will support 300 million won for 3 years at no-interest, the balance is supplied by the self-capital and by selling unusing real estate.

1.1-12 This project life is assumed to be 8 years, and one year will be required in construction of this factory.

1.1-13 Financial Analysis

- o Pay beack period: 5 years.
- o Break even point (first year): 8,885 M/T.
- o IRR: 19.16%.
- o B.C.R.: 1.36 (at 11.5%).
- o Increase income to grawers: 24,120 Won/Ton.

II. BACK GROUND

2.1 Back Ground

2.1-1 Fruit and Koreans

Most of the Koreans like fruits very much but most of the fruits are seasonal and perishable, specially in winter season, it is very difficult to enjoy the fruits in Korea.

2.1-2 Production of Strawberry, Peach, Chestnut

- 1) The production of these fruits is increasing every year, but consumption is not increasing so much.
- 2) Therefore government is supporting export these fruits, and in order to export, these fruits must be processed.

2.1-3 Demand Prospect of These Fruits

- 1) Future demand on these fruits is prospected to increase remarkably due to the increasing of the income in the non-season.
- 2) The export of these fruits is also expected to show gradual increase.

(The Amount of the Processing of These Fruits in Korea)

(M/T)

Classification	Strawberry	Peach	Chestnut
'84	848	10,844	18,243
'85	2,275	12,428	20,938
'86	2,379	14,509	23,456
'87	3,007	11,694	28,357
'88	4,748	23,392	33,190

2.1-4 Fostering of Fruits Export and Processing by the Government

- 1) In Korea, the stable supply of the fruits and the maintenance of the reasonable price of the fruits are very significant not only for the income enhancement of farmers but for the national economy.
- 2) Specially the price of fruits is unstable for the reasons of the changes in climatic conditions, planted area and the quantity of production.

To tackle such problems, the government is endeavoring to bring up fruit's processing industry, specially having focus to oversea's markets.

- 3) The government is not only support the existing processing plant as pilot industry but establish display and sale-hall, and job training and education center for the development of fruit industry.

2.2 Overall Situation

2.2-1 Location

The project area is located around 360Km southern field of Seoul, and very near from Pusan which is the one of the largest cities in Korea.

This area is well irrigated and roads and traffic conditions are excellent.

2.2-2 Population

The total households of this area are 4,020 with a population of 10,320. The farm households are 2,500, around 62%, and farmers are 9,227 about 56%.

(Farm Households & Population)

Households			Population		
Famaers'	Non-Farmers'	Total	Farmer	Non-Farmer	Total
2,500(62%)	1,520(38%)	4,020	9,227(56%)	7,093	16,320

2.2-3 Land

- 1) This area is mountainous one with a total area of 4,645 ha;
 - o Areable land: 1,810 ha (paddy land: 801 ha, up land: 1,009 ha).
 - o Forest land: 2,835 ha (61%).
- 2) Farming area per farm household is 0.7 ha (national average: 1.1 ha).

2.2-4 Cropping Pattern and Climate

- 1) Annual average temperature: 10°C (lowest: -25.4°C, highest: 37.6°C).
- 2) Annual precipitation: 1,396 mm.
- 3) Non-frost days: 54 days.
- 4) Paddy is cropped once a year and up land products are cropped once or twice a year.

2.2-5 Major Production

The major products of the area are paddy from lowland, and strawberry, cucumber, pepper from up land and peach, chestnut from forest.

Classification	Food Crops(M/T)		Fruits(M/T)			
	Rice	Beans	Strawberry	Peach	Grape	Chestnut
'87	1,745	26	6,327	10,254	397	11,843
'88	1,768	28	6,649	11,064	408	12,034
'89	1,875	35	6,957	12,627	494	12,635

2.2-6 Marketing System

- 1) Most of the major products of this area excluding paddy are marketed through cooperative marketing channel, and the cooperative is striving to increase the prices received by farmers through marketing information development.
- 2) Products are marketed mostly to Seoul and Pusan, Taegu metropolitan cities.

(Marketing Percentage by Market Channel)

Classification	NACF Marketing Center	Legal Whole Sale Market	Military Supply	Private Factory	Mass Consumers
Strawberry	22.7%	14.5%	13.2%	23.5%	26.1%
Peach	26.4%	17.5%	14.3%	30.5%	11.3%
Grape	27.6%	20.4%	12.3%	18.5%	21.2%
Chestnut	32.5%	21.5%	10.4%	25.4%	10.2%

3) Farm Guidance

Farm guidance of P.A.C. is provided for the production of strawberry and peach through 9 joint production and marketing groups established in the villages. Intensive guidance is given annually for planned-production and marketing.

Technical farming information is provided by specialist, and farming material and funds are supported to joint production and marketing groups.

4) Selection of Market and Planned Marketing

Two-three weeks prior to estimated marketing time, staff of P.A.C. and leaders of farming groups compose a marketing consultation committee to survey the growing situation and marketing trends of other market competing area and to

decide market place, market method, packaging method and marketing time to receive the utmost prices.

5) To enhance the quality of commodity, the P.A.C. provide funds and packaging materials which enable the propaganda effect of the products peculiar to the Sam Rang Jin P.A.C. ('89: 15 million won).

6) Transportation

In order to lower the transportation cost, P.A.C. trucks and other private trucks contracted with P.A.C. are utilized at lower truckage.

2.2-7 Processing

In this area, there are no fruit-processing mills, but in Taegu, Pusan which is very near here, there are three private factories.

2.2-8 General Situation of Sam Rang Jin P.A.C.

1) Member-farmers: 2,328 which is 93% of the total 2,500 farmers.

2) Business Activities

Sam Rang Jin P.A.C. is multi-purpose agricultural cooperation, so carries out various activities such as banking, farm inputs supply, marketing, and extension services for the provision of extended services for member-farmers.

(Mil. Won)

Main Activities	'88	'89	Remarks
Deposits	6,963	8,473	
Loans	10,158	12,400	
Farm Inputs Supply	1,963	2,143	Fertiliger, chemical etc.
Daily Necessities	430	434	include animal feed.
Marketing	188	185	
P.A.C. Insurance	285	361	
Total	19,987	23,996	20% increase

3) Organization

Sam Rang Jin P.A.C. has thirty four personnel, and as decision making organizations general meeting, board of directors and auditor, and as grass-root organizations 17 farming groups 27 women's clubs, 25 youngsters' meeting groups, and 9 joint production and marketing groups as well as 2 machinery joint-use groups.

4) Member Participation

Member farmers have strong trust in cooperative business and actively participate in the cooperative movement, and thereby the activities are gradually and continuously increasing.

The Sam Rang Jin P.A.C. performs profits-returning services such as scholarship payment to the children of member farmers (2,560 thousand won in 1989), loan for schooling and free medical examination and etc.

2.3 Area of Project

This project area covers all P.A.C. area and adjacent land.

2.4 Problems Faced by Farmers in this Area.

2.1-1 Present-Marketing

- 1) Most of the farmers in this area sell their products through cooperative marketing channel.

This trend is due to the high credibility in cooperative, high prices received relative to private merchants, and strong guidance and support to farmers.

- 2) However, small quantity of the agricultural products and due to the shortage of P.A.C.'s man power and the characteristic, a lot of strawberries and peaches, chestnuts are marketed through brokers.

2.4-2 Reason for Low Marketing Share

- 1) In case of chestnut, due to the judgement of the farmers that selling to the middleman is more advantageous, the marketing volume by P.A.C is comparatively low.
- 2) In case of strawberry and peach, due to the low storability, price fluctuation, high handling risks and much work load of the personnel of P.A.C. the marketing volume's low.

2.4-3 Hidden Losses and Desires of Farmers

- 1) About 43% of the farmers who grow strawberry and peach, chestnut sell their products as planted in the field to the middlemen which causes around 25% of hidden losses to growing farmers.

- 2) The reasons for this kind of phenomenon are uncertain prospect for prices, not-handling of marketing services of this kinds by P.A.C., the difficulties in marketing decision of selling time and market place and labour storage in harvest season.
- 3) To solve this problems, farmers want P.A.C. to handle these products and with the strengthened activities of P.A.C. in exploitation of mass consumers timely provision of marketing information and extension services, the farmers will expand the planting area and production quality.

2.5 Needs and Justification for Project

2.5-1 Accommodation of Farmers' Desires

The construction of fruits processing mill which use strawberry, peach, chestnut as raw material would accommodate farmers' desires for P.A.C. to handle strawberry, peach, chestnut in P.A.C.'s marketing business, and would protect farmers from possible losses caused by trickery of middle merchants' transaction.

2.5-2 Prospecting of the Industry and Government's Support

- 1) Fruit processing in plant will be growing due to the changes of living environments, and food patterns.
- 2) Fruits processing industry is government's supporting industry for the stabilization of the price of fruits, and also NACF plans to launch and expand for more services for member farmers.

III. PROJECT OF FRUIT PROCESSING

3.1 Objectives

The main object of this project lies in the enhancement of the member farmers' income, and service expansion. The detailed objectives are as follows.

- 3.1-1 Planned production and marketing time control through the strengthened extension services, intensive financial support and provision of scientific farming skill.
- 3.1-2 Income increases through the safe and guaranteed marketing place and reduction of marketing costs, and provision of non-farm income making opportunities by utilizing idle labours.
- 3.1-3 Return of profits to members earned through the operation of new business.
- 3.1-4 Prior preparation and accumulation of processing skills for the anticipated supply of processed fruits for exportation.

3.2 Area of Operation

This project will be operated in the area of Sam Rang Jin P.A.C. and raw material will be provided in this area and from adjacent areas.

3.3 Project Components

3.3-1 Mill Construction

- 1) The mill, with the daily capacity, 20 M/T of processing of fruits will require one year in construction for the cost of about 1,869 million won.
- 2) Construction site will be determined in the project area in the consideration of transportation and the collection of raw materials.

3.3-2 Procurement of Raw Material

Around 80-90% of the total raw-materials will be procured in this area and the remains will be from neighbouring areas.

3.3-3 Processing

- 1) As fruit processing is comparatively simple, with the basic equipments and facilities specially high skilled techniques are not necessary for processing.
- 2) In addition, Sam Rang Jin P.A.C. is in pretty advantageous situation in securing skilled personnel for the existing personnel experienced in current fruit processing business.

3.3-4 Marketing

- 1) The products will be sold through the agents which will be set up in Seoul, Taegu, Pusan, and through the NACF's supermarkets, P.A.C.'s chainstores, and department-stores, large markets in the consuming area.
- 2) Direct marketing to hospitals, and in long-term export through NACF's export business.
- 3) Export to Japan directly through Japanese Sister-P.A.C.
- 4) Transportation will be made by P.A.C.'s vehicles and chilled trucks to be bought.

3.3-5 Extension Service

- 1) P.A.C. will establish growers' and marketing groups for which funds, production materials and farming techniques will be provided.
- 2) Induce participation spirit of farmers through return of profits and other services such as scholarship, medical service, etc.

IV. DETAILS OF OPERATION

4.1 Capacity of the Project

The mill will produce 20 M/T of processed fruits per a day and 250 M/T of Freezing Warehouse, and 800 M/T of cold warehouse.

4.2 Location

The mill and warehouses will be constructed at the near area from main office of P.A.C.

Main Products

- o From mill: strawberry juice, peach juice, peach can, and cut chestnuts.
- o From warehouse: freezing and cold fruits.

4.4 Processing

4.4-1 Appendix 7, 8, 9 show the processing procedures.

But according to the buyers' and consumers' order, procedures of the processing can be changed a little.

1) Strawberry

A) Juice: cleansing and dehydration – assortment – remove calyx – press juice – thicken juice – add sugar – sterilization – freezing – weighing – canning – packing.

B) Freezing strawberry: cleansing and dehydration – assortment – remove calyx – sterilization – freezing – packing.

2) Peach:

Cleansing and dehydration – cutting – peeling – assortment – add sugar – sterilization – freezing – weighing – canning – packing.

3) Chestnut:

Cleansing and dehydration – shelling – assortment – weighing – sterilization – packing – colding.

4.5 Machineries and Equipments

As the main materials, strawberry and peach are soft fruits, and the processing procedure is mostly conducted with manual labour rather than mechanically. The machinery and equipments are rather simple as follows.

Item		Unit	Scale	Remarks
Building Site/Land office building		Pyeong Pyeong	10,000 150	1 m ² = 0.325 Pyeong
Mill	Mill		301	
	Warehouses		539	
	S.T. Tank		80	
	Sub Total		920	
Machinery	Strawberry processing	Unit	18	
	Peach processing	Unit	21	
	Chestnut processing	Unit	10	
	Freezing, cold	Unit	17	
	Warehouses			
	Others		13	
Sub Total			79	
Chilled Vehicle/Transport			3	Trucks 2, Burden Carrier 1

4.6 Investment Plan

4.6-1 Capital cost of the project

The capital cost of this project is estimated as below on the basis of the price as of the 1989 year.

('000 Won)

Item	Cost	Life	Remarks
Land	100,000		10,000 x 10
Building Mill, Office	308,695	40 yrs	
Warehouses	550,813		
Machinesies	476,430	8 yrs	
Equipments	209,800	55 yrs	
Cars	71,000	5 yrs	
Cost of Layout	52,543	8 yrs	1616738 x 3.25%
Sub Total	1,769,281		

Item		Cost	Life	Remarks
Pre-operative Expenditure	Salary	8,400		700 x 2 persons x 6 month
	Interest (Land)	5,750		10,000 x 11.5 x ½
	(Building)	24,710		859,508 x 11.5 x ¼
	(Machineries, Equipments)	9,864		686,230 x 11.5 x 1/8
	(Layout)	3,021		52,543 x 11.5 x ½
		(43,345)		
	Administrative Cost	3,600		300 x 12 month
	Sub Total	55,345		
Contingency		44,712		
Total		1,869,338		

4.6-2 Working capital

In the first year the working capital is needed as below, calculated on the base of the statistics surveyed from existing fruit processing mill in 1989.

('000 Won)

Item		Cost	Calculation	Remarks
Cold Warehouse Expenses		8,611	4,920 x 3,500 x 1/2	1 month
Freezing Warehouse	Working Expenses	3,663	7,325 x 1,000 x 1/2	1 month
	Raw Marterials	5,137	625,000 x 1,000 M/T x 3/365	3 days
	Inventory	21,918	800,000 x 1,000 M/T x 10/365	10 days
	Receivables	87,671	800,000 x 1,000 M/T x 40/365	40 days
	Packing	1,104	13,250 x 1,000 M/T x 1/12	1 month
	Working Expenses	40,663	487,956 x 1,000 M/T x 1/12	1 month
	Sub Total	160,156		
Mill	Raw Materials	5,802	588,235 x 1,200 M/T x 3/365	3 days
	Inventory	29,589	900,000 x 1,200 M/T x 10/365	10 days
	Receivables	118,356	900,000 x 1,200 M/T x 40/365	40 days
	Packing	1,325	13,250 x 12,000 M/T x 1/12	1 month
	Working Expenses	67,846	678,460 x 1,200 M/T x 1/12	1 month
	Sub Total	222,918		
Total		391,685		

4.6-3 Fund resources

- 1) Borrowing from government: 375 million Won at interest rate of 8% per annum with the repayment period of 10 years including 3 years of grace period.
- 2) NACF mutual credit: 300 million Won at non-interest for 3 years.
- 3) Balances of shortage for investment will be filled up by selling read estate of the PAC and self capitals.

4.7 Production

(unit: M/T)

Classification		1 year	2	3	4	5	6	7	8
Cold Warehouse		3,500	5,100	6,700	6,700	6,700	6,700	6,700	6,700
Freezing Warehouse	Storage	1,000	1,500	2,000	2,100	2,200	2,300	2,400	2,500
	Processing	1,000	1,300	1,500	1,600	1,700	1,800	1,900	2,000
Mill		1,200	2,000	2,500	2,600	2,700	2,800	2,900	3,000
Total		6,700	9,900	12,700	13,000	13,300	13,600	13,900	14,200
Capacity		16,600	16,600	16,600	16,600	16,600	16,600	16,600	16,600
Utility Ratio		40.4%	59.6%	76.5%	78.3%	80.1%	81.9%	83.7%	85.5%

4.8 Procurement of Raw Materials

The main raw materials are produced in a specific season, strawberry is produced in spring and peaches are produced in summer, chestnuts are produced in fall, most of materials will be procured in the area of PAC, and the shortages will be procured from adjacent area.

4.9 Marketing

4.9-1 Price of outputs (per M/T, basis strawberry)

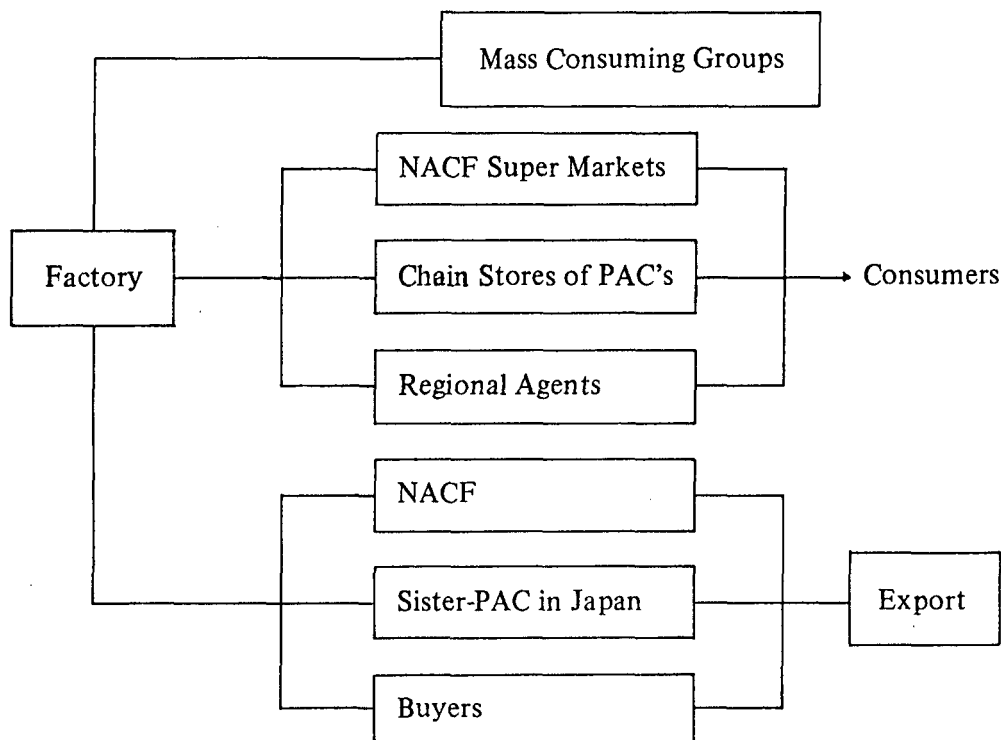
('000 Won)

Classification		The Prime Cost	Selling Price
Cold Warehouse		5,169	20,000
Freezing Warehouse	Storage	7,691	15,000
	Processing	735,225	800,000
Mill		768,867	900,000

4.9-2 Packing will be made in the form of bulk packing of 5kg, 10kg, 30kg P.P. film packing with the P.A.C's brand. Currently export-products are packed in bottle and can, while for domestic marketing packed in plastic and vinyl.

4.9-3 Marketing channel

- 1) Domestic: 15 NACF supermarkets in Seoul and Taegu, Pusan area, 100 chain-stores of NACF and P.A.C's and regional sale's agents.
- 2) Export: through NACF and direct export to Japan through sister P.A.C. in Japan and buyers.



4.9-4 Transportation

Transportation will be made mainly by the chilled cars of P.A.C.

4.9-5 Advertisement

Through the mass communication media such as T.V. and newspapers, commercial advertisement will be cast, and sales-advertisement will be concentrated on the families and women living in large scale apartment areas, and free taste corners will be opened in the agent's shops.

4.10 Construction Schedule (Appendix 6)

Construction of the mill and warehouses will require one year and the steps will be land purchase and land settlement, material collection, construction layout, building construction, machinery setting up and test operation.

4.11 Project Implementation

The project will be implemented by Sam Rang Jin P.A.C. under the support and guidance of N.A.C.F. and Government.

4.12 Amount of Raw Materials

(unit: M/T)

Classification	One Day Need	Working Day	One Year Need	Remarks
Strawberry	5 M/T	45 day	225 M/T	o Process according to the harvest season o Procure on harvest season
Peach	5 M/T	45 day	225 M/T	
Chestnut	5 M/T	180 day	900 M/T	
Total	15 M/T	270 day	1,350 M/T	

4.13 Season of Harvest and Processing

	1	2	3	4	5	6	7	8	9	10	11	12
Strawberry				←-----→ ←-----→								
Peach							←-----→ ←-----→					
Chestnut	←-----→								←-----→ ←-----→			

* Harvest Season ←-----→
Processing Season ←-----→

V. ORGANIZATION AND MANAGEMENT

5.1 Overall Management Policy

This project will be operated by Sam Rang Jin P.A.C., and management policy will be determined in the General assembly or board of directors of the P.A.C.

A manager will be appointed for the operation of the mill and close cooperation will be made between the staff members of factory and P.A.C.

5.2 Management and Organization

A separate organization will be set up for this project operation and the manager will be directed by the chairman or General manager of the P.A.C. Summarized management activities are as follows.

5.2-1 Procurement of Raw Materials

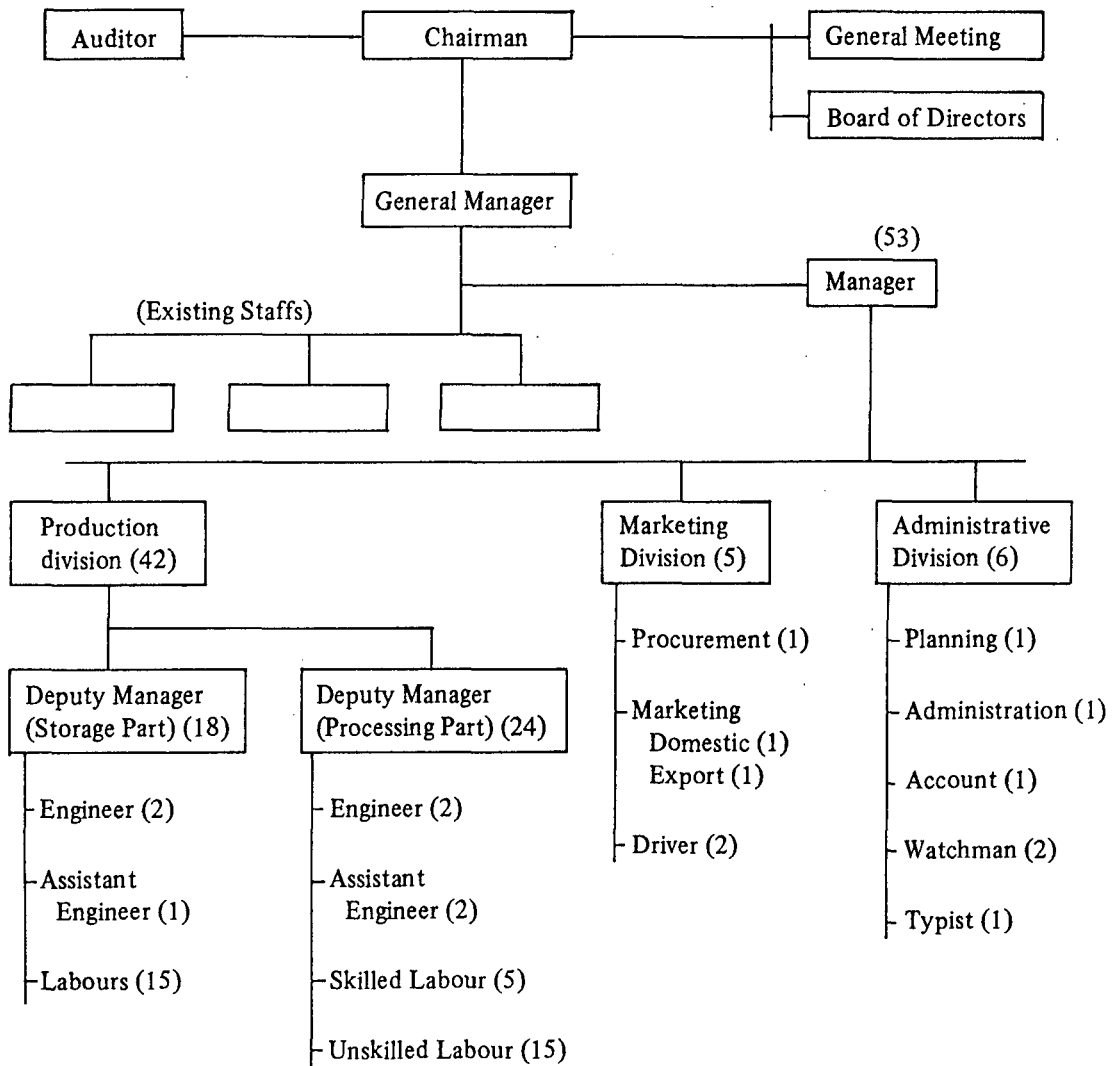
5.2-2 Production Storage Processing

5.2-3 Marketing Domestic Export

5.2-4 Planning and Accounting

5.2-5 Administration and General Management

5.3 Organization Chart



5.4 Tasks of each Division

5.4-1 Manager

General responsibility on this project operation under the direction and policy from the chairman and general manager of P.A.C.

5.4-2 Production Division

- 1) Production planning
- 2) Production
- 3) Machinery maintenance and repair
- 4) Workers control

- 5) Supervision
- 6) Quality control
- 7) Working environment control

5.4-3 Marketing Division

- 1) Raw material procurement
- 2) Marketing of products
- 3) Transportation, storing, inventory control
- 4) Collecting market information
- 5) Search of market development
- 6) Export

5.4-4 Administration Division

- 1) Administration
- 2) Accounting
- 3) Planning and coordination
- 4) Management analysis
- 5) Advertisement

VI. FINANCIAL ANALYSIS

6.1 Assumption in financial analysis: financial analysis has been set forth under main assumption as follows:

6.1-1 Project life is 9 years including the construction period of 1 year, and the life of building, machinery, cars is 40 years, 8 years, 5 years respectively.

6.1-2 Investments are completed one phase, and the amount of 1,869,338 thousand Won should be used for establishing mill and warehouse by the end of the first year. (Including pre-operative expenditure: 100,057 thousand Won)

6.1-3 Pre-operative Expenditure is constant cost and the variable cost is changing according to the quantity of the production.

6.1-4 Depreciation cost will be as follows.

('000 Won)

Classification	Cost	Life	Depreciation Cost	Remark
Building	859,508	40 yrs	19,339	Investment Cost x (1-10%) ÷ Life Year
Machinery	476,430	8 yrs	53,598	
Equipments	209,800	5 yrs	37,764	
Cars	71,000	5 yrs	12,780	
Layout Cost	52,543	8 yrs	12,668	
Total	1,669,281		136,149	

6.1-5 Production and overhead cost is based on the data of survey at existing mill in 1989.

6.1-6 The sales realization at market price is supposed to be as follows per metric Ton.

('000 Won)

Classification		Price
Cold Warehouse Products		20,000
Freezing Warehouse	Storage	15,000
	Processing	800,000
Processing		900,000

6.1-7 10% of income tax should be deducted.

6.2 Requirement of Working Capital

The working capital over the operating years will be as follows. This is calculated by the increase in production. (Working capitals)

(‘000 Won)

Classification		1 year	2	3	4	5	6	7	8
Cold Warehouse		8,611	12,547	16,484	16,484	16,484	16,484	16,484	16,484
Freezing Warehouse	Processing	156,493	203,441	234,740	250,389	266,038	281,687	297,337	312,986
	Storage	3,663	5,495	7,326	7,692	8,059	8,425	8,791	9,158
Mill		222,918	371,530	464,413	482,989	501,566	520,142	538,719	557,295
Total		391,685	593,013	722,963	757,554	792,147	826,738	861,331	895,928
Interest 10%		39,169	59,301	72,296	75,755	79,215	82,674	86,133	89,593

6.3 Production Cost

6.3-1 Fixed Cost

Classification	1 year	2	3	4	5	6	7	8
Wages	56,080	56,080	56,080	56,080	56,080	56,080	56,080	56,080
Adm-expenses	13,540	13,540	13,540	13,540	13,540	13,540	13,540	13,540
Sub Total	69,620	69,620	69,620	69,620	69,620	69,620	69,620	69,620
Interests of Inv.	167,349	167,349	167,349	192,239	176,879	161,519	134,659	102,014
Depreciation	136,149	136,149	136,149	136,149	136,149	85,605	85,605	85,605
Total	373,118	373,118	373,118	398,008	382,648	316,744	289,884	257,239

- 1) Wages: Constant workers (6)
- 2) Administrative expenditure: insurance, general cost
- 3) Depreciation: from sixth year, cars and equipments are not depreciated

4) Interests of the investments:

('000 Won)

Classification	1 year	2	3	4	5	6	7	8
Total Investment	1,869,338	1,869,338	1,869,338	1,869,338	1,869,338	1,869,338	1,869,338	1,869,338
NACF Support	300,000	300,000	300,000	-	-	-	-	-
Go't Loan	375,000	375,000	375,000	321,000	267,000	213,000	159,000	106,000
Loan	1,194,338	1,194,338	1,194,338	1,448,338	1,352,338	1,256,338	1,060,338	813,338
Repayment	-	-	-	100,000	250,000	400,000	650,000	950,000
Go't Interest	30,000	30,000	30,000	25,680	21,360	17,040	12,720	8,480
Loan Interest	137,349	137,349	137,349	166,559	155,519	144,479	121,939	93,534
Total Interests	167,349	167,349	167,349	192,239	176,879	161,519	134,659	102,014

* Interest Rate NACF Support: No interest
 Go't Loan: 8%
 Loan: 11.5%

6.3-2 Variable Cost (1st Year)

(’000 Won/Ton)

Classification		Cost	Remarks	
Cold Warehouse	Water & Electric	2,290	NACF’ cold warehouse average	
	Maintenance & Repair	2,633	(Investment – Land cost) x 1.5% – amounts of storage	
	Interest	246	Working capital in terest	
	Sub Total	4,913		
Freezing Warehouse	Storage	Water & Electric	3,450	
		Maintenance & Repair	3,890	Same as over
		Interest	455	
		Sub Total	7,691	
	Processing	Raw Material	625,000	Cold warehouse x 1.5 (Investment – Land) x 1.5% – Products 10%
		Packing	13,250	
		Wages	50,000	
		Transportation	24,000	
		Water & Electric	3,435	
		Maintenance & Repair	3,890	
Interests		15,649		
	Sub Total	735,225		
Mill	Raw Material	588,235	} x5% = Tax	
	Packing	13,250		
	Wages	77,000		
	Transportation	24,000		
	Water & Electric	3,435		
	Maintenance & Repair	8,642		
	Tax	35,728		
	Interests	18,577	Working Capital x 10%	
	Sub Total	768,867		

6.3-3 Every Year Variable Cost

Classification	1	2	3	4	5	6	7	8
Cold Warehouse	18,092	26,362	34,632	34,632	34,632	34,632	34,632	34,632
Freezing Warehouse	735,225	955,793	1,102,838	1,176,360	1,249,883	1,323,405	1,396,928	1,470,450
	7,691	11,537	15,382	16,151	16,920	17,689	18,458	19,228
Mill	922,640	1,537,734	1,922,168	1,999,054	2,075,941	2,152,828	2,229,714	2,306,601
Total	1,683,648	2,531,426	3,075,020	3,226,197	3,377,376	3,528,554	3,679,732	3,830,911

6.4 Financial Analysis

	(M/T) ('000 Won)								
	0 year	1	2	3	4	5	6	7	8
Investment	1,869,338								
Capacity		16,600	16,600	16,600	16,600	16,600	16,600	16,600	16,600
Production		6,700	9,900	12,700	13,000	13,300	13,600	13,900	14,200
Revenue		1,965,000	2,964,500	3,614,000	3,785,500	3,957,000	4,128,500	4,300,000	5,789,000
V. Cost		1,683,648	2,531,426	3,075,020	3,226,197	3,377,376	3,528,554	3,679,732	3,830,911
Contribution		281,355	433,074	538,980	559,303	579,624	599,946	620,268	1,958,089
F. Cost		69,620	69,620	69,620	69,620	69,620	69,620	69,620	69,620
Cashinflow		1,965,000	2,964,500	3,614,000	3,785,500	3,957,000	4,128,500	4,300,000	5,403,278
Cashoutflow	1,869,338	1,753,268	2,601,046	3,144,640	3,295,817	3,446,996	3,598,174	3,749,352	3,900,531
Net Flow		211,732	363,454	469,360	489,683	510,004	530,326	550,648	1,502,747
Cumulative	-	-	-	-	-	+			
Cash Flow	1,869,338	1,657,606	1,294,152	824,792	335,109	174,895	705,221	1,255,547	2,758,294

* F. Cost: Exclude depreciation and capital interests.

6.4-1 Pay Back Period: 5 years

6.4-2 Break even Point: Fixed expenses divided by contribution per unit.

o Fixed expenses = Fixed cost + capital recovery factor for 8 years (14%)

$$69,620 + 1,869,338 \div 4.639 = 402,961$$

Total Contribution: 281,355

$$* \text{BEP} = 402,961 \div 281,355 = 143\%$$

$$* \text{BEQ} = 6,700 \text{ M/T} \times 143\% = 9,595 \text{ M/T}$$

6.4-3 Increasing Income to Farmers (for 8 years)

1) Total profits for the society = Total contributions – Total fixed expenses

$$5,570,639 - 3,223,688 = 2,346,951 \text{ thousand Won}$$

2) Total raw materials for 8 years = 97,300 M/T

3) Per ton extra income = 2,346,951 – 97,300 = 24,120 Won

6.4-4 Net Present Value

1) i = objective profit ratio

$$2) \text{IRR} = 19\% + 0.5 \times (1,869,338 - 1,857,868) \div (1,894,404 - 1,857,868) \\ = 19.16\%$$

3) Benefit cost ratio

$$\frac{2537691}{1869338} = 1.36 (11.5\%) \quad \frac{2.325488}{1.869338} = 1.24 (14\%)$$

6.4-5 Sensitive Analysis

When 10% reduction selling price is assumed BCR will be 1.12 at 11.5% and IRR 15.43%.

6.4-6 Financial Viability

1) On the basis of the above financial analysis, the project can be said to be financially viable. 19.16% of IRR is quite high rate, considering the service life of the mill can be more than 15 years in reality.

2) Alternative cost $\left\{ \begin{array}{l} \text{P.A.C. loan interest rate: } 14.2\% \\ \text{P.A.C.' deposit rate to NACF: } 11.5\% \end{array} \right.$

6.4-4 Net Present Value

('000 Won)

	Net Cash Inflow	i = 11.5%		i = 14.0%		i = 19.0%		i = 19.5%	
		Discount Rate	NPV	Discount Rate	NPV	Discount Rate	NPV	Discount Rate	NPV
0	Δ1,869,338	—	—	—	—	—	—	—	—
1	211,732	0.89686	189,894	0.87719	185,729	0.84034	177,927	0.83682	177,182
2	363,454	.80436	292,348	.76947	279,667	.70616	256,617	.70027	254,516
3	469,360	.72140	338,596	.67497	316,804	.59342	278,528	.58600	275,045
4	489,683	.64699	316,820	.59208	289,932	.49867	244,190	.49038	240,131
5	510,004	.58028	295,945	.51937	264,881	.41905	213,717	.41036	209,285
6	530,326	.52042	275,992	.45559	241,611	.35214	186,749	.34339	182,109
7	550,648	.46674	257,009	.39964	220,061	.29592	162,948	.28736	158,234
8	1,502,747	.41860	629,050	.35056	526,803	.24867	373,688	.28736	158,234
Total	...	...	2,595,654	...	2,325,488	...	1,894,404	...	1,857,868

VII. BUDGET

The budget for first five operating years has been given as below.

(1,000 Won)

Item		Operating Year				
		1	2	3	4	5
1. Sales		1,965,000	2,964,500	3,614,000	3,785,500	3,957,000
2. Production Cost	F.C	69,620	69,620	69,620	69,620	69,620
	V.C	1,633,648	2,531,426	3,075,020	3,226,197	3,377,376
	Total	1,753,268	2,601,046	3,144,640	3,295,817	3,446,996
3. EBIT		281,355	433,074	538,980	559,303	579,624
4. Interest	Fixed Assets	167,349	167,349	167,349	192,239	176,879
	Working Capital	39,169	59,301	72,296	75,755	79,215
	Total	206,518	226,650	239,645	267,994	256,094
5. EBT (3-4)		74,837	206,424	229,335	291,309	323,530
6. TAX (5x10%)		7,484	20,642	29,934	29,131	32,353
7. EAT		67,353	185,782	269,401	262,178	291,177
8. Redemption of Preoperative Cost		51,338	51,338	51,338	51,338	51,338
9. Repayment					100,000	250,000
10. Surplus		16,015	134,444	218,063	110,840	-10,161
11. Cumulative Surplus		16,015	150,459	368,522	479,362	469,201

1. The interest rate is 11.5% excluding government loan.
2. The repayment will be 100 mil, 250 mil, 400 mil, 650 mil, 950 mil from the fourth year.

VIII. BENEFITS OF THE PROJECT AND RECOMMENDATIONS

8.1 Benefits of the project

- 8.1-1 The project will increase the income of farmers concerned by using domestic raw materials such as strawberry, peach, chestnut.
- 8.1-2 This project can help industrialization of the project area. It will generate employment opportunity of 54 persons.
- 8.1-3 This project will generate added value of 2,346,951 thousand won for 8 years, and this means added value of 24,120 won per ton for 8 years.
- 8.1-4 The operating result of this project can help P.A.C to do business related with processing agricultural products for farmers, and to do welfare works for member farmers.

8.2 Recommendations

8.2-1 To Sam Rang Jin PAC

- 1) At the beginning of the operation of this project, some marketing competition will be faced, but considering the fact that the private mills generally think of their own profit. If P.A.C give better service to the farmers, this project will be prosperous.
- 2) For the quality, new research must be carried out continuously.

8.2-2 To NACF

- 1) NACF should finance and support PACs to launch Fruit processing business to expand services to member farmers.
- 2) NACF should provide PACs with finance and technical guidance and cooperate with P.A.C for the success of project, in developing new consumers groups, and export, advertisement.

8.2-3 To Government

- 1) Government should have keen interests in the development of fruits processing industry for the farmers and rural area economy.

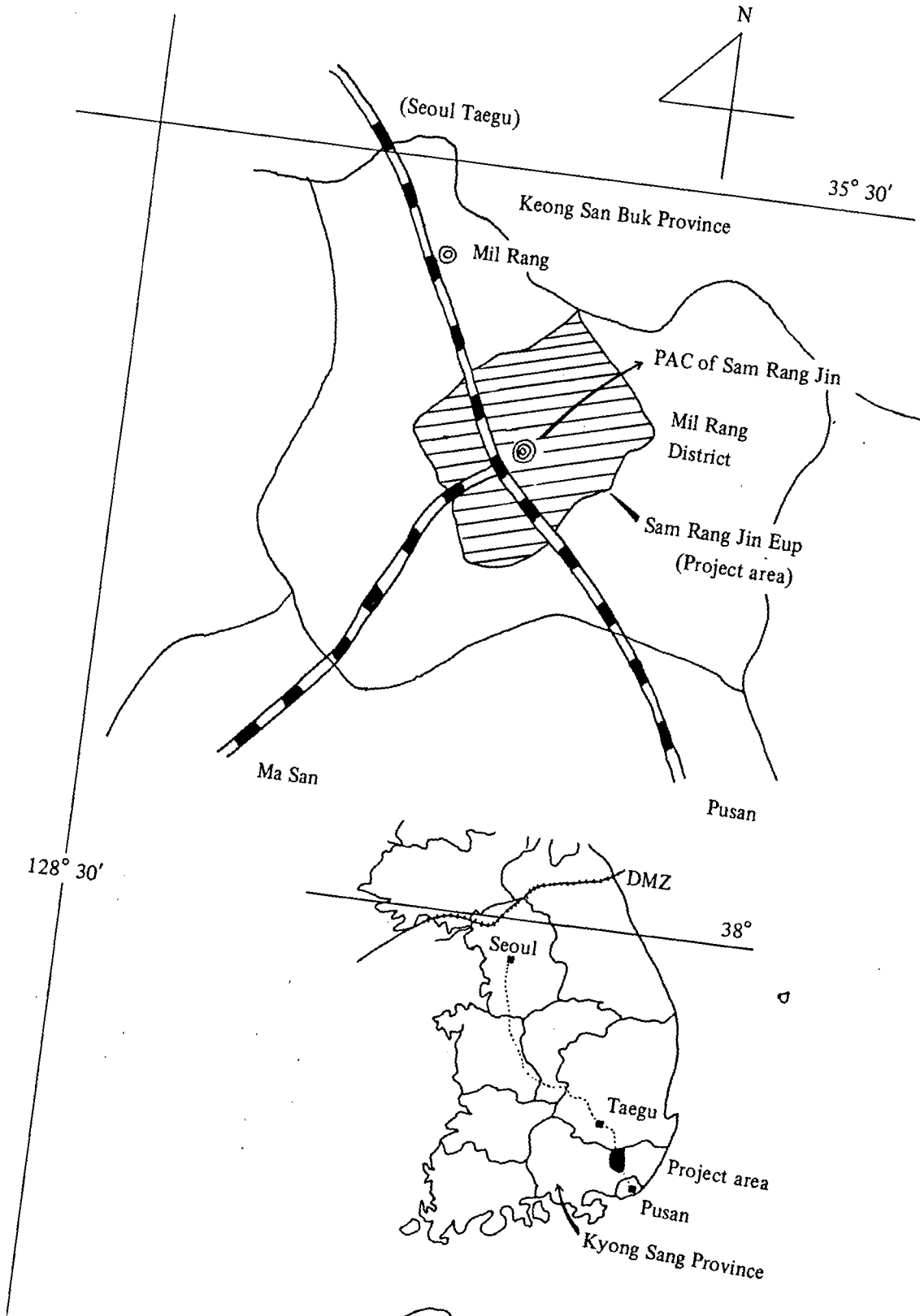
- 2) Government should support NACF, which have national organizational network, in starting fruit processing business in light of the effect that NACF's business is basically for the benefit of farmers' income enhancement.
- 3) Government should reduce the interest rate of the loan from 8% to 5-4% at least.

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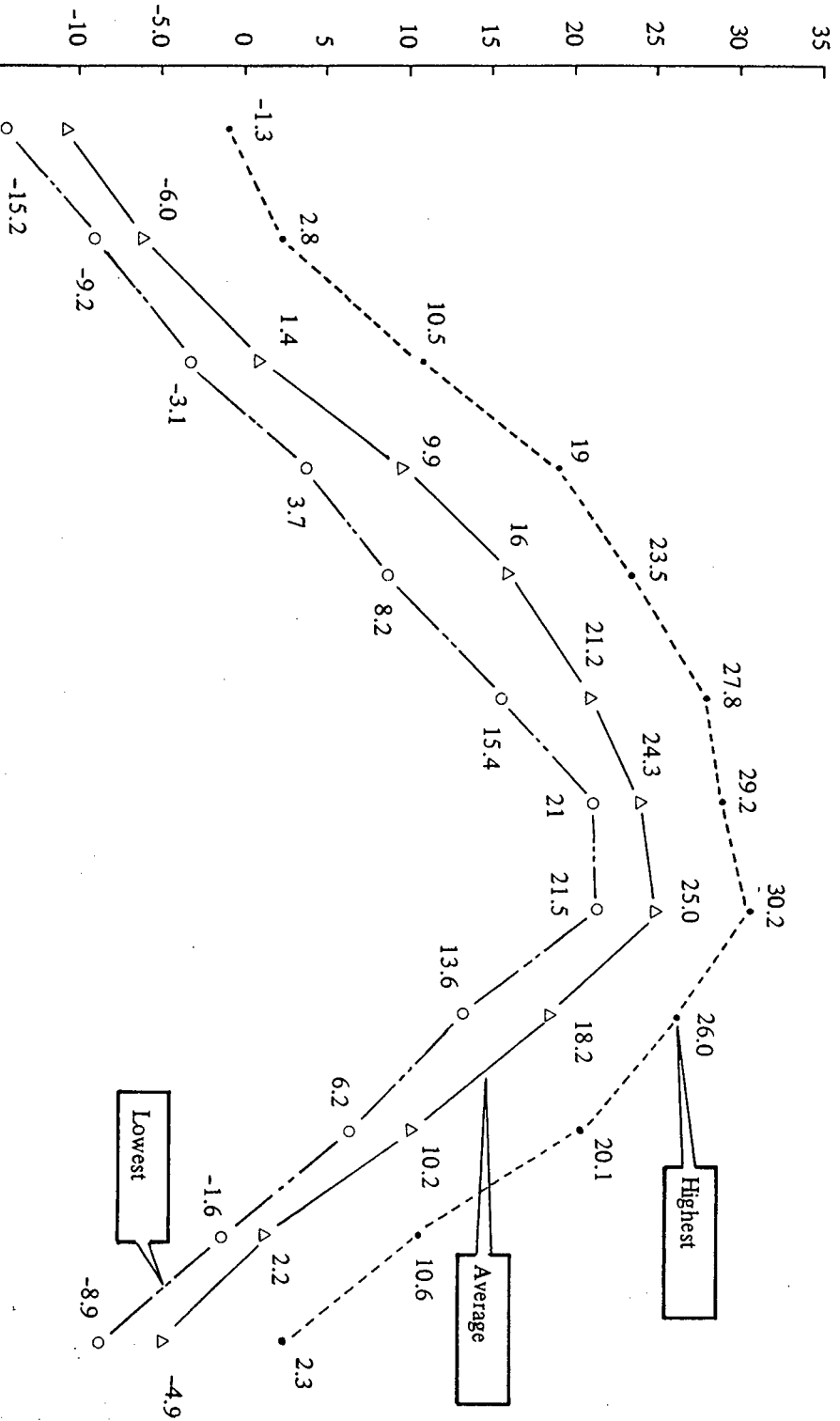
Map of Project Area

(Appendix 1)



Climate of Project Area

(Appendix 2)



Month	1	2	3	4	5	6	7	8	9	10	11	12	
Precipitation (m/m)	18.8	13.2	35.6	60.7	97.8	76.2	342.2	322.1	212.8	43.3	55.2	19.6	1,296.5
Sunshining hours	149.2	144.3	168.7	165.9	178.1	186.9	124.1	152.8	162.1	164.6	123.2	138.1	1,858.0

Cropping Pattern of Project Area

Crops	1	2	3	4	5	6	7	8	9	10	11	12
Rice (Paddy)				○.....x	→							
Groundnut				○	→							
Pepper			○.....x	→								
Egg Plant			○.....x	→								
Cucumber								○	→			
Pump Kin								○.....x	→			
Water melon Radish + Sweet melon Cabbage			○.....x	→								
			○.....x	→								
								○.....x	→			
Oyster mushroom	→									○	→	

- * Legend: ○ : Seeding
 : Nussery Growing
 x : Planting
 : Growing Period

(Appendix 4)

The Trend of Major Fruits' Price in Korea
(NACF Marketing Center)

Production : thousand M/T

Price : Won/Kg

Item		'85	'86	'87	'88	'89	
Straw- berry	Production	44	45	37	28	31	
	Price	High Q	965	963	972	984	983
		Medium Q	931	942	947	951	942
Peach (100)	Production	132	139	138	135	136	
	Price	High Q	8,313	6,694	7,172	6,793	9,371
		Medium Q	8,012	6,504	7,062	6,694	9,175
Chestnut (20ℓ)	Production	660	685	680	720	743	
	Price	High Q	6,887	7,586	9,588	11,327	6,161
		Medium Q	6,328	7,421	8,523	8,927	5,943
Grape	Production	150	165	158	156	159	
	Price	High Q	731	727	712	732	758
		Medium Q	702	685	694	704	713
Apple	Production	541	532	556	640	642	
	Price	High Q	782	803	796	823	797
		Medium	397	402	412	453	427

The Trend of Fruit's Processing in Korea

1) Raw Material

(Unit: M/T)

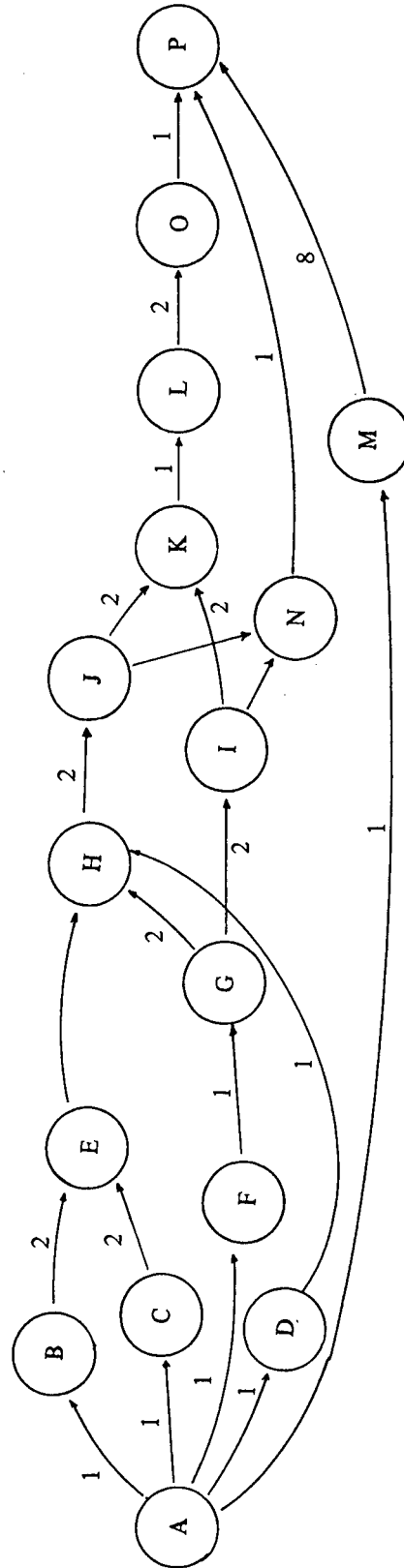
Item	Strawberry	Orange	Grape	Peach	Apple
1985	2,275	71,238	13,432	12,428	8,290
1986	2,379	48,455	14,970	14,509	13,659
1987	3,007	100,039	18,872	11,694	13,538
1988	4,748	89,138	23,293	23,392	17,893
1989	5,147	98,456	27,285	26,391	21,236

2) Products

Item	Can	Juice	Nectar	Liquor	Jam
1985	24,437	72,085	1,741	7,777	104
1986	24,757	54,813	2,053	9,342	347
1987	31,774	97,224	1,125	9,989	1,464
1988	25,858	99,470	2,635	14,072	1,176
1989	29,867	102,120	2,846	17,024	1,346

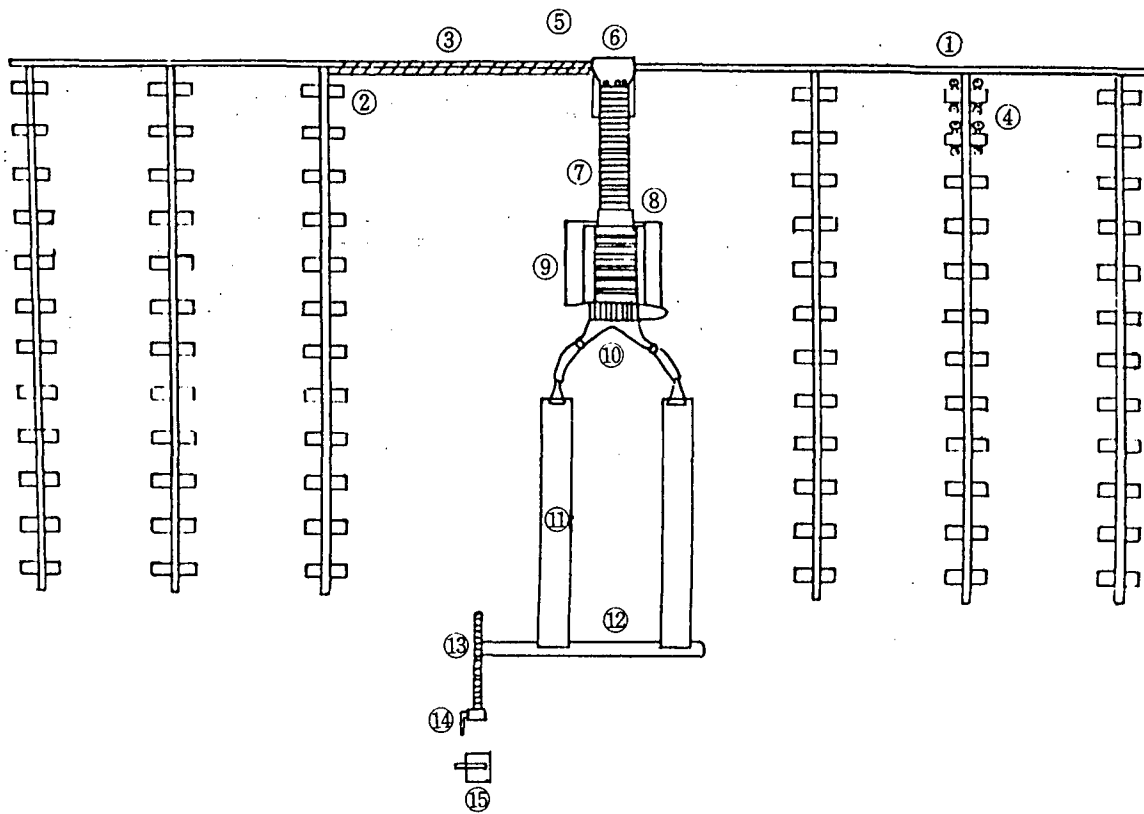
Construction Schedule

Schedule	Length	Remark	Schedule	Length	Remark
A Purchase Land	1 month	I	Construct Warehouse	2 month	after G
B Data Collection	2	J	Construct Mill	2	after H
C Making Plan	2	K	Install Machinery	1	after J, I
D Layout of Mill	1	L	Electric Work	2	after K
E Survey Market	1	M	Water Work	8	
F Survey Geology	1	N	Settle Environment	1	after J, I
G Settlement of Land	2	O	Other Equipments	1	after L
H Construction Office	2	P	Test Run	1	Last



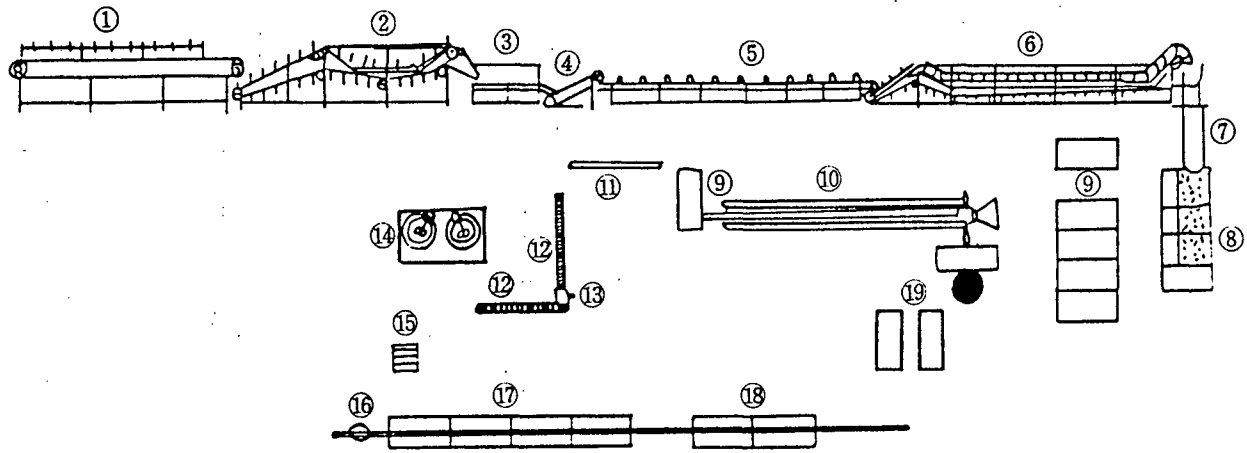
* Total Length: 12 months.

Strawberry Processing Procedures



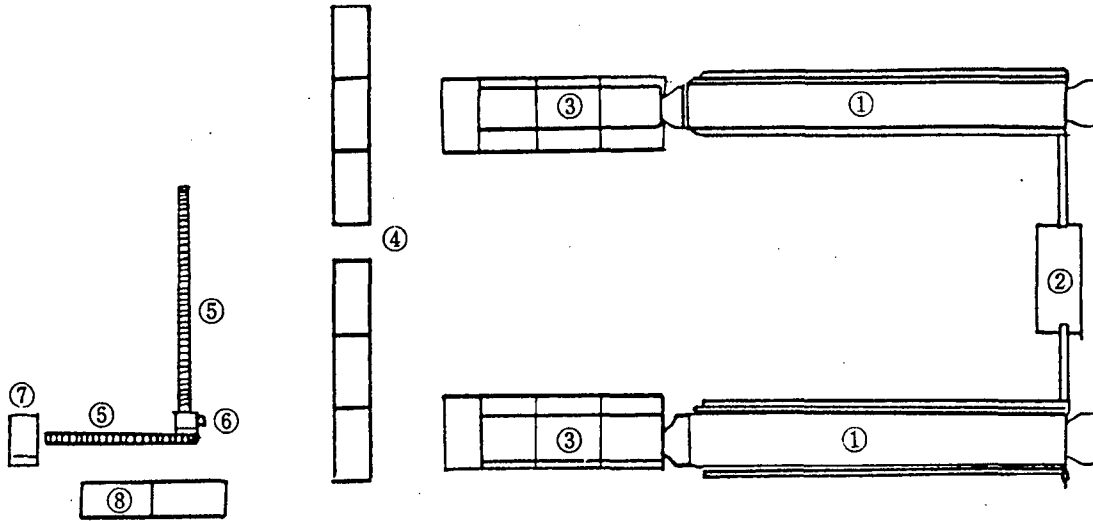
- | | | | |
|---|------------------|----|-----------------|
| 1 | Cleasing | 9 | Freezing |
| 2 | Assorting | 10 | Scatter |
| 3 | Remover of Calyx | 11 | Conveyer |
| 4 | Press Juice | 12 | Collection Tank |
| 5 | Thicken Juice | 13 | Canning |
| 6 | Add Sugar | 14 | Weighing |
| 7 | Sterilizer | 15 | Packing |
| 8 | Garder | | |

Peach Processing Procedures



1	Cutter of Peach	11	Dry Ankle
2	Barker of Peach	12	Conveyer
3	Cleansing Roller	13	Weighing
4	Conveyer	14	Add Sungar Tank
5	Conveyer	15	Steriliser
6	Water Brusher	16	Pressure
7	Chosing Desk	17	Second Sterilizer
8	Grader	18	Freesing
9	S.T Tank	19	Packing
10	PVC Assortor		

Chestnut-Processing Procedure



- | | | | |
|---|----------------------------------|---|----------------------|
| 1 | Chosing Desk, Conveger | 5 | Pipe Roller Conveger |
| 2 | Collection Tank of Cut Chestnuts | 6 | Weighing |
| 3 | Grader of Chestnut | 7 | PVC Bend Packing |
| 4 | Working Desk | 8 | ST Tank |

Salaries and Wages

Item	Position	No. of Staff	Amount (’000 Won)	Basis
Salary	Manager	1	9,600	800 x 12 x 1
	Deputy Manager	2	16,800	700 x 12 x 2
	Engineer	4	33,600	700 x 12 x 4
	Assistant Engineer	3	21,600	600 x 12 x 3
	Driver	2	12,000	500 x 12 x 2
	Watchman	2	7,200	300 x 12 x 2
	Workman	7	33,600	400 x 12 x 7
	Sub Total	26	176,400	
Wage	Daily Hired Worker	27	97,200	300 x 12 x 27
	Total	53	273,600	

Assumption of Every Year Profit

Classification	1	2	3	4	5	6	7	8
Products								
Cold Warehouse	3,500	5,100	6,700	6,700	6,700	6,700	6,700	6,700
Freezing Proc.	1,000	1,300	1,500	1,600	1,700	1,800	1,900	2,000
Freezing Storage	1,000	1,500	2,000	2,100	2,200	2,300	2,400	2,500
Mill	1,200	2,000	2,500	2,600	2,700	2,800	2,900	3,000
Total	6,700	9,900	12,700	13,000	13,300	13,600	13,900	14,200
Revenue								
Cold Warehouse	70,000	102,000	134,000	134,000	134,000	134,000	134,000	134,000
Freezing Proc.	800,000	1,040,000	1,200,000	1,280,000	1,360,000	1,440,000	1,520,000	1,600,000
Freezing Storage	15,000	22,500	30,000	31,500	33,000	34,500	36,000	37,500
Mill	1,080,000	1,800,000	2,250,000	2,340,000	2,430,000	2,520,000	2,610,000	2,700,000
Total	1,965,000	2,964,500	3,614,000	3,785,500	3,957,000	4,128,500	4,300,000	5,789,000
Price								
Cold Warehouse	18,092	26,362	34,632	34,632	34,632	34,632	34,632	34,632
Freezing Proc.	735,225	955,793	1,102,838	1,176,360	1,249,883	1,323,405	1,396,928	1,470,450
Freezing Storage	7,691	11,537	15,382	16,151	16,920	17,689	18,458	19,228
Mill	922,640	1,537,734	1,922,168	1,999,054	2,075,941	2,152,828	2,229,714	2,306,601
Total	1,683,648	2,531,426	3,075,020	3,226,197	3,377,376	3,528,554	3,679,732	3,830,911
Profit								
F. Cost	281,352	433,074	538,880	559,303	579,624	599,946	620,268	640,589
Net Profit	373,118	373,118	373,118	398,008	382,648	316,744	289,884	257,239
Cumulation of Profit	91,766	59,956	165,762	161,295	196,975	283,202	330,384	383,350
Repayment	91,766	32,810	132,952	294,247	491,222	774,424	1,104,808	1,488,158
	-	-	-	100,000	250,000	400,000	650,000	900,000

*1) Drelling Price Per Unit:

Cold Warehouse: 20,000 Won
 Freezing Processing: 800,000 Won
 Freezing Storage: 15,000 Won
 Mill Products: 900,000 Won

2) In the Fixed Cost Included Depreciation and Investment Interests.

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared
by Mr Sang Duck Lee, Korea.

(other than those presented by groups).

- * Mean average of procurement price, productwise need be given.
- * Good project and covers all aspects.
- * Korean advantage of good data base with NACF has been used.
- * Project document has too many tables, no cross reference is given and hence difficult to follow financial analysis.
- * One or two large tables giving all information would be better.
- * Surplus available by non-payment of loan instalments till 4th year (see p 27 and p 33) should be productively used.
- * Budget part of document is weak. Cash budget should show deficit or surplus for use appropriately.
- cash inflow/outflow is cost benefit. different from cash budget. this should be kept in mind.
- * Input/output ratio on wastage is not given.
- * Productwise/projectwise analysis individually for BEP should be done. No clubbing of all projects should be done.
- * Profitability of each project components should be done.

BACKGROUND & JUSTIFICATION

1. DETAILS STATISTIC REGARDS COMPETITOR IS NOT GIVEN.
2. P. 15 MENTIONED IN PROCESSING HIGH SKILL TECHNIQUE NOT NECESSARY NOT JUSTIFIED.
3. P. 12 PRESENT MARKETING SITUATION CONFUSION MUST BE CLEAR.

Group B - Financial Analysis.

1. Depreciation cost (Page 25)

Layout cost should be 6567 instead of 12,668
52543/8 years

2. Wages & Administrative expenses should indicate % of increase at least 5%.

3. Raw Material price such as strawberry, peach, chestnut should be specified.

4. Sensitivity Analysis not done. Example reduction in price of raw materials - Effect on project IRR/NPV/Payback period

5. % of wastage of fruit processed not allowed.

6. Break Even Point is wrongly calculated:
It should be as follows:

$$\begin{aligned} \text{Fixed Expenses} &= \text{Fixed Cost} + \text{Capital Recovery} \\ &= 69,620 + 1,869,338 \div 4.639 \\ &= 472,581 \# \\ \text{Total Contribution} &= 281,355 \\ \text{BEP} &: \frac{472,581}{281,355} \\ &= 167\% \\ \text{BEP} &: 6,700 \text{ M-T} \times 167\% \\ &= 11,189 \text{ M-T} \# \end{aligned}$$

Total Working Capital Requirement as shown on page 18
is 391,685. At 10% interest on working capital
39168. On schedule given on page 28.

Interest

Cold Warehouse	—	246
Freezing warehouses	—	455
Processing	—	15,649
Mill	—	18,577
Total		<u>34,927</u> #

Thus the difference is 4,241
(less calculated)

GROUP CFruit Processing Mill

Marketing, Organization and Farmers related issues and members participation:-

- Procurement price and market price of output should clearly shown.
- If we compare organization chart (p. 23) and salary structure (p. 46) is not tally.
- The constitution of board of directors in the organization is not clearly explained.
- Farmers is getting more in per MT :-

$$\frac{24,120}{625,000} = 3.9\% \text{ value addition}$$

↑
max. procurement price

- average production of a member.
- distribution of Land ownership
- Cost of production in farm.

**Fourth ICA/Japan Training Course for
Strengthening Management of
Agricultural Cooperatives in Asia**

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

***TITLE OF PROJECT* : Feed Mill in Jeonnam Province**

***COUNTRY* : Korea**

***PROJECT PREPARED BY* : Byung O Kang**

Funded by the Government of Japan

and

Executed by the ICA in collaboration with its Member Organisations in

India, Thailand, Japan and Korea

ICA Management Training Project for Agricultural Cooperatives in Asia

INTERNATIONAL COOPERATIVE ALLIANCE

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Geneva, Switzerland**

**Regional Office for Asia:
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New Delhi 110 065
India**

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ACKNOWLEDGEMENTS

I am very pleased to attend the ICA training course for strengthening Management of Agricultural cooperatives in Asia.

This attendance has given me an opportunity to broaden my outlook on the management of cooperatives.

Also it has afforded me a good chance to associate with many friends who are working in the same field.

Under this programme, the project for Feed Mill was prepared in order to increase the income of the small farmers.

I would like to say special thanks to Mr. M.V. Madane, project director of ICA, other staffs of ICA in Delhi and professors of IIM, who guided and helped me kindly.

I am also grateful to the staffs of NLCF who gave me the opportunity to participate in this training course.

Seoul, Feb. 1990

Byung-O Kang.

Chapter 1. Summary

1. Due to recent increase of per capita income, yearly the demand for meat and livestock products has increased. But Korean domestic feed grains are not available enough to meet the feed requirements because of Korea's limited land area.
2. Yearly Korea has imported feedgrains from abroad to meet the feed requirement. And feedgrains are processed into assorted feed to improve feed efficiency.
3. The consumption of assorted feed has increased over 10 times from 1975 to 1989. It means that assorted feed is much more important than ever before.
4. The type of Korean livestock industry is being changed into specialized business from traditional farming.
5. NLCF as a non-profit organization has supplied assorted feeds to the farmers at 10 percent cheaper price than those of private feed mills. So, the demand of NLCF's feed has increased year by year. But the operation rate of NLCF's Feed mill is too high enough to supply the assorted feed to the farmers.
6. Soonchun city will be selected as site. It's very easy to access and well connected with expressway. Any Feed Mill is very far from soonchun city now.
7. About more than 76 percent of the raw materials should be imported. So the rate of self-sufficiency for assorted feed was only 24% in 1989. Other indigenous materials can be purchased easily.

8. The assorted feeds consist mainly of corn. It is manufactured in meal form and bagged or loaded in bulk for delivery.
9. The construction of feed mill needs 2 years period and 10,727 million won of capital investment. Out of this, 6,727 million won would be financed by NLCF and local livestock cooperatives, the remaining 4,000 million won would be available as long term loan from OECF.
10. The Feed mill of the project can produce 300 M/T of the assorted feed per day (8 working hours). However, the feed mill is expected to operate at more than 170% on account of high demand for feed.
11. The service life of machinery is 9 years. So, project period is 11 years including 2 years of construction of feed mill.
12. NPV is calculated as 1,531 million won on the basis of 11.0% discount. IRR is calculated as 14.7%. and B.E.P. is calculated as 68,437 M/T, namely, 76.04% of available capacity of production.

Chapter 2. Background

2-1. Overall Situation

The Korean economy has been growing rapidly since the 1970's.

Due to recent increase in average per capita income, the demand for meat and livestock products has increased substantially.

With this demand, a considerable increase in livestock production has been attained.

Table 1. Livestock Production Consumed Per Capita.

(Unit: kg)

Year	Population (thousand)	Meat			Total	Egg	Milk
		Beef	Pork	Chichen			
1970	31,435	1.2	2.6	1.4	5.2	4.29	1.4
1975	35,281	2.0	2.8	1.6	6.4	4.56	4.6
1980	38,124	2.6	6.3	2.4	11.3	6.54	11.0
1983	39,910	2.9	7.4	3.0	13.3	6.80	18.2
1987	41,575	3.6	8.9	3.3	15.8	8.59	32.1
1989	41,975	3.4	11.1	3.7	18.2	9.00	38.9

But a rapid increase in livestock production cannot be achieved by domestic feedstaff but only by using imported feedgrains such as corn, wheat etc.

Korean domestic feedgrains are not available enough to meet the feed requirements because of Korea's limited land area. So, the rate of self-sufficiency for assorted feed was only 24 percent in 1989.

Accordingly, this additional feed requirements has been met almost entirely with imported grains.

The consumption of assorted feeds has increased over 10 times during 14 years from 1975 to 1989.

The proportion of assorted feeds accounted for 17.9 percent of total consumption in terms of quantity in 1975, but this proportion increased greatly reaching 62.1 percent in 1989.

Table 2. Consumption of Feed Stuff

(Unit: thousand M/T)

Year	Total	Concentrated Feed					Roughage
		Assorted Feed				Farm produced feed	
		Sub-Total	Domestic production	Import	Self sufficiency (%)		
1975	5,021	901	489	412	54	550	3,570
1980	7,559	3,462	1,410	2,052	41	532	3,565
1983	10,673	5,852	1,752	4,100	30	621	4,200
1985	13,234	6,451	2,272	4,179	35	855	5,928
1987	15,873	9,018	2,516	6,502	28	790	6,065
1989	16,749	10,403	2,493	7,910	24	616	5,813

This trend indicates current consumption of assorted feeds is much more important than ever before.

This rapid increase of feed production is the result of the type of livestock industry changed into specialized business from traditional farming.

Once imported, feed grains are processed into assorted feeds to improve feed efficiency and then supplied to the farmers.

With this increase in assorted feed, feed mills have been expanded considerably in the number and production capacity under the support of government policy programs.

For the good quality of feed, the government has controlled the setting up of the feed mill through licencing.

There are now 80 feed mills in Korea, with production capacity of 21,875 M/T per day.

The operation rate of the feed mills averaged 159 percent of plant capacity in 1989.

Table 3. Production Capacity and Operation rate of Feed Mill.

(Unit: thousand M/T)

Classification	No. of plant	Production capacity	Actual production	Market Share (%)	Operation Rate (%)
Livestock coops	18	1,064	2,288	22	215
Privately owned	62	5,481	8,115	88	148
Total	80	6,545	10,403	100	159

2-2. Area of Project.

Jeonnam province, area of project, is located in southern area of Korea.

It covers the area of 11,799 km² and its population is 2.5 million as of the end of 1989.

The general conditions of Jeonnam province are as follows.

1) Area of Jurisdiction.

It has 6 cities and 21 counties and there are 26 local livestock cooperatives.

2) Population: The population is below.

Table 4: Population

(in 1989)

Classification	Farm	Non-farm	Total
Nation	6,786	35,594	42,380
Jeonnam province	1,071	1,446	2,517
Rate	15.8	4.1	5.9

3) Livestock population and feed production.

This area is the major agricultural produce district. Most of farmers in this area raise just one or two Korean native cattle or small number of hogs and chickens, namely traditional farm.

Table 5: Livestock Population and Feed Production

(Unit: thousand head)

Classification		Nation	Jeonnam	Rate (%)
Livestock	Native cattle	1,536	215	14.0
	Dairy cattle	515	27	5.2
	Hogs	4,801	361	7.5
	Chichens	61,689	2,791	4.5
Feedmill	Number	80	6	7.5
	Capacity per day	21,875	980	4.5

Source: NAFF (in 1989)

2-3. Problems Faced by Farmers.

- 1) In Korea, livestock farms can be divided into two types on the basis of the number of livestock raised and technologies, namely traditional farms and commercial farms.

But private Feed Mills give big farmers the advantage of credit and favorable price due to purchasing of large amounts of feed.

So, these commercial farms are positioned better than traditional farms in terms of feed price.

- 2) Assorted feeds have become a major factor now, the expenditure for this reached about 80 percent of livestock operating cost.

Thus, the increased feed consumption depends entirely on imports of feed grains. This decreasing domestic feed supply is one of the most difficult problems facing the development of the livestock industry in Korea.

- 3) The beef trade issues between the U.S. and Korea is one of the most sensitive problem.

If the import of beef is liberalized, the livestock industry of Korea would be collapsed.

2-4. Need and Justification for the Project.

- 1) For the increase of farmers' income.

- NLCF as a nonprofit organization has supplied assorted feed to the farmers at 10 percent cheaper price than those of private feed mills.

So farmers can cut down the operating cost of livestock farms.

Table 6. Comparison of the feed price (Factory price)

(Unit: won/25kg)

Classification	Poultry	Hog	Dairy Cattle	Beef Cattle	Others	Average
NLCF (A)	4,338	4,889	3,900	3,639	4,703	4,342
Private feed mill (B)	4,770	5,460	4,339	3,891	5,357	4,791
Gap (B—A)	382	561	439	251	654	449
Rate (%)	8.7	11.5	11.3	6.9	13.9	10.3

Source: MAFF

2) To meet the increasing demand for feeds.

- Yearly the demand for NLCF's Feed has increased because of good quality and cheaper price of feed, but NLCF have had difficulties with supplying enough feeds to the farmers due to the shortage of capacity of feed mills.

Table 7. Comparison of operation rate

(Unit: %)

Classification	81	83	85	87	88	89
NLCF	111	189	144	176	214	215
Private	95	117	110	130	132	148
Average	97	127	116	138	145	159

3) To curb and control the price of feed.

NLCF is planing to increase Market share from 22% to 30%, in order to curb and control the price of private's feed.

Table 8. Comparison of Market Share

Classification	81		83		85		87		89	
	Production	Market share	Production	Market share	Production	Market share	Production	Market share	Production	Market share
NLCF	550	15.8	1,158	19.8	1,269	19.7	1,873	20.8	2,288	22.0
Private	2,940	84.2	4,694	80.2	5,182	80.3	7,145	79.2	8,115	88.0
Total	3,490	100	5,852	100	6,451	100	9,018	100	10,403	100
Index (%)	100		168		185		258		298	

4) Regional distribution.

The regional distribution of feed mill is able to serve local livestock farms. But farmers in this project area have had difficulties with purchasing the assorted feed, because now any feed mill is very far from this area. So, Farmers have to pay more money for transporting charge.

Chapter 3. Project

3-1. Objectives

By establishing a Feed Mill, the following advantages may be gained.

- 1) To increase the farmers' income by reducing the cost of the feeding.
- 2) To provide high quality of the feeds
- 3) To maintain the stability of the feed prices.
- 4) To curb the price of private feeds by increasing Market share of NLCF's feed.
- 5) To enhance the cooperative's activities to support farmers.
- 6) To secure the stable supply of feed in terms of quantity.

3-2. Area of Operation.

For the area of operation, soonchun city shall be selected as it has high road density.

This city is very easy to access and well connected with an expressway.

Moreover this city is not far from kwangyang city, important port, through which raw material can be imported easily.

3-3. Project Components

1) Procurement

The raw materials of assorted feeds consist mainly of imported grains.

In 1989, about 76 percent of the composition of assorted feed was imported grains.

Also the imports are composed chiefly of corn which accounts for 60 percent of the total feedgrains.

Wheat, sorghum, vegetable protein are also very important materials of feed.

Other indigenous materials can be purchased easily.

Table 9. Composition of assorted feed

(Unit: thousand M/T)

Year	Grain	Bran	Vegetable Protein	Animal Protein	Inorganic Substances	Other	Total
75	442	262	98	50	53	9	914
80	2,077	685	396	122	184	22	3,486
87	5,649	1,324	1,563	150	142	210	9,038
88	6,026	1,432	1,737	154	192	247	9,788

Source: MAFF

2) Processing

The assorted feed is manufactured in meal form. And it is bagged or loaded in bulk for delivery.

The feed mill business has been regulated by the government for insuring high quality of feed.

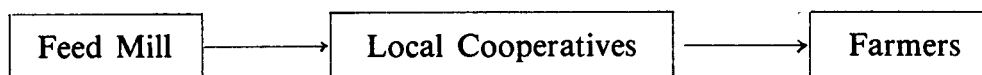
3) Marketing

With increase rate of livestock consumption, the growth of feed market would be estimated 4.8 percent per year.

Especially, the demand for the NLCF's feeds would increase year by year, because they was cheaper and better quality than private feeds.

So this project will not face any problems in marketing.

Feed flow chart



4) Extension

Livestock promotion guide officers at the feed mill help farmers to better understand the relation between assorted feed and the raising of livestock.

Also, to provide free medical treatment and technical education on management and feeding for the farmer, veterinary team of NLCF travels around remote areas where veterinarians are not available.

Chapter 4. Details of Operation

4-1. Capacity of the Feed Mill.

Feed Mill of the project can produce 300 M/T of assorted feed per day (8 working hours).

4-2. Means of Financing

The total capital requirement for the project would be 10,727 million won including capitalization of interest.

Out of this, 4,000 million won would be available as a long term loan from OECF.

The rest 6,727 million won would be financed by NLCF and Local cooperatives as follows.

Then, ten local cooperatives near the area of project would join this project.

Financing of Project

(Unit: million won)

Sources of fund	Loan	Self provided		Total
	OECF	NLCF	Local coops	
Amount	4,000	4,727	2,000	10,727

4-3. Project Implementation Plan.

It will take 24 months to implement this project.

- 1) Preparation of general plan
 - Preparation of official proposal
 - Approval by Cooperatives Representatives and Board of Directors.

- 2) Purchase of land
 - Selecting site of feed mill.
 - Feasibility Study.
 - Acquisition of the land.

- 3) Loan
 - Preparation of loan plan.
 - Obtaining approval from the government.
 - Signing of loan contract.

- 4) Building contraction
 - Design and preparation of building site.
 - Construction of the building.

5) Ordering machinery and equipment.

- Ordering the machinery.
- Purchasing the equipment.

6) Education and training of staff.

- Preparation of operation manual.
- Training staffs

7) Test working.

8) Formal operation.

4-4. As stated early, the implementation of project will be spent 2 years.

It will take 4 months to purchase and develop the land.

Installation of plant and machinery and other accessories etc would be completed by 20 months.

The general progress of work is as follows.

Table 10. Progress of work.

Item	Period																										
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
1. Purchase of Land	→																										
2. Land development			→																								
3. Survey			→																								
4. Basic layout				→																							
5. Details of draft					→																						
6. Ordering & purchasing machinery						→																					
7. Construction & facilities																											
- engineering work								→																			
- construction										→																	
- machinery											→																
- electricity																	→										
8. Test working																											

4-5. Investment

1) Land and building

Total land requirement for feed mill would be around 10,000 peang.
(about 33,000 m²)

The acquisition of land would cost 575 million won.

The cost of engineering work and constructing buildings including feed mill, office silos, warehouses etc amount to 3,580 million won.

2) Machinery and facilities.

5,071 million won would be spent in acquiring and installing an automated machinery and facilities.

This includes transportation and erection of machines and training expenses of technicians, and other fixed assets.

3) Layout and supervision

The estimated cost of these would be 300 million won.

4) Contingencies.

Contingencies including pre-operative expenses would be 953 million won.

Contingencies account for 10 percent of all fixed cost.

5) Capitalization of interest.

The interest rate of loan is 4.25 percent

Table 11. Capital cost of the project**(Unit: million won)**

Classification	Cost	Durable years	Remark
Purchase of land	575	—	10,000 yeong (33,000m ²)
Layout & supervision	300	—	
Engineering work	449	18	
Construction	3,131	45	
Machinery	4,541	9	Including other fixed assets
Electricity	530	15	
Contingencies	953	—	Including pre-operative expenses
Sub-total	10,479		
Interest	248		Rate 4.25%
Total	10,727		

4-6. Operation of the Feed mill.

- 1) NLCF will operate the Feed mill of the project because NLCF have had good experience of constructing Feed mill and experts of the management.
- 2) The Feed mill will be set up for a production of 90,000 M/T in a year. However, because the demand for feed in this area is continuously increasing, the feed mill is expected to operate at 170% even in the first year.

The rate of operation will be below.

(Unit: %)

Year	93	94	95	96	97	98	99	2,000	2,001
Operation rate	170	172	174	176	178	180	182	184	186

Chapter 5. Organization and Management

5-1. Management

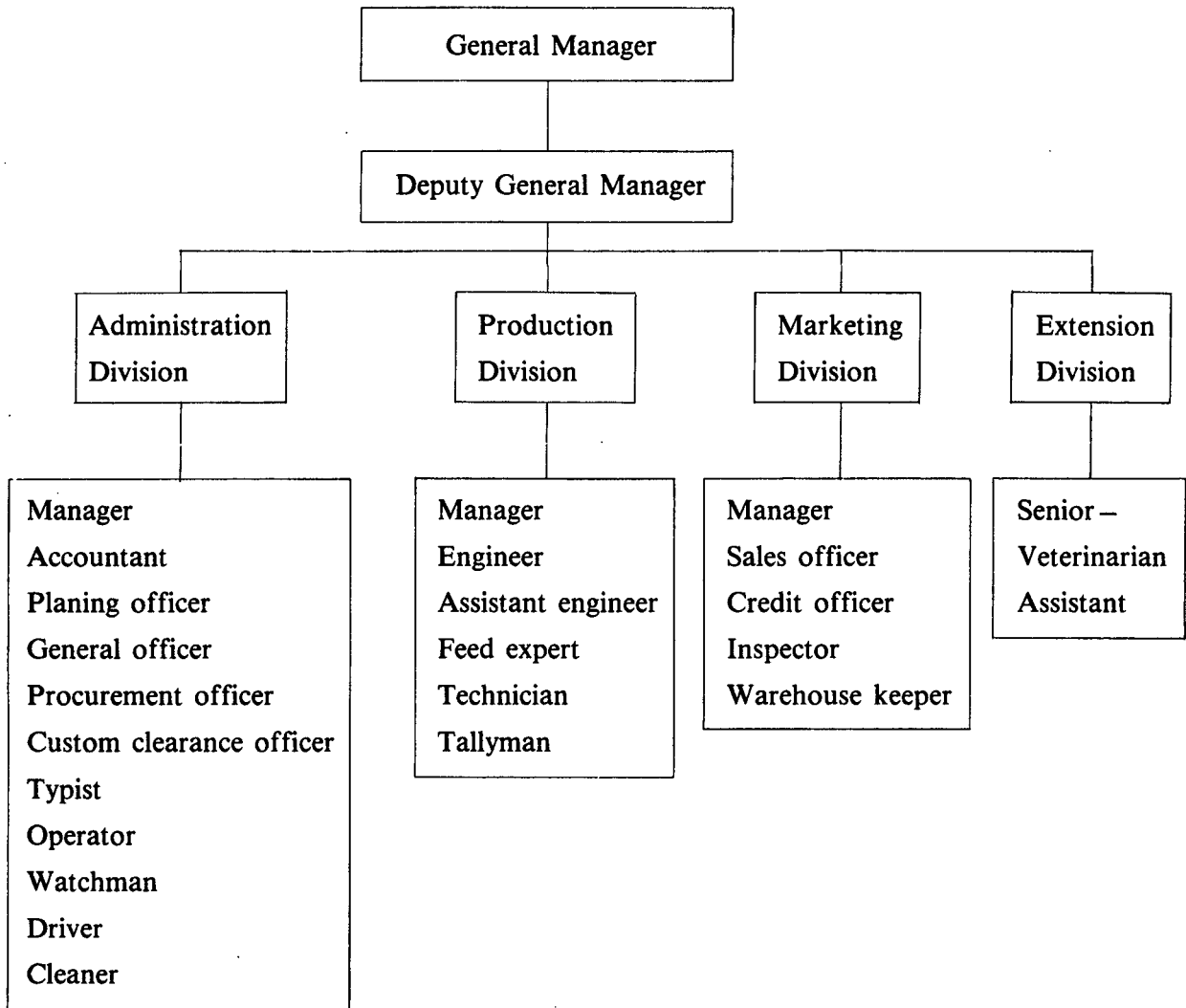
Even if this project will be financed by NLCF and local livestock cooperatives, the Feed Mill of project will be operated by NLCF.

So NLCF will regulate all management of the Feed Mill.

5-2. Contents of management.

- Administration and general management
- Accounting and financing
- Procurement
- Production
- Marketing
- Extension
- Maintenance of the Mill

5-3. Organization Chart



5-4. Tasks of Division

1) Administration division.

This division is in charge of accounting, financing, administration and other affair concerned.

Also this division has timely to purchase raw materials for producing the assorted feeds.

2) Production division.

This division is in charge of production schedule utilization of capacity maintenance and development of new products.

In order to produce a same high quality of feed with other Feed Mill of NLCF, the on-line system of computer will connect all the feed mills of NLCF in an electronic network.

3) Marketing Division

This division is in charge of marketing promotion such as advertisement, collecting market information in order to increase the market share of feed.

4) Extension Division

The work of extension Division is to guide the farmers to increase the income of them through providing technique of raising livestock and veterinary service.

Sometimes, veterinary teams provide free medical treatment for the small farmers.

5) Manpower

The estimated manpower requirement and their salaries and wages are below.

Table 12. Manpower

(Unit: thousand won)

Post	No.	Annual salary	Calculation
General manager	1	20,000	
Deputy G. manager	1	18,000	
Manager	3	45,000	15,000 x 3
Senior veterinarian	1	15,000	
Engineer	5	42,000	8,400 x 5
Senior officer	5	42,000	8,400 x 5
Clerk	1	7,000	
Technician	10	70,000	7,000 x 10
Handyman	2	13,000	6,500 x 2
Sub total	29	272,000	
Laborer's wages	43	385,000	3731/Hour x 8 Hours x 365 days x 43
Total	72	657,000	

* Wages of laborer is calculated on the basis of 100% of capacity utilization.

Chapter 6. Financial Analysis

6-1. Basic Assumptions

- 1) The service life of machinery is 9 years. So, project period is 11 years including 2 years of construction of feed mill.

- 2) Depreciation cost would be calculated according to the regulations.

Table 13. Depreciation

(Unit: million won)

Item	(A) Cost	(B) Surplus	(A + B) Total cost	Durable year	Depreciation cost
Engineering work	449	78	527	18	26
Building	3,131	543	3,674	45	74
Machinery	4,541	788	5,329	9	533
Electricity	530	92	622	15	37
Total	8,651	1,501	10,152		670

* The cost of layout & supervision (300) and interest (248) and contingencies (953) is distributed to each item in proportion to amount of cost

* $300 + 248 + 953 = 1501$

* Salvage value is 10% of cost

- 3) Selling price at factory price would be 140,900 won per metric ton.

- 4) Production cost is based on the actual cost of other NLCF Feed mills.

Table 14. Production cost

Item	Variable cost	Fixed cost
Unit	Won/Ton	,000 won
Raw materials	114,049	
Wages	4,278	
Power	672	
Repair & maintenance	199	
Insurance & tax		20,000
Transportation	200	
Research & development		10,000
Other	223	
Depreciation		670,000
Total	119,621	700,000

- Wages are going to increase every year by 3 percent on account of annual increments etc.
- Repair & maintenance expenges also increase every year by 1 percent.
- Insurance & tax, research & development expenses would not increase even in the subsequent years.

5) Salary including incentive, bonus would increase every year by 3 percent.

6) The term of loan redemption:

Rapayment in 18 years by installment with a seven-year grace period at a 4.25% interest.

7) About two percent of sales revenue would be paid as sales commission.

6-2. The total capital of 10,727 million will be invested as below.

(Unit: million won)

Year	1	2	Total
Capital	7,285	3,442	10,727

6-3. Working Capital

Working capital would be required to support the operations.

NLCF's feed mills have sold cooperatives feeds on credit within 45 days.

So, on an average, account receivables is estimated to remain outstanding for a period of 45 days.

Table 15. Working capital

(Unit: million won)

Classification	93	94	95	96	97	98	99	2,000	2,001
Sale revenue	21,558	21,811	22,065	22,319	22,572	22,826	23,079	23,333	23,587
Turnover (day)	45	45	45	45	45	45	45	45	45
Working capital	2,658	31	31	32	31	31	32	31	32

6-4. Cash Flow Analysis (Appendix 8)

6-5. Payback Period and Net Present Value.

NPV is computed on the basis of 11.0% discount

Table 16. N.P.V

(Unit: million won)

Year	0	1	2	3	4
Net cash flow	-10,727	2,232	2,231	2,231	2,233
Cumulative cash flow	-10,727	-8,495	-6,264	-4,033	-1,800
NPV	-10,727	2,011	1,811	1,631	1,471
Year	5	6	7	8	9
Net cash flow	2,227	2,222	2,214	2,209	2,200
Cumulative cash flow	427	2,649	4,863	7,072	9,272
NPV	1,322	1,188	1,066	958	860

- 1) Payback period: 5 years
- 2) NPV: 11% 1,531 million won
13% 690 million won
15% - 108 million won

6-6. Internal rate of return is calculated as 14.7%

6-7. Break-even Point in the First Year

B.E.P = Fixed cost divided by contribution

$$\begin{aligned} - \text{ Fixed cost} &= \text{ Fixed cash cost} + \text{ depreciation for one year} \\ &= \quad 594 \quad + \quad 670 \quad = \quad 1264 \end{aligned}$$

$$- \text{ Total contribution} = 2826$$

$$\text{B.E.P} = \frac{\text{Fixed Cost}}{\text{Contribution}} = \frac{1264}{2826} = 44^{73}$$

B.E.P is 44⁷³ percent of the capacity used in the first year, which is equivalent 9,642 million won ($21,558 \times 44^{73\%} = 9,642$)

It also means 76.04% of available capacity of production

$$* 90,000 \times 170\% \times 44.^{73\%} = 68,437 \text{ M/T}$$

$$* 68,437 \div 90,000 = 76.04\%$$

6-8. Profit in the first year

Total contribution — Fixed cost

$$2,826 - (584 + 670) = 1,562 \text{ million won}$$

Chapter 7. Budget

The budget will be below in the operating 5 years

Table 17. Budget.

(Unit: million won)

Item	Operating year				
1. Sales revenue	21,558	21,811	22,065	22,319	22,572
2. Product cost	19,293	19,534	19,774	20,013	20,258
(direct)	18,623	18,864	19,104	19,343	19,588
(indirect)	670	670	670	670	670
3. Gross profit (1-2)	2,265	2,277	2,291	2,306	2,314
4. Administrative expenses	703	716	730	743	757
(selling expenses)	431	436	441	446	451
(salary)	272	280	289	297	306
5. Interest for fixed assets	170	170	170	170	170
6. Operating income	1,392	1,391	1,391	1,393	1,387
7. Tax	278	278	278	278	278
8. Net income	1,114	1,113	1,113	1,115	1,109

Chapter 8. Recommendation

1. If the price of feedgrains rises sharply in the world market, the raising of livestock using imported grains will encounter a big problem in Korea.

This is because domestic feedgrains or by-products are not available in quantities to meet feed requirements.

So government should try to increase the rate of self-sufficiency.

2. Since rural employment problems are increasingly serious, and migration from rural to urban continues due to chronically low rural incomes, government policy has to encourage livestock production to increase the income of farmers.

3. Recently the beef trade issues between the U.S. and Korea is one of most sensitive and pending one.

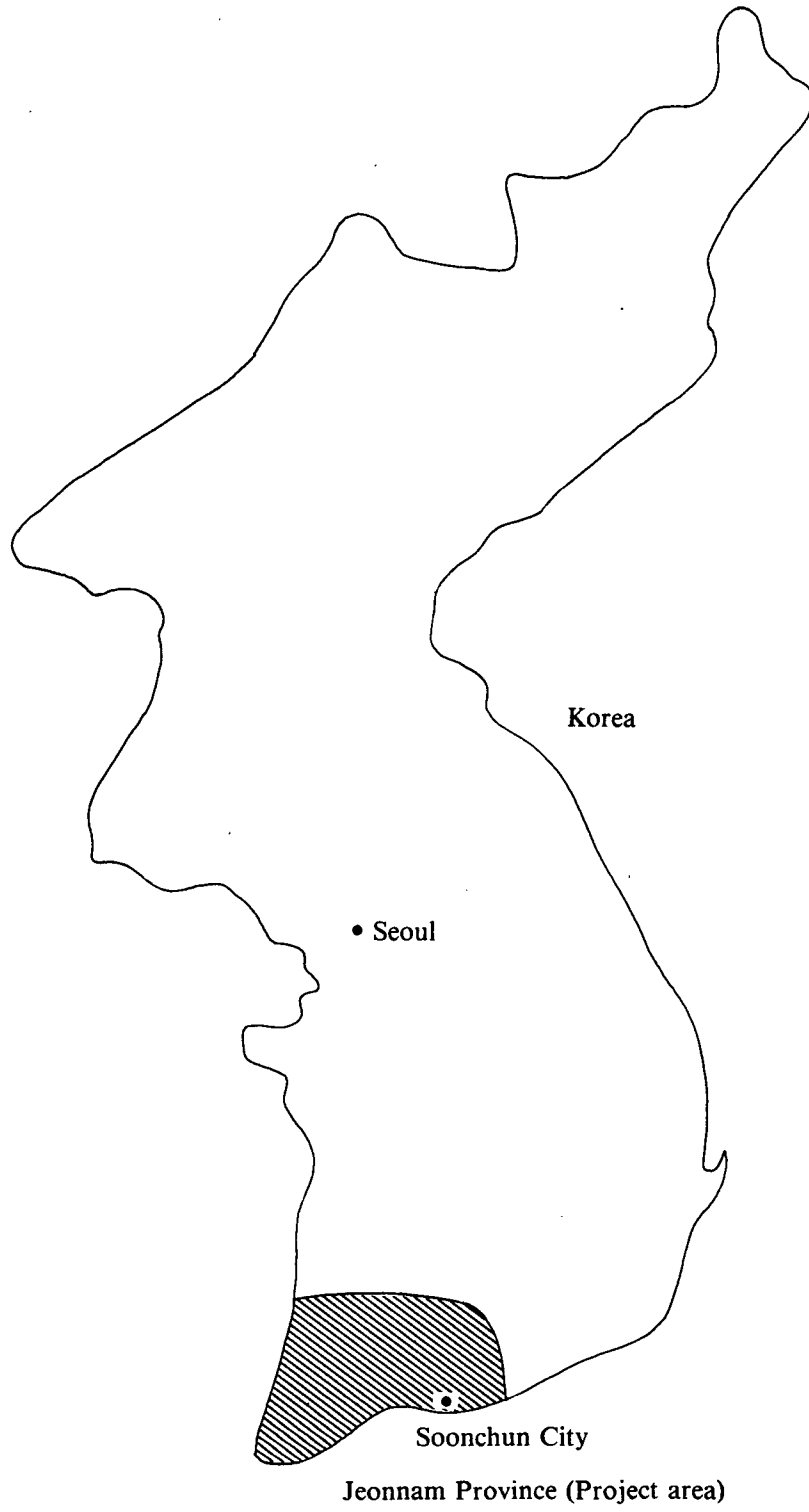
The U.S. is pressing weavily on Korean Government through the GATT panel or uruguay-round.

If the government liberalizes the import of beef, the livestock industry foundation would be collapsed.

So, government should try to find ways of mutual benefit under current quota system.

4. In order to increase the quantity and improve the quality of assorted feed, NLCF has to make more investment in feed mill. Until now the operation rate of NLCF's Feed mill is too high to meet the shortage of the feed.

1. Project Area



2. Utilisation of Land

(Unit: 1,000 ha)

Year	Total	Cultivated land for agri.				Forest		Others	
		Area	%	Paddy field	Dry field	Area	%	Area	%
1971	9,848	2,271	23.1	1,265	1,006	6,612	67.1	965	9.8
1972	9,848	2,242	22.8	1,259	983	6,597	67.0	1,009	10.2
1973	9,876	2,241	22.7	1,263	978	6,586	66.7	1,049	10.6
1974	9,876	2,238	22.7	1,269	969	6,641	67.2	997	10.1
1975	9,881	2,240	22.7	1,277	963	6,635	67.1	1,006	10.2
1976	9,880	2,238	22.7	1,290	948	6,614	66.9	1,028	10.4
1977	9,886	2,231	22.6	1,303	928	6,593	66.7	1,062	10.7
1978	9,896	2,222	22.5	1,312	910	6,578	66.5	1,096	11.0
1979	9,897	2,207	22.3	1,311	896	6,570	66.4	1,120	11.3
1980	9,899	2,196	22.2	1,307	889	6,568	66.3	1,135	11.5
1981	9,902	2,188	22.1	1,308	880	6,563	66.3	1,151	11.6
1982	9,902	2,180	22.0	1,311	869	6,554	66.2	1,178	11.8
1983	9,909	2,167	21.8	1,316	851	6,547	66.1	1,195	12.1
1984	9,912	2,152	21.7	1,320	832	6,540	66.0	1,220	12.3
1985	9,914	2,144	21.6	1,325	819	6,531	65.9	1,237	12.5
1986	9,917	2,141	21.6	1,329	812	6,524	65.8	1,249	12.6
1987	9,922	2,143	21.6	1,352	792	6,499	65.5	1,258	12.7
1988	9,924	2,138	21.6	1,358	780	6,492	65.4	1,294	13.0

Source: MAFF, Agriculture, Forest and Fishery Statistics

3. Population of Agriculture and Fishery

(Unit: 1,000 persons)

Year	Total	Population of agri.			Population of fishery		
		Population	%	Per household	Population	%	Per household
1971	32,883	14,712	44.7	5.93	—	—	—
1972	33,505	14,677	43.8	5.99	1,062	3.2	5.84
1973	34,103	14,645	42.9	5.98	978	2.9	5.73
1974	34,692	13,459	38.8	5.65	914	2.6	5.71
1975	35,281	13,244	37.5	5.57	894	2.5	5.81
1976	35,849	12,785	35.7	5.47	880	2.5	5.75
1977	36,412	12,309	33.8	5.34	871	2.4	5.69
1978	36,969	11,527	31.1	5.18	827	2.2	5.44
1979	37,534	10,883	28.9	5.03	791	2.1	5.38
1980	38,124	10,827	28.4	5.02	844	2.2	5.37
1981	38,723	9,999	25.8	4.93	776	2.0	5.17
1982	39,326	9,688	24.6	4.85	755	1.9	5.17
1983	39,910	9,475	23.7	4.74	739	1.9	5.02
1984	40,406	9,015	22.3	4.57	716	1.8	4.87
1985	40,806	8,521	20.9	4.42	689	1.7	4.75
1986	41,184	8,180	19.9	4.29	662	1.6	4.60
1987	41,575	7,771	18.7	4.15	635	1.5	4.50
1988	41,975	7,272	17.3	3.98	602	1.4	4.36

Source: MAFF, Agriculture, Forest and Fishery Statistics

4. Farm Households per Cultivated Land

(Unit: 1,000 households)

Year	Total farm households	Households except cultivation	below 0.1 ha	0.1 -0.5	0.5 -1.0	1.0 -1.5	1.5 -2.0	2.0 -3.0	over 3.0	Sub -total
1971	2,482	84	50	760	786	446	200	120	36	2,398
1972	2,452	85	49	753	777	442	193	117	36	2,367
1973	2,450	84	53	742	771	444	201	118	37	2,366
1974	2,381	112	10	663	809	435	196	119	37	2,269
1975	2,379	94	2	689	828	431	187	112	36	2,285
1976	2,336	106	5	684	814	415	174	105	33	2,230
1977	2,304	114	4	682	795	407	171	101	30	2,190
1978	2,224	84	1	630	799	412	171	97	30	2,140
1979	2,162	82	2	641	764	394	162	90	27	2,080
1980	2,156	28	14	598	748	438	191	108	31	2,128
1981	2,030	31	8	597	743	388	156	83	24	1,999
1982	1,996	39	9	568	725	390	159	83	23	1,957
1983	2,000	52	9	562	719	392	160	83	23	1,948
1984	1,974	52	9	546	707	391	161	85	23	1,922
1985	1,926	46	9	525	686	390	160	87	23	1,880
1986	1,906	44	10	530	663	386	161	88	24	1,862
1987	1,871	39	9	513	647	384	163	91	25	1,832
1988	1,826	31	8	499	626	376	165	94	27	1,795

Source: MAFF, Agriculture, Forest and Fishery Statistics

5. Income of farm Household

(Unit: 1,000 Won)

Year	Income on farm household	Agricultural income			Non-agricultural income	
		Amount	Gross income	Management expenses	Amount	Composition of non-agri income (%)
1971	356	292	357	65	64	18.1
1972	429	353	428	75	76	17.7
1973	481	390	480	90	91	18.8
1974	674	542	664	122	132	19.6
1975	873	715	891	176	158	18.1
1976	1,156	921	1,166	245	236	20.3
1977	1,433	1,036	1,334	298	397	17.7
1978	1,884	1,356	1,769	413	529	28.0
1979	2,227	1,531	2,027	496	696	31.2
1980	2,693	1,755	2,342	587	938	34.8
1981	3,688	2,476	3,269	793	1,211	32.8
1982	4,465	3,031	3,998	967	1,434	32.1
1983	5,128	3,331	4,702	1,371	1,797	35.0
1984	5,549	3,699	5,276	1,577	1,850	33.3
1985	5,736	3,699	5,477	1,778	2,037	35.5
1986	5,995	3,677	5,619	1,942	2,318	38.7
1987	6,535	4,016	5,984	1,968	2,519	38.5
1988	8,130	4,912	7,226	2,314	3,218	39.6

Source: MAFF, Agriculture, Forest and Fishery Statistics

6. Number of Livestock and Households

(Unit: 1,000 Head, Households)

Year	Beef cattle		Dairy cattle		Pig		Chicken	
	No. of cattle	Household raising	No. of cattle	Household raising	No. of pig	Household raising	No. of chicken	Household raising
1971	1,250	1,049	30	3	1,333	925	25,903	1,110
1972	1,338	1,107	36	4	1,248	861	24,537	1,045
1973	1,493	1,191	52	5	1,595	817	23,701	1,004
1974	1,785	1,359	73	7	1,818	890	18,814	1,002
1975	1,556	1,277	86	9	1,247	654	20,939	1,094
1976	1,463	1,196	90	10	1,953	910	26,325	1,237
1977	1,508	1,173	109	14	1,482	689	30,224	1,179
1978	1,651	1,176	136	16	1,719	658	40,753	1,172
1979	1,599	1,092	163	17	2,843	758	41,120	923
1980	1,361	948	180	18	1,784	503	40,130	692
1981	1,312	858	194	28	1,832	425	42,999	628
1982	1,526	896	228	23	2,183	444	46,592	618
1983	1,940	971	275	30	3,649	539	49,239	538
1984	2,318	1,037	334	38	2,958	362	46,483	367
1985	2,553	1,048	390	44	2,853	251	51,081	303
1986	2,370	991	437	43	3,347	262	56,095	282
1987	1,923	854	463	38	4,281	303	59,324	269
1988	1,559	701	480	36	4,852	261	58,467	194
1989	1,536	654	515	36	4,801	198	61,689	145

Source: MAFF, Agriculture, Forest and Fishery Statistics

7. Production of Assorted Feed

(In metric ton)

Year	Total	Subtotal	Breeding	Laying	Broiler	Swine	Dairy	Beef Cattle	Others
1983	5,851,586	2,245,621	265,789	1,182,352	797,480	2,013,007	709,936	870,595	12,427
1984	5,984,959	2,064,866	242,806	1,194,328	627,732	1,987,411	852,589	1,072,394	7,699
1985	6,451,072	2,309,726	276,227	1,373,135	660,364	1,923,692	994,282	1,209,042	14,330
1986	7,675,241	2,639,176	300,327	1,618,005	720,844	2,178,297	1,208,477	1,624,251	25,040
1987	9,018,229	2,933,024	317,382	1,746,501	869,141	2,953,297	1,404,234	1,673,467	54,207
1988	9,826,297	2,947,385	262,635	1,788,519	896,231	3,603,712	1,608,423	1,511,624	155,153
1989	10,403,408	2,992,828	298,698	1,681,900	942,230	4,071,563	1,718,739	1,561,337	128,941

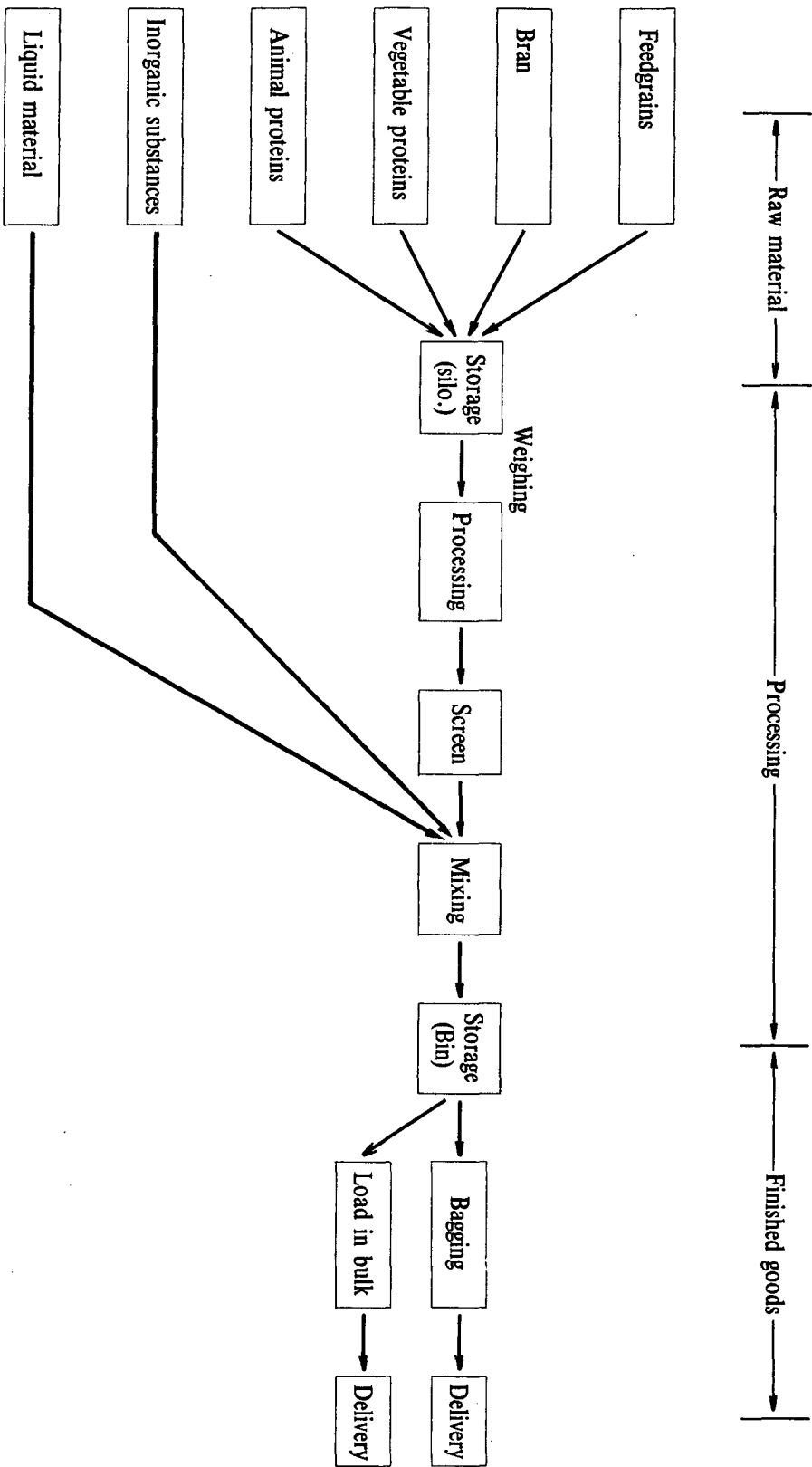
Source: MAFF

8. Cash flow analysis

(in mil. won)

Item	91	92	93	94	95	96	97	98	99	2,000	2,001
Capacity: 90,000 MT/Year											
Capacity: Utilisation (%)			170	172	174	176	178	180	182	184	186
A. Cash inflow											
Sales revenue			21,558	21,811	22,065	22,319	22,572	22,826	23,079	23,333	23,587
Total			21,558	21,811	22,065	22,319	22,572	22,826	23,079	23,333	23,587
B. Cash outflow											
1. Investment	7,285	3,442									
2. Production cost											
a. Variable cost											
1) Raw material	17,449	17,655	17,860	18,065	18,271	18,476	18,681	18,887	19,092		
2) Wages	655	682	711	740	771	803	837	871	907		
3) Power and water	103	104	105	106	108	109	110	111	112		
4) Repair & main tenance	30	31	32	32	33	34	35	35	36		
5) Transportation	30	31	32	32	33	34	35	35	36		
6) Other	34	35	35	35	36	36	37	37	37		
7) Selling and administrative expenses	431	436	441	446	451	457	462	467	472		
Sub total	18,732	18,974	19,216	19,456	19,703	19,949	20,197	20,443	20,692		
b. Fixed cost											
1) Salary	272	280	289	297	306	315	325	335	345		
2) Insurance & tax	20	20	20	20	20	20	20	20	20		
3) Research & development	10	10	10	10	10	10	10	10	10		
4) Interest on working capital (11%)	292	296	299	303	306	310	313	316	320		
Sub total	594	606	618	630	642	655	668	681	695		
Total (A + B)	19,326	19,580	19,834	20,086	20,345	20,604	20,865	21,124	21,387		
C. Net cash flow (A - B)	-7,285	-3,442	2,232	2,231	2,231	2,233	2,227	2,222	2,214	2,209	2,200
D. Total contribution (A - a)			2,826	2,837	2,849	2,863	2,869	2,877	2,882	2,890	2,895
E. Depreciation			670	670	670	670	670	670	670	670	670
F. Net profit (D - E - b)			1,562	1,561	1,561	1,563	1,557	1,552	1,544	1,539	1,530

9. Manufacturing process



4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

Mr Byung O Kang, Korea.

(other than those presented by groups)

- * Service oriented project - main aim is input supply to reduce productivity cost.
- * Pressures from USA etc. for import of feedgrains from their countries into Korea may affect the project and its sensitivity analysis.
- * Participation of farmers in management should be built in the organisation and management structure - at least in a supervisory capacity.
- * Wages and salaries would be less if more labour is engaged to work in two shifts than to pay overtime to one shift workers to pay for additional work.
- * Capacity of plant should be fixed on the time it could run. Better to have a larger capacity mill than to have a smaller capacity mill and asking workers to work overtime.
- * Project is different from others presented, procurement is from outside (import of raw materials) and not from farmers.
- * Composition of raw materials for feed is not given. No product mix is attempted. Purchase price for each product mix need be given.
- * Computation of NPV, cash inflow and outflow requires recalculation.
- * Assumption on capital costs computation including intt should be indicated.
- * Preoperative expenses (p 28) should be included in investment.
- * A/c Receivables included but inventories and other items as per Lee's project should be included.
- * Sensitivity analysis is missing. should be done.
- * Basic data could be used in justifying project and cross references of annexes included and used will help in judging the credibility of project. Data included must be used in the document.

FEED MILL

1/3/90

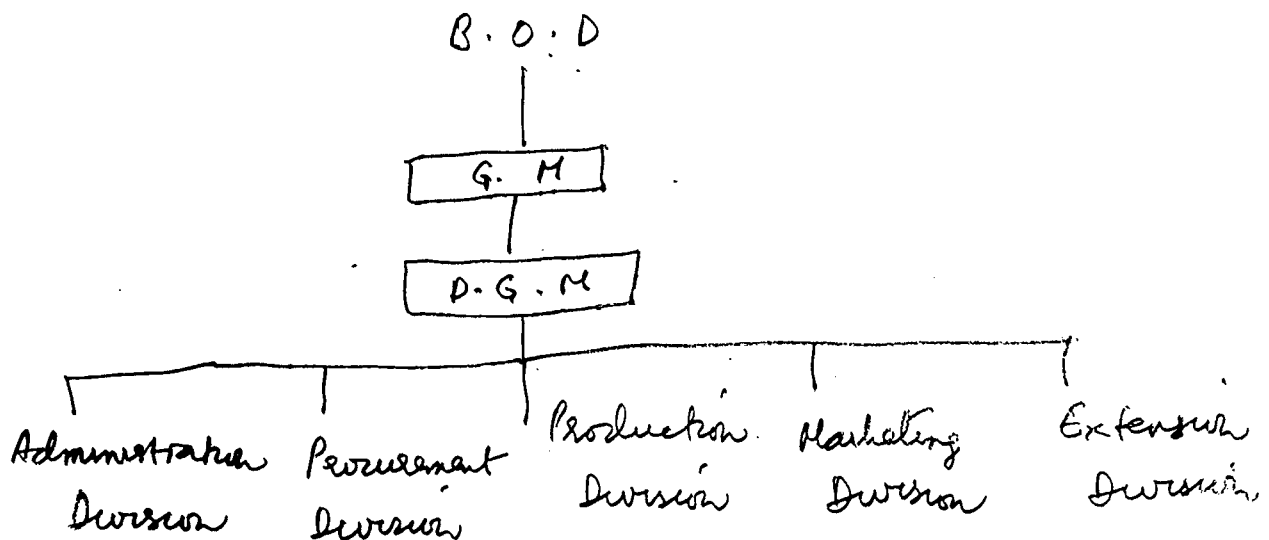
G. A

FINANCIAL

1. SELLING PRICE 140,900 WON/MT., ON WHAT PREVIOUS BASIS IT HAS FIXED BECAUSE PREVIOUS SELLING DETAILS NOT MENTIONED. (ASSUMPTION MUST BE ON PREVIOUS SELLING TREND)
2. REPAYMENT SCHEDULE OF 18 YRS. ON SOURCE OF FUND OF 4 BILLIANT WON LOAN FROM OECF SHOULD BE TABULATED SHOWING THE REPAYMENT CAPACITY.

Group B - Organization/Management

1. It is suggested the Board of Directors should be from the farmers because they are not directly benefited from this project and members equity should be collected from farmers instead of local coop which is nominal amount (2000 ml (Wan))
2. According to production manpower must be increase. Wages of laborer is calculated on the basis of 100% capacity utilization.
3. 10 local coop near the area would join this project but not given the chance in management.
4. Most of the raw materials are imported, thus the farmers not benefit so much. Animal feed depend more on quality and not on price.
5. Since raw materials are imported that there should be Procurement Division and the amended chart are as follows:



GROUP CFeed Mill in Jeonnam Province

- 1) The traditional small farmers are not getting benefits by the private traders. So, in favour of the small farmers this project is necessary.
 - 2) Cost of livestock 80% from feed. Decreasing domestic feed market is a severe problem.
 - 3) The market share of manufacturing feed mill by the private sector is dominant. (78% → table 8)
Therefore in order to avoid monopoly of private sector, this project is needed.
 - 4) There is no data in demand of the feed for this project. (p. 23)
-

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

TITLE OF PROJECT	:	<i>DAIRY DEVELOPMENT</i>
COUNTRY	:	<i>MALAYSIA</i>
PROJECT PREPARED BY	:	<i>ABDUL RAZAK JAMIN</i>

Funded by the Government of Japan

and

**Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and Korea**

ICA Management Training Project for Agricultural Cooperatives in Asia

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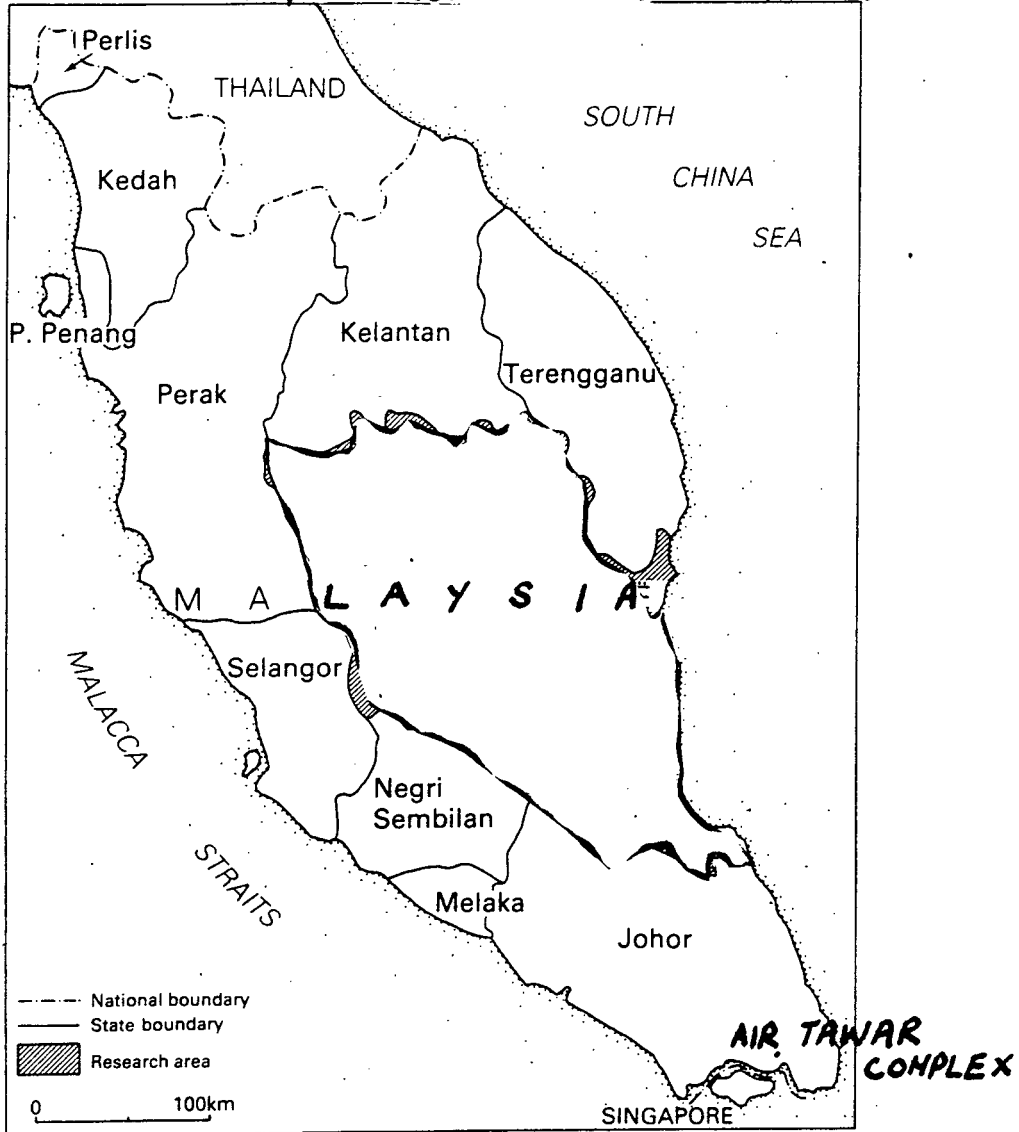
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(ii)

Map 1. LOCATION OF PROJECT IN PENINSULAR MALAYSIA



Source: Aiken et. al., 1982.

(2)

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This project proposal is one of the requirement for the accomplishment of the Fourth ICA/Japan Training Course For Strengthening Management of Agricultural Cooperatives in Asia funded by the Government of Japan and executed by the International Cooperative Alliance in collaboration with its Member Organisations in India, Thailand, Japan and Korea.

This project is undertaken in order to increase the farmers income particularly in the New Land Development Schemes through cooperative movement and to strengthen the cooperatives activities.

I would like to take the opportunity to express my gratitude to Mr.M.V Madane, ICA Project Director and Professor Ramesh Gupta from the Indian Institute of Management for their guidance.

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Kuala Lumpur
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Abdul Razak Jamin

CHAPTER I ABSTRACT

The project proposal is to establish a Milk Collecting Centre with an initial capacity of 5000 litre per day at the FELDA Air Tawar Complex in the district of Kota Tinggi. For the past ten years there is an increasing trend on the demand for liquid and pasteurized milk in the country. The proposed project will be implemented by the FELDA's Air Tawar Cooperative with the support and assistance from the Veterinary Department and Bank of Agriculture. Organizational structure of the MCC will consist of four divisions namely Marketing, Processing, Extension and Administration/Finance Divisions.

The construction of the Milk Collecting Centre will need for one year to complete with a capital investment of \$400,000/- It will be financed by Bank of Agriculture.

(4)

The demand for liquid milk has increase due to the massive campaign launched by the Ministry of Agriculture and the Department of Veterinary especially through the electronic media for the Malaysian to consume more fresh milk especially for the children. Thus this project will benefit the farmers in the effort to increase the income. Currently the farmers sent their cows` milk to centres operated by the Department of Veterinary.

The milk from the centre will be marketed for local consumption either through retail shops,direct selling or through daily farmer`s market.Any excess of milk produce by the centre will be sent to any private dairy plant in the country.

Beside the above activities that could increase the farmers income the cooperative through their milk collecting centre could supply all the necessary inputs requirement to the farmers who are engaged in this project.

By operating for 10 years, the Internal Rate of Return is 31.15% and the pay back period is 4 years.

CHAPTER 2

BACKGROUND

2.1 Overall situation

The consumption of milk and milk products in Peninsular Malaysia is about 38 litres liquid milk equivalent per capita. This level of consumption is reasonably high among the countries in the region. The local milk production is still a very small contribution to the total milk requirement. Therefore the significant part of the supply is based on importation; either as consumer products or as raw materials. Importation of raw materials milk powder, butter and fat has led to the establishment of the manufacturing sector of the industry, producing consumer products like condensed milk and baby food. The magnitude of the milk and milk products market has stimulated the development of local milk production. The programme will provide increased supply of local fresh milk and at the same time will increase the income of the farmers. The demand trends of milk and milk products market indicates a steady increase, and reasonably good potential for the future.

(6)

Milk and milk products demand is always related increase in real income and affluence. It is therefore reasonable to expect the continued expansion of the dairy industry within the high value food industry sector, with increasing per capita consumption and consumer population growth.

While on the total value of milk and milk products imported for the past five years is given in table 2.1

Table 2.1. Total Value of Milk and Milk Products Imported

Year	1985	1986	1987	1988	1989
M\$ (Millions)	237	246	282	240	254

Source: Malaysian Year Book

Liquid milk has a very small share of the total milk and milk products. Only 6% is produced locally.

In Malaysia fresh cow's milk is consumed mainly by the Indian community. There have been complaints made about fresh milk, that it is smelly, does not keep well and it is not a convenience food.

(7)

Malaysians for many years have been influenced of reconstituted milk and milk products, that they do not perceive the difference between fresh milk and surrogate products. Commercial products have developed the product image which have not been achieved by the fresh milk market, especially the raw milk. The milk market in the country was created by processed milk, the most important being the sweetened condensed milk.

The raw milk produce by the farmers are sent to the milk collecting centres operated by the Department of Veterinary. There are now 40 milk collecting centres. The total milk collected by the milk collecting centres for the past five years operated by the Department of Veterinary is given in table 2.2.

Table 2.2 Milk Production At Milk Collecting Centres
Operated by the Department of Veterinary

Year	1985	1986	1987	1988	1989
Litre (Millions)	20	23	25	26	28

Source: Malaysian Year Book

(8)

It will be noted that these milk collecting centres collected around 3000 to 5000 litres of milk sent by the farmers daily to the centre. The milk received from the farmers by the Department of Veterinary milk collecting centres are paid at the current price of 80 cents per litre. The centre makes a margin of 5 cents for every litre to meet its operating cost. If the centre processed these milk into pasteurised milk it could sell it at 60 cents per quarter litre or at \$2.40 per litre in flavour such as strawberry, sweet corn and vanilla.

Normally only 25% of the total milk collected by the milk collecting centre are turn into pasteurised milk.

About 10% of the milk collected are consumed as fresh milk. While the remaining 65% are sent to private dairy plant which processed the milk into powder or sweatened milk, cheese ,butter, chocolates and malted beverage.

2.2 Area of Project

The area chosen for the proposed project is FELDA Air Tawar Complex. The Complex is situated in the district of Kota Tinggi in the state of Johore in the southern part of Peninsular Malaysia. It is about 40 kilometers from Johore Bharu the State capital. There are more than 2,000 farmers being settled within the FELDA Air Tawar Complex. Most of the farmers are engaged in the cultivation of palm oil. While breeding of cows either for their milk and meat is one of the ways for the farmers to have additional incomes. The farmers sold their cows or cattle when they have financial difficulties. According to the State Veterinary Department there are now about 4165 of milk cattle in the district of Kota Tinggi.

While the activities undertaken by the cooperatives in the Complex are mainly related with the planting, harvesting, and transportation of the fresh fruit bunches of palm oil.

2.3 Problems Faced By The Farmers

The farmers exist in conditions which limit their capacities and capabilities in dairy farming. They lack knowledge and experience in modern technique of dairy production. They find difficulty in getting loans and credits and also difficulty to market their produce especially with milk production. Dairy farming and production could not be carried out individually unless it is run in groups of farmers or through cooperatives movement. Beside the above the farmers lack the suitable high producing dairy cattle. Since dairy production is a highly specialised form of animal production most farmers have little or no experience in this field. The farmers also find difficulties in getting good breed of cows for milk production for the numbers are limited in the country.

(11)

2.4 Need and Justification for the project

One of the ways to strengthen the cooperative activities in this land development scheme is to develop activities that could give the farmers additional incomes.

Thus based on the above mentioned problems faced by the farmers the dairy development programme if implemented could generate additional income to them.

In the district of Kota Tinggi there is no milk collecting centre operated by the Department of Veterinary and thus it would be viable to set up one.

The area selected is near to urban centre of Johore Bharu and Singapore and thus fresh milk could be marketed to these densely populated area.

A part from this the Johore's Veterinary Department have their training Institute for farmers interested in dairy farming. Thus it would be convenient for the farmers interested in this programme be sent for training at this institute. The Institute is situated about 60 kilometers from Kota Tinggi.

CHAPTER 3 The Project

3.1 Objectives

In 1984 the National Agricultural Policy was adopted by the Malaysian Government. With regards to milk production the policy stipulate the development of locally produce fresh milk will be the main target as the supply of the liquid fraction of the milk market.

Thus the development of the dairy programme has the following objectives:

- (i) Increase the income of the farmers through dairy development activities.
- (ii) Increase local production of fresh milk towards meeting the liquid milk marketing demand.

3.2 Area of Operation

The project proposal is to be located in FELDA Air Tawar Complex in the district of Kota Tinggi. This area is selected because it had good infrastructure such as good access roads, good supply of energy such water and electricity. It is also convenient to collect the raw milk from the farmer and to market the milk either to Johore Bharu and Singapore. Currently the Veterinary Department in Johore supplied about 2 million litres of milk to Singapore market annually.

3.3. Project Components

(i) Procurement and Processing

The milk collecting centre will purchase all the milk produce by the farmers. Milk can be procured from the farmer members through the following channels:

- (a) Farmers bring milk direct to milk collecting centre.
- (b) Farmers send their milk through sub collecting centres set up by the cooperatives.
- (c) Milk can be collected by transport provided by the cooperative.

However about 5 cents per litre will be deducted from the farmers for transport charges.

Milk accepted by the centre will be quickly chilled and stored either for further processed or marketed.

(ii) Marketing

Marketing of milk plays a vital role in development of dairy production. Milk which has been collected and processed has to be marketed, so that the farmers can be paid. The milk collecting centre will attempt to sell as much as possible within the locality of FELDA's scheme either through direct selling to household, retail shops, or through daily farmers' market. Any excess of the milk produce by the centre would be marketed to private milk producing company like Nestle, Dutch Baby, Premier and Dumex.

(iii) Extension

Before embarking the proposed project extension work must be done. Farmers through their cooperative intending to participate in this programme need to have certain prerequisites. These include:

- (a) Keen interest in animal husbandry in general and dairying in particular.
- (b) Willing to undertake basic dairy training course for 2 weeks at the Veterinary's Department Institute in Kluang.
- (c) Possess time and labour to be devoted to the dairy activities.

Most farmers would find dairy farming as a new form of livestock husbandry. It is therefore advisable for the farmers to undergo basic dairy training before participating in this programme. The training provides the introduction to dairying, the basic knowledge and confidence to start. This knowledge will improve and expand with experience and assistance of constant extension activities on farms. The MCC will coordinate with the Veterinary Department regarding extension services to the farmers.

CHAPTER 4 Details of Operation

4.1 Strategies

The dairy development programme will be focus on the development of the milk collecting centre (MCC). It will have the forward and backward linkages and the phases of development are as follows:

(i) Establishment of the MCC with an initial collection capacity of 5000 litres per day. These include the construction of basic facilities and equipment for the MCC.

(ii) Importation of dairy crossbred cattle to supply to the participating farmers. Currently about 80% of the dairy cattle production is from the local Indian Dairy type (LID). Proposed import crossbred which include Friesians, Jerseys, Friesians-Sahiwals and Friesians-LID.

(iii) Create market outlets for fresh milk. Eventually expand the market to urban centres such Johore Bharu and Singapore.

4.2. Implementation

The MCC needs 50 active farmers having at least 10 cows each. It is estimated that one cow can produce about 10 litres of raw milk per day. Thus the centre can collect about 4000 to 5000 litres of milk per day from these active farmers. However MCC can also purchase raw milk from other farmers who are non members of the cooperative.

As mentioned earlier farmers participating in this project should be supplied with dairy cows that could give higher yield of milk.

They are eligible to purchase dairy heifers and cows at \$1000/- and \$2500/- per head. Through the cooperative, bank loan can be arranged with the Agriculture Bank.

The herd size is to be built up in stages, to exceed 10 cows, supplies are staggered and based on merit. This is to ensure that the farmers has the capacity and capability to sustain his cattle in the most satisfactory manner. Essentially, the size of the herd, will correlate with milk production and income of the farmers.

4.3. The Project Operation

The estimated cost of the MCC project is given by the following list of tables.

Table 4.1 Estimated Cost For Land and Land Development (M\$)

No.	Item	Estimated Cost
1.	Cost for 2 acres of land	\$10,000/-
2.	Development Expenses	10,000/-
3.	Cost of road construction fencing, gate and other Misc.	10,000/-
	Total	30,000/-

Table 4.2 Estimated Cost of Building and other Civil Works(M\$)

No.	Item	Estimated Cost
1.	Factory Building	\$20,000/-
2.	Administrative Building	20,000/-
3.	Cold Room	50,000/-
4.	Other Misc. Civil Works	10,000/-
	Total	100,000/-

Table 4.3 Estimated Cost of Plant and Machinery(M\$)

No.	Item	Estimated Cost
1.	Milk Acceptance Equipment	\$20,000/-
2.	Pasteurised & Homogenised Machinery	100,000/-
3.	Cooling Tank	40,000/-
	Total	160,000/-

Table 4.4 Estimated Cost of Miscellaneous Assets (M\$)

No.	Item	Estimated Cost
1.	Office furnitures	\$5,000/-
2.	Weighing machine	5,000/-
3.	Packing machine	80,000/-
	Total	90,000/-

Table 4.5 Working Capital Requirement (M\$)

No.	Item	Estimated Cost
1.	Raw Material	\$2,000/-
2.	Chemicals & Consumables	3,000/-
	Total	5,000/-

Table 4.6 Capital Cost of Project (M\$)

No.	Item	Estimated Cost
1.	Land & Land Development	\$30,000/-
2.	Building & Civil Works	100,000/-
3.	Plant & Machinery	160,000/-
4.	Fixed Assets	90,000/-
5.	Margin Money for Working Capital	5,000/-
6.	Contingency	15,000/-
	Total	400,000/-

Table 4.7 Sources of funds for Capital Investment (M\$)

No.	Item	Amount
1.	Loan from Agriculture Bank @ 8% per annum	\$400,000/-

The construction period for the MCC plant will take approximately 12 months. Nature of works will include the following:

1. Acquisition of land
2. Designing plant and machinery layout
3. Main building construction
4. Installation of processing machinery
5. Electrical Works
6. Commissioning of plant
7. Commencement of processing

4.4 Processing

The characteristic of cow`s milk are shown as table 4.8 below:

Table 4.8 Characteristics of Cow`s Milk
(Normal Range of Value)

Fat	:	3.25	-	6.0%
Solid Non Fat	:	8.5	-	9.5%
Total Solid	:	11.75	-	14.0%
Freezing Point	:	-0.53	-	-0.55.C
Specific Gravity	:	1.028	-	1.031
pH	:	6.6	-	6.7
MBRT	:	5	-	6 hours

Source:Dairy Industry in Peninsular Malaysia

Raw milk is pour into clean churn before being taken to MCC. The raw milk received by the MCC is only accepted at any point of collection when it satisfies the basic physical and chemical tests and complies with certain standards of quality.

Milk samples are sent at regular intervals to the laboratories for chemical and bacteriological analyses to monitor the status of milk quality.

However there are a few test need to be done whether the MCC received the good quality milk from the farmer. One of the tests is the alcohol content of the milk which should be 80% and the other the specific gravity of the milk which range between 1.028 - 1.031. Other laboratory test include methylene blue reductase test (MBRT) where sample of the raw milk would undergo the test for about 5 hours.

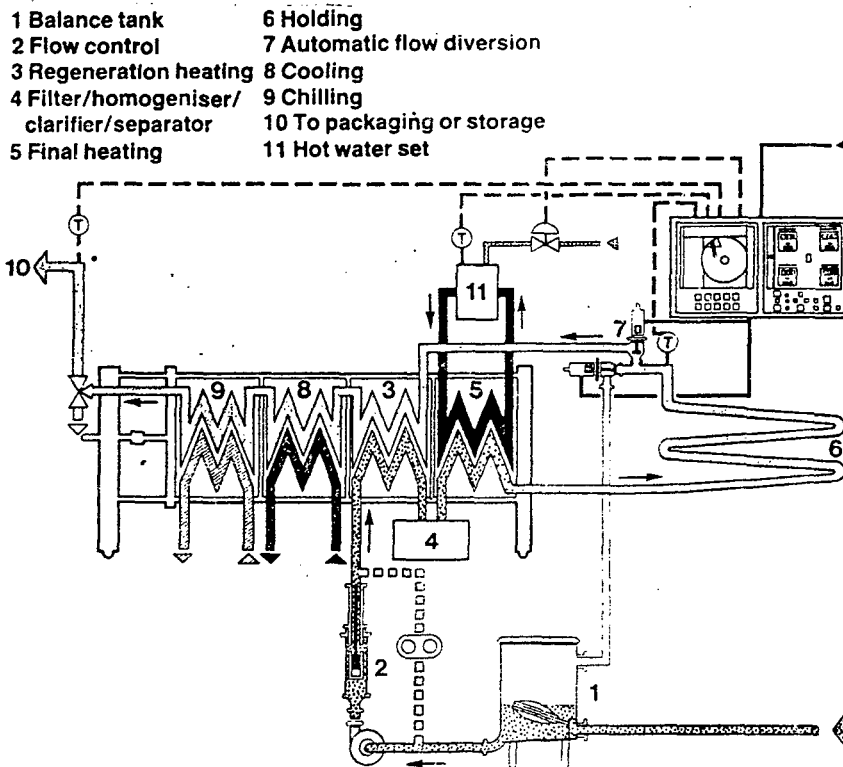
(21)

Milk received by the MCC is quickly chilled by using the plate heat exchanger. It is then stored in the refrigerated cooling tank at temperature between 2-4 degree C until further process into pasteurised milk or marketed as fresh milk either locally or to the dairy plant in the country to produce other milk products. The purpose for the raw milk to be processed and kept at lower temperature so that the milk is safe to drink and it will last longer.

4.5 Pasteurisation Process

For pasteurisation process the raw milk which had being chilled will be pumped from the cooling tank into a balance tank. From the balance tank the milk is pumped at a rate regulated by a flow controller to the regenerative heat exchanger. The milk is then clarified, filtered, homogenised at the pasteurising temperature of 73 degree C for about 15 seconds. Fat content in the milk are dissolved during homogenised process. Milk is then cooled through the heat exchanger. It is then kept under the temperature between 3-4 degree C before being packed. The processing chart of pasteurisation of milk is shown on diagram 4.1

Diagram 4.1 Pasteurisation Process of Milk.



4.5 Marketing

In the initial stages of development the MCC will process about 3000-5000 litres of milk daily. Out of this 65% will process into pasteurised milk and 25% will be produced as fresh milk. The MCC will attempts to sell as much as possible the milk produce within its own locality either as raw milk or pasteurised milk. It will be sold direct to household within FELDA's Complex, FELDA's Trading Corporation Shops, Cooperatives and Daily Farmer's Market. A marketing commission will be incurred about 25 cents per litre of milk disposed through wholesalers.

4.6 Other Services

Beside providing the forward services by the MCC for the benefit to increase the farmers income through the dairy development programme the MCC will also render the the backward linkages of the dairy activities so that the farmers production will be increased from time to time. The services to be offered are as follows:

1. Payment services.
2. Veterinary Services.
3. Artificial Insemination Services.
4. Extension and Advisory Services.
5. Supply of Crossbreds.
6. Bank Loans.
7. Credits for Supply of Feed and Dairy Equipment.

Payment on the milk purchase by the centre will be made to the farmers twice a month and any credits taken by the farmers from the MCC with regards to inputs will be deducted from the payment.

The whole operation and package deal given by the MCC through the cooperative provides the necessary services for the development of the dairy development programme.

This is summarised as shown in table 4.9 below.

Table 4.9 Services Provided by MCC

Backward Linkages	MCC	Forward Linkages
Veterinary Services		Collection of Milk
Artificial Insemination Services and Breeding		Testing of milk
Feed supply		Cooling of milk
Agronomy		Storage of milk
Extension and Advisory Services		Packing of milk
Supply of Crossbred		Marketing of milk
Bank loans		Payment Services

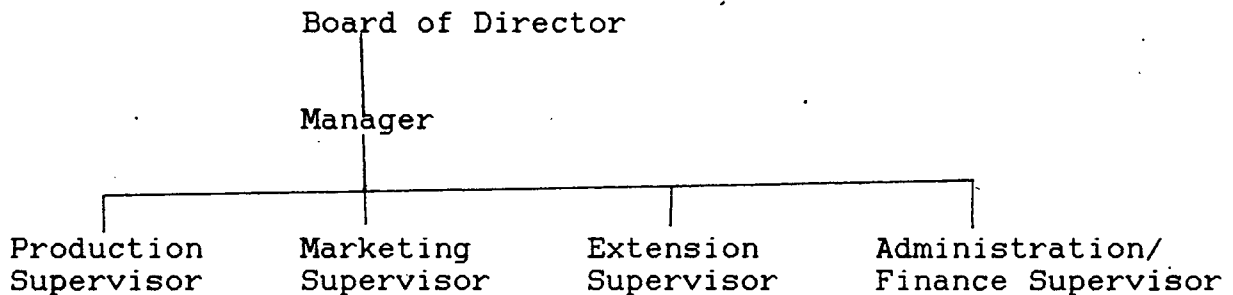
The MCC will work closely with the Veterinary Department, FELDA, Cooperative Department and Agriculture Bank in order to render the above services to the farmers.

CHAPTER 5 Organisation and Management

5.1 Management of MCC

The management of MCC will provide the overall involvement of the farmers especially in matters related to their own interests and affairs. However the overall management of the MCC is shown by the following organisational chart:

Figure 5.1 The Organisational Set-Up of MCC



The Manager is responsible for the overall management of the MCC. He reports to the Board of Director of the MCC. The Board of Director consist of a Chairman, a Vice Chairman, Secretary, Treasurer, 12 Committee Members and two Auditors. The members for the MCC Board of Directors are elected by the farmers members during the annual general meeting of the MCC. The organisational set up of the MCC can be divided into four main divisions. They are the Production, Marketing, Extension and Finance/Administration Divisions.

The following table show the list of staff to be recruited by the MCC with their estimated salaries and wages.

Table 5.1 MCC Staff salaries and wages .

No.	Position	Number	Salary (Per.Month)	Salary (Per.Year)
1.	Manager	1	\$1,000/-	\$12,000/-
2.	Supervisor	4	500/-	24,000/-
3.	Clerk	1	300/-	3,600/-
4.	Labourer	2	200/-	4,800/-
	Other expenditures			5,600/-
	Total			50,000/-

Each division reports directly to the Manager of MCC.

The overall functions of each division are follows:

1. Production Division.

This division is responsible for the procurement of milk from the farmer members and processing the milk for the farmers.

Thus it is the most important division of the MCC. Once the milk is received by the MCC it is tested for grading the quality of milk for purpose of payment to the farmers.

The milk is then chilled, processed and stored.

This Production Division will have 3 staff namely the Supervisor, two General Labourers.

2. Marketing Division

The function of the Marketing Division is to market as much as possible the product of the MCC. The Marketing Division will attempt to sell as much as possible the MCC products within the locality of FELDA's scheme. It will sell through direct selling to household, retail shops, FELDA's Trading Corporation Shops, Cooperatives and Daily Farmer's Market. However the Division will make direct dealing with private dairy plant to market excess milk of MCC. Initially the Division will be staff by one Marketing Supervisor.

3. Extension Division

The role of the Extension Division is to ensure that the farmer produce as much raw milk as possible for the MCC. Thus the role of the Extension Division will be the backward linkages of the MCC. This will include veterinary services, advisory services, artificial insemination services and any services that will lead to increase in the production and income of the farmers. It will be staff by one Extension Supervisor who is a veterinarian. He will work closely with Veterinary Department to advise the farmer to increase their milk production from time to time.

(28)

4. Administration/Finance Division

This Division will function as back up services. It will record and make payment to farmers on the amount of milk purchase by the centre. The Division will have one Finance/Administration Supervisor and one Clerk. The Division will be responsible for matters pertaining to daily running of the MCC. These include administration, personnel, finance and records of payment made to farmers member. The Division will prepare the annual budget and Statement of Account for the MCC for each financial year to be tabled in annual general meeting.

CHAPTER 6 Financial Analysis

Investment is an economic activity where the employment of funds with the expectation of receiving a stream of benefits in future. Project investment involved certain activities executed within a specified period of time in order to accomplish the purpose objective. Thus in financial analysis is to examine the extent the investor will realize its profit whether it will be worth investing or not.

6.1 Basic Assumptions

Basic assumptions used in the financial analysis are as follows:

- i) Project period is 10 years including 1 year for construction of MCC.
- ii) Price of raw milk and price of fresh and pasteurised milk are based on the current prices. Price of raw milk is 80 cents per litre while price of fresh processed milk is 85 cents per litre and the price of pasteurised milk is \$2.40 per litre.
- iii) Transport and marketing charges is charged 30 cents per litre.
- iv) Chemical and Consumables including packaging is 80 cents per kilo. This is for production of pasteurised milk.
- v) Initial investment is \$400,000/- (Malaysian Ringgit) loan from the Agriculture Bank at 8 % per annum.
- vi) Working Capital is \$10,000/- for raw material and consumable.

(30)

6.2 Project Viability

Based on the above assumption the following are values for each of the measurement made:

- i) Pay back period 4 years
- ii) Internal Rate of Return 31.15%
- iii) Nett Present Value @ 8% \$459,000/-
 @15% \$235,000/-
 @20% \$133,000/-
- iv) Break Even Point 1st year - \$1,516,000/-
 As % of sales 63%
- v) Sensitivity Analysis:
 - a) Pasteurised milk down by 5 cents
 Payback period- 5 years
 IRR- 15.2%
 - b) Capital cost increase by \$500,000/-
 -Payback period- 5years
 IRR- 21.7%
 - c) Pasteurised milk up by 5 cents
 Payback period- 3years
 IRR- 41.5%

For more details of financial analysis see appendices.

Chapter 7 Budget

The MCC Budget for the first 5 years of operating are as follows:

Table 7.1 MCC 5 Year Budget

No.	Item	Operating Years				
		1	2	3	4	5
		1	2	3	4	5
1.	Revenue	-	2329	2329	2329	2329
2.	Expenditure	400	2258	2261	2264	2267
3.	Income	-400	135	132	129	126

Figures in Malaysian Ringgit ('000)

For more details see financial analysis.

Chapter 8: Recommendations

If this project is successful implemented it will have the following effects:

(i) The direct effect on the implementation of this project is the creation of value added to the production of milk by the farmers. As shown in the analysis of Cashflow based on dairy farm size for smallholder farmers having 10 to 20 cattle can earned additional income between \$400/- to \$800/- per month respectively. This does not include the profit made by the MCC on its operation.

(ii) The project would develop the dairy industry in the country and if it was run through cooperative movement it will thus strengthen the cooperative movement.

(iii) The project will also help the country to reduce the importation of liquid milk and milk product and thus will reduce the country budget on importation of these products.

(iv) On the assumption that the interest rate is 8% per annum for \$400,000/- loan from the Agriculture Bank the project which gives Internal Rate of Return of 31.15% and Net Present Value of \$459,000/- is feasible for the Cooperative to invest.

Appendixes

Appendix (i) MCC Financial Analysis

Appendix (ii) MCC Sensitivity Analysis

Appendix (iii) MCC Cashflow/ Payback/ IRR/ NPV

Appendix (iv) MCC Break-Even Point

Appendix (v) Population of Milk Cattle in Peninsular
Malaysia

Appendix (vi) Cashflow Smallholder Dairy Production Unit

Appendix (vii) Quantity of Liquid Milk Imported

MILK COLLECTING CENTRE
(in '000 MRgt.)

APPENDIX (i)

YEAR	0	1	2	3	4	5	6	7	8	9	10
1 INVESTMENT	400										
2 # of days Processed		300	300	300	300	300	300	300	300	300	300
3 Capacity Planned (in '000 litres)	5	5	5	5	5	5	5	5	5	5	5
4 Expected Capacity		0.90	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
5 Actual Production (in '000 litres)		1350	1350	1350	1350	1500	1500	1500	1500	1500	1500
6 Pasteurised Milk (in '000 litres)	65%	878	878	878	878	975	975	975	975	975	975
7 Fresh Milk (in '000 litres)	25%	338	338	338	338	375	375	375	375	375	375
REVENUE											
8 Pasteurised Milk (MRgt. per litre)	2.40	2106	2106	2106	2106	2340	2340	2340	2340	2340	2340
9 Fresh Milk (MRgt. per litre)	0.85	287	287	287	287	319	319	319	319	319	319
Total Revenue		2393	2393	2393	2393	2659	2659	2659	2659	2659	2659
Variable Cost											
10 Purchased of Raw Milk (MRgt. per litre)	0.80	1080	1080	1080	1080	1200	1200	1200	1200	1200	1200
11 Transport & Marketing (MRgt. per litre)	0.30	405	405	405	405	450	450	450	450	450	450
12 Chemical & Consumable (MRgt. per litre)	0.80	702	702	702	702	780	780	780	780	780	780
Total Variable Cost		2187	2187	2187	2187	2430	2430	2430	2430	2430	2430
Total Contribution		206	206	206	206	229	229	229	229	229	229
Fixed Expenses											
14 Staff Salaries (000 MRgt)	50										
+Fringe Benefit	20%										
Yearly Increment	5%	60	63.00	66.15	69.46	72.93	76.58	80.41	84.43	88.65	93.08
15 Insurance	0.6										
Water	0.6										
Electricity	0.8										
Adm. & Misc. Exp	3.0										
Contingencies	3.0	10	10	10	10	10	10	10	10	10	10
3 Interest on Working Capital											
Amount Required		10	10	10	10	10	10	10	10	10	10
Interest Rate	8%	1	1	1	1	1	1	1	1	1	1
Total Fixed Expenses		71	74	77	80	84	87	91	95	99	104

APPENDIX (ii)

MILK COLLECTING CENTRE

SENSITIVITY ANALYSIS

VARIABLES	Payback period	IRR	Benefit Cost ratio @ 8 %	NET PRESENT VALUE (in '000 Mrgt.)			
				8%	15%	20%	40%
INITIAL INVESTMENT (in '000 Rs.)	400			459	235	133	-56
SALES PRICE / PER Litre							
Pasteurised Milk	2.40						
Fresh Milk	0.85						
Capacity Planned ('000 Litres) Production	5						
Pasteurised Milk	65%						
Fresh Milk	25%						
Raw Material Cost (per litre)	0.80						
Transport & Marketing	0.30						
Chemicals & Consumables	0.80						
Salary Amount (in '000)	50						
Salaries increment	5%						

EFFECT DUE TO CHANGE IN	Payback period	IRR	Benefit Cost ratio @ 8 %	NET PRESENT VALUE (in '000 Mrgt.)			
				8%	15%	20%	40%
a) Original Assumptions	4	31.1%	1.08	459	235	133	-56
b) Pasteurised Milk Down by 5 cents	5	15.2%	1.06	126	3	-52	-146
c) Capital Cost Increase to 500,000	5	21.7%	1.09	322	117	25	-140
d) Pasteurised Milk Up by 5 cents	3	41.5%	1.10	702	404	268	9

APPENDIX (iii)

Year	0	1	2	3	4	5	6	7	8	9	10
Cash in flow		2393	2393	2393	2393	2659	2659	2659	2659	2659	2659
Cash out flow		2258	2261	2264	2267	2514	2517	2521	2525	2529	2534
Net cash flow		-400	135	130	126	145	141	138	134	129	125
Cumulative		-400	-265	-133	-4	122	267	406	546	679	803

Payback period
(in years)

4

IRR

31.15%

P.V. of P.V. of Benefit/cost
Benefit Cost ratio

NPV	8%	15%	20%	31.15%	40%
	459	235	133	0	-56
	16960	12585	10458	7403	5925
	15664	11514	9499	6603	5203
	1.063	1.093	1.101	1.121	1.139

APPENDIX (iv)

	Year	1	2	3	4	5	6	7	8	9	10
Payback Period Computation:											
Fixed Expenses		71	74	77	80	84	87	91	95	99	104
Variable expenses		2187	2167	2187	2187	2430	2430	2430	2430	2430	2430
Revenue		2393	2393	2393	2393	2659	2659	2659	2659	2659	2659
Contribution		206	206	206	206	229	229	229	229	229	229
Contribution Margin as % of sales		8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%
Capital Recovery Factor at 8% for 10 years 6.71008											
Total Loan taken	400										
Instalment Amoun	60	60	60	60	60	60	60	60	60	60	60
Total Fixed Cash payment		130	133	137	140	143	147	151	155	159	163
Break-even point (Mfngt.) as % of Sales		63%	65%	66%	68%	63%	64%	66%	68%	70%	71%

APPENDIX (V)

Population of Milk Cattle in Peninsular Malaysia

State	Over 3 years		Under 3 years		Total
	Male	Female	Male	Female	
Johore	410	5666	2478	4901	13455
Kedah	429	3285	1650	2373	7737
Kelantan	32	129	56	140	357
Melaka	235	2780	1350	1865	6238
N.Sembilan	1416	4856	4090	6862	17224
Fahang	56	451	277	336	1120
Pulau Pinang	152	1075	650	1174	3051
Perak	1194	8623	5568	10535	25960
Perlis	68	730	265	373	1436
Selangor	1713	10108	6294	10651	28766
Trengganu	3	206	95	150	454
W.Persekutuan	34	310	197	218	759
Total	5742	38227	22990	39598	126557

Source: Livestock Statistics Ministry of Agriculture

Appendix (vii)

Estimated Quantity of Liquid Milk Equivalent Imported (Net) Into Malaysia, 1983-1987, Malaysia

(Trade)	1983		1984		1985		1986		1987	
	(Net Import) 100 Kg	(Liquid Equivalent) (Litre)	(Net Import) 100 Kg	(Liquid Equivalent) (Litre)	(Net Import) 100 Kg	(Liquid Equivalent) (Litre)	(Net Import) 100 Kg	(Liquid Equivalent) (Litre)	(Net Import) 100 Kg	(Liquid Equivalent) (Litre)
1) Fresh Milk, Frozen Liquid, Sterilized and Others not concentrated or Sweetened.	4,163	4,162,726	2,089	2,089,000	(519)	(519,000)	(1,842)	(1,842,000)	48	48,000
2) Cream, Frozen, Liquid and Others not Concentrated or Sweetened or Milk informs other than powder or granules	(4,125)	(13,199,680)	(5,390)	(17,248,960)	(4,823)	(15,433,600)	(7,145)	(22,864,000)	331	1,059,200
3) Skimmed Milk and cream in powder or granules	35,656	270,988,480	41,648	316,524,800	43,436	330,113,600	41,805	317,718,000	48,616	369,481,600
4) Milk Powder full cream or other and cream in powder or granules	38,160	290,014,480	35,902	272,855,200	27,648	210,124,800	29,653	225,362,600	31,361	238,343,600
5) Condensed Milk Sweetened or unsweetened	(1,898)	(3,985,939)	(3,918)	(8,227,800)	(4,906)	(10,302,600)	(2,054)	(4,313,400)	(2,297)	(5,285,238)
6) Butter in airtight or non airtight containers	1,153	7,609,576	1,300	8,580,000	1,471	9,708,600	1,329	8,771,400	1,577	210,408,200
7) Anhydrous Butter Fat and table cream	7,653	61,221,944	8,302	66,416,000	7,461	59,688,000	6,728	53,824,000	7,671	6,136,800
8) Whey and Whey Powder	13	98,040	1,062	8,071,200	987	7,501,200	1,117	8,489,200	981	7,455,600
9) Curd	(6)	(11,428)	(58)	(116,000)	(59)	(118,000)	(93)	(186,000)	(90)	(180,000)
10) Ghee	299	1,974,053	277	2,216,000	376	2,481,600	318	2,098,800	419	2,765,400
Jumlah (Total)		618,872,252		651,159,440		593,244,600		587,058,800		830,233,162

Note : Data in () are the negative values.

(Source : Ministry of Agriculture)

**BASIC PARAMETERS FOR
SMALLHOLDER DAIRY PRODUCTION UNIT
CASH FLOW - BASED ON DAIRY FARM SIZE**

	4	6	8	10	12	14	16	18	20
Number of adults (freshest) of which 60% milking at any one time @ 7 litres/day	2	4	5	6	7	8	10	11	12
Cattle numbers based on the above: Adult as 1 animal unit (a.u.), calves 0.5 a.u.	2	4	5	6	7	8	10	11	12
Milking cows 60% of adult stock	2	2	3	4	4	5	6	7	8
Dry cows 40% of adult stock	3	4	5	7	9	10	12	13	14
Calves: 80% culling minus 10% mortality	7	10	13	17	21	24	28	31	34
Total livestock	5.5	8.0	11.0	13.5	16.5	19.0	22.0	24.5	27.0
Total annual units									
Capital expenditure: Cattle shed at \$200/a u	1,100	1,600	2,200	2,700	3,300	3,800	4,400	4,900	5,400
Equipment and utensils at \$100/a u	550	800	1,100	1,350	1,650	1,900	2,200	2,500	2,700
Particulate of livestock 50% at \$1,000/ adult (50% Particulate)	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
Total Capital expenditure	3,650	5,400	7,300	9,050	10,950	12,700	14,600	16,400	18,100
Operating expenditure: Grass @ 50 kg/a u./day x 365 days x 0.5kg/10 kg	502	740	1,004	1,232	1,506	1,734	2,007	2,246	2,463
Concentrate - Milking cows - 3 kg/day, cows 2.0 kg/day, x 365 days x \$0.40/kg	1,678	2,628	3,504	4,307	5,183	5,986	6,741	7,455	8,114
Utilities (water + power) @ \$25/= per a.u. per year	338	200	275	338	413	475	550	625	675
Depreciation on cattle shed 10% per year	110	160	220	270	330	380	440	490	540
Depreciation on equipments 20% per year	110	160	220	270	330	380	440	490	540
Depreciation on milking cow at \$12/= per cow per year	84	168	210	252	294	336	420	462	510
Repairs + maintenance of building, motor, like pumps etc.	250	250	250	250	250	250	250	250	250
Total operating expenditure	2,873	4,236	5,683	6,919	8,306	9,541	11,107	12,374	13,587
Milk production based on 7 litres/cow/day with 60% of adults milking at any one time	5,110	10,220	12,775	15,330	17,885	20,440	23,000	25,550	28,100
Cost of production of per litre of milk	\$ 0.45	\$ 0.42	\$ 0.44	\$ 0.45	\$ 0.46	\$ 0.47	\$ 0.48	\$ 0.49	\$ 0.49
Sale of milk @ \$0.70 per litre	3,577	7,154	8,992	10,730	12,519	14,308	16,095	17,873	19,662
Sale of calves @ \$100/= each after weaning male + female	1,200	1,583	2,000	2,400	2,800	3,200	3,600	4,000	4,400
Total income	4,777	8,737	11,342	13,531	16,119	18,306	22,685	24,873	27,062
Net income per year	1,904	4,501	5,659	6,612	7,813	8,765	11,108	12,499	13,475
Loan repayment yearly (total loan taken is the capital expenditure payable within 5 years)	730	1,080	1,460	1,810	2,180	2,540	2,920	3,270	3,620
Balance cash in hand per year	1,174	3,421	4,199	4,802	5,633	6,227	8,058	9,229	9,855
Balance cash in hand per month	98	281	350	400	467	519	721	769	821

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New Straits Times January 29, 1990.

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

by Mr Abdul Razak, Malaysia.

(other those presented by the groups)

- * Entire capital is to be raised by loans. Member participation to involve them in the activity will be necessary.
- * After lactation period, number of cattle may increase. So also yield of milk will go up. These should be kept in mind.
- * Membership of MCC should not be linked to quantity of milk. Both small and big suppliers of milk should be included.
- * As milk is being introduced as a new commodity in the project area, in the initial period till the demand picks up from small consumers, bulk buyers would be useful.
- * The margin between sale and buying price is very low. Economics should be worked out.
- * Payment schedule of once in 15 days may not help small farmers.
- * Refrigerated vans for transport of milk from collection centres to chilling plants may be necessary.
- * Cash budget and repayment schedule to be worked out.
- * 10% loss estimated looks on the high side.
- * Salaries estimated are too low compared to Malaysian standards. Needs rechecking.
- * Backward linkage costs and working capital basis need rechecking.

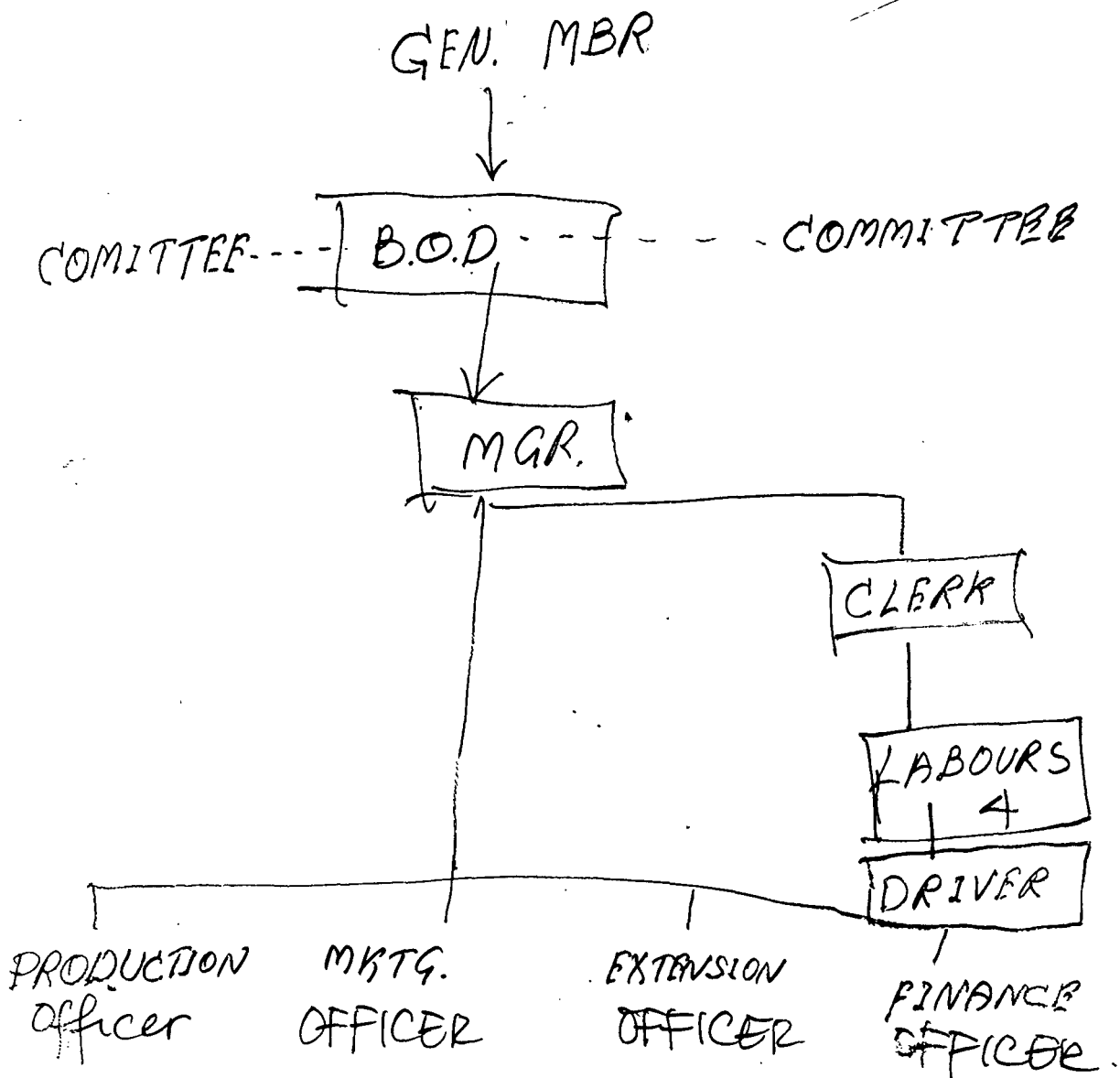
Dairy: Malaysia 6/3/90 G.A.

Organisation + Management

1. MILK IS A PERISHABLE COMMODITY, IT CAN'T BE STORE MORE THAN 4-5 HRS., CHILLING PLANT WILL RUN 300 DYS./Y., WHAT IS THE PLAN FOR 65 DYS., WHEN MILK IS A CONTINUOUS PROCESS?
2. F. 5.1 P. 25 TWO LABOURS AND ONE CLERK NOT INCLUDED IN THE ORGANIZATIONAL STRUCTURE AS STATED IN T. 5.1 P. 26. (SALARIES + WAGES OF MCC)
3. COMPARE TO THE SUPERVISOR THERE'S NO WORKERS TO SUPERVISE.
4. REGARDING TO PROFITS EARN BY MCC, HOW THEY WILL DISTRIBUTE TO THE FARMER?
5. ROLE OF EXTENSION DIVISION IS VERY GOOD, IT SHOULD HAVE VEHICLE TO SERVE ITS ACTIVITY.
6. MEMBERSHIP OF MCC IS LOW. (50) THERE MUST NOT BE CRITERIA FOR HAVING 10 COWS EACH MEMBER, MUST BE RELAXED FOR MAKING MORE MEMBERSHIP.

7. 10 LTS. / DAY / COW OF MILK IS VERY LOW AVERAGE
MUST BE 25 - 30 LTS. / DAY / COW. IF THE COW
IS JERSEYS / FRIESIANS.

8. THERE IS NO MARKETING SYSTEM, ONE PERSON CAN'T
SELL 5 MT. / DAY.



QUESTION B - MALAYSIA DAIRY FARMING

REARING OF COW FOR MILK IS HARD JOB. HOW MANY FARMERS WILL TO TAKE THE JOB, IS NOT CLEAR

TO CHECK IMPORT OF DRY MILK POWDER AND CONDENSED MILK THIS KIND OF MILK PROJECT IS JUSTIFIED. TO INCREASE FARMERS INCOME IN ADDITION TO MAIN ACTIVITIES IT IS NECESSARY.

COMPARISON OF PRICES OF OTHER LIQUID JUICE, ORANGES, AND TOMATO AS COMPARE TO LIQUID MILK PRICE IS NECESSARY.

PRESENT SYSTEM OF MILK MARKETING IN THE PROJECT AREA NOT MENTIONED, COW POPULATION AND OUTPUT. HAS NOT MENTIONED

GROUP - C.

DAIRY DEVELOPMENT - MALAYSIA - Financial Analysis

Capital investment : M\$ 400,000
Salvage value - Nil
Life time - 6 yrs.

Pay Back Period - in 4th yr. i.e. 29r: 12da

REP = 63% - 71% of utilized capacity
within the lifetime.

IRR = 31.5% (above interest rate)

Sensitivity Analysis:- done.

According to above technique
the project seems to be viable.

How Benefit-Cost ratio became 1.121
when IRR = 31.5%. Is it cal. mistakes
- pg Appendix CiiD

- Cash Budget is not correctly prepared - no details.
- Repayment of loan should be shown.

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	: PEPPER PROCESSING AND MARKETING
<i>COUNTRY</i>	: MALAYSIA
<i>PROJECT PREPARED BY</i>	: ABU BAKAR BIN UJANG

Funded by the Government of Japan

and

Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and Korea

ICA Management Training Project for Agricultural Cooperatives in Asia

INTERNATIONAL COOPERATIVE ALLIANCE

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TABLE

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ACKNOWLEDGEMENT

The purpose of the Intergrated Pepper Processing and Marketing Cooperative in District of Kota Tinggi, the project is to complete with training course for strengthening Management of Agricultural Cooperative in South East Asia Sponsored by International Cooperative Alliance (I.C.A.).

During this training course in I.C.A. Regional Office New Delhi, I received the kind of cooperative management and intergrated approach from Professors from India Institute of Management and also Directors of I.C.A. Regional Office South East Asia. To the Professors and Directors of I.C.A. I wish to extend my appreciation and gratitute for their support and cooperation.

Specially I would like to thanks to Mr. M.V. Madane, Project Director and a special word of thanks is due to following persons:-

- 1) Mr. Suhaimi Hj. Hussin - Felda Director
- 2) Mr. Sheikh Zainal Mansore - Regional Controller Of Felda South Johore
- 3) Mr. Mohd. Hisham Mohd. Zain - Pepper Marketing Board
- 4) Mr. Abdul Rahman - Agriculture Department Of Kota Tinggi District
- 5) Mr. Darmin Darini - The Settlers' Leader

CHAPTER I

1. SUMMARY

The Pepper Processing and Marketing Cooperative Of District Kota Tinggi is the pioneer intergrated Cooperative in this district and country. It is located in Felda Air Tawar 5, 20 Kilometer from Kota Tinggi Town.

The farmers/settlers in this district have a good potencial land to cultivate more pepper. From this area, in future can supply pepper for Peninsular Malaysia.

In order to increase more pepper production, the intergrated cooperative must establish in this area. This project will increase income of the farmers.

To establish this project \$1,110,000.00 capital are require. This can be loan from the Banker Financial Institution. With this amount of capital the project will success and give nett profit \$7.3 million within 10 years. All this will return back to the farmers/owners of this cooperative.

2. INTRODUCTION

2.1. Background

Pepper which is commonly known as black pepper has been cultivated in Malaysia for more than a century. It is a most agricultural crop of which has ~~once~~ put Malaysia in the spices world among the largest pepper producer in the world. (Table 1)

Over 98% of Malaysia pepper originates from the state of Sarawak, the balance from Sabah and Johore.

Malaysia pepper, particularly those from Sarawak, is for export and domestic consumption is negligible.

In recent years, Malaysia has decline of pepper cultivation. Pepper cultivation in Sarawak in 1980 was about 10,000 hectare. But now only 6,000 hectare. In Johore in 1980 area under pepper cultivation was 1,000 hectare but in 1988 only 63 acres.

Acreage Of Pepper Plantation In
State Of Johore 1986 - 1988 (acres)

<u>District</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Johor Bahru	15	1987	30
Kota Tinggi	-	4	22
Kluang	12	9	11
Pontian	7	-	-
Segamat	7	-	-
Total :	<u>41</u>	<u>29</u>	<u>63</u>

The decreasing trend of pepper production in the past 5 years has indicated that the pepper industry in this country is facing serious problems. These problems came from both within and out of the state. The unluccrative and fluctuating prices, brought about by the depressed international market in recent years was probably the most important factor. The situation was worsened by the over increasing costs of inputs such as fertilizer, pesticides and labour. This has ultimately caused many pepper farms in the state to be abandoned, especially during the period of 1980 - 1983. (Table 2 show range and comparative pepper price)

Although there has been a rather steady increase in price since the end of 1983 through to 1985, there was no significant revival of the pepper industry in the form of new plantings or replanting in the country. It is thus obvious that besides being utterly cautious on venturing back into pepper cultivation on the part of the farmers, there were other existing serious limiting factors. One of these factors is the foot rot disease which had taken, and is still taking a heavy toll on the local pepper industry. This disease remains uncontrollable in most of the affected areas.

Another problem is the nematode infestation which leads to general yield decline in many pepper farms in the state. The seriousness of the nematode problem has been recognised as second only to the foot rot disease.

Other problems such as the shortage of suitable land, unsatisfactory agronomic practices, purity of variety and so on also form part of the complex situation that leads to a gradual decline in pepper production. As a result many pepper farmers switch to other more profitable, low-risk crops. Cocoa was the most attractive option available to them. Intercropping of cocoa among existing pepper vines where eventually cocoa would predominate is not an uncommon sight now.

2.2. Area of Project

This project is focussed on the cultivation of pepper at the District of Kota Tinggi in the State of Johore. The cultivation of pepper in the district is carried out by group of farmers; comprises of the Fel'da Settlers and the traditional villagers. (Table 3 show the population in this District.

The pepper cultivation is only a subsidiary activity to the farmers. They have other primary farmings such as the cultivation of palm oil, rubber and cocoa.

Pepper is grown at a small scale by the farmers because the production of this crop require a very high cost. Research done by Malaysia Agricultural Research Development Institute (MARDI) and the Agriculture Department shows the cost needed \$6.00 to produce 1 kilo of pepper if its cultivation is done on commercial basis.

To the farmers and the settlers family the cultivation of the pepper does not require a very high cost, as if it is done commercially. Cost to the farmer only \$3.50 to produce 1 kilo pepper.

The involvement of the settlers in the cultivation of pepper is due to various reason:--

- (i) The settlers have an unused **schemes** land to be cultivated. This land is suitable for pepper.
- (ii) The settlers have sufficient workman power (labour) from their own family. This also help to reduce the production labour cost.
- (iii) The settlers guidance and know-how from the MARDI and the Agriculture Department pertaining the problem of disease and pest.

- (iv) The harvested pepper can be kept up to 2 years for black pepper and 10 years for the white pepper.
- (v) There is always a demand for the pepper and it is very easily marketed.
- (vi) There is loan facilities provided by the Agriculture Bank. Until now \$90,000.00 loan by **this** bank to the farmers.
- (vii) The pepper cultivation is also subsidised by the Government via Agriculture Department in the form of fertilizer/seeds breeds and insecticide.
- (viii) Supervision, guidance and know-how is available from the Felda's Officers in the scheme.
- (ix) The Marketing Board of Pepper Cultivation helps in the marketing of pepper. The Board provides information regarding the price of the pepper weekly in the Felda's Scheme/Office.
- (x) The cultivation of pepper will help to cover their loss or support them if there is a drop in the production of their primary crops/cultivation.

As for the traditional farmers their interest in the involvement of pepper cultivation is also due to the same reasons except that they do not have certain officials as Felda's Officers to guide and provide the know-how to them. Anyhow, guidance and assistance will be taken care of seriously by the District Agriculture Department.

Acreege of Pepper Plantation in Felda and Traditional Village in the District of Kota Tinggi - 1989:

<u>No.</u>	<u>Place</u>	<u>Acre</u>	<u>Farmers</u>
1.	Felda Air Tawar 1	0.5	8
2.	Felda Air Tawar 2	3.1	17
3.	Felda Air Tawar 3	2.5	6
4.	Felda Air Tawar 4	1.13	6
5.	Felda Air Tawar 5	26.65	55
6.	Felda Sening	15.00	30
7.	Felda Semencu	2.46	6
8.	Felda Sg. Mas	2.00	3
9.	Felda Simpang Waha	4.5	20
10.	Kg. Setia Jaya	3.00	6
11.	Tanjung Serindit	2.00	4
12.	Kpg. Baharu	5.00	10
	Total :	<u>67.84 (27.46 hectar)</u>	<u>174</u>

Source Agriculutre Department

With the present situation of the pepper cultivation, the Government is now concentrating cultivation of pepper in the District of Kota Tinggi especially among the settlers.

Table below shows the allocations provided to help the farmers/settlers.

Government Programme For Pepper
In District Of Kota Tinggi (1990 - 1995)

<u>Years</u>	<u>New Area (Acre)</u>	<u>Farmers</u>	<u>Budget</u>
1990	15	30	\$ 20,020.00
1991	29	45	\$255,200.00
1992	29	45	\$255,200.00
1993	24	50	\$211,200.00
1994	14	30	\$123,200.00
1995	14	30	\$123,200.00
Total :	<u>125</u>	<u>230</u>	<u>\$988,020.00</u>

Source : Agriculture Department

The cultivation of pepper in the Felda's Scheme was carried out by the farmers/settlers in 1987.

The production of pepper in this District is expected to increase from year to year with the increase of numbers of the crops that reach maturity and also with the increase of the acreage of land cultivated with pepper.

The production may increase far above that is expected, if some of the about 600 acres of the land under electric cable line is done intensively by the settlers under this project.

At present only a small section of the land is planted with pepper and the rest is planted with various cash crops such as banana, tapioca and coffee. The owner of the land concerned is expecting to change their crops if this project is able to show that the cultivation of pepper by the farmers has shown a good return.

This is actually one of the aim of this cooperative that is to help increase the income of pepper cultivators and change the cultivation of their crops to a more profitable ones.

2.3. Marketing

At present pepper is marketed by the cultivators/farmers via:-

- 1) To sell to wholesaler of pepper in the scheme or outside the scheme.
- 2) To sell direct to the grocers and restaurants after making their own packing and grinding.

The farmers at present are offered a selling price as below:-

- 1) Black pepper at \$4.00 - \$4.50 per kg.
- 2) White pepper at \$5.00 - \$5.50 per kg.

The price offered is unstable. There are times when the price is lowered due to the low quality of the pepper produced.

2.4. Problem Faced By the Farmers

The farmers basically are very interested in the cultivation of pepper. But there are always problems that they have to face:-

- 1) The unstability of the price of pepper at the market. The risk and price fall of pepper is beyond control and is determined by the middle man or traders.
- 2) Hard wood post for the pepper is not easily obtained/available and also very costly (\$7.00). There are farmers who are using support that could only last for 3 years or 6 years, where by they should be able to last for 15 to 20 years which is the life span of a healthy vine.
- 3) Pepper cutting are also very expensive i.e. \$3.00 - \$4.00 each.

- 4) Some of the farmers are lack of knowledge in maintaining of the crop especially where disease and pest are concerned.
- 5) Farmers are also faced by the spiralling input costs, particularly of fertilizer and chemicals.
- 6) Lack of capital.
- 7) Wind damage because the post is not strong enough.

The way to solve this problem, intergrated cooperative should be organise in this area.

2.5. Needs and Justifications for the Project

Looking at the problems faced by the pepper cultivators, it is believed/hoped that a Pepper Cooperative in this area, will help to increase the level of income of the farmers.

With this cooperative, Government hopes to improve the pepper cultivations and so to make the pepper industry of the State of Johore especially that of Kota Tinggi a success.

The idea to introduce the intergrated cooperative is believed to help to motivate the pepper cultivators. As far as it is concerned, not such as an intergrated cooperative and value addition, exist. It is hoped that, other cooperative nearby will follow the example of the intergrated cooperative, introduced.

CHAPTER III

3. INTERGRATED PEPPER PROCESSING AND MARKETING

3.1. Project Objective

By establishing this cooperative with the activities as follows:-

- (i) To buy all the production of the pepper from the pepper cultivators whether they are the members of the cooperative or not.
- (ii) To sell the pepper produced to the wholesale, the manufacturer, the shopkeepers/grocers and to pepper exporters.
- (iii) To manufacture the pepper into:-
 - 1) Black pepper powder
 - 2) White pepper powder
- (iv) To do the packing of the pepper before they are sold to the shopkeepers/grocers.
- (v) To supply the agriculture inputs to the members with the price same as that is offered by the local suppliers.
Reducing the cost of input.

With this activities the main objective of this cooperative to increasing the farmers incomes will be achieves.

3.2. Location Of The Project

This cooperative will be placed nearby the area of pepper cultivation at the Felda Scheme of Air Tawar 5.

At the area concerned, facilities as below are already available.

- (i) Proper road with telephone facilities.
- (ii) Ample electric supply.
- (iii) Clean water supply.
- (iv) Nearby settlement area which make easier for lodging and labour supply. Cooperative is not required to provide lodging for the workers.
- (v) The transportation of the pepper to the cooperative is made easy as every cultivator owns a motorcycle/motorbike.
- (vi) Market is easily available from the towns. The nearest town is at about 20 km. and the distance to Singapore is only 70 km.
- (vii) Facilities like Schools, Clinics and Mosque are also available.

3.3. Components Of The Project

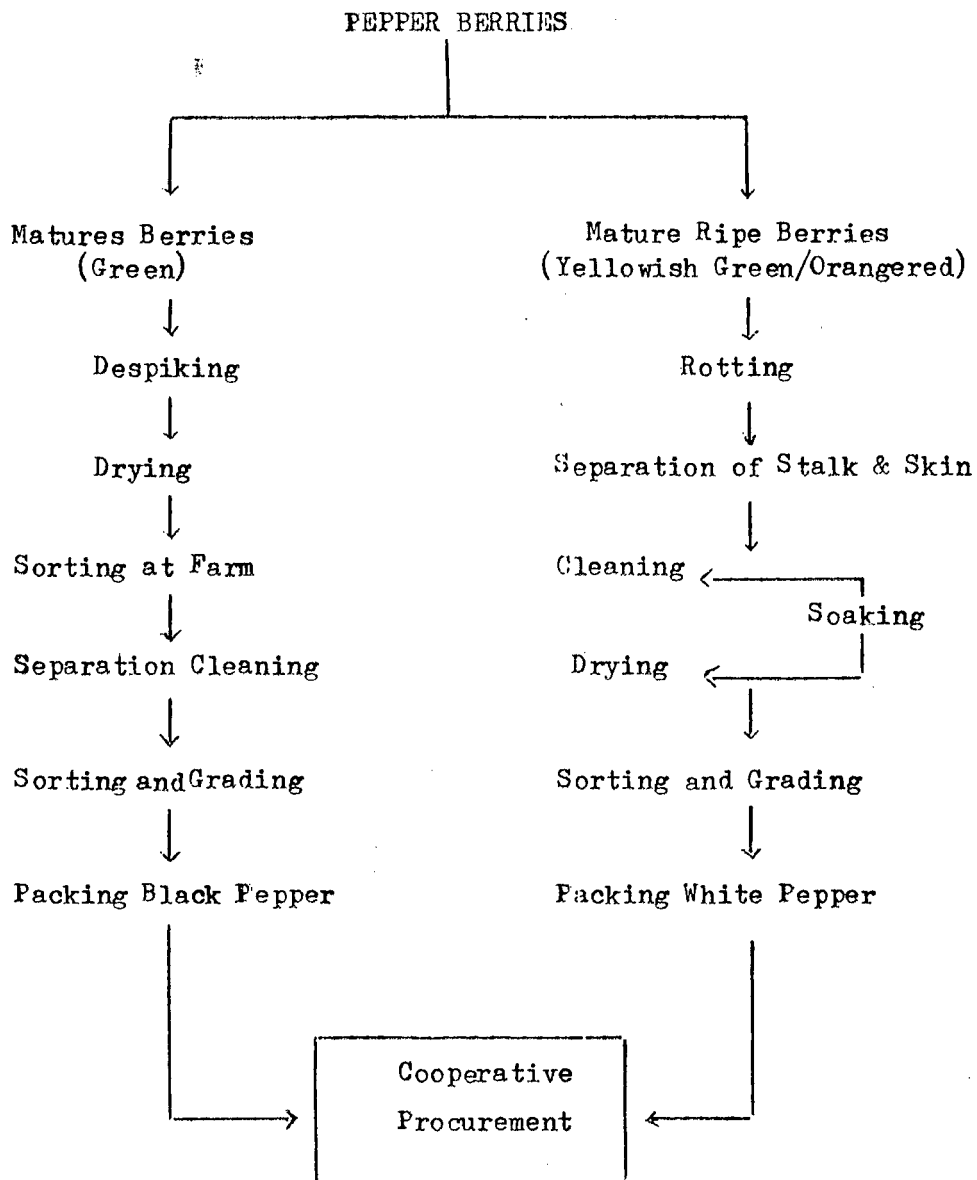
Based on the pepper production this cooperative will set up a processing unit with capacity of 1 m. ton/hour for grading and cleaning, 500 Kg./day/8 hours grinding machine and storage with 20 m. tan capacity. This machinery existing in the local market.

3.4. Procurement

The procurement of pepper is very important section because the quality of end product depends on the quality of raw material.

The pepper from the farmers must be very dry. Two types of pepper will be purchased from the farmers - black pepper and white pepper. Payment will be made everyday to the farmers. (Table 4 : Estimation Of Pepper Production In Kota Tinggi).

3.5. PROCESSING OF BLACK AND WHITE PEPPER
BY THE FARMERS



3.6. Packing

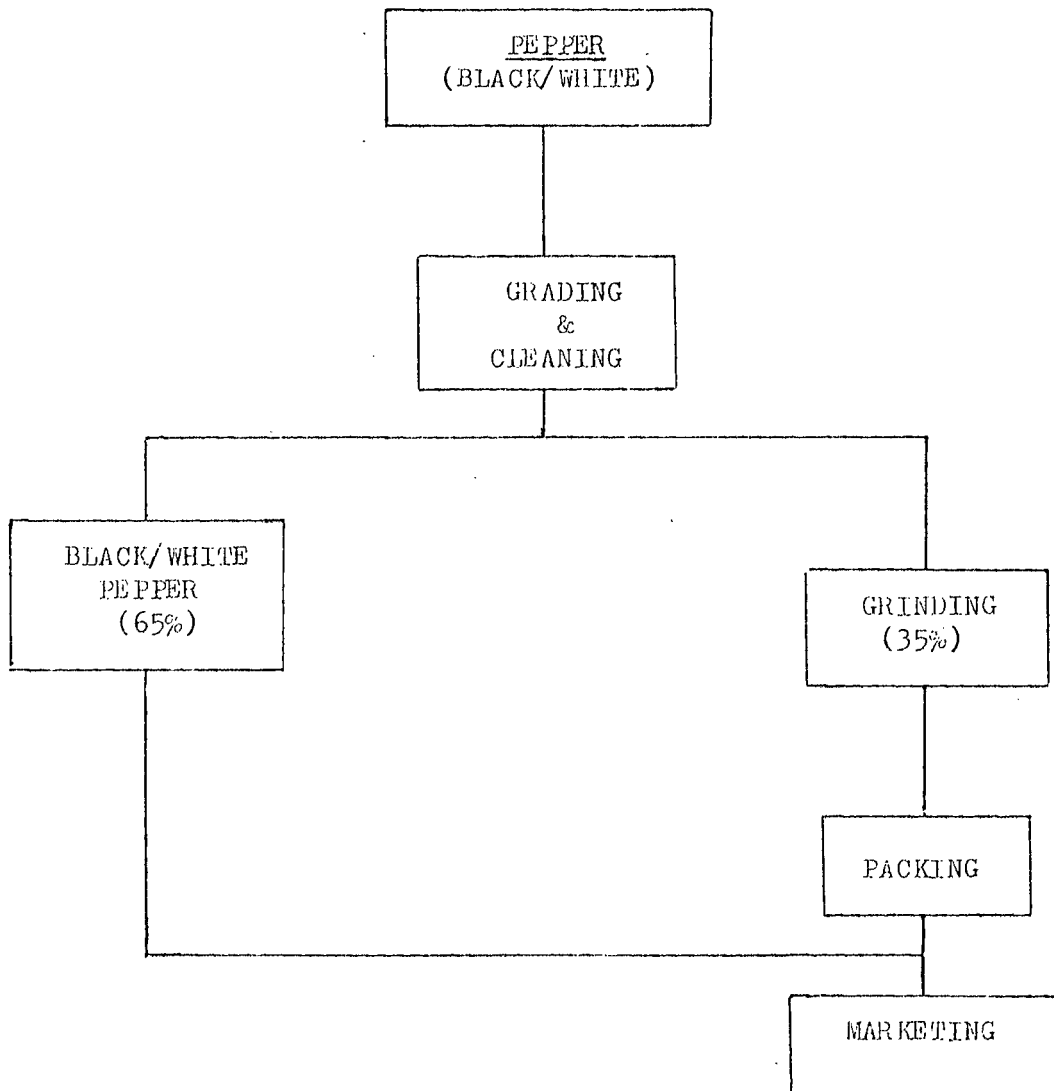
The pepper packing:-

- (i) 50 Kg./gunny bag - White & black pepper
- (ii) 1 Kg./plastic packet - Ground pepper
- (iii) 50 Gm./bottle - Ground pepper
- (iv) 30 Gm./bottle - Ground pepper
- (v) 5 Gm./plastic packet - Ground pepper

Gunny bag packing in the cooperative building and ground pepper packing will run by the Women Association/Farmers' Wives Association.

Packing process will losses 5%.

PEPPER PROCESSING



3.7. Marketing

Marketing of pepper carried out by cooperative itself and guidance from Pepper Marketing Board of Malaysia.

Two types of marketing operation system as shown below:-

- (i) Marketing in bulk (50 Kg./gunny). This more in trading activities. Marketing through exporter traders in Singapore, Food Institution and Industries.
- (ii) Marketing in small pack/bottle through dealer, wholesale and shop keeper. Market through Felda Trading Corporation and Felda Women Association/Community.

Retailing price for marketing as below:-

RETAILING PRICE

<u>Quantity</u>	<u>Dealer/Whole-sale Price</u>	<u>Retail Shop Keeper Price</u>	<u>Consumer Price</u>
50 Kg.	\$300.00	-	-
1 Kg.	\$ 10.00	\$12.00	\$15.00
100 Gm.	\$ 1.80	\$ 2.00	\$ 2.50
50 Gm.	\$ 0.90¢	\$ 1.10	\$ 1.50
30 Gm.	\$ 0.70¢	\$ 0.80¢	\$ 1.00
5 Gm.	\$ 0.10¢	\$ 0.15¢	\$ 0.20¢

PEPPER CONSUMPTION IN PENINSULAR MALAYSIA

	<u>1985</u>	<u>1990 *</u>
Food Institution	200 MT (40%)	599
Household	175 MT (35%)	525
Industries	125 MT (25%)	375
	<hr/>	<hr/>
TOTAL :	<u>500 MT</u>	<u>1499</u>

Average Household Consumption : 35 gm/person/year

Population in Peninsular Malaysia 1989 : 15 Million

* Estimated values.

Source : Pepper Marketing Board

According to this consumption and import marketing will run smoothly.

IMPORT PEPPER FOR JOHORE STATE (kg.)
(1986 - 1989)

<u>Years</u>	<u>Black Pepper</u>	<u>White Pepper</u>	<u>Total</u>
1986	1,981.9	18,175.8	20,158.7
1987	16,000.0	36,320.0	52,320.0
1988	32,430.2	99,312.8	131,743.0
1989	19,006.0	117,240.0	136,246.0

Source : Pepper Marketing Board

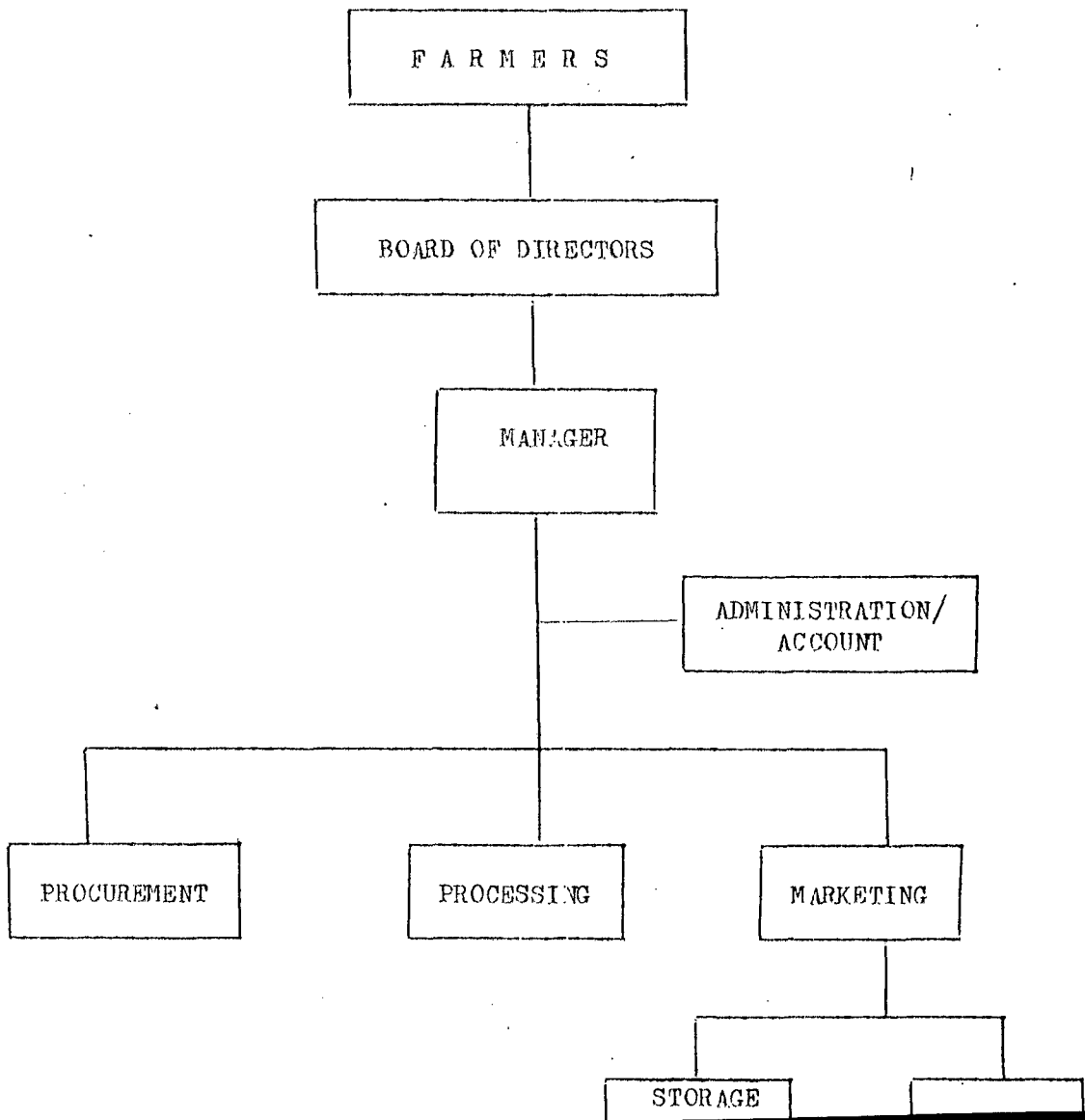
CHAPTER IV

4. ORGANIZATION AND MANAGEMENT

To achieve the objective depends on three components of the cooperative:

- (i) **Members**
- (ii) Board Director
- (iii) Manager/Staff (**Management People**)

4.1. Organisational Structure



4.2. Function Of The Organisation

- Members - The owner of the project and pepper producer.
- Board Of Directors - Representatives of managing the Organisation of the cooperatives
- Management/Executive- Body To manage the cooperative and achieve the objective in accordance with the policy fixed by the Directors.

4.3. Task Of The Organisation

i) Members

- Pepper cultivation must be in good condition and produce good quality pepper.
- Sell the pepper to the cooperative.
- To encourage more farmers to cultivate pepper.

ii) Board Directors

To create the organisation's policy connected with the project's objective which covers the policy concerning its members, business, finance as well as personal policies.

iii) Executive Body

To plan the activities of the cooperative organisation with regard to the project's objective.

To carry out this task the Project Manager is assisted by the organisation division with the following task:-

i) Task Of The Procurement Division

Planning the implementation of the procurement system. Organise pepper procurement from the farmers.

To prepare a place for procurement and facilities in every village/Felda Schemes.

ii) Task Of The Processing

- Processing of pepper according to demand.
- Determination of sale price.
- Quality control and packing.

iii) The Task Of Marketing

To market all the product and looking for new market.

iv) Task Of Finance/Administration

To plan financial needs and arrange administrative of the project.

4.4. Number Of Personnel Requirement

-	Manager	:	1
-	Account Clerk	:	1
-	Procurement Staff	:	1
-	Marketing Staff	:	1
-	Driver	:	1
-	Factory Staff	:	2
-	Labour	:	1
	TOTAL	:	<u>8</u>

4.5. Man Power Requirement Analysis

<u>Man Power Requirement Analysis</u>	<u>No. Of Person</u>	<u>Salary/Month</u>
ADMINISTRATION:		
Manager	1	\$ 1,000.00
Account Clerk	1	\$ 250.00
Procurement Staff	1	\$ 200.00
Marketing Staff	1	\$ 200.00
Driver	1	\$ 150.00
FACTORY STAFF:		
Processing Operator	1	\$ 200.00
Machine Operator	1	\$ 200.00
Unskilled Labour	1	\$ 200.00 ¹
SUB TOTAL		: \$ 2,400.00
EPF (11%)		: \$ 264.00
SOCSSO (1.7%)		: \$ 36.00
TOTAL SALARIES PER MONTH		: \$ 2,700.00
TOTAL SALARIES PER YEAR		: \$32,400.00

CHAPTER V

5. CAPITAL

5.1. Project Condition

Project condition is estimated under the following conditions:

- a) Exchange rate =
U.S. \$1.00 = \$2.7 (Malaysia Ringgit)
- b) Prices are **only** estimation on the prices in December 1989:

Raw Material (Pepper) \$5,000.00 M.T.

- c) Period of construction:

- Building construction needs 5 months
- Machinery and installation needs 3 months
- Preparation of production needs 2 months

5.2. Project Cost

- i) Land and Building = \$50,000.00
- ii) Machine = \$50,000.00
- iii) Laboury Equipment = \$ 5,000.00
- iv) Office Equipment = \$ 4,000.00
- v) Truck = \$50,000.00
- vi) Weigh Machine = \$ 1,000.00

5.3. Working Capital

a) Raw Material:

\$5,000.00 M.T. First Year \$80.00/M.T.
= \$400,000.00

b) Personal Cost:

First Year = \$32,400.00

c) Packing Material:

First Year (2% of Income) = \$19,657.00

d) Advertisement:

First Year (1% of Income) = \$ 9,828.00

e) Fertilizer and Chemical:

First Year = \$199,710.00

f) Repair and Maintenance:

First Year \$0.00 (After 3 years \$500.00 increase
year by year)

g) Contingencies:

First Year (2% of Income) = \$19,657.00

CHAPTER VI6. FINANCIAL ANALYSIS6.1. Cooperative Own Capital

- from members	:	\$10,000.00
- from Felda Cooperative	:	\$30,000.00

6.2. Loan

- Long Term Loan:		
a) Hire Purchase	-	\$99,000.00
b) Capital Loan	-	\$ 1,000,000.00

a) Hire PurchaseH.P. ANALYSIS

Machine	=	\$ 50,000.00
Lab.	=	\$ 5,000.00
Office Equipment	=	\$ 4,000.00
Truck	=	\$ 50,000.00
Weigh Machine	=	\$ 1,000.00
		<hr/>
Total	=	\$110,000.00
		<hr/> <hr/>

i = 5% P.A. payable 5 years

10% Desposit

\$110,000.00

- 11,000.00 (Desposit 10%)

Balance: \$ 99,000.00

\$ 24,750.00 5% P.A. (99,000 x 0.05 x 5)

\$123,750.00 Account repayable within 5 years

\$ 2,062.50 Payment per month (123,750 ÷ 60)

Principal: 99,000 ÷ 60 = \$1650.00 per month

Interest : 24,750 ÷ 60 = \$ 412.50 per month

\$2062.50

\$24750.00 per Year

b) Capital Loan - \$1,000,000.00

Interest 5% Monthly Rest

Grace Period = 1 Year

Pay back period 5 years (1994)

LOAN INFORMATION

Principal = 1,000,000.00
Interest Rate = 5% Monthly Rest
Monthly Payment = 18,871.23
Yearly Payment = 226,454.80

<u>YEAR</u>	<u>LOAN PRINCIPAL</u>	<u>YEARLY PAYMENT</u>	<u>INTEREST</u>	<u>BALANCE</u>
1990	1000000.00	226454.76	50000.00	773545.24
1991	773545.24	226454.76	38677.26	547090.48
1992	547090.48	226454.76	27354.52	320635.72
1993	320635.72	226454.76	16031.79	94180.96
1994	94180.96	94180.96	4709.05	0.00

6.3. Sales Tax and Cooperative Tax

There is no tax on cooperative. No export tax for pepper. Cooperative only contribute $1\frac{1}{2}\%$ from nett income to Apex Cooperative (ANGKASA) and Education Fund.

6.4. Analysis of Income

Table 6 and 7 Analysis of income from this project from First Year to Ten Years.

6.5. Analysis Of Out Flow/Purchase Analysis

Table 8 and 9 Analysis of out flow for the project.

6.6. Project Cash Flow

Table 10 Analysis of cash flow for the project.

6.7. Project Expenditure

Table 11 Analysis of expenditure of the project.

6.8. Profit and Loss Account

Table 12 Analysis of profit and loss of the project.

6.9. Break Even Point

Table 13 show Break Even Point of the project.

$$\begin{aligned} \text{B.E.P.} &= \frac{\text{Fixed Cost}}{1 - \frac{\text{Variable Cost}}{\text{Sales Revenue}}} \\ &= \frac{109,350}{1 - \frac{954019}{982828}} \\ &= 3,730,603 \end{aligned}$$

6.10. Internal Rate Of Return

Table 14 show the calculation of I.R.R.

Nett present Value \$663,877.53 (Discount Factor 8%)
\$651,831.80 (Discount Factor 10%)

I.R.R. = 1.18%

7. CONCLUSION AND RECOMMENDATION

- i) From this project, cooperative can help the farmers to increase more income.
- ii) This project can last more than 10 years. The most important this cooperative must get a new market in the future.
- iii) This cooperative must help the farmers to cultivate more pepper and make sure that this cooperative get the supply on time.
- iv) Marketing in "Tading Activite" must be organised as good as possible because this carry out 65% of this cooperative business. Cooperative must try to supply direct to importer and buyers.
- v) The success of cooperative can contribute more intergrated cooperative in this district and Malaysia.

TABLE 1

EXPORT FROM PEPPER PRODUCING
Countries (1,000 m.tons)
(1980 - 1989)

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Brazil	30.8	46.9	43.1	30.4	37.6	24.7	22.1	25.5	23.5	21.0
India	27.8	18.6	20.5	28.0	28.4	19.5	49.8	38.0	47.3	25.0
Indonesia	29.3	34.0	36.3	45.1	33.8	26.2	29.6	30.0	41.3	40.0
Malaysia	30.7	28.6	25.0	23.2	16.5	19.1	15.4	14.2	19.2	26.0
Others	4.0	3.7	3.4	6.5	9.0	10.5	11.5	8.0	7.0	10.0
Total:	122.6	131.8	128.3	133.2	125.3	100	128.4	115.7	138.3	122
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====

Source : MAIN-PRODUCTEN ROTTERDAM B.V

TABLE 2

RANGE AND COMPARATIVE PEPPER PRICES IN JOHORE 1976 - 1987

(M\$/100 Kg.)

		Black No. 1	% Change Between	White No. 1	% Change Between
1976	Highest	431.38		499.73	
	Lowest	298.25		396.72	
	Average	347.74		440.80	
1977	Highest	580.70	↑	650.62	↑
	Lowest	345.48		473.37	
	Average	429.88		542.93	
1978	Highest	364.16	↑	527.13	↑
	Lowest	274.40		430.28	
	Average	315.08		479.32	
1979	Highest	319.00	- 45.8	466.10	- 38.7
	Lowest	264.50		423.20	
	Average	294.76		448.10	
1980	Highest	324.10	↓	469.50	↓
	Lowest	251.50		360.50	
	Average	277.45		402.32	
1981	Highest	274.89	↓	406.89	↓
	Lowest	204.89		354.89	
	Average	235.30		377.22	
1982	Highest	302.89	↑	381.89	↓
	Lowest	198.89		283.89	
	Average	233.15		332.86	
1983	Highest	447.57	↑	653.37	↑
	Lowest	248.57		338.57	
	Average	281.22		399.61	
1984	Highest	449.57	+324.0	693.57	↑
	Lowest	281.57		518.57	
	Average	359.63		588.57		+264.7
1985	Highest	934.67	↓	1072.67	↓
	Lowest	395.57		594.57	
	Average	648.58		791.60	
1986	Highest	1091.13	↓	1402.67	↓
	Lowest	746.17		918.13	
	Average	904.35		1205.24	
1987	Highest	1093.86	↓	1410.86	↓
	Lowest	854.86		975.86	
	Average	988.55		1213.82	

Source : PEPPER MARKETING BOARD

TABLE 3

AGRICULTURE AREA OF
KOTA TINGGI DISTRICT JOHORE - 1989

District Area	=	349,769 hectare
Agriculture Area	=	234,660 hectare
Planted Area	=	140,677 hectare
Total Population	=	114,267 people
Farmers	=	9,788 people
Settlers	=	14,664 people

Sources : AGRICULTURE DEPARTMENT

TABLE 4

ESTIMATION OF PEPPER PRODUCTION
IN KOTA TINGGI DISTRICT
(1990 - 1999)

<u>Year</u>	<u>Acre</u>	<u>Yield (M.T.)</u>
1990	70	80
1991	70	80
1992	95	110
1993	136	160
1994	179	210
1995	221	260
1996	251	300
1997	286	340
1998	326	390
1999	361	430

Source : AGRICULTURE DEPARTMENT

TABLE 6

ANALYSIS OF INCOME

PARTICULAR / YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
COLLECTION MT/YEAR	80	80	110	160	210	260	300	340	390	430
less: WASTAGE (10%)/MT	8	8	11	16	21	26	30	34	39	43
ACTUAL COLLECTION MT/ YEAR	72	72	99	144	189	234	270	306	351	387
PRODUCTION TARGET										
50 KG/BAG (6%)	936	936	1,287	1,872	2,457	3,042	3,510	3,978	4,563	5,031
1 KG/PACKET (2%)	1,440	1,440	1,980	2,880	3,780	4,680	5,400	6,120	7,020	7,740
100 GRAM/PACKET (5%)	36,000	36,000	49,500	72,000	94,500	117,000	135,000	153,000	175,500	193,500
50 GRAM/PACKET (8%)	115,200	115,200	158,400	230,400	302,400	374,400	432,000	489,600	561,600	619,200
30 GRAM/PACKET (10%)	240,000	240,000	330,000	480,000	630,000	780,000	900,000	1,020,000	1,170,000	1,290,000
5 GRAM/PACKET (10%)	1,440,000	1,440,000	1,980,000	2,880,000	3,780,000	4,680,000	5,400,000	6,120,000	7,020,000	7,740,000
PROJECTED INCOME										
\$/PACKET										
50 KG/ BAG	\$300.00	\$280,800.00	\$280,800.00	\$386,100.00	\$561,600.00	\$737,100.00	\$912,600.00	\$1,053,000.00	\$1,193,400.00	\$1,368,900.00
1 KG / PACKET	\$10.00	\$14,400.00	\$14,400.00	\$19,800.00	\$28,800.00	\$37,800.00	\$46,800.00	\$54,000.00	\$61,200.00	\$70,200.00
100 GRAM/PACKET	\$1.80	\$64,800.00	\$64,800.00	\$89,100.00	\$129,600.00	\$170,100.00	\$210,600.00	\$243,000.00	\$275,400.00	\$315,900.00
50 GRAM/PACKET	\$0.90	\$103,680.00	\$103,680.00	\$142,560.00	\$207,360.00	\$272,160.00	\$336,960.00	\$388,800.00	\$440,640.00	\$505,440.00
30 GRAM/PACKET	\$0.70	\$168,000.00	\$168,000.00	\$231,000.00	\$336,000.00	\$441,000.00	\$546,000.00	\$630,000.00	\$714,000.00	\$819,000.00
5 GRAM/PACKET	\$0.10	\$144,000.00	\$144,000.00	\$198,000.00	\$288,000.00	\$378,000.00	\$468,000.00	\$540,000.00	\$612,000.00	\$702,000.00
TOTAL INCOME FOR THE YEAR	\$775,680.00	\$775,680.00	\$1,066,560.00	\$1,551,360.00	\$2,036,160.00	\$2,520,960.00	\$2,908,800.00	\$3,296,640.00	\$3,781,440.00	\$4,169,280.00

TABLE 9

FERTILIZER & CHEMICAL VOLUME		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
USAGE OF FERTILIZER & CHEMICAL		70	70	95	136	179	221	251	286	326	361
PROJECTED ACRES COVERED											
FERTILIZER/CHEMICAL		USAGE/ACRES									
G M L	300 KG	21,000	21,000	28,500	40,800	53,700	66,300	75,300	85,800	97,800	108,300
C C M	1300 KG	91,000	91,000	123,500	176,800	232,700	287,300	326,300	371,800	423,800	469,300
GRAMOXONE	4 LTR	280	280	380	544	716	884	1,004	1,144	1,304	1,444
FURADAN 3G	136 KG	9,520	9,520	12,920	18,496	24,344	30,056	34,136	38,896	44,336	49,096
ANALYSIS OF PURCHASED FERTILIZER & CHEMICAL											
FERTILIZER/CHEMICAL	PRICE (\$)										
G M L	50/MT	\$1,050.00	\$1,050.00	\$1,425.00	\$2,040.00	\$2,685.00	\$3,315.00	\$3,765.00	\$4,290.00	\$4,890.00	\$5,415.00
C C M	700/MT	\$63,700.00	\$63,700.00	\$86,450.00	\$123,760.00	\$162,890.00	\$201,110.00	\$228,410.00	\$260,260.00	\$296,660.00	\$328,510.00
GRAMOXONE	6/LTR	\$1,680.00	\$1,680.00	\$2,280.00	\$3,264.00	\$4,296.00	\$5,304.00	\$6,024.00	\$6,864.00	\$7,824.00	\$8,664.00
FURADAN 3G	14/KG	\$133,280.00	\$133,280.00	\$180,880.00	\$258,944.00	\$340,816.00	\$420,784.00	\$477,904.00	\$544,544.00	\$620,704.00	\$687,344.00
		\$199,710.00	\$199,710.00	\$271,035.00	\$388,008.00	\$510,687.00	\$630,513.00	\$716,103.00	\$815,958.00	\$930,078.00	\$1,029,933.00

TABLE 10

PROJECTED CASHFLOWS FOR 10 YEARS

I N C O M E

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
SALES OF PEPPERS	775,680	775,680	1,066,560	1,551,360	2,036,160	2,520,960	2,908,800	3,296,640	3,781,440	4,169,280
SALES OF FERTILIZER & CHEMICAL	207,148	207,148	281,129	402,458	529,706	653,994	742,772	846,346	964,716	1,068,289
SUBTOTAL INFLOW	982,828	982,828	1,347,689	1,953,818	2,565,866	3,174,954	3,651,572	4,142,986	4,746,156	5,237,569
CAPITAL CONTRIBUTION										
MEMBER SHARE	10,000									
COOPERATIVE	30,000									
LOAN	1,000,000									
TOTAL INFLOWS	2,022,828	982,828	1,347,689	1,953,818	2,565,866	3,174,954	3,651,572	4,142,986	4,746,156	5,237,569

E X P E N D I T U R E

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
DEVELOPMENT COST	50000	0	0	0	0	0	0	0	0	0
WAGES & SALARIES	32400	35640	39204	43160	47476	52223	57445	63189	69508	76459
HIRE PURCHASE REPAYMENT	24750	24750	24750	24750	24750	0	0	0	0	0
DIRECTOR FEES	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
AUDIT FEE	200	200	200	200	200	200	200	200	200	200
PURCHASE OF PEPPER	400000	400000	550000	800000	1050000	1300000	1500000	1700000	1950000	2150000
PURCHASE OF FERT & CHEMICAL	199710	199710	271035	388008	510687	630513	716103	815958	930078	1029933
ADVERTISEMENT	9828	9828	13477	19538	25659	31758	36516	41430	47462	52376
TELEPHONE	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
PRINTING & STATIONERY	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
TRAVELLING & ACCOMMODATION	29485	29485	40431	58615	76976	95249	109547	124290	142385	157127
ROAD TAX	500	500	500	500	500	500	500	500	500	500
ELECTRICITY & WATER	9828	9828	13477	19538	25659	31750	36516	41430	47462	52376
REPAIR & MAINTENANCE	0	0	0	500	1000	1500	2000	2500	3000	3500
PACKAGING MATERIAL	19657	19657	26954	39034	51317	63499	73031	82860	94923	104751
BONUS	32400	32400	32400	32400	32400	32400	32400	32400	32400	32400
MISCELLANEOUS	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
CONTINGENCIES	19657	19657	26954	39076	51317	63499	73031	82860	94923	104751
TOTAL OUTFLOW	836914	790154	1047881	1473862	1906441	2311582	2645789	2996116	3421340	3772873
SURPLUS / DEFICIT	85913	192673	299808	479956	659425	945372	1005782	1146870	1324816	1464696
CUMULATIVE BALANCES	185913	378586	678396	1158350	1817775	2681147	3686930	4833799	6158615	7623311

TABLE 12

PROFIT & LOSS ACCOUNT

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
I N C O M E										
SALES OF PEPPERS	775680	775680	1066560	1551360	2036160	2520960	2908800	3296640	3781440	4169280
SALES OF FERTILIZER & CHEMICAL	207148	207148	281129	402458	529706	653994	742772	846346	964716	1068289
TOTAL INCOME	982828	982828	1347689	1953818	2565866	3174954	3651572	4142986	4746156	5237569
E X P E N D I T U R E										
WAGES & SALARIES	32400	35640	39204	43160	47476	52223	57445	63189	69508	76459
INTEREST	4950	4950	4950	4950	4950	0	0	0	0	0
DIRECTOR FEES	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
AUDIT FEE	200	200	200	200	200	200	200	200	200	200
PURCHASE OF PEPPER	400000	400000	550000	800000	1050000	1300000	1500000	1700000	1950000	2150000
PURCHASE OF FERT & CHEMICAL	199710	199710	271035	388008	510687	630513	716103	815958	930078	1029933
ADVERTISEMENT	9828	9828	13477	19538	25659	31750	36516	41430	47462	52376
TELEPHONE	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
PRINTING & STATIONERY	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
TRAVELLING & ACCOMMODATION	29485	29485	40431	58615	76976	95249	109547	124290	142385	157127

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
(EXPENDITURE - cont.)										
ROAD TAX	500	500	500	500	500	500	500	500	500	500
ELECTRICITY & WATER	9828	9828	13477	19538	25659	31750	36516	41430	47462	52376
REPAIR & MAINTENANCE	0	0	0	500	1000	1500	2000	2500	3000	3500
PACKAGING MATERIAL	19657	19657	26954	39076	51317	63499	73031	82860	94923	104751
BONUS	32400	32400	32400	32400	32400	32400	32400	32400	32400	32400
MISCELLANEOUS	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
CONTINGENCIES	19657	19657	26954	39076	51317	63499	73031	82860	94923	104751
DEPRECIATION	11000	11000	11000	11000	11000	11000	11000	11000	11000	11000
LOAN INTEREST	50000	38677	27353	16032	4709	0	0	0	0	0
AMORTISATION	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
TOTAL EXPENDITURE	833114	825032	1071436	1486093	1907350	2327582	2661789	3012116	3437340	3788873
GROSS PROFIT	149713	157796	276253	467725	658516	847372	989782	1130870	1308816	1448696
TAX (ANGKASA & EDUCATION)	2246	2367	4144	7016	9878	12711	14847	16963	19632	21730
NET PROFIT	147467	155429	272109	460709	648638	834662	974936	1113907	1289183	1426966
CUMULATIVE NET PROFIT	147467	302896	575005	1035714	1684352	2519014	3493849	4607856	5897039	7324005

Table 14

CALCULATION OF INTERNAL RATE OF RETURN

PARTICULAR / YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
INVESTMENT COST	1,030,000	0	0	0	0	0	0	0	0	0
CASH FLOW	2,022,828	982,828	1,347,689	1,953,818	2,565,866	3,174,954	3,651,572	4,142,986	4,746,156	5,237,569
CASH OUTFLOW	1063369	1016609	1274336	1700316	2008222	2311582	2645789	2996116	3421340	3772873
EARNING BEFORE TAXES	959458	-33782	73353	253502	565244	863372	1085782	1146870	1324816	1464696
TAX (ANGKASAS)	2246	2367	4144	7016	9878	12711	14847	16963	19632	21730
EARNING AFTER TAXES	957213	-36149	69209	246486	555366	850662	990936	1129907	1305183	1442966
DEPRECIATION	11000	11000	11000	11000	11000	11000	11000	11000	11000	11000
INSTALLMENT REPAYMENT										
--LOAN	226455	226455	226455	226455	94181	0	0	0	0	0
--HIRE PURCHASE	24750	24750	24750	24750	24750	0	0	0	0	0
NET CASH INFLOW/OUTFLOW	717008	-276353	-170996	6281	447435	861662	1001936	1140907	1316183	1453966
DISCOUNT FACTOR (8%)	0.9259	1.7833	2.5771	3.3121	3.9927	4.6229	5.2064	5.7465	6.2469	6.7101
PRESENT VALUE	663877.53	-492821.07	-440672.65	20803.27	1786474.43	3983376.25	5216477.29	6556220.68	8222065.28	9756254.42
DISCOUNT FACTOR (10%)	0.9091	1.7355	2.4869	3.1699	3.7908	4.3553	4.8684	5.3349	5.7596	6.1446
PRESENT VALUE	651831.80	-479611.38	-425048.95	19910.11	1696137.26	3752795.56	4877823.07	6086623.46	7579899.47	8934836.89
INTERNAL RATE OF RETURN	1.18	0.83	0.65	0.55	0.48	0.43	0.39	0.36	0.34	0.32

Table 14

CALCULATION OF INTERNAL RATE OF RETURN

PARTICULAR / YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
INVESTMENT COST	1,030,000	0	0	0	0	0	0	0	0	0
CASH FLOW	2,022,828	982,828	1,347,689	1,953,818	2,565,866	3,174,954	3,651,572	4,142,986	4,746,156	5,237,569
CASH OUTFLOW	1063369	1016609	1274336	1700316	2000622	2311562	2645789	2996116	3421340	3772873
EARNING BEFORE TAXES	959458	-33782	73353	253502	565244	863372	1005782	1146870	1324816	1464696
TAX (ANGKASA)	2246	2367	4144	7016	9878	12711	14847	16963	19632	21730
EARNING AFTER TAXES	957213	-36149	69209	246486	555366	850662	990936	1129907	1305183	1442966
DEPRECIATION	11000	11000	11000	11000	11000	11000	11000	11000	11000	11000
INSTALLMENT REPAYMENT										
--LOAN	226455	226455	226455	226455	94181	0	0	0	0	0
--HIRE PURCHASE	24750	24750	24750	24750	24750	0	0	0	0	0
NET CASH INFLOW/OUTFLOW	717008	-276353	-170996	6281	447435	861662	1001936	1140907	1316183	1453966
DISCOUNT FACTOR (8%)	0.9259	1.7833	2.5771	3.3121	3.9927	4.6229	5.2064	5.7465	6.2469	6.7101
PRESENT VALUE	663877.53	-492821.07	-440672.65	20803.27	1786474.45	3983376.25	5216477.29	6556220.68	8222065.28	9756254.42
DISCOUNT FACTOR (10%)	0.9091	1.7355	2.4869	3.1699	3.7908	4.3553	4.8684	5.3349	5.7590	6.1446
PRESENT VALUE	651831.80	-479611.38	-425248.85	19916.11	1696157.26	3752785.56	4877823.07	6086623.46	7579889.47	8934036.89
INTERNAL RATE OF RETURN	1.18	0.83	0.65	0.51	0.48	0.47	0.79	0.36	0.34	0.32

	0	90	91	92	93	94	95	96	97	98	99
Total Fixed Cost.		44800	48404	52324	57676	61422	68145	74339	81207	88658	96304
TOTAL (a+b)		703520	703824	954221	1362912	1776061	2189156	2509586	2845705	3253566	3590991
(C) Net Cash Flow 1139000 (425180) 268244											
(CA-B)		274308	279304	343468	596986	789805	955798	1141986	1292241	1492650	1646578
Cumulative Net Cash Flow											
		-(859642)	-(580355)	-(186920)	+403986	1193741	2179589	3321575	4618816	6111466	7758041
(D) Total Contribution (A-a)		324148	324148	445792	648582	851227	1053943	1216378	1378448	1581308	1742382
(E) Depreciation		11000	11000	11000	11000	11000	11000	11000	11000	11000	11000

(F) ~~NET P.B.P.~~ PAYBACK PERIOD = 4 YEARS.
~~(P.F.P.)~~

$$B.E.P = \frac{44840 + 11,000 + 54950}{324148}$$

$$= \frac{\del{70439} + 110790}{324148}$$

B.E.P = 34%

$$N.P.V @ 8\% = \frac{5279760 - 1139000}{}$$

$$= \text{₹ } 4,140,760/=$$

Pepper: Malaysia 6/3/90 G. et

Background and Member.

1. COST OF CULTIVATION /ACRE OR 1KG. OF PEPPER IS NOT CALCULATED FOR JUSTIFICATION
2. AVERAGE FARMER INCOME AND HOLDING DETAILS OF THE AREA IS NOT GIVEN WHERE PROJ. WILL BE IMPLEMENTED
3. THERE MAY BE OTHER COMPETITORS, BUT STATISTICS IS NOT GIVEN, MUST BE INCLUDED.
4. DETAILS REGARDING FARMER MEMBERSHIP AND PARTICIPATION IS NOT.
5. KEEPING IN VIEW THE PROBLEM, ^{THAT} IS MARKETING UNSTABILITY, DISEASE + PEST PROBLEM NAME TODES AND FERTILIZER + CHEMICALS HIGH PRICES, WETHER FARMER WILL ACCBPT THE PROJ.
6. EXLSTING SOCIETY STATISTICS IS NOT INCLUDED.
7. REGARDING VALUE ADDITLON TO THE FARMERS/ACRE/KG. DETAILS IS NOT GIVEN.
8. NO PLAN OF DLSTRIBUTION OF PROFIT TO THE FARMER.

GROUP B — FINANCIAL ANALYSIS — ABU BAKAR

1. CASH BUDGET NOT PREPARED
2. SENSITIVITY ANALYSIS NOT DONE
3. CALCULATION OF IRR (Page 29) IS WRONG AND IF AT RATE OF IRR 1.18% THE PROJECT IS NOT VIABLE
4. % of spoilage not mentioned

5. WORKING CAPITAL MUST BE CALCULATED ACCORDING TO THE REQUIREMENT OF THE PROCESSING OF THE MATERIAL AND NOT IN ONE YEAR CALCULATED ONLY ONCE.

6. PRICING OF FINISHED PRODUCTS FIXED AS FOLLOWS

(i)	Per kg	6	(50 kg Bag)
(ii)	Per kg	10	(1 kg Bag)
(iii)	-do	18	(100 grams)
(iv)	-do	18	(50 grams)

Group-C Comments/Suggestions on Organization and Management to Pepper Processing and Marketing Cooperative of District Kota Tinggi
- By Abu Bakar Bin Ujang

1. The constitution of the committees, board of directors is not given.
2. The projected salaries of the management staff appears to be very low.
3. The mechanics of distributing benefits to the former members are not described.
4. Marketing System is not clearly defined.
5. Member's role to the success of the project should be described.
6. What is the name of the organization that will implement this project?

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

by Mr Abu Bakar Ujang, Malaysia

(other than those made by groups)

- * Financial analysis of the project is not properly done. Project not profitable as per figures presented. The entire analysis is to be redone.

- * Use of concrete or iron polls instead of wooden polls for support of pepper creppers would be useful and long lasting. Though it may be expensive initially, it may be economical in the long run.

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	:	ORANGE/FRUIT PROCESSING & MARKETING
<i>COUNTRY</i>	:	PAKISTAN
<i>PROJECT PREPARED BY</i>	:	TARIQ HUSSAIN NADEEM

Funded by the Government of Japan

and

Executed by the ICA in collaboration with its Member Organisations in

India, Thailand, Japan and Korea

ICA Management Training Project for Agricultural Cooperatives in Asia

INTERNATIONAL COOPERATIVE ALLIANCE

**Headquarters:
Route des Morillons 15
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A C K N O W L E D G E M E N T

The I.C.A. training course strengthening Management of Agricultural Cooperatives in Asia organised from 23rd October 1989 to 10th May 1990 at New Dehli, Bangkok, Tokyo and Seoul has provided me an opportunity to learn various aspects regarding the strengthening of Cooperative Management and also the techniques of formulation and implementation of projects in Cooperative sectors. The project on orange/fruit processing and marketing is prepared under this training programme.

I am grateful to Mr. M. V. Madani, Project Director and the professors of I.I.M.A. who have provided me all the material in bringing out this project. I take this opportunity to extend gratitude to the Managing Director (Mr. Ihsanul-Haq Piracha, Finance Minister, Government of Pakistan) of Mercantile Cooperative Finance Corporation Ltd. for nominating me to this training programme and extending me all the support and cooperation. I feel obliged to Mr. Mohammad Akhtar Piracha, General Manager of Mercantile Cooperative Finance Corporation Ltd. who rendered all valuable services in bringing out the reports.

I am very grateful to Mr. Mubashir Umer, Deputy Director, Agriculture Development Bank of Pakistan who imparted valuable information for project formulation. Further I would also like to place on record my deep appreciation and gratitude for cooperation extended to me in typing and compiling the drafts.

(TARIQ HUSSAIN NADEEM)

*CHAPTER - I*S U M M A R Y

The project focuses on design of integrated marketing of oranges in Bhalwal of Sargodha, District of Punjab Province. The project envisages a better marketing alternative for growers by organising their own cooperative institution.

Project envisages on minimum price of Rs.2000/- per ton to the grower members as their Farm gate prices and increase of Rs.2200/- per M.T. These prices have been assured on normal production and market conditions.

Project has envisaged procurement by way of contract with the growers at the flowering stage giving them 25% of the estimated value in advance and remaining would be paid at the time of Final picking.

Oranges are grown in an area of 35600 hectares in Sargodha District, account for 18% of the total area under oranges in the Punjab Province.

As against the optimum number of 120 to 130 orange trees in and area of land. The actual number of trees per acre in Sargodha is observed to be 100.

80% of the orange trees in area are of the fruit bearing age.

On an average an orange tree yields 300-320 fruits per season and the production per hectare is estimated at 6 M.T.

The average annual production during 1987-88 was 2,95,000 M.T. and the value of annual output of orange is estimated of Rs.5.90 crores at the rate of Rs. 2000/- per M.T.

Lahore, Rawalpindi and Sargodha are the principal market in the Punjab.

Oranges are disposed of by the growers mostly through a system of Pre-harvest Sale. 80% of the orange growers resorted to this method of Sale.

60% of the total production of oranges arrives in the three principal markets of Lahore, Rawalpindi and Sargodha.

Contractors despatch oranges on consignment basis and rely on commission agents for disposal of their oranges in outside markets.

The commission agents charge 10% on the value of Sales as their commission and dispose of the products of retailers through a system of auctions.

The margin to the traders worked out to 20.31% of the final price by the consumers.

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

Area of Operation:- Bhalwal, District Sargodha, Punjab Province (Pakistan).

Target Group and membership coverage	Farmers in Tehsil Bhalwal. Initial membership coverage 1000 farmers.
Total Capacity:-	5.5 Tonnes per hour with an output of 43.200 million packs per year. Fruit requirement 9120 Tonnes.
Capital Investment:-	Total capital investment for land, building, machinery including pre-operative expenses: Rs.82.581 million.
Source of Fund:-	Expected to raise equity of Rs.29.170 million from member and Rs.53.411 million from financial institution as Block capital loan.
Sources of funds for working capital requirement	Expected to obtain 4.980 million from Mercantile Cooperative Finance Corporation Ltd. and mobilise deposits for remaining amount.
Source of raw material:	Locally through Project Command Area.
Project Period:	10 years.
Implementation Period:	20 months.

*CHAPTER - II***BACKGROUND**

Pakistan is endowed with rich Horticultural resources, Fruits are grown in 2,85,300 Hectares in the Country, out of this 2,00,327 Hectares (Annexure 1) of land is under Horticultural cultivation in Punjab Province. There is thus substantial scope of increasing the Horticulture in the Province. In Punjab Province fruits like Orange, mango, Banana, Guava, Lemon, etc. are grown commercially.

Presently about 35,600 Hectares is under Orange Plantation in Sargodha District. The total estimated production is about 2,95,000 tonnes. Sargodha District has developed into an important marketing centre for Orange growers. This part of the Province favours the commercial raising of citrus fruits like Oranges (Kinno).

Bhalwal is situated in Sargodha District of Punjab Province (Annexure 2 -- Map). The Bhalwal Tehsil comprising 2,12,817 "Hectares Area plan. The population of this District "as per Census 1981", was 1,05,98,053, of which 80% population depends on the Agriculture. The soils of Bhalwal are grey to black, well drained and deep which favour the commercial cultivation of different types of fruit crops. The cultivated area of Bhalwal in citrus fruit is 12.56% of

cultivated area of Bhalwal in citrus fruit is 12.56% of the total area (26,736 Hectares). The percentage of Small and marginal farmers in the Tehsil is quite substantial. The average rain fall is 512 M.M.S, (Annexure III). The total cultivated land mostly irrigated by canals and tubewells.

At present a total yield of 2,20,000 tons of Oranges in Bhalwal is estimated from the bearing plants in an Area of 18,700 Hectares) which is 70%. In an Area of 8,000 Hectares, Plantation ranging 1 to 5 years age is estimated. As per recommendations of Agriculture Department, 250 plants can be grown in a Hectare excluding morality (10%).

Plenty of labour force is available in the area, if the local labour is trained and used in harvesting and packing of oranges, it can provide better employment opportunities to the people of the area, presently the contractors bring the labour from outside of the area for picking, sorting, grading and packing of the fruits.

Presently farmers are getting plants from the local market which costs them from 4 to 5 rupees per plant.

There are two seasons for oranges marketing, the winter crop in 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 crops to Private contractors at flowering stage i.e. pre-harvest sell. The amount and volume of contract will depend upon the crop condition in the area. These contractors make payment of the contracted amount mostly in 2 to 3 instalments. 25% contracted amount is paid by the contractor at the time of making contract and remaining at the time of fruit picking. Sometimes instalment is paid in 2 to 3 parts depending upon the mutual consent. These contractors do not provide any kind of input services to farmers. As picking, sorting, packing and transportation is a specialised job, the contractor brings skilled labour from outside of the area, depriving the local people from the job opportunities.

Some small growers generally sell their produce in Sargodha market. As per practice, the growers carry their produce in vehicles like tractor trollies and matadors. Such are transported in the night or early in the morning, so they can attend auction in market/Mandi. The auction takes place in a fruit market, which is not regulated by the Government. Since the farmers are being received the prices in mandi from 1250 to 1360 per M.T. of orange. The growers will be very happy to receive the price of Rs.1300/- to 1400/- per M.T. at their orchards without incurring any harvesting and transportation cost.

9. As mostly the contractors 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 of market trend brings less returns. Similarly the practice of commission agents 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 costs and do not want to take any risk. The farmers feel satisfied if the orchard is sold on contract even at lowest price. The contractors have links with the whole-sale agents of Mandies in large cities i.e. Lahore, Rawalpindi, Islamabad and Karachi. The contractor works as middle-man between the growers and whole-sale agents. They usually get advance from the whole-salers to purchase orchard on contract.
10. Orange being perishable fruit cannot be stored for a long period. Mostly farmers want immediate return 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 too many private cold storages at Bhalwal and Sargodha which are not fully utilized. Storage is available at the rate of Rs.380/- per ton per season for two months only.

11. Bhalwal is situated at a distance of 40 Kilometers from Sargodha. Sargodha is well developed orange market due to availability of orange and transport facility. Sargodha and Bhalwal Railway Station is on Rawalpindi line via Lalamusa and Lahore via Sanglah Hills Junction. Railway parcel vans are easily available at Bhalwal and Sargodha and other towns of the District for despatching oranges to any part of the country.
12. In Sargodha District and nearby District, there is no processing unit. Only one grading centre near Bhalwal at present working for grading only and one processing unit is being constructed by private company, namely, Cargell which will be completed within 2 years where there is a demand for processing facility.
13. There is no Cooperative Fruit Marketing Society in the area nor any private company for marketing of fruit. So it is essential that an organised fruit marketing of orange growers should be introduced so that growers are assured of reasonable price for their produce. Such an organization would not only ensure better return to farmers by providing them appropriate marketing avenue but will also provide backward and forward linkages to further increase their income by increasing productivity and processing their produce.
- 14.(i) Due to present availability and anticipated growth in the orange production in Bhalwal and adjoining areas,

it is essential that a cooperative organisation with the involvement of growers is created to assure marketing of their produce at a remunerative and exploiting the potential for value addition of their produce by establishing a fruit processing unit.

- (ii) With the organised marketing and processing facilities the available labour in the area can be provided employment opportunities to a good extent.
- (iii) By establishing processing unit, atmosphere for industrial development can be created. Subsidiary industry like packing, cartoon, corck, etc. may come up
- (iv) There is a good scope for employing labour in picking of fruits, sorting, grading, packing and filling work in the processing industry..
- (v) With the organisation of growers cooperative marketing society, a better alternative for fruit marketing will be possible and monopoly of private contractors will be restricted.
- (vi) The objective of cooperative 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.

*CHAPTER - III*1. OBJECTIVES

The basic objective is to increase the income of orange growers of Bhalwal Tehsil. This objective will be achieved by promoting the following:-

- i) To provide a strong and sound alternative marketing channel for oranges which will be run and controlled by the growers.
- ii) To improve the productivity of oranges by providing better technical know-how, plant protection, disease control and organised practices.
- iii) To establish a nursery for supply of healthy plants to members on a reasonable price.
- iv) To motivate orange growers through interaction and involvement to develop leadership for developing the economic and social activities.
- v) To provide market information to orange growers.
- vi) To provide processing facilities for value addition returns.
- vii) To make efforts for gradual replacement of pre-harvest sale.
- viii) To provide extension services through appropriate Institutional and departmental agencies so as to improve productivity.

2. AREA OF OPERATION

Oranges are grown in all the area of Sargodha District. The mainly plantation area is Tehsil Bhalwal in Sargodha District. At present some parts of Tehsil Bhalwal are proposed as the project area as it has all the requisites for growing oranges.

3. LOCATION/AREA OF THE PROJECT

Two factors which greatly affect level of profitability of any processing enterprise are the location of the plant and wastage generally, particularly of raw material. To a large extent these are tied together. It is important that the processing plant should be sited as close as possible to the source of raw material.

It is proposed to establish the project at Bhalwal, District Sargodha taking into consideration the following factors:

- (i) Fruit growing area, specially citrus.
- (ii) Infrastructure facilities like electric power, water, fuel and motorable roads are available.
- (iii) Nearness to consumer's markets
- (iv) Availability of labour.

4. PROJECT COMPONENTS:

The following are the project components:

- i) For supply of orange plants, it is proposed that society will provide plants to orange growers on reasonable price.

- ii) Though the project area has sufficient Agricultural Department Staff. But it is felt that farm guidance is inadequate and no specific efforts are being made to increase the productivity of orange growers. Therefore, it is essential to have a separate farm guidance cell comprising 4 Horticultural Extension Workers, who can advise the farmers in adopting better agricultural practices and increase the productivity of orchards, improve system of irrigation, encourage inter-culture in plantations between 1-5 years etc.
- iii) The private traders/contractors are also performing a useful function in the area by collecting surplus oranges and selling the same to the consumers. The purpose is not to eliminate the traders/contractors completely but to regularise marketing practices and set a healthy trend. If the society procures 20% 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 society. This will ultimately result into achieving the good of economic benefit to producers.
- iv) The society would pay an average price of Rs.2000/- per ton to orange growers as against Rs. 1360/- to 1500/- per ton, this would be raised upto Rs. 2200/-.

5. POSSIBILITIES OF GETTING BASIC FACILITIES FROM THE AREA

- i) Land & Building:- The Project requires five hectares of land, which can be acquired by the existing cooperative at reasonable price. There is no problem for construction of the building since the manpower required is available locally.
- ii) Electricity:- Three phase electricity facilities are readily available but in winter season when snow falling in mountains starts, the water flow in rivers gets short to compensate this shortage. The Government starts load-shading. So as an alternative, it is proposed to instal a 50 k.v. Generator also.
- iii) Water:- Plenty of water for irrigation is available in the area, by water canals, as well as where the sweet ground water is available, government has also installed tubewells.
- iv) Raw Material:- Orange fruits are available sufficiently from the command area, so only a part of the total production is proposed to be utilised for the units any marginal fluctuations in the production will not adversely affect the functioning of the unit.
- v) Transport: The command area is linked with motorable roads and the raw material can be transported with minimum cost.
- vi) Setting up of By-Product Industry: The Society after establishing itself then the concentrates should study

the viability of processing plant for the by-products and may prepare projects for implementation if feasible.

CHAPTER - IV**DETAILS OF OPERATION****1. IMPLEMENTATION AND EXTENSION:**

The project period will be 10 years. During implementation the Society will provide package of services. It will provide backward linkages, such as supply of plants extension coordination, transport services etc. Supervision of members orchards, increase in area and increase in yield and also forward linkages for marketing of fresh fruits.

2. PROCUREMENT.

It will procure the oranges from growers with the approach of maximising the share of the growers in the sale proceeds of their produce. The price 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 price of the expected yield. Rest amount will be paid to farmers at the price 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. 2000/- is fixed then ABC grade should be paid as under:

<u>Grade</u>	<u>Diameter</u>	<u>Price</u>
A	9" & above	2200
B	6" to 8"	2000
C	Less than 6	1800

The price 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 2000/- per M.T. The growers will be given patronage price at the end of year in relation to value of oranges handed over to society which in initial 5 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.

3. PICKING, GRADING ETC.

At present contractors are arranging labour from outside of area for picking purposes. Local unemployed workers can be trained by the Society in a phased manner with the help of technical personnel.

At the time of picking, the fruit will be graded in 3 categories A, B and C on the spot and transported to the market. A and B grade oranges will be packed in Wooden boxes of 20 Kgs, and C grade in Gunny bags for marketing. On an average A, B and C quality oranges will be in the rate of 30%, 40% and 25% and

spoilage will be 5%.

4. **MARKETING**

Lahore being the big market, it is planned to sell A and B grade oranges in the wholesale market. The price of packed material is estimated @Rs. 3700/- per ton for A Grade and Rs. 3300/- per ton for B grade. The C grade fruit is normally in demand in Sargodha, Lahore, Rawalpindi at the rate of Rs. 2200/- per ton.

*CHAPTER - V*ORGANIZATION AND MANAGEMENT

The project will be implemented by Society which will be established under Cooperative Societies Act with the objectives of providing better marketing alternative to the growers for their orange produce and value addition of their increase production by way of establishing fruit processing plant. The Society will also have a very important task of providing backward linkages including farmer guidance to the orange growers of the area. The overall management policies will be regulated by a management committee. At present 6 Directors will be elected from the grower members. The Managing Director who will be elected out of Six Directors, shall also work as General Manager/Secretary of the Society/Committee. Bye Laws of the marketing and Processing Society will be framed in accordance with the Cooperative Act.

2. Powers of the day to day management and project execution will be vested in the Managing Director/General Manager of the Society who will work as per the policies and directions given by the management Committee from time to time.

3. The organization Chart of the Society will be as shown in the Chart (Annexure IV).

4. The MD/GM will look after the affairs of Administration/Management Committee and will also be responsible for whole of the project. The MD/GM will also be assisted by various officials as indicated below:

- i) Accounts and Finance: Manager Accounts and Finance will be incharge of the division and he will be assisted by Account Assistant/Cashier. Manager, Accounts and Finance will be responsible for arranging finance, banking, adjustment of sales realization, cost accounting and maintenance of all accounts.
- ii) Manager marketing will be responsible for purchase and sales through distributors. This department will be responsible for providing market intelligence.
- iii) Manager Procurement will look after orange development programme, which includes increase in production area, irrigated area for credit facilities liaison with various financing agencies. He will also coordinate input supply like fertiliser, pesticides, orange plants, maintenance of Nursery, Training, Demonstration, technical guidance, visit of farmers group to demonstration plots. He will also be responsible for development of cooperative relationship with farmer members and increasing the membership of the Society. Manager Procurement will also undertake evaluation studies at farm level to assess the benefits of farmer guidance system through

Horticulture Extension workers. 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 farmers.

- iv) Manager Administration will be incharge of Administration, unskilled labour and other matters relating to legal provisions and secretariat.
- v) Manager (Production) Plant. The Plant Manager will be incharge of Processing Plant. He will look after the maintenance, Production Schedule, utilization of plant capacity etc. with the help of maintenance incharge. He will keep liaison with Manager Marketing and Manager Procurement for procurement of raw material and marketing of finished products. The Plant Manager will also be responsible for quality control of the product. He will also keep watch and ward of factory.

CHAPTER - VI

FINANCIAL ANALYSIS

DETAILS OF THE PROJECT

Project Cost: Rs. 82.581 million as detailed below:

A. Fixed Costs

	(Rs. in Million)		
	Local Currency	Foreign Currency	Total
- Land (5 acres) and development	1.350	....	1.350
- Building & Civil Works	6.000	....	6.000
- Machinery			
a) Imported Machinery	---	51.180	51.180
b) Insurance, Surcharge, inland freight etc.	9.212	---	9.212
c) Local Machinery	5.778	----	5.778
d) Installation cost	---	2.231	2.231
- Vehicles	0.950	---	0.950
- Furniture and Fixture	0.200	---	0.200
- Pre-operational expenses	0.700	---	0.700
Total Fixed Costs:	<u>24.190</u>	<u>53.411</u>	<u>77.601</u>

B. Net Initial Working Capital

	<u>4.980</u>	<u>----</u>	<u>4.980</u>
--	--------------	-------------	--------------

TOTAL PROJECT COST

	<u>29.170</u>	<u>53.411</u>	<u>82.581</u>
--	---------------	---------------	---------------

Financial Plan

	Local Currency	Foreign Currency	Total
<u>Equity</u>			
Share Capital from members	29.170	---	29.170
<u>Debt</u>			
Loan from Financial Institutions	----	53.411	53.411
TOTAL	<u>29.170</u>	<u>53.411</u>	<u>82.581</u>

Debt Equity Ratio: Towards fixed cost : 69 : 31

Towards Overall Cost : 65 : 35

Mode of Financing: Foreign Currency Loan @ 11% interest plus 3% foreign exchange risk per annum.

Repayment Schedule Loan will be recoverable in 16 equal half yearly instalments commencing two and a half years after disbursement of first loan instalment.

Description of the Project

Introduction

The Cooperative Society after its establishment and generation of required funds will set up a fruit processing plant at Bhalwal, District Sargodha. The major outputs of the project will be citrus, mango and guava fruit juice drinks and concentrates.

Technology

The proposed project's fruit crushing capacity will be as under:

Citrus	2500 Kgs/hour	2.5 ton
Guava & Mango etc.	3000 Kgs/hour	3.0 ton
Total Capacity	<u>5500 Kgs or 5.5 Tons per hour.</u>	

The crushing/juice extraction period is expected to be as follows:

Citrus	:	120 days
Mango	:	50 days
Guava	:	40 days
Total annual		
crushing days	=	210 days

The plant will operate on the basis of two shifts of eight hours each. Number of working days per year are assumed to be 300.

The production process is as under:

(a) CITRUS JUICE EXTRACTION

After unloading and quality inspection, the fruits will be stored in silos. It will be then sent to the washer for automatic washing with brushes, detergents and germicides and transferred to the extraction unit. From there, the extracted juice will be sent to the centrifugal separator. In the centrifugal separator, the pulp contents will be purified and transferred to the reception vessel and pumped into the concentrator in the evaporation section. After concentration, the concentrated juice will be pasturized, cooled in the plant and filled in drums or other containers till they are required for reconstitution.

(b) MANGO AND GUAVA JUICE EXTRACTION: The fruit will be thoroughly washed after reception and then stored. It will then be transferred to the pulper through conveyors for separation of stones and skins and rough pulping. This mass will be forced to the filter from where it will be sent to another set of pulpers. Finally, by means of a piston pump the pulped mass will be transferred to a basin from where it will be sent either to the

line for production of nectar and fruit juice or to the basin placed in front of the evaporation section where it will be concentrated, pasturized and cooled down for filling into drums.

(c) RECONSTITUTION OF JUICE DRINKS FROM FRUIT CONCENTRATES

The concentrated juice will be transferred by pipes into mixing tanks where an adequate quantity of treated water and sugar will be added to a measured quantity of the concentrate. The prepared juices or nectars will be homogenised and deaerated in order to separate the incorporated air which could adversely affect the chemical properties of the finished product. It will then be sterilized, cooled to filling temperatures, filled in aseptic packs and stored.

(d) PACKING SECTION:

The juice will be packed in aseptic containers (laminated paper board boxes). The section will include three packing machines each with a capacity of 3000 packs per hour. Assuming two shift operations and 300 working days, the total packing capacity works out to 43.200 million packs per year.

MARKETING ANALYSIS

The market for fruit drinks has been increasing over the past few years. The growth, in particular, has been for fruit juice drinks packed in disposable, aseptic containers. Apart from the production from modern fruit processing plants such as Frost, Bambino, Golden, many entrepreneurs without extraction facilities are simply packing fruit juice drinks after

mixing to cater to existing demand. This situation will change, once units presently under construction come into operation. Nevertheless, the market for fruit juice drinks is likely to grow. A survey conducted by Coca Cola Export Corporation of Pakistan, to determine the market for fruit drinks, revealed a distinct shift of demand towards fruit juice drinks within the beverages market. This is reflected in the considerable interest and investment in the industry on the part of cooperative Society. Projections of the growth of the market for beverages and estimates of the supply of fruit juice drinks (from existing and sanctioned units) are shown below:

Years	Total Beverage Market Million Bottles	Estimated Supply of fruit drinks (Million Bottles/Packs)	Percentage Share of Fruit Drinks
1983-84 (actual)	960	80.0	8.0
1984-85	1104	157.68	14.0
1985-86	1270	233.42	15.0
1986-87	1460	270.36	18.0
1987-88	1679	420.678	25.0
1988-89	1931	575.084	30.0
1989-90	2221	610.230	27.0
1990-91	2554	617.402	24.0
1991-92	2937	617.402	21.0
1992-93	3379	617.402	18.0

While the projection of the growth of the beverages market (and as a consequence the share of that market which the

fruit juice industry would have to attain given its production capacity) appears optimistic, there are certain factors which suggest that these estimates may not be unreasonable.

Firstly, the base from which the projections have been made is almost certainly on the low side, given considerable under-reporting of production by beverage units to evade taxes. Secondly, the supply of fruit juice drinks over the period projected is likely to be over-estimated as the production capacity of certain units is based on three shift operations which is unlikely to be achieved in practice. Thirdly, current Government policy is to discourage the expansion of capacity in the synthetic based carbonated beverages industry which use imported raw materials.

Fruit concentrates for export purposes will also be manufactured and fruit drinks for local market. At 100% efficiency level the project will produce 46.442 million packs of fruit juice drinks and 1616 tonnes of concentrates.

Product Details/Specification

The products of the project will have the following packing sizes and prices:

Sr.No.	Products	Type of Packing	Size	Ex-Factory Price/unit	Retail Price
1.	Fruit Drinks	Tetra Brick	250 ml.	Rs.2.25	Rs. 3.50
2.	Fruit Concentrates:				
	---Mango	Bag in Box	200 Kg	Rs.4000/-	
	---Citrus & Guava			Rs.3500/-	

The cost of packing is assumed to be as follows:

	<u>Sizes</u>	<u>Price/Pack</u>
-- Tetra Brick Cartons	250 ml.	Rs.0.75
-- Bag in Box	200 kg	Rs.120/-

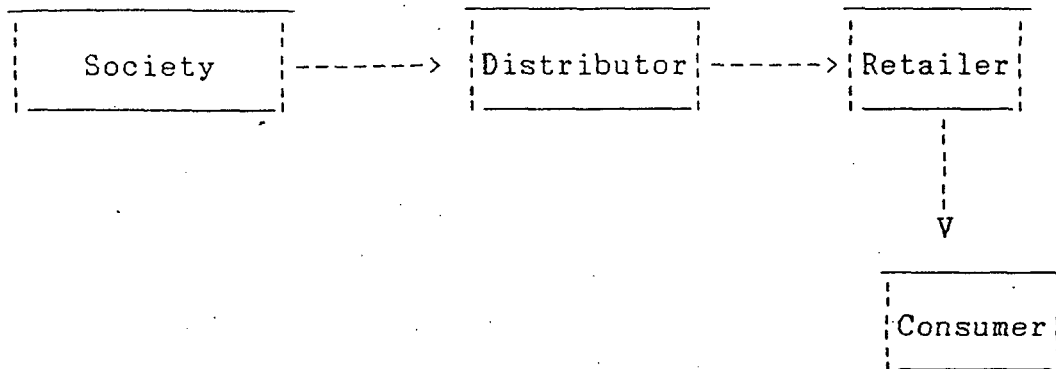
Distribution Channel

The distribution of concentrates abroad will be handled by the importers. As far as the distribution in local market is concerned, the Society will appoint ten distributors in the following cities who will cover the respective territories:-

<u>Distributor</u>	<u>Territory</u>
Karachi	Karachi
Hyderabad	Hyderabad
Quetta	Quetta/Balochistan
Multan	Multan
Lahore	Lahore
Gujranwala	Gujranwala/Sialkot
Faisalabad	Faisalabad
Sargodha	Sargodha
Rawalpindi	Rawalpindi/Islamabad
Peshawar	Peshawar/NWFP

The distributors and retailers' margins will be Rs. 0.15 and Rs. 0.60 per pack respectively. These are in line with margins prevailing in the market for similar products.

The following channel of distribution will be adopted by the Society for local sales:



Procurement of Fruit

The fruit procurement of the project will be easily met from the adjoining fruit producing areas through Society. The requirement of raw materials and their cost will be as follows:

<u>Fruit</u>	<u>Quantity (Tonnes)</u>	<u>Price/ton (Rs.)</u>
Ciitrus	4,800	2,000 to 2,200
Mango	2,400	5,000
Guava	1,920	2,000
Sugar	1,070	800

Packing material will be procured from M/S Tetra Pak (Pvt) Ltd. Lahore.

Implementation Programme

The project will be implemented in one and a half years.

The capacity utilization schedule is assumed as follows:

1st year	60%
2nd year	70%
3rd year	80%
4th year	90%

Expected Economic Impact

- Return to the Economy
[value added (4th year)] Rs.38.158 million
- Employment Created 100 persons
- Value added per worker Rs.0.407 million (4th year)
- Fixed Cost/job created Rs.0.826 million.

Profitability

- IRR on equity = 50.6%
- on total investment = 31.3%
- Net present value (NPV) = Rs. 60.061 million
- Benefit cost Ratio (BCR) = 1.15
- Return on investment (4th year)= 22.3%
- Payback period 4.4 years
- Breakeven Point (Capacity) 48%
- Debt Service coverage Ratio

2nd year	1.62
3rd year	1.91
4th year	2.19
5th year	2.20

Justifications of the Project

This project is justified on the following grounds:

- It is financially and technically viable
- It will contribute to GNP
- It will provide incentive to fruit growers by creating a marketing outlet.
- The project will earn foreign exchange through export of its products.

*CHAPTER - VII*RECOMMENDATIONS

1. Considering the growers of orange plantation in the project area, it is the prime need of the hour to organise a systematic marketing so that the growers are assured of a reasonable price for their produce.
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, Punjab Provincial Cooperative Bank Ltd. and Federal Cooperative Bank of Pakistan should come forward to provide the long term loan for setting up of the processing plant.
3. Agriculture Department should provide all necessary inputs. Technical guidance to the growers in coordination with the society. 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, Faisalabad should take up reasonable programmes to provide latest technology to the growers in the area.
4. The Society should capture the minimum share of orange produce and also try to increase the yield per acre.

5. The 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.
6. The Society with the help of Cooperative Department should tie up marketing strategy with the institutions like NCSC and District Cooperative Market, Defence Serving and Tourism Development Corporation.
7. The Society should arrange for training in picking of oranges in order to provide gainful employment to the local youth.
8. The Society should start working with the objective of establishing processing unit. All necessary arrangements should be completed in a phased manner so that unit could be installed.
9. The input requirements of the members of the Cooperative be arranged well in time by coordinating the activities with the field level officers of the Agriculture Department.
10. The processing unit should increase its production by procuring more production gradually so that capacity of the plant can be increased.

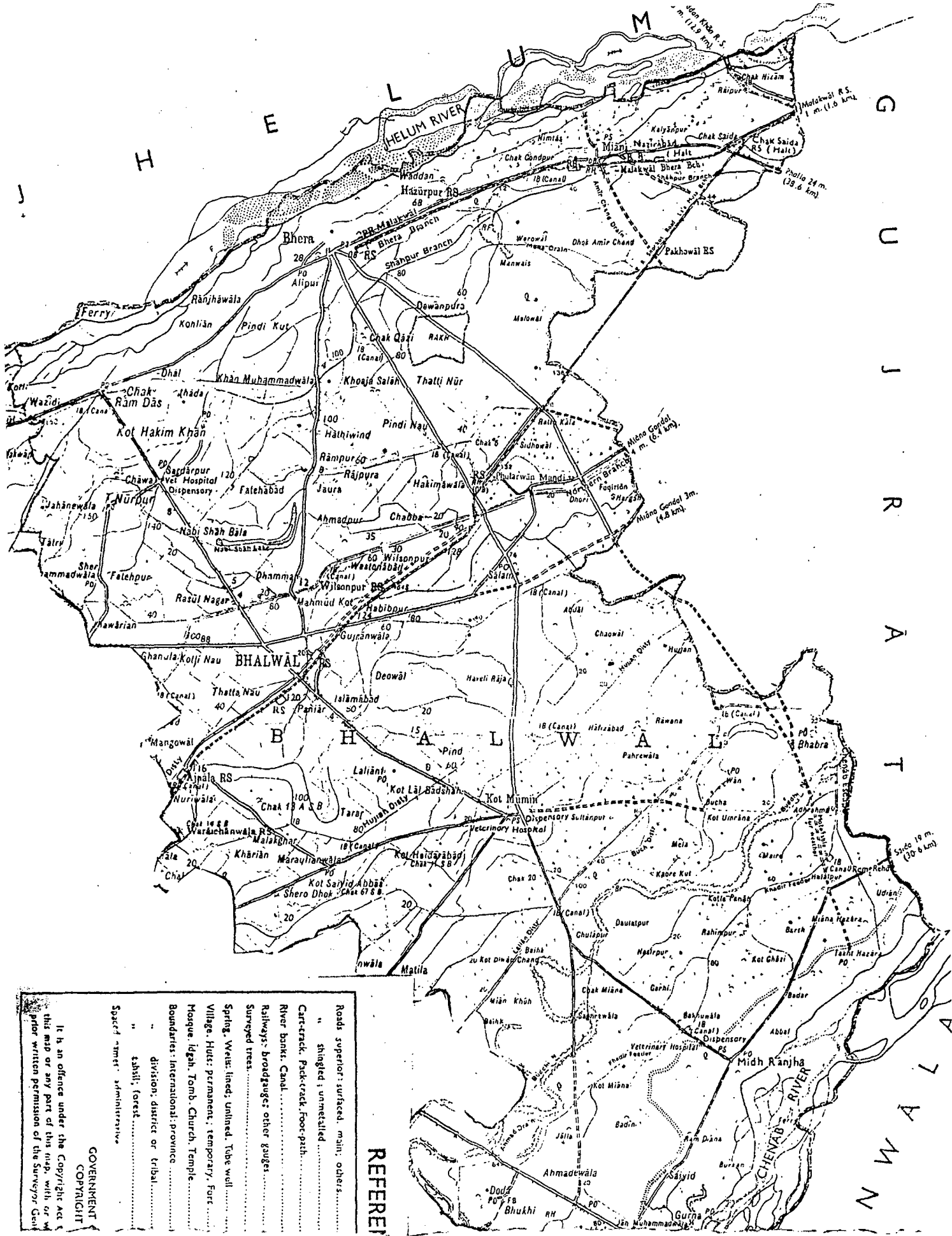
ANNEXURE 1AREA & PRODUCTION UNDER FRUIT CROP CULTIVATION IN PUNJAB AND COMMAND AREA

Name of the Fruit Crop	Area in Hectares Punjab	Production in Punjab (Tonnes)	Area in Hectares in Command Area (Sargodha)	Production in Command Area (Tonnes)
1. Orange (Kinno)	172360	1407448	35603	295000
2. Lemon	8183	50617	1725	12150
3. Banana	739	3219	241	994
4. Guava	19045	144735	1661	13516

Source: Crop Agriculture Reporting Centre, Rawalpindi Division.

ANNEXURE 3RAIN FALL DURING LAST TEN YEARS IN SARGODHA DISTRICT

S.No.	Year	Rainfall in mm
1.	1979	587
2.	1980	686
3.	1981	577
4.	1982	767
5.	1983	637
6.	1984	568
7.	1985	435
8.	1986	309
9.	1987	326
10.	1988	305

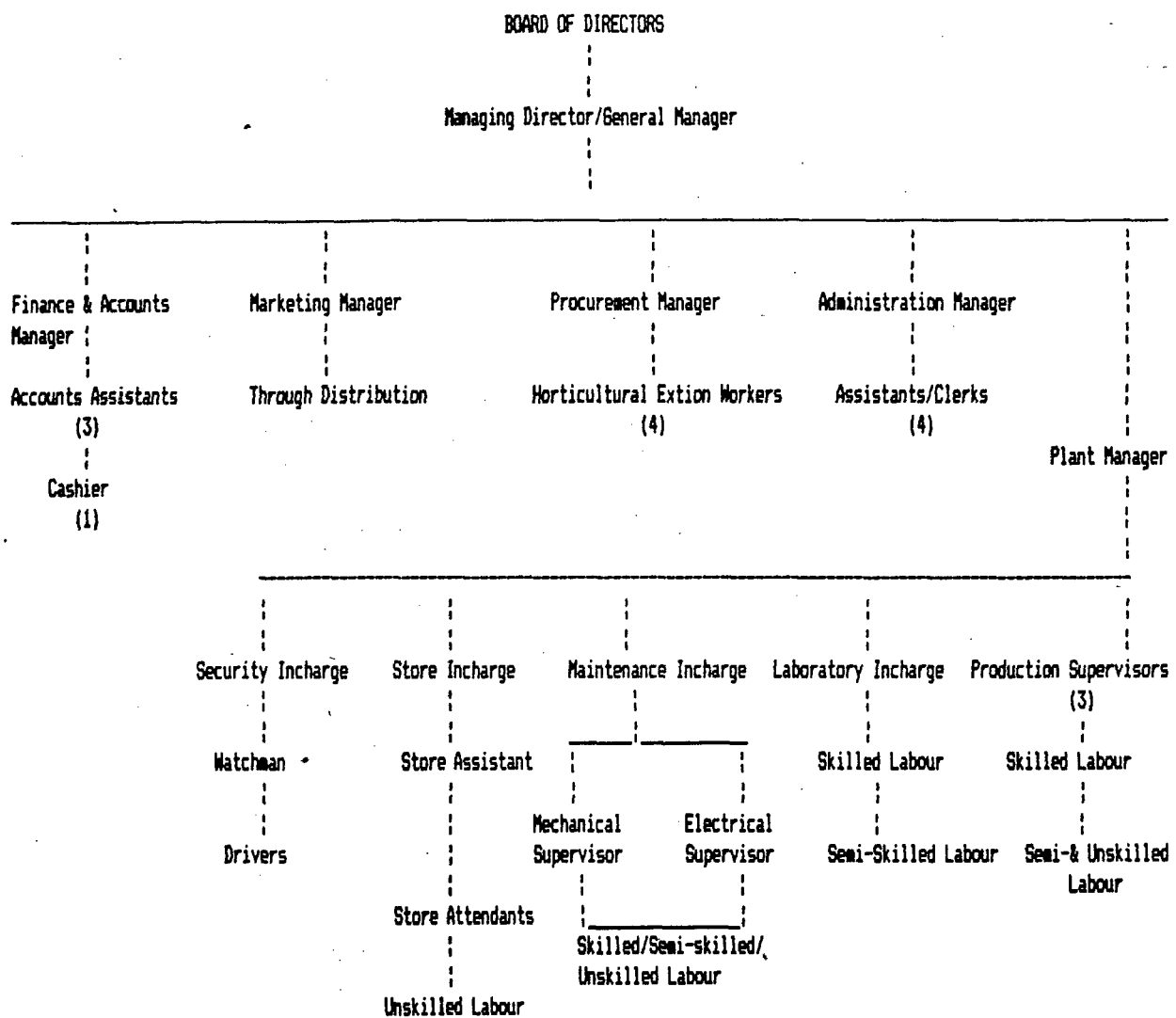


REFERENCE

- Roads superior surfaced, main; others
- " single-lane; unmetalled
- Cart-track, Pack-track, Foot-path
- River banks, Canal
- Railways, broad-gauge; other gauges
- Surveyed trees
- Spring, Wells: lined, unlined, Tube well
- Village, Hut: permanent, temporary, Fort
- Mosque, Idgah, Tomb, Church, Temple
- Boundaries: international, province
- " division, district or tribal
- " tahsil, forest
- Sacred "temple, administrative

GOVERNMENT
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COST OF CIVIL WORKS

(Rs.000)				
S.No.	Items	Area Sq.Meters	Rates Rs./Sq.Meter	Total Cost
1.	Fruit Extraction	500	1500	750
2.	Juice Processing & Concentration	300	1500	450
3.	Reconstitution	300	1500	450
4.	Packing	300	1000	300
5.	Electricity, Compression & Laboratory	50	1500	75
6.	Boiler Room	80	1500	120
7.	Workshop	50	1500	75
8.	Fresh Fruit Sheds	350	1000	350
9.	Chilled Room	1000	1500	1350
10.	Godowns	600	1000	600
11.	Administration Block	200	1000	200
12.	Gate Office	20	1200	24
13.	Tubewell Dia 3"	--	--	100
14.	Overhead/Underground Water Tank	--	--	220
15.	Housing Colony	750	1200	900
	Total Cost of Civil Works	<u>3750</u>		<u>5964</u>

(Say Rupees 6.000 Million).

ANNEXURE 7DETAILS OF FOREIGN MACHINERY COST

	(Rs. in million)	
	Local Currency	Foreign Currency
Processing Line	--	31.500
Packing Line	--	19.680
Insurance, Surcharge, Inland Freight etc. on Processing Line	5.670	---
Insurance, Surcharge, Inland Freight etc. on Packing Line	3.542	----
Installation Cost	---	2.231
TOTAL	9.212	53.411

ANNEXURE 8COST OF RAW MATERIALS

	(Rs. in Million)		
	Quantity (Tonnes)	Rate/tonne (Rs.)	Total Cost
Citrus	4800	2000	9.600
Mango	2400	5000	12.000
Guava	1920	2000	3.840

ANNEXURE 9

DERIVATION OF UNIT COSTS

	Allocation	Allocation of Cost (Rs.million)	Unit Cost (Rs./Unit)
<u>Mango</u>			
-- Juice Drink	48%	5.760	0.330
-- Concentrate	52%	6.240	1667
<u>Citrus</u>			
-- Juice Drink	46%	4.416	0.250
-- Concentrate	54%	5.184	1196
<u>Guava</u>			
-- Juice Drink	40%	1.536	0.130
-- Concentrate	60%	2.304	531

ANNEXURE 10

UTILITIES

	Variable Cost (Rs./KWH)	Fixed Cost (Rs./KWH)
600	0.39	85.00
Variable Cost = 600 X 16 X 330 X 0.39	=	1235520
Fixed Cost = 600 X 12 X 85	=	612300

JUICE EXTRACTION

1.1 FRUIT HANDLING

- Citrus 2500 Kg/hour
- Guava & Mango 3000 Kg/hour

1.2 JUICE EXTRACTION PERIOD

- Citrus 120 days
- Mango 50 days
- Guava 40 days
- Total 210 days

1.3 ANNUAL FRUIT REQUIREMENTS
(16 hours - 2 shifts/day)

- Citrus 4800 Tonnes
- Mango 2400 Tonnes
- Guava 1920 Tonnes
- Total 9120 Tonnes

ANNEXURE 12

JUICE SALE PROGRAMME

	CITRUS	MANGO	GUAVA	TOTAL
Fruit Drinks	4412 (20%)	4319 (16%)	2881 (16%)	11612
<u>Packs Sales/Annual:</u>	<u>Pack</u>	<u>(Rs. Million)</u>		
Pack capacity	250 ml	200 Kg		
<u>Citrus</u>				
- Concentrate	----		0.880	
- Fruit Drinks	17,648		--	
<u>Mango</u>				
- Concentrate	--		3.745	
- Fruit Drinks	17,276		---	
<u>Guava</u>				
- Concentrate	--		3.455	
- Fruit Drinks	11,524		--	
Total	46,448		8.080	

Concentrate (200 Kg bags)

Mango 3,745
Citrus 880
Guava 3,455

ANNEXURE 13

1. Juice Yield, Annual

- Citrus @ 40%	1920 Tonnes
- Mango @ 60% (Puree)	1440 Tonnes
- Guava @ 60% (Puree)	<u>1152 Tonnes</u>
Total:	<u>4512 Tonnes</u>

2. Juice Concentrate Production, Annual

- Citrus Concentrate (65 ⁰ Brix)	326 Tonnes
- Mango Puree (17 ⁰ Brix)	1440 Tonnes
- Guava Puree (17 ⁰ Brix)	<u>1152 Tonnes</u>
Total:	<u>2918 Tonnes</u>

3. Concentrate Allocation Programme

	Citrus (65 ⁰ Brix)	Mango (17 ⁰ Brix)	Guava (17 ⁰ Brix)	Total (Tonnes)
Export as Concentrate	176	749	691	1616
Sales as Fruit Drinks in local market	150	691	461	1302
Total Tonnes:	<u>326</u>	<u>1440</u>	<u>1152</u>	<u>2918</u>

BREAK EVEN CAPACITY

	(Rs. Million)	
	Fixed Cost	Variable Cost
Raw Material	--	63.473
Labour	2.40	--
Utilities	0.612	2.798
Repair and Maintenance	0.592	--
Stores and Spares	0.824	--
Excise Tax	---	4.180
Debt Servicing	15.569	--
Administration Expenses	0.885	---
General Expenses	0.600	---
Selling Expenses	----	7.960
	<u>22.794</u>	<u>78.411</u>

Sales = 121.182
 Break even capacity = 48%

ANNEXURE 15

WORKING CAPITAL REQUIREMENTS
(Million Rupees)

Current Assets

1.	Stocks		3.045
	(a) <u>Raw Materials</u>		
	- Fruit	7 days	
	- Packing Material	30 days	
	- Sugar/Chemicals	30 days	
	(b) Stores and Spares	60 days	0.137
	(c) Finished goods	15 days	6.185
2.	Accounts Receivable	7 days	1.706
3.	Cash		
	- Wages & Salaries		1.541
	- Utilities		
	- Repair & Maintenance		
	- Admin & General Expenses	30 days	
	- Selling Expenses		
	- Excise & Tax		
4.	Insurance		0.952
	Total Current Assets.		10.384

Current Liabilities

1.	Accounts Payable (for packing 15 days only)		1.074
2.	Commercial Bank Loan		4.330
	Total Current Liabilities		5.404
	Net Initial Working Capital		4.980

ANNEXURE 16

SALARIES AND WAGES

	Number	Salary (Rs.)	
		Monthly	Annual
<u>Direct</u>			
General Manager	1	8,000	96,000
Plant Manager	1	6,500	78,000
Procurement Manager	1	5,000	60,000
Production Supervisors	3	4,000	1,44,000
<u>Juice Processing Area</u>			
Skilled	4	1,000	48,000
Semi-skilled	4	800	38,400
Unskilled	8	600	57,600
<u>Tetra Pack Filling & Packing Area</u>			
Skilled	4	1,500	72,000
Semi-skilled	8	800	76,800
<u>Utilities Section</u>			
Skilled	4	1,500	72,000
Semi-skilled	4	800	38,400
Unskilled	2	600	14,400
<u>Laboratory Section</u>			
Incharge	1	3,000	36,000
Skilled	5	1,000	60,000
Semi-skilled	5	800	48,000
<u>Maintenance Section</u>			
Incharge	1	5,000	60,000
Mechanical Supervisor	1	3,000	36,000
Electrical Supervisor	1	3,000	36,000
Skilled	4	1,500	72,000
Semi-skilled	4	800	38,400
Unskilled	2	600	14,400
<u>Stores Section</u>			
Store Incharge	1	2,500	30,000
Store Assistants	2	1,000	24,000
Unskilled	2	600	14,000
<u>Security Section</u>			
Incharge	1	2,500	30,000
Watchman	6	600	43,200
Drivers	3	1,000	36,000
	83		13.74,000

Add Fringe Benefits @ 55%			7,55,700
Total Direct Salaries and Wages			21.29,700
<u>Admin Expnses</u>			
Admin Manager	1	3,000	36,000
Marketing Manager	1	3,000	36,000
Assistants/Clerks	4)	1,000	120,000
Horticulture Extension Worker	4)		
Peon	2	600	24,400
Accounts Manager	1	3,000	36,000
Accounts assistants	4	1,000	48,000
	---	-----	-----
	17		290,400
Add Fringe Benefits @ 55%			159,720

Total			450,120

Annexure 17

INVESTMENT STRUCTURE AND SCHEDULE

	(Rs. in Million)								
	At Implementation			Replacement Year 5			Depreciation Rate	Depreciation Authorization	
	L.C.	F.C.	Total	L.C.	F.C.	Total			
Land & its Development	1.350	-	1.350	--	---	---	0%	0.000	
Civil Works	6.000	--	6.000	--	--	--	5%	0.300	
Machinery	14.990	53.411	68.401	--	--	--	10%	6.840	
Vehicles	0.950	--	0.950	0.950	--	0.950	20%	0.190	
Office Equipment & Furnitures	0.200	--	0.200	--	--	--	10%	0.020	
Pre-operation expenses	0.700	--	0.700	--	--	--	10%	0.070	

Sub-Total	24.190	53.411	77.601						
Financial Charges during Construction	7.478	--	7.478				10%	0.748	

Grand Total	31.688	53.411	85.079	0.950	--	--	9.6%	8.168	

RAW MATERIAL UNIT COST

Raw Material	Product -----> Reference Unit-->	Conc. Citrus/Guava 200 Kg.	Conc. Mango 200 Kg.	Mango 250 ml.	Guava 250 ml	Citrus 250 ml.
Citrus		1196.00	---	---	---	0.25
Mango		---	1667.00	0.33	---	---
Guava		531.00	---	---	0.13	---
Packing		120.00	120.00	0.75	0.75	0.75
Sugar		---	---	0.20	0.20	0.20
Total		1847.00	1787.00	1.28	1.08	1.20
As %age Unit Sale Price		52.8%	44.7%	57.0%		48.2%

INCOME STATEMENT

Years --	1	2	3	4	5	6	7	8	9	10
Sales	76.749	93.580	107.04	120.509	121.182	121.182	121.182	121.182	121.182	121.182
Production Costs										
Raw Materials	42.315	49.368	56.420	63.473	63.473	63.473	63.473	63.473	63.473	63.473
Labour	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
Utilities	2.477	2.788	3.099	3.410	3.410	3.410	3.410	3.410	3.410	3.410
Stores and Spares	0.824	0.824	0.824	0.824	0.824	0.824	0.824	0.824	0.824	0.824
Maintenance & Repairs	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952
Excise Tax	2.786	3.251	3.715	4.180	4.180	4.180	4.180	4.180	4.180	4.180
Insurance	.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952
Depreciation	7.350	7.350	7.350	7.350	7.350	7.350	7.350	7.350	7.350	7.350
Total Production costs	60.057	67.885	75.713	83.541	83.541	83.541	83.541	83.541	83.541	83.541
Inventory Adjustment										
Raw Material - Open Stock	3.045	3.552	4.059	4.567	4.567	4.567	4.567	4.567	4.567	4.567
- Close Stock	3.552	4.059	4.567	4.567	4.567	4.567	4.567	4.567	4.567	4.567
Finished Goods -Open Stock	----	3.003	3.394	3.786	4.177	4.177	4.177	4.177	4.177	4.177
-Close Stock	3.003	3.394	3.786	4.177	4.177	4.177	4.177	4.177	4.177	4.177
Net Adjustment on Finished Goods	(3.003)	(0.391)	(0.391)	(0.391)	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost of Sales	57.054	67.494	75.322	83.149	83.541	83.541	83.541	83.541	83.541	83.541
Gross Margin	19.694	26.086	31.723	37.360	37.641	37.641	37.641	37.641	37.641	37.641
Operating Costs										
Administrative Salaries	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885	0.885
General Expenses	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600
Selling Expenses	5.306	6.191	7.075	7.960	7.960	7.960	7.960	7.960	7.960	7.960
Total Operating Expenses	6.791	6.676	8.560	9.445	9.445	9.445	9.445	9.445	9.445	9.445
Operating Profit	12.903	18.410	23.163	27.915	28.197	28.197	28.197	28.197	28.197	28.197
Non-Operating Expenses										
Financial Charges	9.130	10.324	9.597	8.627	7.798	6.170	5.470	4.060	2.444	0.606
Authorization	0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818
Total Financial Charges	9.948	11.142	10.407	9.445	8.616	7.528	6.287	4.878	3.262	1.426
Profit before tax (7%)	2.955	7.268	12.756	18.470	19.581	20.669	21.910	23.319	24.935	26.771
Workers Part, Fund	0.193	0.478	0.834	1.200	1.281	1.353	1.433	1.526	1.631	1.761
Tax holiday (5 years) Rate 40%	0.000	0.000	0.000	0.000	0.000	7.727	8.190	8.719	9.322	10.008
Net Profit	2.761	6.793	11.921	17.145	18.300	11.590	12.286	13.079	13.982	15.013
RATIOS										
Gross Margin/Sales	25.7%	27.9%	29.6%	31.0%	31.1%	31.1%	31.1%	31.1%	31.1%	31.1%
Operating Profit/Sales	18.8%	19.7%	21.6%	23.2%	23.3%	23.3%	23.3%	23.3%	23.3%	23.3%
Pre-tax Profit/Sales	3.8%	7.8%	11.9%	15.2%	16.2%	17.1%	18.1%	19.2%	20.6%	22.1%
Return on Investment	3.6%	8.8%	15.5%	22.3%	23.8%	15.1%	16.0%	17.0%	18.2%	19.5%
Return on Equity	9.5%	23.3%	40.9%	58.8%	62.7%	39.7%	42.1%	44.8%	47.9%	51.5%

CASH FLOW STATEMENT

Years --	0	1	2	3	4	5	6	7	8	9	10
INFLOWS											
Revenues from sales	76.749	93.580	107.044	120.509	121.182	121.182	121.182	121.182	121.182	121.182	121.182
Total Inflows	76.749	93.580	107.044	120.509	121.182	121.182	121.182	121.182	121.182	121.182	121.182
OUTFLOWS											
Operational Cash	52.707	60.535	68.363	76.191	76.191	76.191	76.191	76.191	76.191	76.191	76.191
Expenses (Depreciation etc)											
General, Adm., Selling Expenses	6.791	7.676	8.560	9.445	9.445	9.445	9.445	9.445	9.445	9.445	9.445
Funds from Operations	17.250	25.369	30.121	34.874	35.547	35.547	35.547	35.547	35.547	35.547	35.547
Increase/Decrease											
General Fixed Assets	76.901	0.000	---	---	---	---	---	---	---	---	---
Pre-Production Expenses	0.700	0.000	---	---	---	---	---	---	---	---	---
Inventories, Raw Materials	3.045	0.507	0.507	0.000	---	---	---	---	---	---	---
Inventories, Finished Goods	0.000	3.003	0.391	0.391	---	---	---	---	---	---	---
Inventories, Spares	0.137	---	---	---	---	---	---	---	---	---	---
Total Outflows	80.783	63.009	69.110	77.822	86.027	86.535	85.635	85.635	85.635	85.635	85.635
Salvage Benefits											
-On Fixed Assets at 10% initial value											7.551
-On working capital											8.744
Benefits before Financing	80.783	13.740	24.470	29.222	34.482	34.597	35.547	35.547	35.547	35.547	51.846
-- Investment Recovery Period (Years) = 3.4											
-- Benefit/Cost Ratio at 15% = 1.15											
-- Net Present value at 15% = 60.061											
-- Internal Rate of Return on All Resources = 31.3%											
Total Loans Received	53.411	---	---	---	---	---	---	---	---	---	---
Debt Servicing	---	3.724	(15.570)	(15.570)	(15.570)	(15.570)	915.570)	(15.570)	(15.570)	(15.570)	(0.608)
Accounts Receivable	---	(1.706)	(0.284)	(0.284)	(0.284)	---	---	---	---	---	2.558
Accounts Payable	1.074	0.179	0.179	0.179	---	---	---	---	---	---	(1.611)
Net Financing	54.485	2.197	(15.675)	(15.675)	(15.854)	15.570	15.570	15.570	15.570	15.570	0.341
Benefit after Financing	(26.298)	15.937	8.795	13.548	18.625	19.027	19.977	19.977	19.977	19.977	52.187
Internal Rate of Return after External Financing = 56.2%											
Taxes & Para-Taxes											
Workers Part, Fund	---	0.193	0.476	0.834	1.200	1.287	1.352	1.433	1.526	1.631	1.751
Taxes on Profit	---	---	---	---	---	---	7.727	8.190	8.719	9.322	10.009
Benefits after Taxes	(26.298)	15.744	8.320	12.713	17.428	17.746	10.898	10.354	9.733	9.025	40.427
- Equity Pay Back Period (Years) = 2.2											
- Internal Rate of Return on Equity after Taxes = 50.6%											

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

Mr Tariq Hussain Nadeem, Pakistan

(other than those made by the group presentations)

1. Separate statement for cash required for working capital should be shown. It should be separated from the cash flow statement. (annex 22)
2. Equity to be raised from members seems very large. Small farmers cannot participate in the project.
3. Compared to production processing is low. Controlling of prices after processing will be difficult.
4. No sensitivity analysis is done.
5. Basic data, supporting data is not adequate. Not possible to work out feasibility of project in absence of these.
6. Profitability in terms of each product should be worked out.
7. Sensitivity analysis when done will change IRR and investment finance drastically.
8. Working capital in this project has been calculated differently.
9. Considerable editing in project documentation is needed.
10. Many tables not needed are included.
11. Cross reference is missing.
12. Spoilage is not considered in estimations.

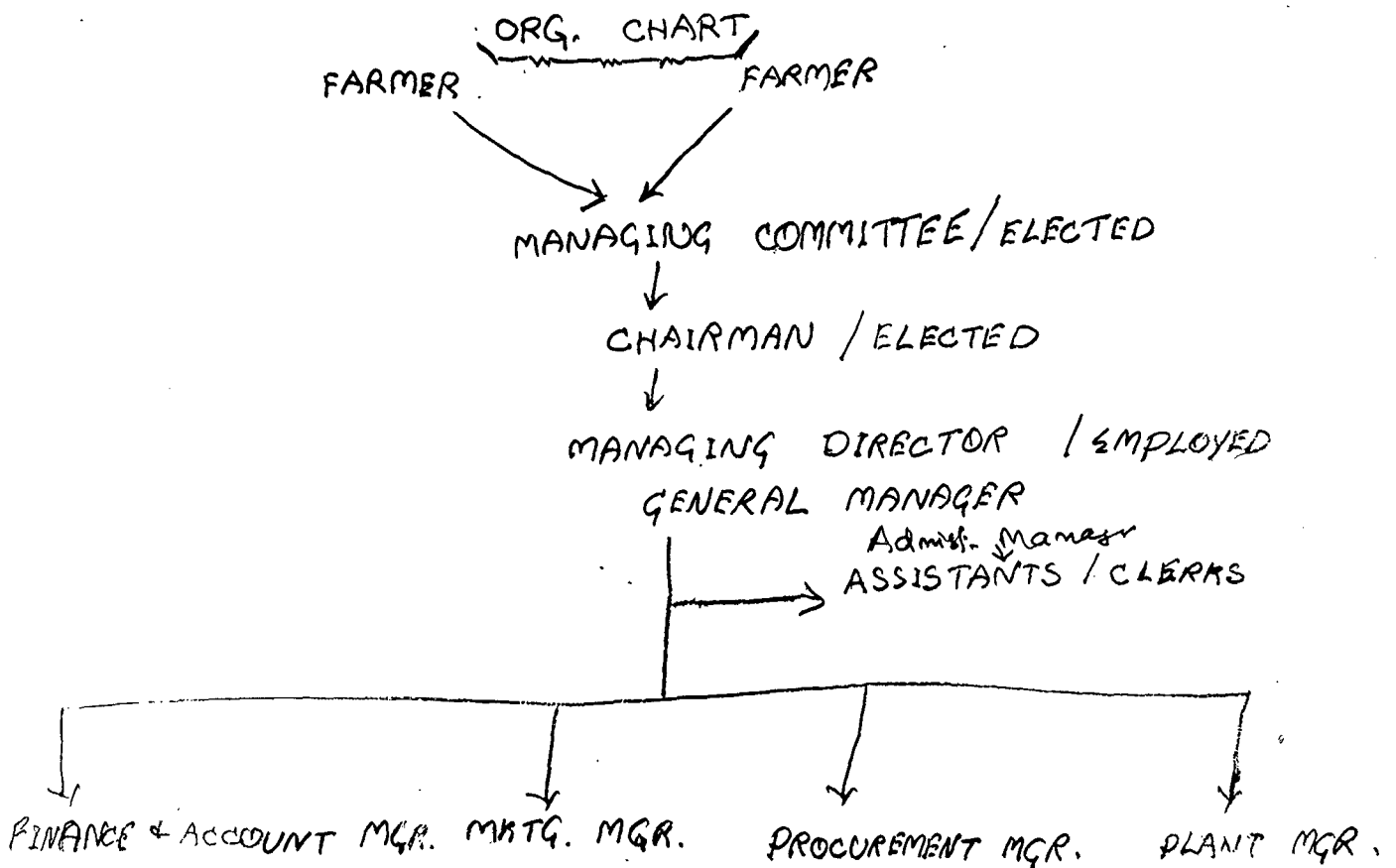
ORANGE - PAKISTAN

2/3/90 G.A

ORGANIZATION & MANAGEMENT + MBR. PARTICIPATION

1. AT PRESENT 6 DIRECTOR WILL BE ELECTED FROM FARMER MBR., AS OUT OF 6 ONE WILL BE THE MANAGING DIRECTOR.

→ SUGGESTION : MANAGING COMMITTEE SHOULD ELECT CHAIRMAN AND MANAGING DIR. / GENERAL MANAGER MUST BE PERMANENT EMPLOY OF THE ORGANIZATION.



Group B - Background / Justification

1. Statistic for last 5 years on Sales / Sale Price of Fruit should be given.
2. Justification / Background have been clearly spell out in the report. but in order to be successful project, the obstacles of the projects in this area must be considered, are there any obstacles?

2/3/90

GROUP C

Orange / fruit processing + marketing

- 1) Cash budget is not shown / prepared.
- 2) Repayment schedule should be prepared.
- 3) Chapter 6, p. 21 Capital investment shown as fixed cost, should be corrected.
- 4) Depreciation should not included in Cash Flow.
- 5) How to get the revenue in the 0 year?
- 6) Spoilage of 3% (p. 17) is not accounted in the sale revenue.

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

TITLE OF PROJECT : INTEGRATED PADDY PROCES-
SING AND MARKETING PROJECT

FEDPADDYPRO

COUNTRY : PHILIPPINES

PROJECT PREPARED BY : ADOLFO M. DELA PEÑA

Funded by the Government of Japan

and

Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and Korea

ICA Management Training Project for Agricultural Cooperatives in Asia

INTERNATIONAL COOPERATIVE ALLIANCE

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Route des Morillons 15
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My dear wife and children, for their love, inspiration and guidance that serve as my strength and inspiration to finish the training course.

To all my friends, peers, officemates and superiors who in one way or another have extended their assistance in the pursuit of my training course.

But above all, to the Almighty Above for without him all of these have not been realized.

ADOLFO M. DELA PENA
Trainee

Philippines, February 1990

CONTENT

Approximate No. of Pages

1. Acknowledgement.
- ii. Content
 - Chapter 1. Summary
 - Chapter 2. Background
 - 2.1 Overall situation (with reference to commodity)
 - 2.2 Area of Project
 - 2.3 Problems faced by farmers
 - 2.4 Need and Justification for the project.
 - Chapter 3.
 - 3.1 Objectives
 - 3.2 Area of operation
 - 3.3 Project Components
(List all components such as procurement, processing marketing, extension, by-products processing etc.)
 - Chapter 4. Details of Operation
(Give details of each operation related to each component).
 - Chapter 5. Organization and Management
 - Chapter 6. Financial analysis
 - Chapter 7. Budget
 - Chapter 8. Recommendations
 9. ~~Appendix~~ ~~References~~

CHAPTER I

SUMMARY

The main concern of the project is to strengthen the management capabilities of the Village Multi-Purpose Cooperative and the Federation of the Village Multi-Purpose Cooperatives in hastening the promotion and development of rice grain industry in Candaba, Pampanga, Philippines.

The project involves the integration of the ten (10) villages multi-purpose cooperatives into a Federation of Multi-Purpose Cooperatives.

It is envisioned that 1,200 has. will be targeted for financing in the form of farm inputs, in the amount not more than ₱5,000.00 per hectare, benefitting 500 cooperative-members. Accordingly, post-harvest facilities and other services will be made available to the village cooperative members.

A floor price of ₱250.00 per cavan of paddy will be the procurement cost. An estimated 70,000 cavans, equivalent to 80% of the coop-members total gross harvest will be procured with a total cost of 17.5 million.

The warehouse estimated capacity ranges from 50,000 to 60,000 cavans of rice while the rice mill has a rated capacity of 200 - 250 cavans per 12 hour shifted with an efficiency of 65%. Of the 70,000 cavans paddy rice to be milled, the expected output of well-milled rice is 45,500 cavans, 280,000 kgs. of rice bran and 70,000 kgs. of rice grit.

The products will be marketed to linkages cooperatives, hotels, restaurants, government cooperatives and to private

traders. Market price for well-milled rice is ₱450.00 per cavan of 50 kgs.

The business operation of the project shall be manage by a competent staff. The Baord of Directors shall oversee the execution of the management of their plans, programs and policies promulgated by them.

Initial project cost is estimated at ₱14,145,045.00 which will be source from banking institutions or grant from donor countires. It bears an annual interest rate of 12 per cent. Coop production loan will be paid on one year period and all the rest for a five year period.

The project after seven years of operations has a net present value (NPV) of 1,065,799 with an internal rate of return (IRR) of 15 per cent.

Based on computed data, the project is viable and feasible.

CHAPTER II

INTRODUCTION

Rice is the staple food of the Filipino people and the lifeblood of the country. One of the major concern of the country is to provide adequate and continuous supply of rice to its growing population. Thus, it necessitates to prepare and implement plans and programs to address these concerns. Henceforth, several programs with built in package of the matured technologies have been introduced and implemented in different specific locations where it is best suited or adopted to maximize productivity.

In line with this, it is not suffice to say that higher expected production is by itself productivity or profitability because in the process from harvesting to milling a great deal of grain losses had occurred thus in effect affects profitability. This kind of scenario in farming occurs in every nook and corner of the Philippines where rice is the major Agricultural crop being planted.

Region III or Central Luzon is predominantly a rice growing region, dubbed as the rice granary of the Philippines which comprises the provinces of Nueva Ecija, Tarlac, Zambales, Pampanga, Bulacan, and Bataan including five cities. It is the region that supply most of the rice consumption of Metro Manila and suburbs.

Rice production is one of the major source of income of the farmers in Candaba. Other major commodities planted includes vegetables, water melon, and musk melon. However, during rainy

seasons fish production is next to rice in terms of major source of income in the community. Candaba, the target project site has a total of 18,000 effective hectare planted to rice during wet and dry season with a total estimated production of 60,000 metric tons. Despite of this great potential in rice production an estimated grain production losses reaches a great staggering 15% high mark or 9,000 M. T. valued at 45 million pesos. This phenomenon attributes to inadequate technology and modern facilities. Although several post-harvest facilities such as thresher, grain drier, rice mills etc. are present in the area, they are owned and operated by private individuals and ironically none from the village based or community based farmers organization. What compounded the matters, is, still these facilities are very much inadequate and inefficient to meet the demand, given this scenario the government has realize its implecations to the economy, henceforth one of the major thrust of government on Agricultural Development is to make farming a productive and profitable business enterprises. Corollary to this thrust there is a need to revitalize and strengthen the village or community based farmers organizations in terms of managerial, technical and financial capabilities supportive to catering vital and necessary needs of the Agricultural sector in particular and the community in general.

The municipality of Candaba, Pampanga is located in the Northeastern part of the province, bounded on the North by the province on Nueva Ecija and on the East by the province of Bulacan. It is approximately 20 kms. away from the provincial capital at San Fernando, Pampanga that can be reached by Land transportation that traverse through asphalted and cemented

roads. Distant villages can be reached through a circuitous routes passing through the provinces of Nueva Ecija and Bulacan. However the satellite village cooperative is within the 8 kms. radius of the Center operations of the federation of village multi-purpose cooperative are very much accessible to transportation.

The terrain of Candaba is relatively flat with no more than 5% gradient and a great portion becomes swampy during rainy seasons. The soil is very fertile with good irrigation facilities such as Angat-Magat Irrigations System, small water improving projects and high volume irrigation pumps, but relatively inefficient drainage facilities. The soil type is predominantly San Fernando clay and Arayat clay. Other areas are being characterized into clay loam and silt loam.

It has been noted that 70% of the population source their main livelihood from Agriculture and 30% on other forms of livelihood.

With its great potential for Agricultural development a second look to its needs is therefore imperative.

PROBLEMS FACED BY FARMERS;

Rice farming just like any other Agricultural endeavor has its own unique multifarious activities beseth with multi-faceted problems that goes with it that affects our farmer-producers. This problems multiplied when two or more croppings are being practiced by farmers. As in the case of Candaba there are two seasons of planting rice, wet seasons planting starts from the month of May to October and dry season which starts from the

month of November to April.

Several natural calamities beseth rice-producers during the cropping seasons, more so during rainy season. Among other these includes typhoon, flood, drought, occurrence of pest and diseases and rat damaged. Other problems related factors includes, lack or inadequate credit facilities, infrastructure and efficient marketing scheme to mention a few.

One of the major concerns of rice farmers in the Philippines is the frequent occurrence of typhoon most especially during wet season, this is so because the country is being dubbed as the typhoon belt area, besides this natural disaster associated itself with the outflow of flood water and susceptibility of the crops to pest, diseases and rat infestation that brings the farmers down the drain. As such, with one stroke of natural calamities havoc, it will take sometimes for the farmers to recover their investments, if at all.

On the other hand, whenever liberal credit is absent or available in a limited scale farmers normally resorts to high financing sources, meaning they resorts to borrowings from usurers. The usual practice of farmers in the area is to borrow money from the userer during planting time payable right after harvest or no more than four months of lending time. For every ₱100.00 amount borrowed this will be repaid for one cavan of palay equivalent to ₱250.00. In some instances a quart of pesticides or one bag of (50 kg.) fertilizer borrowed is being paid/exchange for two (2) cavans of paddy palay. This practice not being only illegal but renders rice farming unproductive and

unprofitable business enterprise, hence does not free farmers from the bondage of poverty. In some cases, though in limited scale, credit is available, however/the irony of it is that the release of funds intended for the operations is very much delayed, because of so many papers works, red tape or Bureaucratic practices associated thereto, thus subjecting farmers almost always to the mercy of usurers.

As in the past up to the present the prices of farm inputs is steadily increasing while farm products increases at a turtle paced. With the prohibitive cost of farm inputs and with undue or unbalance farm products prices is another sumountable problems that confronts our farmers.

Granting that the non-natural problems of farmers have been contained or addressed as mentioned earlier, other related production problems crops-up, the never ending problems surfaced. During harvest time substantial amount of grains are being wasted or loss due to improper technique or lack of technological know-how. At post-harvest grain losses are being compounded due to improper handling, threshing, drying, storing, milling and other post-harvest related operations. These minus factors attributes to lack or inadequate availability of efficient cost saving post-harvest facilities as well as technological know-how. It is estimated that grain losses during post-harvest operations average to 15 per cent of the total gross production.

It must also be viewed with much concerned that during wet season cropping, most often than not the moisture content of paddy rice is very high. Under such circumstances, if the produce is sold outright to the traders or any buyer the price of

paddy rice is very much lower as compared to when the moisture content is on the acceptable level, in which case it is to the prejudice or detriment of the producers. In furtherance, at this point in time private traders is again manipulating or cornering prices at their own advantage leaving the impoverished rice producers at their mercy.

Paradoxically, during this crisis period the procurement arm of the government is not in a position to provide adequate support to the farmers and can only manage to procure at least 10% of the total gross production and the remaining 90% of the produce is being absorb by the private sector. What is ironic about rice-producing farmers is that, after a month or more after harvest, the farmers are not already considered as producers but mere consumers, that once, he sold his produce at a much lower price and buys his consumption at a much higher price.

Those problems mentioned were realized by the farmers, but they have not edge forward to resolved them. Although, they have organized village associations, yet those organization is futile to resolve their problems, because of limited resources to address them.

These are the pressing and pervasive problems that confronts our farmers, hence something must be done to address or contain these problems to free farmer from the bondage of poverty, whereby improving their quality of life to become healthy and productive citizensry.

NEED AND JUSTIFICATION OF THE PROJECT;

In view of multi-faceted problems that confronts our farmers

and the urgent needs to improve the quality of life of our populace, establishment of the projects attune to them is therefore imperative.

Cognizant of the vast resources potentials of Candaba town towards hastening Agricultural Development anchored on the arena of Cooperation, it is of paramount importance that village level Multi-Purpose Cooperative, Inc., shall be federated into District Multi-Purpose Cooperative or into one solid, operational and functional organizationa in order to serve best it clientle more effectively and efficiently, there by ensuring its viability and stability.

With the great volume of palay to be produced it necessities to have a favorable marketing outlets and efficient marketing scheme to channel their produce at a competitive prices and a fair return of their investments which results to added value income.

With the establishment of post-harvest facilities grain losses maybe reduced from the present level of 15% down to only 5% having a managerial savings of 10%. Accordingly, available cheap labor in the area can be utilized and to good extent provides employment opportunities. Additionally, extra quality premieun paddy palay and quality rice grain can be obtained. Moreover, prices and supply of the staple food shall be stabilized and in effect reduce our dependence or monopoly of the private sector to the rice industry will be minimized.

The availability of liberal and long term loan induces farmers to increase production and increase their profitability

as they shy away from usurious lenders who absorb a great portion of their income.

It must be emphasized that the objective of Cooperative is anchored on efficient service coupled with a just and fair surplus to their investments and not to maximize profit to the detriment of the consuming public.

The proposed project not only strengthen the Federation of Multi-Purpose Cooperative vertically but will also pave the way for a a closer coordination, better understanding and stronger linkages with horizontally organized Cooperative including government entities or Corporation.

CHAPTER III

T H E P O J E C T

OBJECTIVES;

The general objective of the project is to strengthen the management of the village Multi-Purpose Cooperative and the Federation of Village Multi-Purpose Cooperatives to hasten Agricultural Development in the countryside in order to improve the quality of life of its members.

Specifically the Objectives of the Project Aims to:

- a. Provide value added income to Cooperative members.
- b. Provide adequate and quality staple food to the populace.
- c. Provide employment opportunities.
- d. Stabilize rice supply and prices.
- e. Improve productivity and profitability of the

producers.

- f. Lessen grain losses.
- g. Provide a strong, efficient and expanded marketing channels.
- h. Develops and strengthen Linkages with other Cooperatives both horizontally and vertically.
- i. Serves as business agent in the procurement of produce and inputs for Cooperative members.
- j. Improve standard of living and increase the purchasing and inputs for Cooperative members.

AREA OF OPERATIONS:

Paddy rice is grown in every villages of the municipality of Candaba. However, only ten (10) clustered or satelites villages with existing multi-purpose Cooperative will be involved. Each of the ten village multi-purpose cooperative shall function independently with each other. While the Federation of Village Multi-Purpose Cooperative shall serve as the nucleus or nerve center of operations particularly in the field of procurement, marketing, milling and financing. The Candaba Proper is proposed as the project site because it has all the necessary pre-requisite for the effective and efficient operations/implementation of the project. The ten (10) village Cooperatives serves as its satelite of operations.

PROJECT COMPONENT:

The following are the project components:

- a. Financing
- b. Production
- c. Threshing

- d. Drying
- e. Warehousing
- f. Milling
- g. Transportation
- h. Purchasing
- i. Marketing

A. FINANCING:

The Federation of Village Multi-Purpose Cooperative, Inc. shall extend credit to its ten (10) satellites Village Multi-Purpose Cooperatives members; Credit to be extended shall be in kind in the form of inputs such as seeds, fertilizers, pesticides and other farm implements which in turn will be given to individuals village Co-op member shall not exceed ₱5,000.00 per hectare. Likewise the mother Cooperative shall provide threshers and Multi-Purpose Village solar dryer to ten (10) of its satellites service village Multi-Purpose Cooperative.

B. PRODUCTION:

Rice production is the responsibility of Village Multi-Purpose Cooperative members. They are the one who are the source of Raw materials needed by the mother Cooperative. The estimated rice production area of ten (10) Village Cooperative is placed at 1200 has. for two cropping season having a production volume of 96,000 cavans or 4,800 metric tons paddy rice.

C. THRESHING:

In as much as village Cooperative are provided each with one (1) unit rice threshers, it is imperative that Cooperative members shall be given priority in threshing their palay.

D. DRYING:

It is common of knowledge that during wet season moisture content of paddy rice being produce is high, thus it necessitate for the construction of Multi-Purpose Solar Dryer in each (10) Satelite Village Cooperative to improve grain quality. It is envisioned that a solar and mechanical Dryer will be constructed/established in Mother Cooperative supportive to the needs of the ten (10) Satelite Cooperative, with emphasis that first priority is always given to Cooperative members.

E. WAREHOUSING:

Warehousing facilities shall be constructed by the Mother Cooperative in a 1,500 sq.m. lot with a capacity of 50,000 to 60,000 cavans. This will accomodate roughly 60% of the total gross production of Cooperative members.

F. MILLING:

A modern rice mill will be established/constructed by the Mother Cooperative to accomodate the volume of paddy rice being procured from Cooperative members. The rice mill has a rated capacity of 20-25 cavans per hour and can produce a well-milled rice or quality of rice so as to have a better and Competetive price in the market.

G. TRANSPORTATION:

The Federation of Village Multi-Purpose Cooperative envisioned to purchase two Elf six wheeler truck and one Jeepney to serve as transport of farmers produce from the farmers farm to the Mother Cooperative warehouse. It will also be utilized to transport milled rice to its designated marketing outlet.

H. PURCHASING:

As proposed, the Mother Cooperative will purchase all the farm inputs needed by the Cooperative members. Likewise, 30% of the farmers produced shall be procured by the Mother Cooperative.

I. MARKETING:

Marketing is one of the major activities of the Mother Cooperative. Products to be marketed are well-milled rice, Rice bread and rice grit. It may be sold in wholesale or retail basis depending on the situation.

CHAPTER IV

DETAILS OF PROJECT IMPLEMENTATION:

The Project operationalization will be undertaken by the management of the Federation of Village Multi-Purpose Cooperative. In the process of implementation the Cooperative will provide package of vital and basic services to each individuals village Cooperatives and its members such as supply of needed farm inputs and farm implements, threshing of their produce, drying storage or warehousing facilities, milling, transportation, marketing, procurement of their produce and other services are being tied-up or linked to other Cooperatives to strengthen the organization business activities.

The project lifespan will be for a period of ten (10) years.

A. Financing For Crop Production:

The Federation of Village Multi-Purpose Cooperative will source from Government Institutions or from Grant Donor-Countries, Financing facilities for crop Production (Paddy Rice) and for several farm implements. The Loans to be

granted to individual members of Village Multi-Purpose Cooperatives, shall be in the form of inputs such as seeds, fertilizers, pesticides and Farm implements in the amount not exceeding ₱5,000.00 per hectare. It must be emphasized that the Federation of Multi-Purpose Cooperative shall be the one to procure the aforementioned farm inputs in bulk from a reliable nearest source at a reduce cost and quality products. For better and efficient monitoring of Funds Loaned out, all transactions pertinent thereto shall passed through the Management of the Village Cooperatives, who will directly be responsible to the Federation of the Cooperative Management in the determination and disposal of credit facilities to their respective Coop-members including collection of Loanable Funds. The corresponding amount granted to Cooperative members shall bear an interest rate of 12% per annum. In case of default in payment without justifiable reasons or cause, penalties maybe charge to the borrowers to be determined by the credit commodities committee and approved by the Board of Directors. The Loan maturity period is for 180 days and shall be renewed upon full payment during the next cropping season. The Area to be financed per cropping season is 600 has, which requires a funding requirement of three (3) million pesos. Credit facilities obtained by the Federation of Cooperatives from either government financing, institution or other sources shall be paid for a five year period.

3. Thresher/Threshing of Paddy Rice:

Each of the ten (10) Village Multi-Purpose Cooperative wil

be provided portable Rice thresher by the Federation of Cooperative, which were given in the form of Loan (P65,000/Unit) and payable for a five year period, bearing an interest rate of 12% per annum. A surcharge or penalties shall be imposed upon to the Village Cooperative when there is default in payment without reasonable cause as determined by the credit committee and sanctioned by the Board of Directors. It must be stressed that all expenses or income derived from the operation of the Rice threshers shall accrue to the Village Cooperatives and none from the Federation of Cooperatives.

As member of the Village-Cooperatives it is imperative that they be given priority of the threshers services. The Village Coop. Management shall charge a threshing fee of 6 per cent of the gross product threshed.

THRESHING PROCESS:

The thresher to be obtained has a total rated capacity of 20-30 cavans per hour or 160-240 cavans per day for 8 hours operation.

During the threshing process, the grain-straws are feed through the feed tray to the threshing cylinder wherein the palay are separated from the straw by means of the Peg teeth mounted in the cylinder. Then the grains fall into the grain chute while the straws are discharge outside the cylinder. By means of a Blower, air flows toward the front of the tray discharging chaff. Then the grains fall into the grains discharge nearby to be collected.

3. (Mechanical/Soral) Drying Paddy Rice:

It is of common knowledge that during the wet season palay production, Paddy palay moisture content is often very high such that it commands Lower market prices, because of poor quality grains. With the establishment of Rice Dryer, Paddy grains moisture contents will be lowered at a desirable level; thus improving paddy grain quality and therefore commands a good market price.

A solar drier shall be constructed in TEN (10) Village Cooperatives having a floor area of 500 sq. m. at a cost of approximately ₱50,000.00 each. The construction will be financed by the Federation of Cooperatives (in the form of Loan) payable in five years period bearing an interest rate of 12% per annum. In case of default in payment a surcharge or penalties shall be imposed on delinquent cooperatives as determined by the credit committee and sanctioned by the Board of Directors.

A minimal drying fee of ₱3.00/cavan shall be charge to the users until such time that the moisture content of palay grains reaches the level of 14 per cent.

It must be borne in mind that whatever expenses incurred or income derived from the operation of the Solar Dryer (Village level) accrues to ther Village Cooperative and none from the Fedezation of Cooperatives.

In as much as the Federation of Cooperatives is involved Paddy Palay procurement for both wet and dry season it is inevitable not to put-up both a mechanical and solar Dryer. The said Dryez are not for hire but solely for the exclusive used of the Fedezation of Cooperatives Operation, hence no

Direct income is expected. The floor area of the solar dryer is 500 sqm. while the mechanical dryer has a rated capacity of 60 cavans per hour more or less depending on the moisture content of Paddy palay being service. The cost of solar dryer is estimated at P50,000.00 while that of a mechanical dryer is a part of a package deal in the purchase of a Rice Mill.

D. Warehousing Facility(s)

The Federation of Village Multi-Purpose Cooperatives, envisioned to construct/established a warehouse with the capacity of 60,000 - 70,000 cavans of palay in a any given time. It will be constructed in a 1,500 sq.m. area owned by the cooperative, with the measurement of 50 M. long, 30 M. kwide, and 5 M. high. The warehouse accomodates at least 60% of the total gross palay production of cooperatives members.

E. Rice Mills/Milling

A Yanmar Type, electrifically driven Rice Mill shall be established by the Federation of Village Multi-Purpose Cooperatives. It will be house within (inside) of the warehouse and occupies almost 50 sqm. room space. The rice mill has a rated capacity of 20 cavans per hour and operated in a 12 hour basis per shift.

Additional milling hours maybe utilized as the demand or need arises. It is capable of producing a quality, well-milled rice that commands a better prices in the market. Approximateley, it can mill 70,000 cavans of Paddy palay operating 6 days a week. It has an efficiency of 65 percent

milling recovery. Seventy Thousand (70,000) cavans of Paddy Palay milled produces 45,000 cavans of kgs. well-milled rice, 280,000 kgs. of rice bran and 70,000 kgs. of rice grit. Raw materials (Paddy Palay) for milling will be source from village cooperative members. This constitute at least 80% of their total gross production which will be procured by the Mother Cooperatives for milling. In this instance a contract memo of agreement shall be signed by both parties to safeguard the interest of their respective endeavor, that is between the farmer-producers and the cooperatives.

MILLING PROCESS:

The paddy palay goes out of the hopper and enters into the rubber-roller component where the hull is separated from the brown rice. Immediately after hulling, the chaffs and hull are blown out of the machines by fan using section blower. The brown rice becomes brighter white rice as they are released from the polishing component the white rice are separated from the rice bran by the screen parts of the polishing department. Then the rice bran is separated from the grit by the bran section blower and collected in the bran collecting cyclone.

Transportation Facilities:

Since the Federation of Village of Multi-Purpose Cooperative is involved in purchasing/marketing activities, it is very relevant and necessary to include transport facilities as one of the project component. It is therefore proposed that a two six wheeler truck and one Tamaraw

Jeepney will be commissioned. The truck has a load capacity of 150-200 cavans of palay while the Jeepney has a capacity of 15 cavans. Services of Motor vehicles will be utilized mainly in hauling and transporting of paddy palay procured by the Cooperative from farmers Cooperative producers designated pick-up points to the Cooperative warehouse and from the Cooperative warehouse to the designated marketing channels. No freight or transport of charges will be imposed on producers/buyers since this is a part of the procurement and marketing service scheme promotion of the Cooperative.

The operational radius of the Federation of Village Multi-Purpose Cooperatives to its satelites Villager Cooperative is approximately 10 kms. and 75 kms. radius to its designated market clientle.

G. Purchasing/Procurement of Facilities etc.

As discuss earlier purchasing or procurement of farms, farm implements, machinery(s) and all other items needed both by the Village Cooperative and that of the Federation of Village Cooperatives shall be in bulk and at reduce prices. Once the items purchased for Village Cooperatives arrive, this will be delivered to them immediately. The management of the Village Cooperative shall acknowledge all the items being delivered for distribution or disposal to receipient which will be acknowledged by the recipient.

The palay procurement scheme envisioned by the Federation of Village Cooperative open a new hope for farmers-Coop. producers to be productive. As the Federation

of the Cooperative lead the way in palay procurement, it will offset the exploitative method employed by private palay traders or other unscrupulous businessman.

Indeed there is a huge volume of raw materials that can be offered by the Coop. members that needs the attention and efficient services of Cooperatives in pursuit to their economic activities.

The main procurement policy to be adopted by the Cooperative is to produce the Paddy palay of Coop-members directly from the field provided the moisture content is nearest to 14% if not solar dryer in the village will be utilized for the purpose. Procurement price shall not be lower than the floor rice set by the government, but must be higher if possible from the buying price of private traders. It is envisioned that 80% of the total gross palay production of Coop-members producers shall be procured.

Procured palay shall be paid directly to the producers minus cost of farm inputs obtained from the Mother Cooperative. All paddy rice procured shall be stored in the Coop-warehouse for milling, provided however that the palay grains to be stored has a moisture content of 14 per cent, if higher mechanical or solar Dryer will be utilized to lower the moisture content down to 14%.

The estimated volume of palay to be procured for one year is placed at 70,000 cavans valued at 17.5 million pesos at P250.00 per cavans. Procurement period is 5 months per year of operation, that requires funding/capital of 3.5

Million pesos for one month procurement period.

H. Marketing of Produce:

The main products to be marketed by the Federation of Village Multi-Purpose Cooperative is the well-milled Rice, while by products to be marketed are rice bran and rice grit.

Generally, target market for well-milled rice are linkage Cooperatives, Government owned or Controlled Corporation, Hotels and Restaurants. While target market for its by products are feedmillers Corporations, Hog and Poultry raisers and to some extent backyard swine feed millers. The Cooperative Offers a free freight or transport charge to buyers who purchase the goods in wholesale or bulk.

Well-milled rice price per Kilo is set at P450.00/cavans of 50 kgs. or P9.00/kg. While rice bran cost P4.50/Kilo and Rice grit at P5.00/Kilo.

For one year of operation the Cooperatives expects to market a total of 45,000 cavans of well-milled rice, valued at 20.475 Million pesos, 280,000 kgs. of Rice bran, valued at 1.260 Million pesos and 70,000 kgs. of Rice grit valued at 375 thousand pesos with a combine gross sales of 22.110 Million.

Promotion of Cooperative marketing services and products can be effected through information dessimation among its clientle stressing among others, cost savings of the services, efficiency and quality of the products. Assistance of Government agencies concerned and other Cooperatives maybe solicited for the purpose. The use of Technical bulletin, Agricultural print media, field visits is of great help.

CHAPTER V

ORGANIZATION AND MANAGEMENT;

Federation of village multi purpose cooperatives is owned, manage and operated by cooperative members.

The general assembly is the supreme only of the organization which is composed of members in good standing who, when assembled and convened constitute a quorum ($1/2 + 1$) during its annual assembly meeting which is being held within 60 days at the end of the fiscal year.

The Board of Directors is composed of 11 members elected upon by the members in good standing during its annual general assembly meeting. The composition of which comes from the chairman of the 10 village co-op and one from the Department of Agriculture who is vested with voting powers. The elected Board of Directors selects from among themselves its Chairman, Vice-Chairman, Secretary, Treasure and member of the Board. The Board of Directors, formulate plans, programs, policies, select and appoint competent manager and supervise the execution of the plans, programs and policies executed by the management.

There are different committee whose membership of three of are being elected/appointed by the general assembly and Board of Directors (see organizational chart) during its annual General Assembly Meeting of Members/Board of Director. The committee members shall elect from among themselves its Chairman, Secretary and Member. Except for the Education and Training Committee wherein the chairmanship is being chaired by the Vice-Chairman of the Board and can exceed more than three members.

Committees elected by the general assembly:

Audit and inventory committee - which is task to formulate appropriate auditing scheme and responsible in beginning and ending inventories of stock and audit financial transactions of the organization.

Election Committee - which is task to preside over all election processes.

Committees appointed by the Board of Directors:

Credit Committee - which is task to screen, review, evaluate and approved loan application of members with the concurrence of the Board of Directors.

Education and Training Committee - which is task for the continuous education, training and to disseminate new information or matured package of technology among members.

Production Procurement and Marketing Committee - which is task to produce quality products, take charge of all procurement process, develop marketing scheme/advantageous to the cooperative and to develop high productivity and profitable scheme.

The general manager is appointed by the Board of Directors and he is in-charge of the day to the business affairs of the organization and executes the plans, programs and policies formulated by the Board of Directors.

The assistant manager is responsible for the production, purchasing and marketing activities of the organization, and performed the duties of the acting manager in the absence of the later.

The bookkeeper is in-charge in recording all transactions and enter same on the book of accounts of the organization.

Clerk/Typist - in-charge of filling official documents,

records and typing of office correspondence and the like.

Driver - to transport goods products purchase or sold from designated points. Responsible for the up-keep and maintenance of vehicle assigned to them.

Operators- in-charge in the operation used maintenance of their respective machine.

Laborers - in-charge of hauling, stocking, handling of goods or other related minial activities of the organization as requested.

QUALIFICATION OF;

- General manager and assistant general manager:
 - must be a college graduate preferably business administration/management graduate;
 - must be honest and dedicated;
 - he is not engage in business related to cooperative activities;
 - must have experienced in cooperative undertakings.

BOOKKEEPER:

- must be a college graduate preferably accounting major;
- must have at least one year experience in bookkeeping and;
- must be honest and trustworthy.

CLERK/TYPIST:

- must be at least secretarial graduate or related course;
- knowledgeable in filling records/files indexing;
- must have a good typing skills.

OPERATIONS:

- preferably mechanic graduate;
- must have at least one year experience on the machine he will operate;
- must be honest and dedicated;
- must be healthy and physically fit.

DRIVERS:

- must have at least a non-professional driver license;
- must be physically sound and fit;
- must have at least one year, driving experienced on the vehicle assigned to him;
- he is not addicted to prohibited drugs and alcoholic drinks;
- must be mentally alert and stable.

LABORERS:

- must be physically sound and fit;
- must be honest and hardworking and;
- must be trustworthy.

COMPENSATION SCHEDULE:

Payment schedule for the general manager, assistant general manager, bookkeeper, clerks, and drivers shall be paid on monthly basic while payment schedule for other personnel shall be on weekly basis (based on their monthly rate)

CHAPTER VI

Socio-Economics Benefits:

The target beneficiaries of the project is not only cooperative farmer-members but the community as well. The

project has a tremendous social and economic impact on the community because it will trigger and hasten agricultural development in the area.

The project will benefit 10 village multi-purpose cooperatives and approximately 500 cooperative members. Initially one component of the project which is financing will serve 1,200 has. of farm land under crop production loan. The proponent avail themselves of soft loan in terms of farm inputs. In the process sustaining or increasing productivity level. The estimated production per hectare is placed at 80 cavans per hectare for a total of 96,000 cavans for two cropping season. With the introduction of post-harvest facilities in the area, the estimated gained from crop losses is 10% or equivalent to 9,600 cavans valued at P2.4 million for two cropping. This alone is an added value to the income of the farmers.

When a cooperative purchase paddy rice from a farmer at P250.00 cavan and same will be milled for well-milled rice at 65% recovery then sold at P9.00 per cavan the price added value for that is P42.50/cavan. Additionally the by-product (Rice Bran of 4 kgs/cavan at P4.50/kg.) is additional income of another P18.00 for every cavan of Palay milled. More over a one (1) kg. by-product of Rice grit is being produce for a cavan of rice milled at a cost of P5.00/kg. In the absence of a cooperatives the added value of the products only benefits the Palay traders/or rice millers and other businessmen involved in Rice grain industry. However, with one organization of federation of cooperatives and with the establishment of corresponding support services and facilities it has gained a 10 percent reduction losses from past-harvest operation estimated at P9,600.00 cavans

valued at 2.4 million pesos. A price difference of P42.50/cavan from paddy palay to well milled rice is obtained valued at P2,975,000.00 for P70,000.00 cavans of paddy rice, of the 70,000 cavans of paddy rice its by-products output of 280,000 kgs. of rice bran and 70,000 kgs. of rice grit is being realized valued at P1.26 million and P350,000 respectively.

Other Benefits that maybe derived:

1. Provide immediate support services and facilities;
2. Provide additional share capital/savings to the cooperatives;
3. Patronage refund for members;
4. Assurance of market;
5. Availability of liberal credit;
6. Generate employment and income or income to the locality;
7. Stabilize supply and price.

CHAPTER VII

BUDGETARY REQUIREMENTS:

a.	Land and Land Development	₱ 1,460,000.00
b.	Building and other civil works	1,710,000.00
c.	Machinery & Equipment	3,355,000.00
d.	Miscellaneous Fixed Assets	115,000.00
e.	Pre-Operation Expenses	22,100.00
f.	Margin among for working capital	6,999,850.00
g.	Contingency	683,085.00

T O T A L

₱14,145,045.00
=====

CHAPTER VIII

RECOMMENDATIONS:

Reckoning from the past performance of cooperatives, it is not sufficient to have it organized and registered in order to operate. What is of paramount importance is strengthening its management capabilities and commitments of support not only from among its members but also from the government and the horizontal and vertical linkages with other cooperatives must be initiated. In order to have a strong and viable cooperative there is a need to have a well organized, functional and operational management and financial structure.

A multi-purpose village cooperative or any cooperative for that matter is usually cash-strapped that it cannot undertake its

economics activities, henceforth financial assistance either through grants from foreign countries or soft-long term loans from government financing institution must be sought to finance its economic activities, basically on agricultural inputs to increase productivity and profitability.

Accordingly, increase production is not only a factor for profitability, because the absence of post harvest facilities or inefficient facilities on the this instance greatly affects productivity and profitability. Therefore the idea is to have a complementation of both to attain the cooperatives objectives.

Another interesting and inter-related factors to productivity and profitability is the marketing aspects. Recent events indicated that private traders almost controls the marketing of farm produce, rendering farm producers on a hopeless case. In this process therefore it is high time for cooperatives to have a broader or play an important role in marketing undertakings, by establishing an effective and efficient marketing scheme by way of a strong and closer linkages among cooperatives and government marketing arm.

The cooperatives must strive to capture a great portion of consumers by providing efficient services and quality products to its consumers.

The government should make available at reduce cost the necessary inputs or facilities and provided wide range of incentives to cooperative. Likewise, the government in collaboration with various private institutions should take up research program relevant to cooperatives business activities and to provide then the latest informations and make available matured package of technology to cooperative members.

FINANCIAL ASPECTS:

Initial cost of the project is estimated at 14,145,045. The said amount will be source from Government or Private Financing Institutions or from grant-Donor countries.

The proponent equity shall be their share of stocks to the Cooperative in the amount of P50,000.00 and Land value amounting to P750,000.00

BASIC ASSUMPTIONS:

- a. 1,200 has. of Rice Land will be planted for two cropping seasons.
- b. P5,000 will be extended to Cooperative-members for every hectare of rice farmed.
- c. 10 Rice threshers and 10 Solar Drier will be provided/established in the Village Multi-Purpose Cooperative.
- d. Financing for palay Production, Rice Thresher and Solar Drier bear an interest rate of 12 per cent per annum.
- e. 80% of the Coop-members produce shall be procured by the Federation of Village Multi-Purpose Cooperative.
- f. The rated capacity of the Rice Mill is 20-25 cavans per hour on 12 hours shift/having an efficiency of 65 per cent.
- g. Well-milled Rice is the main product while Rice-bran and Rice grits are the leg-products.
- h. Loans requested from financing institutions bears an interest rate of 12 per cent per annum.
- i. Depreciation is computed using straight line method.
- j. Authorization schedule is 5 years for short/medium term loan

- k. Life span of the project is 10 years.
- l. Life span of the machinery and Equipment ranges from 5 to 10 years.
- m. Salvage value is zero after the end of its life span.
- n. Financial Analysis to be used are:
 - Net present value.
 - Interval rate of return.
 - Break even analysis.
 - Sensitivity Analysis.

TABLE 1

LAND AND LAND DEVELOPMENT

ITEMS:

a. Cost of Land (1.5 has.)	₱ 750,000.00
b. Development Expense (Solar Dryer	650,000.00
c. Cost of fencing (1.0 has.)	50,000.00
d. Cost of gates	<u>10,000.00</u>
Total	₱1,460,000.00 =====

TABLE 2

BUILDING AND CIVIL CONSTRUCTION

ITEMS:

a. Warehouse/Rice Mill and Dryer Building (50m x 30m) (5m) (1,500 sqm.)	₱1,500,000.00	
b. Administrative building (10m x 10m)100 sqm.	200,000.00	
c. Water tank	<u>10,000.00</u>	____ 100,000.00
Total	₱1,710,000.00 =====	

TABLE 3

MISCELLANEOUS AND FIXED ASSETS

ITEMS:

a. Furniture and fixtures	P	15,000.00
b. Office equipment		45,000.00
c. Other equipment including installation cost:		
- Distribution of power and lights	•	5,000.00
- Distribution and supply of water		5,000.00
d. Weighing scale (13 units)		36,000.00
e. Bag closer (1 unit)		3,000.00
f. Fire Extinguisher		<u>6,000.00</u>
	Total	P 115,000.00
		=====

TABLE 4

MACHINERY

ITEMS:

a. Rice Mill and Dryer (Package Deal) Including Freight and Installations		P1,800,000.00
b. Trucks (2 units)		1,000,000.00
c. Jeep		200,000.00
d. Electric Water Pump		5,000.00
f. Spare Parts		<u>350,000.00</u>
	Total	P3,355,000.00
		=====

_ 350s.Q00

TABLE 5

PRE-OPERATION AND OTHER EXPENSES DURING CONSTRUCTION PERIOD

ITEMS:

a. Establishment Expense		-
b. Traveling expense	P	1,500.00
c. Communications		300.00
d. Supplies and Materials		300.00
e. Interest on terms loan		-
f. Insurance		<u>20,000.00</u>
	Total	P 22,100.00
		=====

_ 201.000

TABLE 6

WORKING CAPITAL REQUIREMENTS

ITEMS:			
a.	Raw Materials (1month)	₱3,500,000.00	
b.	Farm inputs and equipment (2 months)	3,000,000.00	
c.	Diesel Fuel, Oil and Lubricants (12 months)	126,000.00	
d.	Cash Requirements for power, repair and maintenance (12 months)	240,000.00	
e.	Cash requirements for salaries (2 months)	83,800.00	
f.	Selling Expense	<u>50,000.00</u>	00i.20
	Total	₱6,999,800.00	=====

TABLE 7

CAPITAL COST OF THE PROJECT

ITEMS:			
a.	Land and Land Development	₱1,460,000.00	
b.	Building and Other Civil Works	1,710,000.00	
c.	Machinery	3,355,000.00	
d.	Miscellaneous Fixed Assets	115,000.00	
e.	Pre-Operation Expense	22,100.00	
f.	Margin Money for Working Capital	6,999,800.00	
g.	Contingency (5% of all above)	<u>683,095.00</u>	ii3i0'35j;
	Total	₱14,145,045.00	=====

TABLE 8

SOURCES OF FUNDS FOR CAPITAL INVESTMENTS

ITEMS:			
a.	Equity Capital:		
	- Ordinary	₱ 50,000.00	
b.	Barrowings	415,045.00	
c.	Other Sources	10,000,000.00	
	Total	₱10,465,045.00	=====

TABLE 9

PRODUCTION AND SALES

ITEMS:

a.	Capacity Utilization	80%	
b.	Estimated Daily (monthly) Production per shift (240 cavans)		
c.	No. of shift operation	1	
d.	Estimated (monthly) Production (cavans)	5,760	
f.	Sales in quantity (cavans) (Well Milled Rice)		45,500.00
g.	Sales in value		20,475.00
h.	Sales return		-
i.	Net sales of main items		20,475.00
j.	Sales of By-Products:		
	Rice Bran		1,260,000.00
	Rice Grit		350,000.00

TABLE 10

RECURRING COSTS

ITEMS:

a.	Variable Costs:		
	- Raw Materials		₱17,500,000.00
	- Utilities (Power etc.)		240,000.00
	- Consumables (Supplies, lubricants, etc.)		126,000.00
	- Selling Expense		50,000.00
	- Interest on Working Capital Loan		-----
	Sub Total		<u>₱17,916,000.00</u>
b.	Fixed Costs:		
	- Wages and Salaries of Mgt. Personnel (Permanent)		509,800.00
	- Depreciation		565,000.00
	- Interest on term loan		-----
	Sub Total		<u>1,074,800.00</u>
	Total		<u>₱17,990,800.00</u> =====

TABLE 11

PRODUCTION SCHEDULE AND OUTPUT OF RICE MILL

M O N T H	PADDY RICE		WELL - MILLED		BY PRODUCT (KG.)	
	VOLUME (CAVANS)		RICE (CAVANS)		RICE BRAN	RICE GRIT
January	7,000		4,550		28,000	7,000
February	6,000		3,900		24,000	6,000
March	6,000		3,900		24,000	6,000
April	7,000		4,550		28,000	7,000
May	5,000		3,250		20,000	5,000
June	5,000		3,250		20,000	5,000
July	5,000		3,250		20,000	5,000
August	5,000		3,250		20,000	5,000
September	5,000		3,250		20,000	5,000
October	6,000		3,900		24,000	6,000
November	6,000		3,900		24,000	6,000
December	7,000		4,550		28,000	7,000
	70,000		45,500		280,000	70,000.PA

TABLE 12

VOLUME AND COST OF RAW MATERIALS PURCHASE

M O N T H	V O L U M E	U N I T P R I C E P	T O T A L C O S T
October	10,000	250.00/cavan	2.5 million
November	11,000	- do -	2.750 million
December	11,000	- do -	2.750 million
March	13,000	- do -	3.250 million
April	13,000	- do -	3.250 million
May	<u>12,000</u>	- do -	<u>3.000 million</u>
	70,000	250.00/cavan	17.2 million
	=====		=====

TABLE 13

TOTAL PERSONNEL EXPENSES

POSITION	NUMBER	MONTHLY	MONTHLY TOTAL	ANNUAL TOTAL
1. General Manager	1	5,000	5,000	60,000
2. Asst. Gen. Manager	1	4,000	4,000	48,000
3. Bookkeeper	1	2,500	2,500	37,000
4. Clerk	1	2,000	2,000	24,000
5. Rice Mill Dryer Operators	2	5,000	5,000	60,000
6. Drivers	3	7,500	7,500	90,000
7. Laborers/Helpers	9	9,000	9,000	108,000
8. Board of Directors	11	3,300	3,300	39,600
9. Committee Members	18	3,600	3,600	43,200

				509,800
				=====

TABLE 14

INCOME STATEMENT FROM SALES OF WELL-MILLED RICE AND BY PRODUCTS

M O N T H	WELL-MILLED RICE		S U B	RICE BRAND		S U B	RICE BRIT		TOTAL
	VOL (CAV)	U PRICE	T O T A L	VOL (KG)	U PRICE	T O T A L	VOL (KG)	U PRICE	S A L E
January	4,550	:450/cav:	2,047,500	28,000	: 4.50/kg:	126,000	7,000	:5.00/kg:	35,000
February	3,900	: -do- :	1,755,000	24,000	: -do- :	108,000	6,000	: -do- :	30,000
March	3,900	: -do- :	1,755,000	24,000	: -do- :	108,000	6,000	: -do- :	30,000
April	4,550	: -do- :	2,047,000	28,000	: -do- :	126,000	7,000	: -do- :	35,000
May	3,250	: -do- :	1,462,500	20,000	: -do- :	90,000	5,000	: -do- :	25,000
June	3,250	: -do- :	1,462,500	20,000	: -do- :	90,000	5,000	: -do- :	25,000
July	3,250	: -do- :	1,462,500	20,000	: -do- :	90,000	5,000	: -do- :	25,000
August	3,250	: -do- :	1,462,500	20,000	: -do- :	90,000	5,000	: -do- :	25,000
September	3,250	: -do- :	1,462,500	20,000	: -do- :	90,000	5,000	: -do- :	25,000
October	3,900	: -do- :	1,755,000	24,000	: -do- :	108,000	6,000	: -do- :	30,000
November	3,900	: -do- :	1,755,000	24,000	: -do- :	108,000	6,000	: -do- :	30,000
December	4,550	: -do- :	2,047,500	28,000	: -do- :	126,000	7,000	: -do- :	35,000
Total	45,500	:450/cav:	20,475,000	280,000	: 4.50/kg :	1,260,000	70,000	:5.00/kg :	350,000

TABLE 15

SCHEDULE OF DEPRECIATION EXPENSE

ITEM	ORIG. COST	LIFE SPAN	YEARLY EXP.
Buildings and Civil Const.	1,710,000.00	10 yrs.	171,000.00
Misc. and Fixed Assets	115,000.00	5	23,000.00
Machinery			
Rice Mills and Dryer	1,800,000.00	10	180,000.00
Truck (2 units)	1,000,000.00	10	100,000.00
Jeep	200,000.00	10	20,000.00
Electric Water pump	5,000.00	5	1,000.00
Spare parts	<u>350,000.00</u>	<u>5</u>	<u>70,000.00</u>
	5,180,000.00		565,000.00
	=====		=====

TABLE 16

INCOME STATEMENT

	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year
Sales	22,085,000.00	22,085,000.00	22,085,000.00	22,085,000.00	22,085,000.00	22,085,000.00	22,085,000.00
Less: Cost of Sales	17,500,000.00	17,500,000.00	17,500,000.00	17,500,000.00	17,500,000.00	17,500,000.00	17,500,000.00
Gross Profit	4,585,000.00	4,585,000.00	4,585,000.00	4,585,000.00	4,585,000.00	4,585,000.00	4,585,000.00
Operating Expenses							
Diesel Fuel, Oil and Lubricants	126,000.00	126,000.00	126,000.00	126,000.00	126,000.00	126,000.00	126,000.00
Power Repair and Maintenance	240,000.00	240,000.00	240,000.00	240,000.00	240,000.00	240,000.00	240,000.00
Selling Expenses	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00
Salaries/Honoraria	509,800.00	509,800.00	509,800.00	509,800.00	509,800.00	509,800.00	509,800.00
Depreciation	565,000.00	565,000.00	565,000.00	565,000.00	565,000.00	565,000.00	565,000.00
	1,490,800.00	1,490,800.00	1,490,800.00	1,490,800.00	1,490,800.00	1,490,800.00	1,490,800.00
Net Income from Operations	3,094,200.00	3,094,200.00	3,094,200.00	3,094,200.00	3,094,200.00	3,094,200.00	3,094,200.00
Add: Int. Income on Loans	498,000.00	498,000.00	498,000.00	498,000.00	498,000.00	498,000.00	498,000.00
	3,592,200.00	3,592,200.00	3,592,200.00	3,592,200.00	3,592,200.00	3,592,200.00	3,592,200.00
Less: Interest Expense	498,000.00	110,400.00	0.00	0.00	0.00	0.00	0.00
Net Income	3,094,200.00	3,454,200.00	3,537,000.00	3,593,400.00	3,481,800.00	3,454,200.00	3,454,200.00

TABLE 17

Balance Sheet

	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year
Cash	7,819,200.00	8,896,300.00	11,228,300.00	13,532,700.00	15,809,500.00	18,058,700.00	22,077,900.00
Loans Receivable	1,150,000.00	920,000.00	590,000.00	460,000.00	230,000.00	0.00	0.00
Fixed Assets (Net)	4,615,000.00	4,050,000.00	3,485,000.00	2,920,000.00	2,355,000.00	1,790,000.00	1,225,000.00
Land and Land Development	1,460,000.00	1,460,000.00	1,460,000.00	1,460,000.00	1,460,000.00	1,460,000.00	1,460,000.00
Pre Operational Cost	22,100.00	22,100.00	22,100.00	22,100.00	22,100.00	22,100.00	22,100.00
Total Assets	15,044,200.00	15,348,400.00	16,885,400.00	18,394,800.00	19,876,600.00	21,330,800.00	24,785,000.00
Liabilities							
Loans Payable	1,150,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Capital							
Share Capital	800,000.00	800,000.00	800,000.00	800,000.00	800,000.00	800,000.00	800,000.00
Grants	10,000,000.00	8,000,000.00	6,000,000.00	4,000,000.00	2,000,000.00	0.00	0.00
Retained Earnings	3,094,200.00	6,548,400.00	10,085,400.00	13,594,800.00	17,076,600.00	20,530,800.00	23,985,000.00
Total Liabilities and Capital	15,044,200.00	15,348,400.00	16,885,400.00	18,394,800.00	19,876,600.00	21,330,800.00	24,785,000.00

TABLE 18

Cash Inflow	Projected Cash Flow					
	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Equity	P50,000.00	P0.00	P0.00	P0.00	P0.00	P0.00
Grant/Soft loan	10,000,000.00	0.00	0.00	0.00	0.00	0.00
Loan for Lending	4,150,000.00	0.00	0.00	0.00	0.00	0.00
Collection of Loan	3,000,000.00	3,230,000.00	3,230,000.00	3,230,000.00	3,230,000.00	3,230,000.00
Depreciation	565,000.00	565,000.00	565,000.00	565,000.00	565,000.00	565,000.00
Net Income	3,094,200.00	3,454,200.00	3,537,000.00	3,504,400.00	3,481,800.00	3,454,200.00
Total Inflow	20,859,200.00	7,249,200.00	7,332,000.00	7,299,400.00	7,276,800.00	7,249,200.00
Cash Outflow						
Land Development	710,000.00	0.00	0.00	0.00	0.00	0.00
Building and Civil Const.	1,710,000.00	0.00	0.00	0.00	0.00	0.00
Machinery	3,355,000.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous Fixed Assets	115,000.00	0.00	0.00	0.00	0.00	0.00
Production Loan to Members	3,000,000.00	3,000,000.00	3,000,000.00	3,000,000.00	3,000,000.00	3,000,000.00
Loan for Threshers	650,000.00	0.00	0.00	0.00	0.00	0.00
Loan for Solar Dryer	500,000.00	0.00	0.00	0.00	0.00	0.00
Pre-Operating Cost	22,100.00	0.00	0.00	0.00	0.00	0.00
Amortizations:						
Production Loan	3,000,000.00	0.00	0.00	0.00	0.00	0.00
Thresher		650,000.00	0.00	0.00	0.00	0.00
Solar Dryer		500,000.00	0.00	0.00	0.00	0.00
Grant		2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00
Total Outflow	13,062,100.00	6,150,000.00	5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00
Net Cash Inflow	7,797,100.00	1,099,200.00	23,320,000.00	2,304,400.00	2,276,800.00	2,249,200.00
Add: Beginning Balance	0.00	7,797,100.00	8,896,300.00	11,228,300.00	13,532,700.00	15,809,500.00
Cash at the End	P7,797,100.00	P8,896,300.00	P11,228,300.00	P13,532,700.00	P15,809,500.00	P18,058,700.00

Table 19

FINANCIAL ANALYSIS

	1	2	3	4	5
A. Profitability Ratio					
Net Profit Margin	0.14	0.15	0.15	0.16	0.15
Operating Profit Margin	0.15	0.15	0.15	0.15	0.16
Gross Profit Analysis	0.20	0.20	0.20	0.20	0.20
B. Breakeven Analysis					
Variable Cost	17,916,000.00	17,916,000.00	17,916,000.00	17,916,000.00	17,916,000.00
Fixed Cost	1,074,800.00	1,074,800.00	1,074,800.00	1,074,800.00	1,074,800.00
Breakeven sales = Total Cost	17,990,800.00	17,990,800.00	17,990,800.00	17,990,800.00	17,990,800.00

TABLE: DISCOUNTED CASH FLOW (NET PRESENT VALUE)

	12%		CASH FLOW	DCF (12%)	6% Difference	18% DFC
1.	.89286	x	7,797,100	6,951,763	1. .847	- 6,504,143
2.	.79719	x	1,098,200	875,474	2. .718	- 788,507
3.	.71178	x	2,332,500	1,660,226	3. .608	- 1,418,160
4.	.63552	x	2,304,400	1,454,492	4. .515	- 1,184,766
5.	.56743	x	2,276,700	1,291,867	5. .437	- 994,917
6.	.507	x	2,249,200	1,140,344	6. .370	- 832,204
7.	.452	x	4,019,200	1,816,678	7. .313	- 1,258,009

DISCOUNTED CASH FLOW				15,210,844		13,080,706
INITIAL INVESTMENT				14,145,045		14,145,045

NPV	=			1,065,799		- 1,063,339
IRR	=			15%		
NVP	=			DISCOUNTED CASH FLOW - INITIAL INVESTMENT		

FIGURE 4

THRESHING FLOW CHART

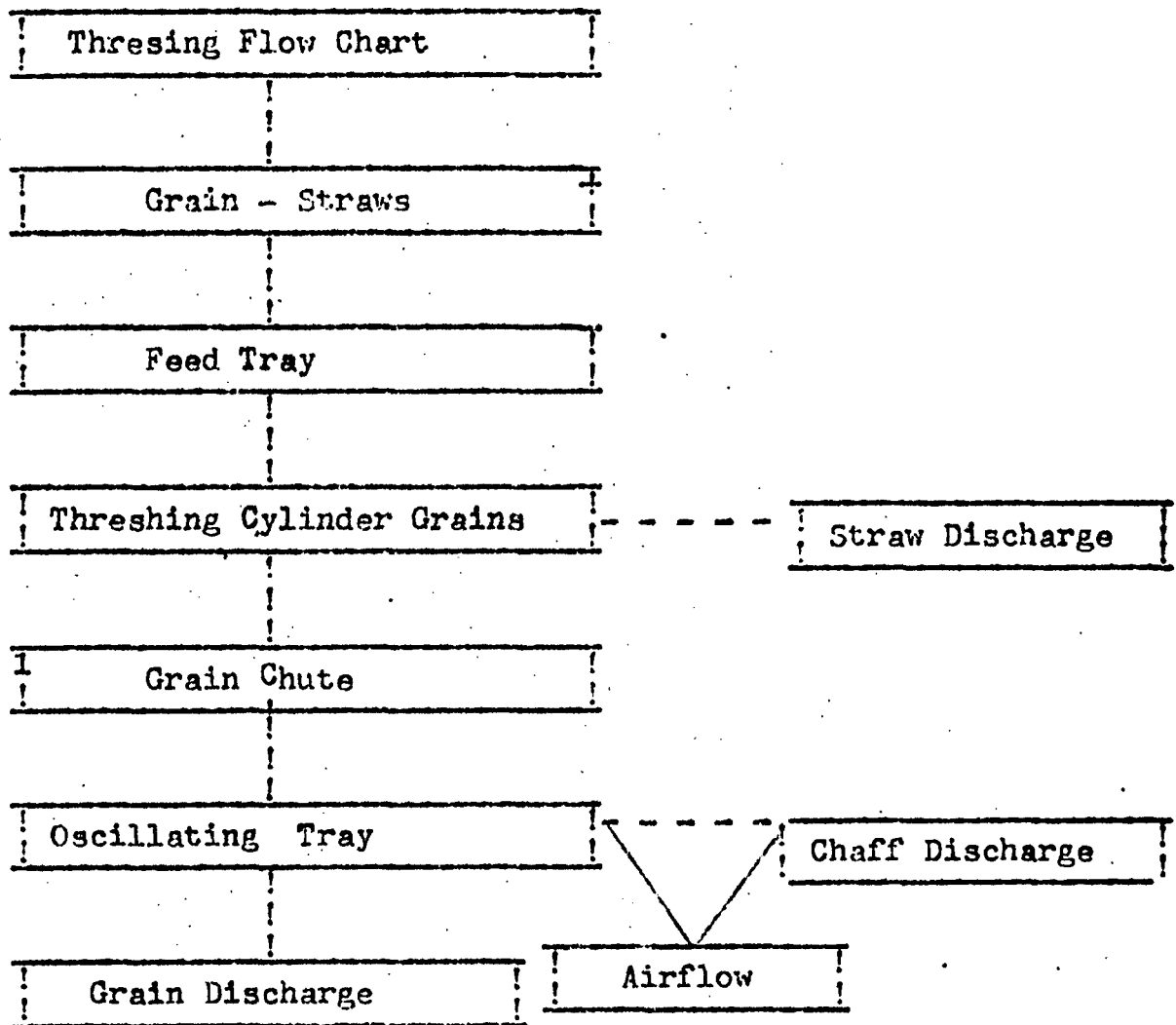


FIGURE 2

MILLING FLOW CHART

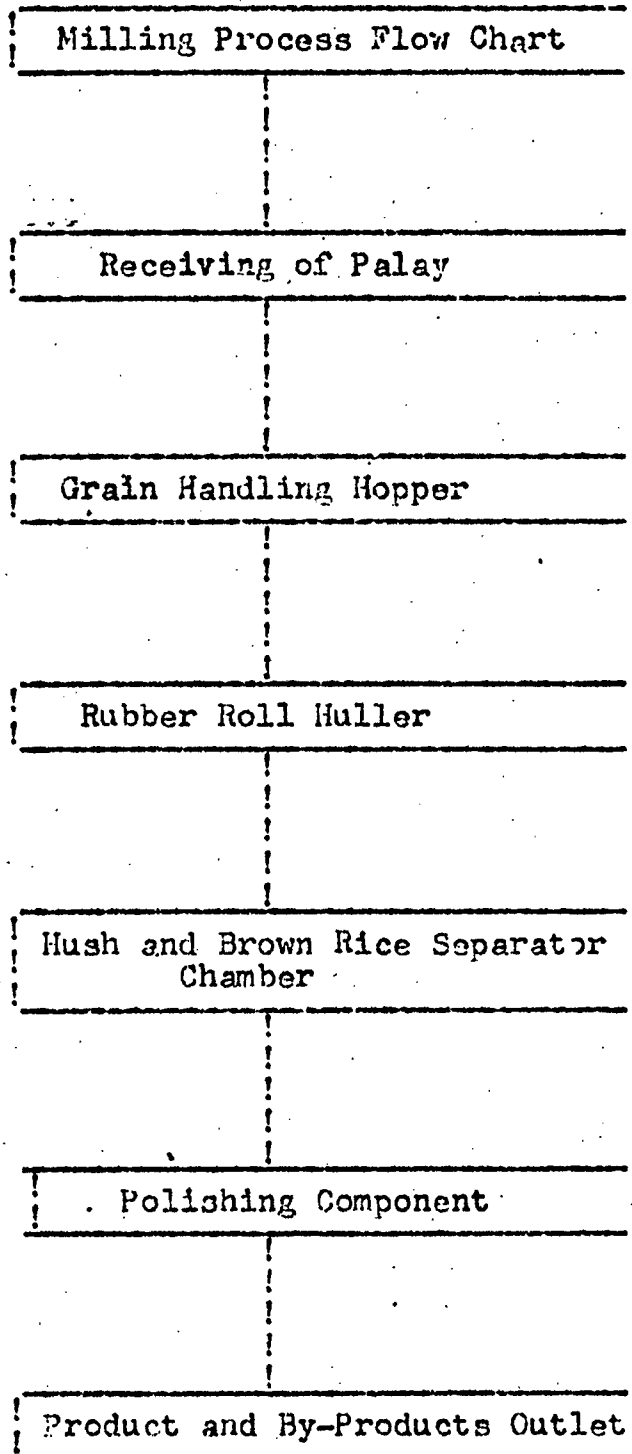


FIGURE 3

FEDERATION OF VILLAGE MULTI-PURPOSE COOPERATIVE
(Mother of Cooperative)

ORGANIZATIONAL CHART

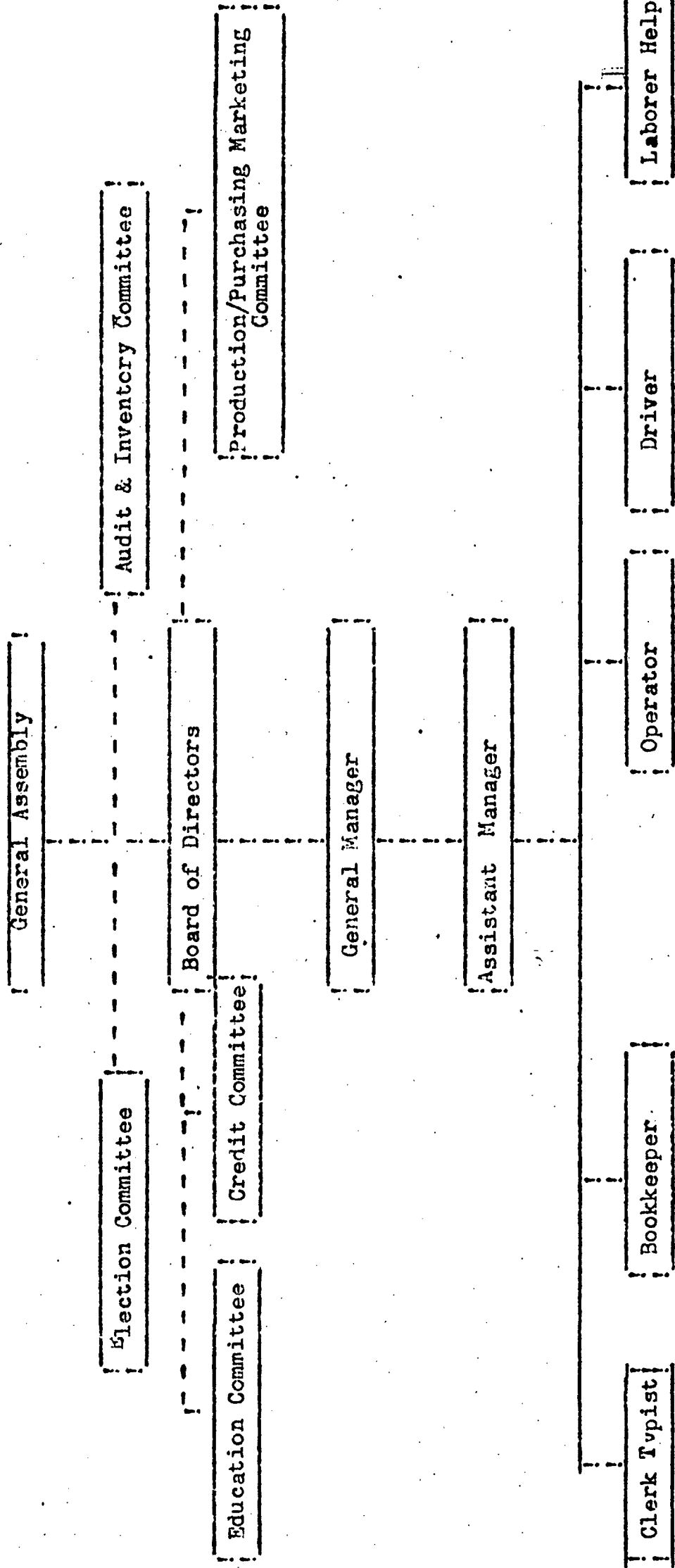


FIG. 4 CHANNEL OF FINANCING FLOW, FOR CROP PRODUCTION and FARM IMPLEMENTS

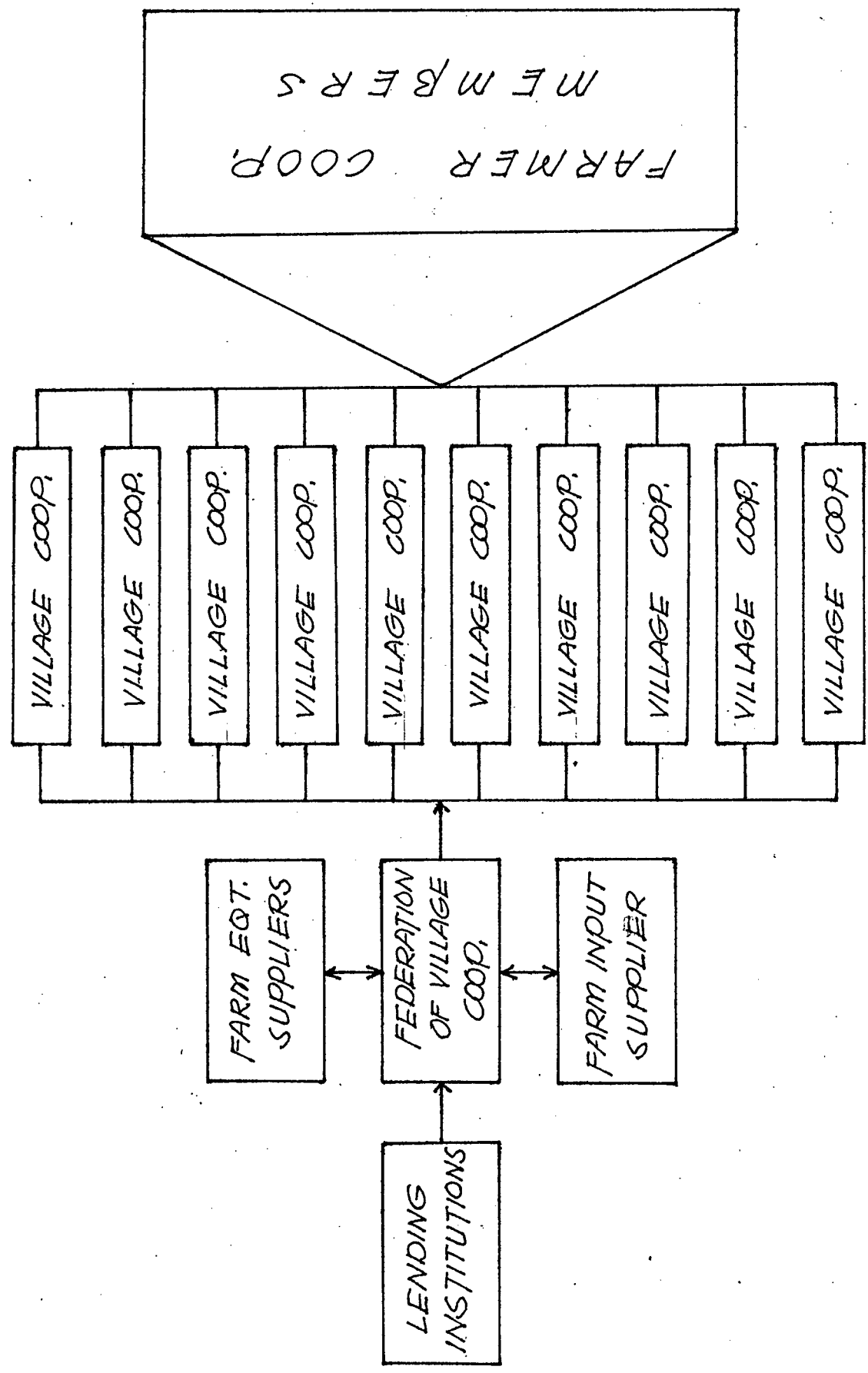


FIG. 5 CHANNEL OF DISTRIBUTION OF PADDY RICE

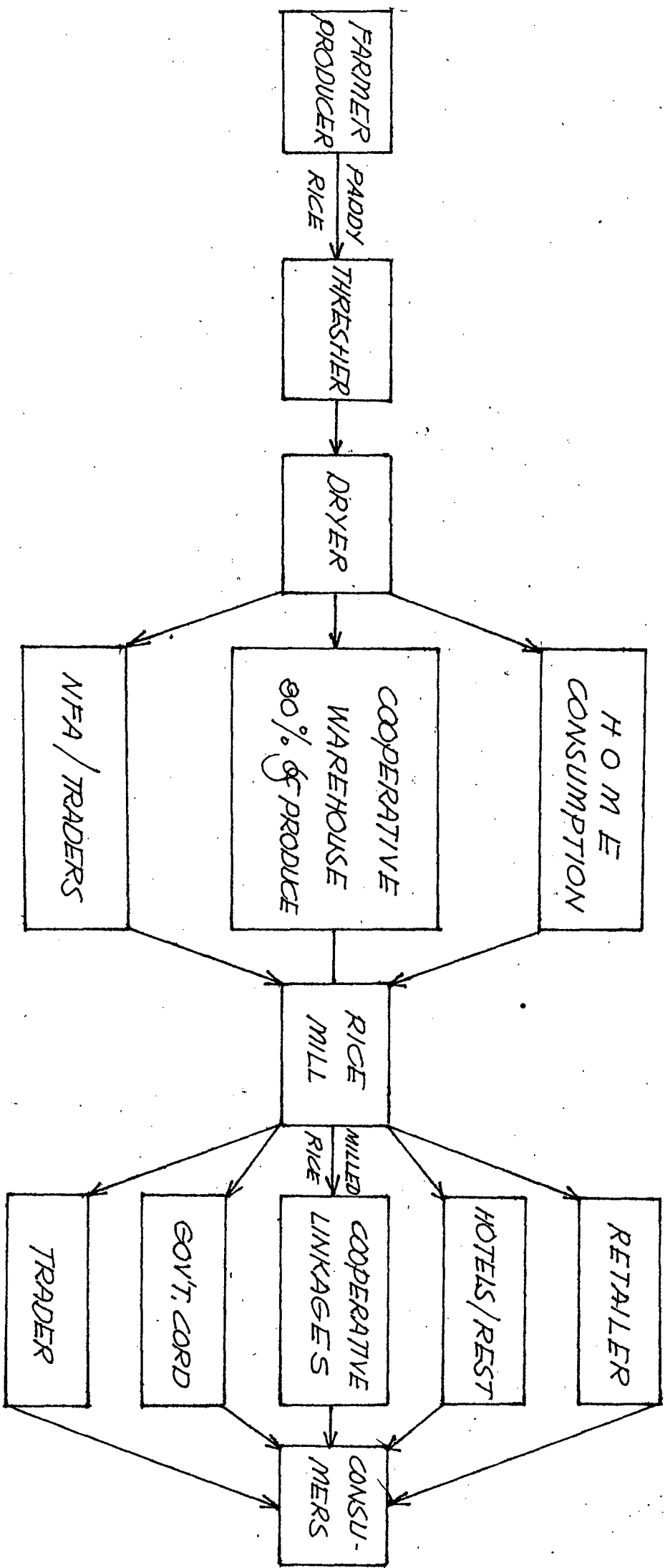
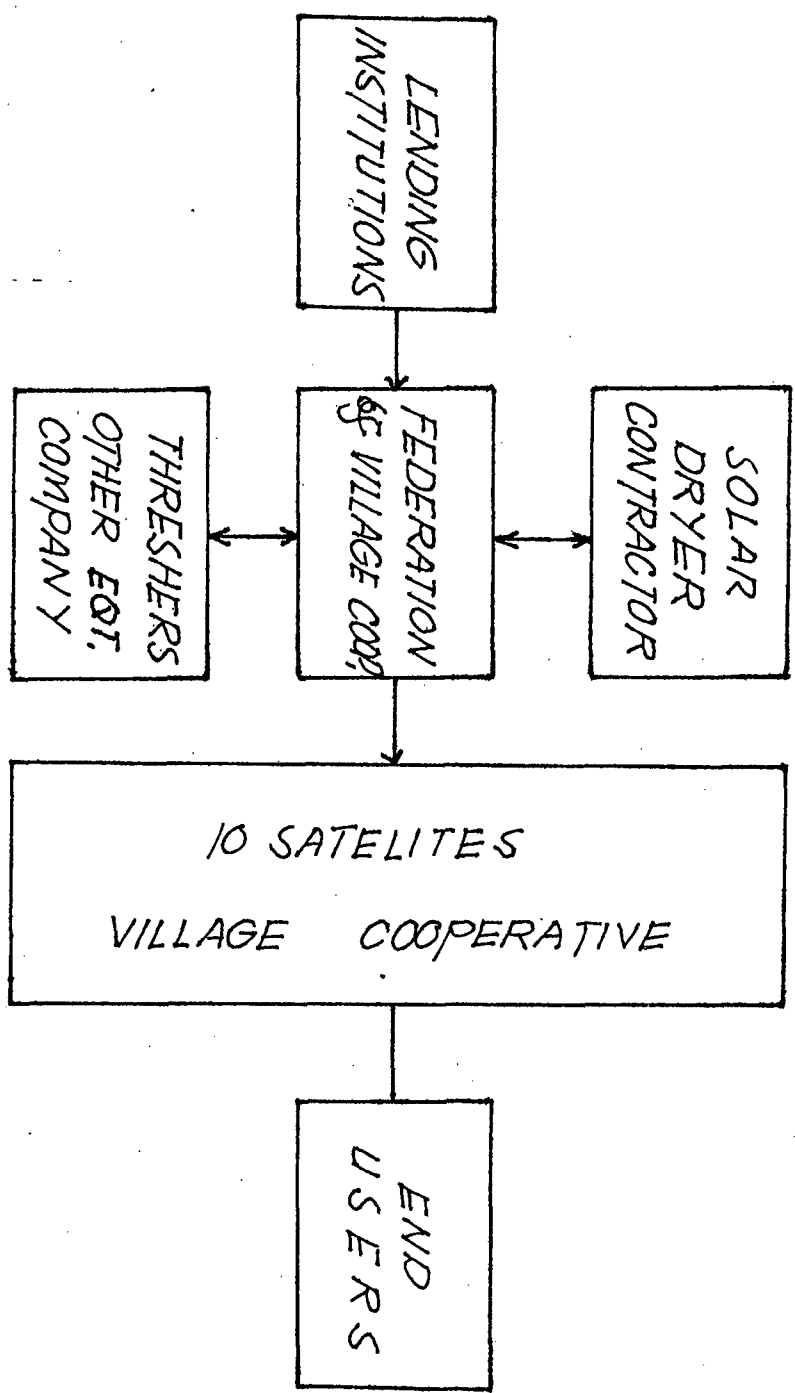


FIG. 6 CHANNEL OF DISTRIBUTION OF POST HARVEST FACILITIES



4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

by Mr Adolfo Dela Pena, Philippines.

(other those presented by groups)

- * If IRR is 15%, it is very low than the deposit interest offere by banks in the Philipines. Hence the project may be viable. Needs checking up.
- * No basic data abou federation, farmers, trends in production, milling pattern etc. are given in the report Hence justification and viability could not be judged.
- * Anchor activity is rice mill but not explained well.
- * Benefits to farmers, value addition expected, services, inputs, procurement, pricing etc. not given.
- * How benefits will be shared by the federation with cooperatives and coops with members not explained.
- * No growth in procuremnt, milling, population, production, productivity etc. has been projected.
- * Marketing vchannels like sales channels, basis of selling price etc. not given.
- * No risk analysis has been undertaken in the project.
- * Farmers benefits, justification and their participation in the project is missing.
- * Own funds estimated are only Rs.50,000. Rest of 14 million is to be raised by way of external loans. Intt alone comes to 1.2 million pesos per annum. It will upset the whole calculations. It will even affect the IRR which may be negative. Profitability will also get affected. Needs rechecking.
- * Due to missing link of cross reference cross checking is not posible.
- *Cash flow statt is more like cash budget. Separate cash flow statement should be added.
- * All costs seems to be underestimated in the project. NPV, IRR etc. should be reworkedout.

INTEGRATED PADDY.
Financial Analysis.

3/3/90 G.A.

1. THERE IS A VERY BIG DIFFERENCE BETWEEN CAPITAL COST OF THE PROJECT AND SOURCE OF FUNDS.

IT MUST BE EQUAL. (3,680,000 T. 7, 8)

2. OTHER SOURCE OF FUNDS (T. 8) NOT MENTIONED CLEARLY BECAUSE IT IS VERY BIG AMOUNT.

In general

3. WORKING CAPITAL REQUIREMENT IS NOT CAPITAL COST. (T. 7)

4. WORKING CAPITAL REQUIREMENT CALCULATION

IS NOT CORRECT. (RAW MATERIAL $\frac{17,500,000}{12} = 1,458,333$)

5. INTEREST ON WORKING CAPITAL AND LONG TERM LOAN IS NOT CALCULATED. (T. 10)

All

6. CAPITAL COST (EXCEPT LAND) IS NOT INCLUDED IN DEPRECIATION EXPENSES (T. 15)

7. SALES REVENUE AND PRODUCTION COST NOT INCLUDED IN CASH FLOW ANALYSIS IT SHOULD BE MENTIONED
8. ALSO BREAK EVEN POINT NOT CALCULATED.
9. THERE IS NO INCREASED IN THE COST. (SALARY, RAW MATERIAL & PROCUREMENT PRICE *etc.*)
10. SENSITIVITY ANALYSIS SHOULD BE CALCULATED.

Group B - Organizational Management/Marketing

The composition members of each committee

- Election Committee
- Audit & Inventory Committee
- Education Committee
- Credit Committee
- Production / Purchasing Committee

As mentioned on page (38) there are only 18 committee members. Committee Members responsibilities heavy but remunerations is very low 300 Pesos/month.

2. The term of office for Committee Members is 1 year as such not able to execute the long term programs.
3. Election of the 10 villages Coop are conducted in the same time and if at different time how possible to complete the quorum for the Board of Directors.
4. The General Assembly will elect Board of Directors and Sub-Committees. How is it possible for election Committee to conduct such election at same time.
5. The organizational chart does not shows the activities of processing/marketing of paddy.
6. Processing Activities of Paddy by Coop.
 - (i) Procure, Process and Market
 - (ii) Process for members only.
 - (iii) Process and store.

3/3/90

GROUP C

Paddy : Philippines

- 1) The project proposed for this Federation to have a rice mill is good but it is not known whether the other multiple co-op. are having already the rice mills on their own.
 - 2) Yield/ acre and the total production of paddy is not given.
 - 3) The procurement all through the year is same, Even through the production increases as the Federation provide post-harvest facilities to the farmers.
-

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	: Bicol Integrated Cooperative Farming System (BICOFARMS)
<i>COUNTRY</i>	: Philippines
<i>PROJECT PREPARED BY</i>	: Aburdio V. Felin

Funded by the Government of Japan

and

Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and Korea

ICA Management Training Project for Agricultural Cooperatives in Asia

INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters:
Route des Morillons 15
CH 1218, Le Grand Saconnex
Geneva, Switzerland

Regional Office for Asia:
43 Friends Colony (East)
New Delhi 110 065
India

I

A C K N O W L E D G E M E N T

This proposal for the establishment of an INTEGRATED COOPERATIVE FARMING SYSTEM is a partnership of efforts among selected cooperative leaders in the Bicol Region under the umbrella of the COOPERATIVE UNION OF THE PHILIPPINES, INC. and the BICOL COOPERATIVE UNION, INC. and the different private and government agencies involved in the cooperative development.

A multi-sectoral group consisting of representatives from the cooperatives, government line agencies, and the private sector were invited to contribute inputs to the study.

The proponent is especially grateful to the following for the assistance extended in the regard:

1. Gen. (Ret.) Arcadio S. Lozada - Secretary General, CUP, Quezon City.
2. Mr. Felix A. Borja - Chairman, Bicol Cooperative Union, Inc., Naga City.
3. Atty. Wilfredo Clavecilla - Manager, Land Bank of the Philippines, Naga Branch, Naga City.
4. Dr. Fe. D. Laysa - Regional Director, Department of Agriculture, Region - V.
5. Dr. Augusto R. Nieves - Superintendent, Bicol College of Arts and Trades, Naga City.

6. Dr. Ciriaco N. Divinagracia - President, Camarines Sur State Agricultural College, Pili, Cam. Sur.
7. Mr. Arthur B. Ruiz - Chief Cooperative Division, DA, Region - V.
8. Mr. Beda Priela, Jr. - Provincial Director Department of Trade and Industry, Cam. Sur.
9. Dr. Gonzalo Legaspi - Chief Regulatory Division, Department of Agriculture.
10. Mr. Romulo Caceres - Chairman, San Isidro Development Coop., Inc., Naga City.
11. Mr. Alejandro Sario - Researcher, National Statistics Office, Region - V.
12. Mr. Neri P. Perez - Chairman, Camarines Sur Federation of Agricultural Cooperatives, Inc.
13. Mr. Ely Murona - Program Officer, Department of Trade and Industry, Camarines Sur.
14. Mr. Elizer A. Reuyan - CARPO, Department of Agrarian Reform, del Rosario, Naga City. CARF-0, D
15. Engr. Ulyses Belen - # 11 Barlin Street, Naga City.
16. Mr. Jimmy B. Rull - Chairman, Lead projects, DA, Provincial Office, Panganiban Drive, Naga City.
17. Mr. Alexander Hermusora - Palestina, Pili, Cam. Sur.
18. Mr. Manuel C. Pelin - Palestina, Pili, Cam. Sur.

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19. Engr. Walfredo Cu. Estebal - DAR, Survey Team. Bureau of
lands, Iriga City.
20. Mr. Vic V. Laveste - Chief, Agri-Business Section. DA,
Region - V.
21. Mr. Oscar Espenilla - Provincial Manager, NFA,
Cam. Sur Branch, Palestina,
Pili, Camarines Sur.
22. ARD Gerardo de Asis - DA, Regional Office No. V, San
Agustin, Pili, Cam. Sur.
23. Mr. M.V. Madane - Project Director, International
Cooperative Alliance, New Delhi,
India.
24. Mrs. Helenita Q. Ruiz - San Felipe, Naga City.

Without their cooperation and support, this study would not
have been possible.

THE PROPONENT

IV

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EXECUTIVE SUMMARY

PROJECT BACKGROUND AND HISTORY

This proposal examines the possibility of establishing an integrated cooperative farming system for the Bicol Region, a region in the Southern part of Luzon whose 4.3 million people are primary dependent upon agriculture as their source of livelihood.

As proposed, a complete Cooperative cycle from financing, production, processing to marketing is being envisioned to ensure farmers profitability.

At present, the average family income of farmers in the Region (\$ 732 compared to the national average of \$ 869) is one of the lowest in the country. This is understandable because marginal farmers who are supposed to be the beneficiaries of the cooperative program are still solely dependent upon the middlemen (who dictate the prices of agricultural products) as their marketing outlet.

It is very apparent that the only way to improve the quality of life of farmers is to industrialize agriculture and process agricultural produce into finished products with good domestic and export market potential.

If realized, the project will pioneer in the production of feed grains to support a livestock farm whose produce will be

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processed in a meat processing plant. Similar processing concept will be applied to other agricultural products such as root crops, fruits, fish and vegetables. At the moment, 98% of the processed meat requirement, (ham, sausage, bacon, etc.) of the Visol Region are bought from Metro Manila suppliers (450 kms. away) who buy the raw materials from the provinces at very low prices to the detriment of farmer-producers in rural communities. The marketing of agricultural surplus in raw form is always disadvantageous to the rural farmers.

Chapter II

3

SOCIO - ECONOMIC SIGNIFICANCE OF THE PROJECT

The project will provide a stable and ready market for farmer - cooperators.

The feed mill, aside from supporting the livestock farm of the project, will also supply the feed requirements of member - cooperators for their backyard livestock and poultry projects.

The meat processing will be able to give better prices for the produce of farmers because of its proximity to the members farm in lower production costs in the region on account of reduced transport costs and lower wage rates compared to Metro Manila processors.

The project will generate employment for cooperators and their families. It is expected that around 1,000 persons will be either directly or indirectly employed in the farming, processing and marketing components of the project.

MARKET AND PLANT CAPACITY

Demand

The regional demand for processed meat products alone is sufficient to absorb the annual projected production capacity of the meat processing plant. Since the Metro Manila processors have to move their raw materials and products over bad roads from as far as 40-500 kms. away, the savings on transportation costs would

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aside from the livestock farm that will be set-up as the main source of raw materials for the project. Cooperators engaged in backyard livestock raising will be encouraged to bring their stocks to identified pick-up points periodically.

Cooperators will be utilized as contract raisers for livestock and poultry. Under this approach, cooperators will be given opportunities for increased income at the same time assuring the plant a steady supply of raw materials.

LOCATION AND SITE

The feed mill, livestock farm and processing will be situated in a 60 hectares lot situated in Naga City (see location maps).

This area is surrounded by strong and viable agricultural cooperatives engaged in production of rice and feed grains. It is very near a sugar central and only a few kilometers away from the fishing port of the province. The feed grains and feed additives are stored and traded in the City of Naga and neighboring towns making the plant site strategic and convenient.

Finished products will be moved over railway, concrete roads and vessels to consumers center. Communication facilities will be easy and convenient with the identified plant site. Two sites have so far been voluntarily offered by the owners for the project at reasonable prices.

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be a tremendous advantage for the project. As long as the quality and steady supply are assured, local distributors will have no reason to continue patronizing Metro Manila suppliers.

Supply

Initial production target is projected at 10 MT of processed meat products per month for a total of 120 MT for the first year working on one shift for an average of 300 working days per year. Maximum production capacity shall be 30 MT per month or 360 MT per year.

This production can be easily absorbed by the Bicol Region alone. The markets in neighboring regions (Visayas and Southern Tagalog) are to be served as expansion markets of the project.

Sales and Marketing

Marketing will be done mostly through cooperatives, groceries, and existing public supermarkets.

A marketing office will be set-up at Naga City which is considered the center of commerce, transportation and communication in the Bicol Region.

RAW MATERIALS AND INPUTS

The meat processing plant will be supplied by at least 10 livestock farms operated by cooperatives and their members

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TECHNICAL FEASIBILITY

There is an abundance of technical people who can install, operate, and maintain the machinery of the feed mills and processing plant. Priority in employment will, however, be given to cooperators and their children.

The facilities and expertise of government and private institution who are willing to assist will be tapped for the purpose of attaining efficiency and effectiveness in the operation.

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Problems Faced by Farmers:

- A. Lack of Financing and Technology.
- B. Lack of Farm Implements for Land Preparation and Post Harvest Facilities.
- C. Prices of Produce During Harvest Time is very Low.
- D. Government support to the farmers is inadequate.
- E. Very low profit is derived in agriculture.
- F. Uncertainties during typhoon, drought and natural calamities.

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Need and Justification for the Project

There is an urgent need for the existing financial institutions to extend financing to the production of agricultural commodities because the majority of small farmers lack the needed capital. At present only 01.5 percent of rice and corn farmers of the province of Camarines Sur are financed by the Land Bank of the Philippines. All other farmers borrow money or inputs from traders, landowners and money lenders who charge 120% to 180% interest per annum. As component of financing, Farm Management Technologist will be assigned in designated farming areas to teach, guide and supervise farmers in their farming activities. A combination of traditional and modern methods of farming will be introduced.

A pool of tractors will be serviced to the farmer-borrowers in order to ensure the correct, timely and economical land preparations. Corn shellers shall also be used to service the farmers during harvest.

A dryer and warehouse will be constructed in order to dry and store the produce of the farmer-cooperators.

There is also a need to process the palay into rice, the corn and other feed grains into feeds. A feedmill will be put up for this purpose. The feed shall be fed to a piggery farm, and the fattened pigs shall be processed into meat products.

A marketing office shall also be established.

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In order to insure the profitability of the farmer-cooperators, an Integrated Cooperative Farming System is needed. If the cooperative will engage only in one line business activity say production of feed grains only a very small profit will be realized. However, if from the farm, the commodity is produced by the farmer-cooperators, then processed into feeds and continue to operate a farm using feed for its livestock farm, and then processed the hog/cattle into meat products, a considerable value addition to farmers products is assured.

Integrated approach is the only solution to improve the quality of life of the farmer.

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Chapter 3 Project:

Title:

Bicol Integrated Cooperative Farming System
(B I C O F A R M S)

Project Site:

San Isidro, Naga City, Philippines

Objectives:

- a. To minimize the risks of farmers and increase productivity.
- b. To add value to the produce of the farmer.
- c. To develop a self-reliant farmers organization.
- d. To provide employment and other services to the community.

Area of Operation:

The area of operation is the whole province of Camarines Sur. However, at the first year of operation it will concentrate only on a twenty (20) kilometer radius from the main office. As the project grows the area of coverage shall be increased further until it covers the whole province.

The area is selected as far as financing, supply of raw materials and farms (crop and livestock) are concerned. However, in terms of marketing the finished product, the whole Bicol Region is covered. It may even cover the parts of Southern Tagalog and Eastern Visayas Regions as the production of finished product increases.

Project Components:

1. Financing
2. Procurement of Palay and Corn and other Feed Grains
3. Processing of Palay
4. Feed Milling
5. Livestock Farm
6. Meat Processing
7. Marketing

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Chapter 4: Details of Operation

1. Financing and Procurement of Palay and Corn and Other Feed Grains

Financing for production of palay and corn and other feed grains shall be provided by the Land Bank of the Philippines to the Federation of Agricultural Cooperatives, the project implementor. The Federation, will in turn finance the member-ordinary coops and the primaries shall in turn provide the financing to their respective members.

Seeds, fertilizers and chemicals will be purchased by the federation/project in bulk for distribution to the primaries.

Farm Management technologies will be employed by the Federation/Project to teach, demonstrate, guide and supervise farmer-cooperators in their production, harvesting and post-harvesting techniques. During harvest, all the produce of the farmer-cooperators except those intended for home consumption will be assembled by the primaries and the project will collect them at designated collection points.

The farmer-cooperators may demand outright payment, cash advance or may just deposit his produce to the project and do some liquidation later. (These are stipulated in the Loan Agreement.)

The Federation/Project will also engage in the production of feed grains on a forty (40) hectare farmland. This will augment the supply of raw materials to the Feed Mill and also will serve as a Demo Farm to member -cooperative primary societies.

2. Processing of Palay and Feed Milling

The Federation/Project will weigh, dry, store, process farmer-cooperators produce. The palay shall be processed into rice. The corn and other feed grains shall be processed into feeds. In the case of palay, the Project will utilize service of

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existing rice mills. The project do not intend to put a rice mill unit since rice mill population in the province is in excess.

3. Livestock Farm

The Federation/Project will operate a piggery farm that would absorb the feeds produced by the Feed Mill. The operation of the farm will start from breeding to fattening.

4. Meat Processing

The Federation/Project will put up a Meat Processing Plant to process the fattened pigs into meat products. The products are ham, bacon, sausage and other meat products pack in plastic wrapper or canned.

5. Marketing

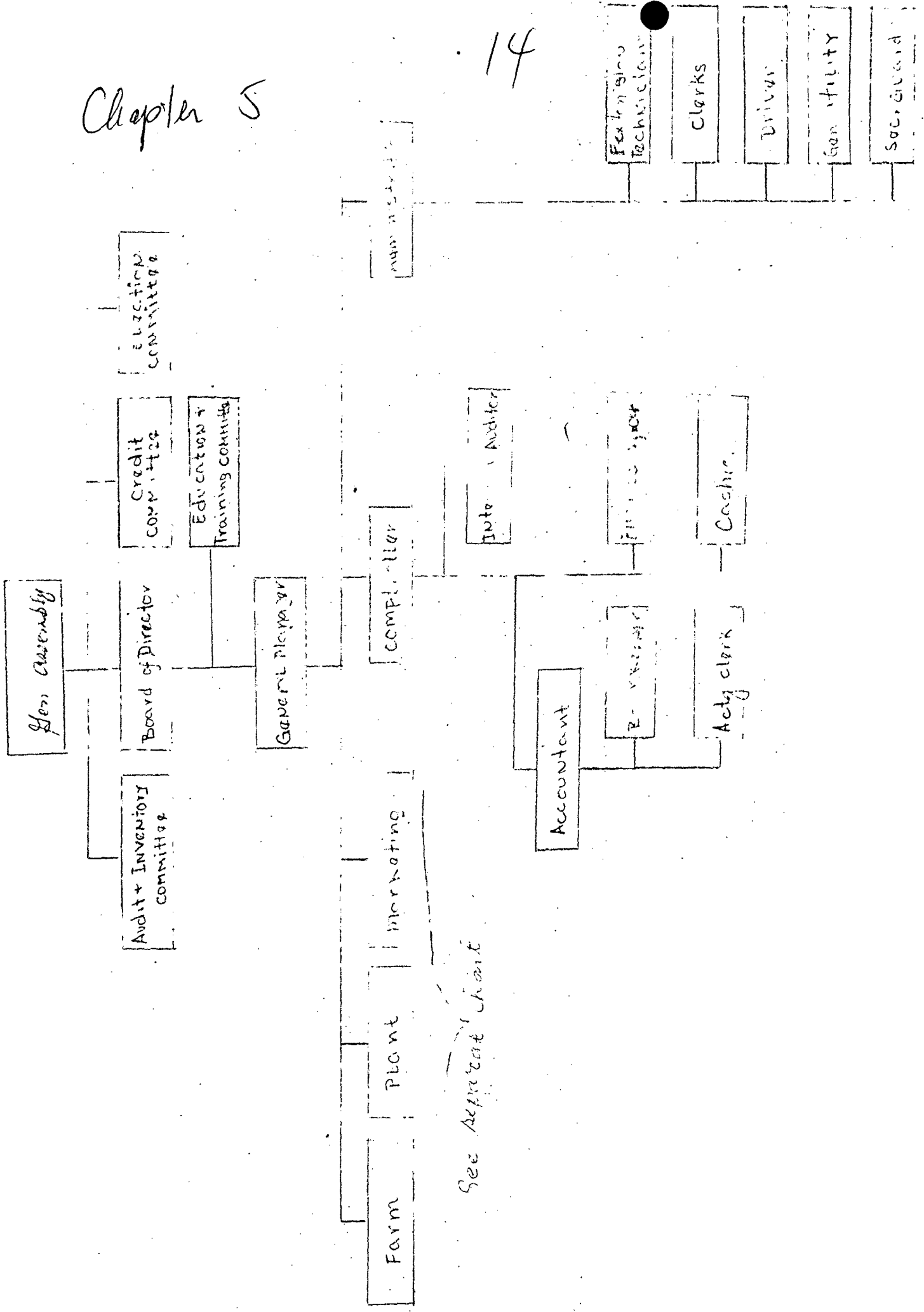
The Federation/Project will put up a marketing office in Naga City, the main trading center of Bicol Region. Finished products of the project such as rice, feeds, fresh and processed meat will be distributed to marketing and multi-purpose cooperatives, private and government institutions, groceries and supermarkets.

6. Expansion

As the business grows, the population of the piggery farm shall be doubled. A cattle breeding farm will also be established. Contract growing for feed grains and livestock farming will be expanded to qualified member-cooperators. This expansion program should be carried out in order to absorb the excess feed and feed grains production of the farmer-cooperators. Also the project should supply adequately the market needs for quality prime commodities.

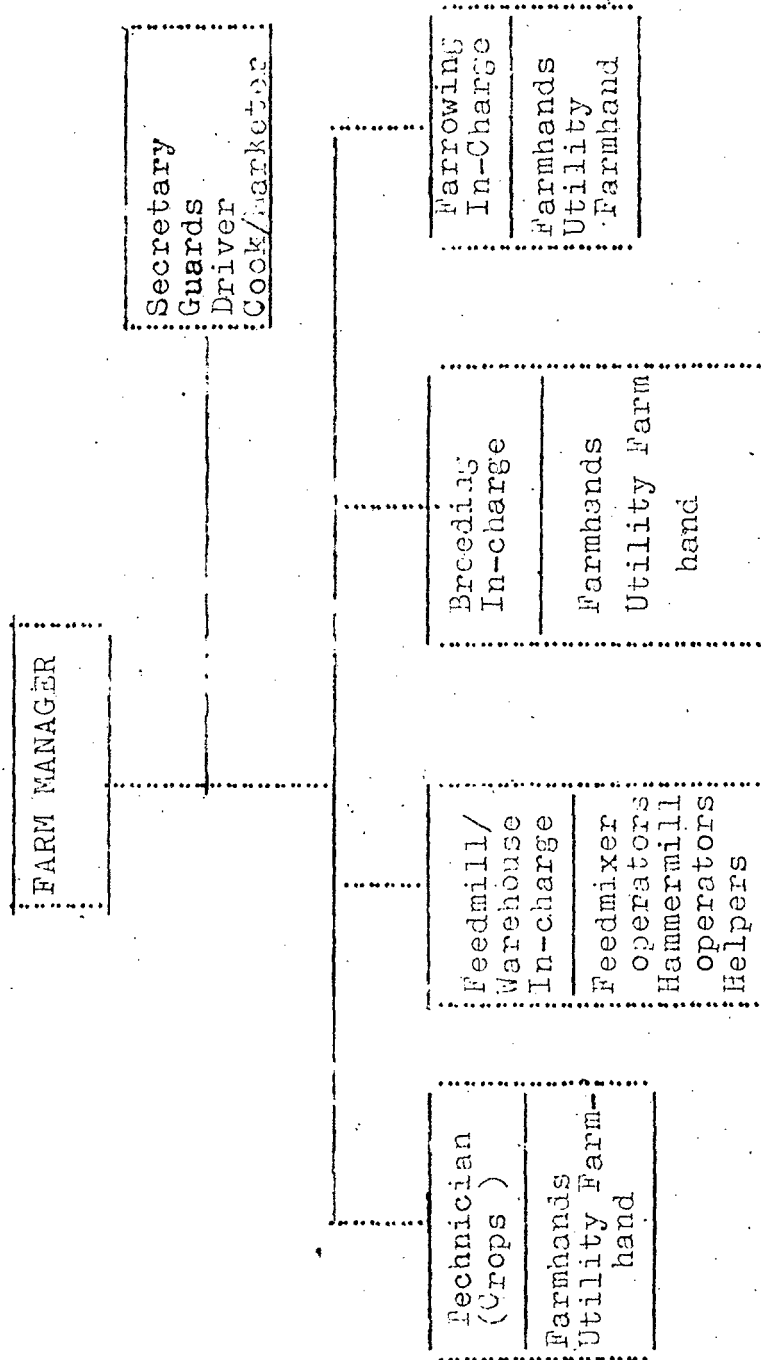
Chapter 5

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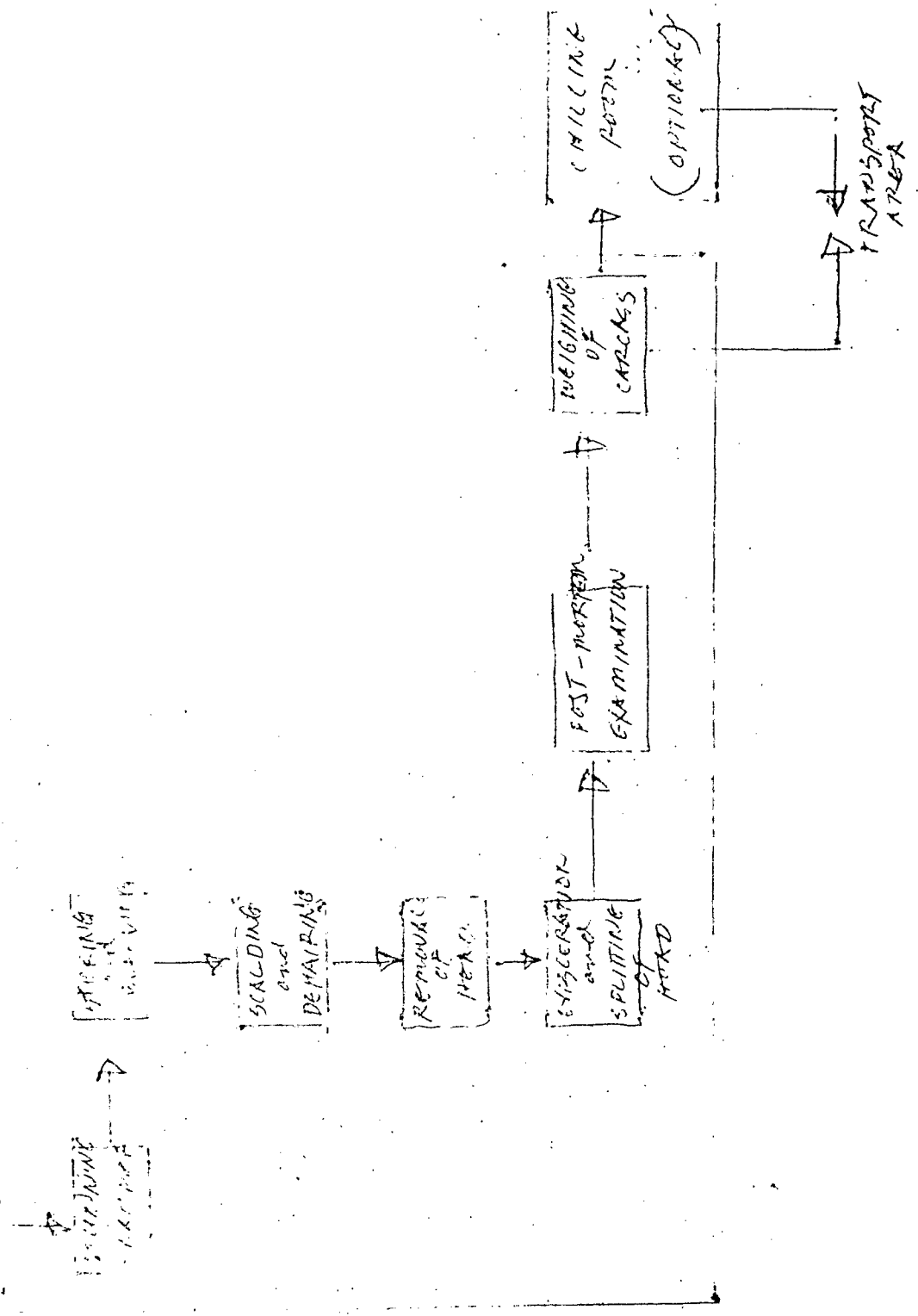


See Appendix Chart

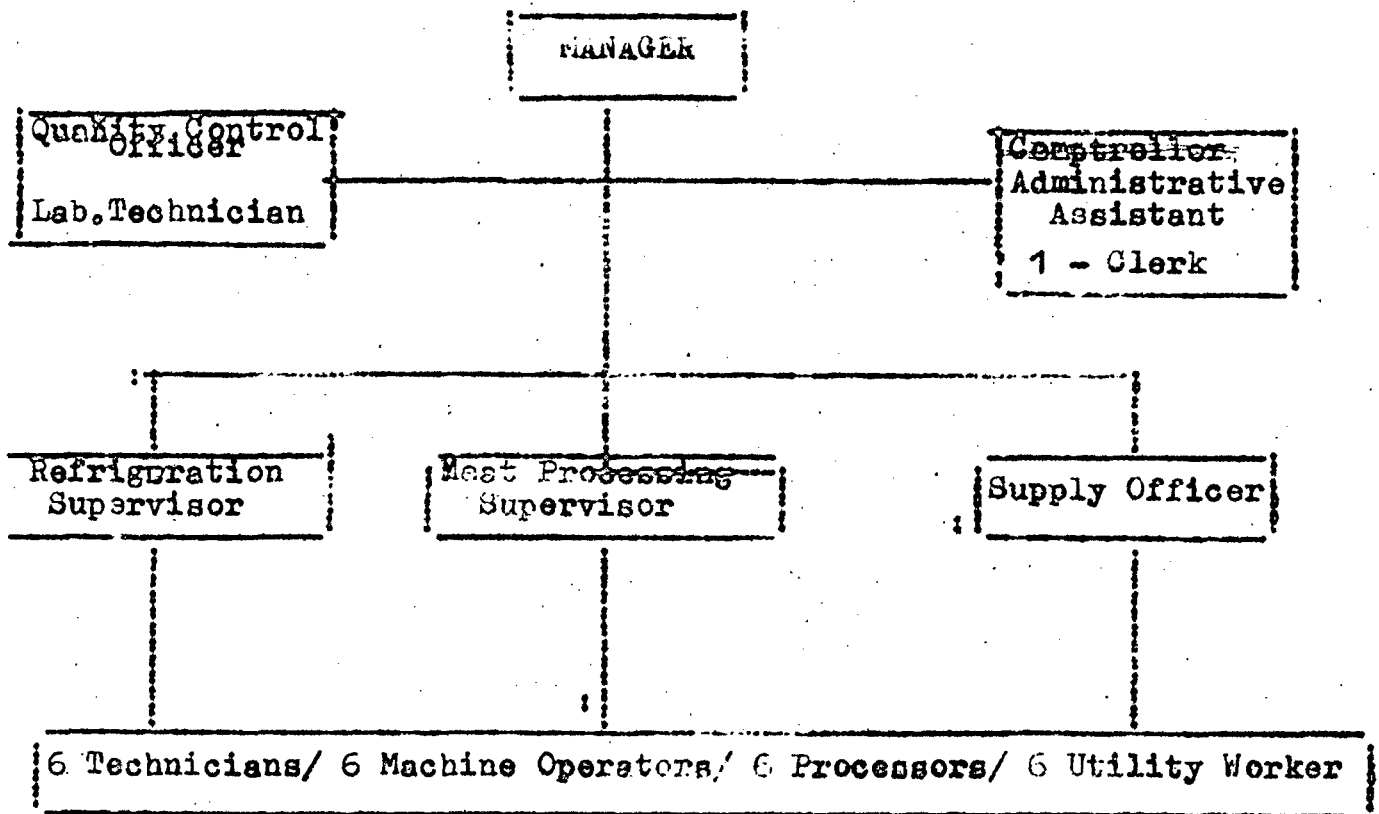
LIVESTOCK FARM AND FEEDMILL



RECORDING
T.C.1



MEAT PROCESSING PLANT



FINANCIAL AND ECONOMIC EVALUATION

A total investment of ₱36,700,000.00 will be required by the project. The breakdown of the total investment outlay are initially projected below:

LAND AND LAND DEVELOPMENT

Purchase of Land(60 hectares @ ₱30,000.00 per hectare)	₱1,800,000.00	
Land Improvement and Fencing	<u>250,000.00</u>	₱2,050,000.00

CONSTRUCTION OF BUILDINGS

1. Feed Mill (1,000 sq. m. floor area ₱3,000.00 sq.m.)	₱3,000,000.00	
2. Meat Processing Plant (1,000 sq.m. ₱3,000.00 sq.m.)	3,000,000.00	
3. Livestock Farm (2,060 sq.m. @ ₱3,000.00 sq.m.)	6,180,000.00	
4. Warehouses (1,800 sq.m. @ ₱3,000.00)	5,400,000.00	
5. Administration Building (200 sq.m. @ ₱3,000.00 sq.m.)	600,000.00	
6. Auxiliary Services (Power house, Clinic, equipment shed, guard house, canteen, etc.)	350,000.00	
7. Marketing Office (200 sq.m. @ ₱2,000.00)	<u>600,000.00</u>	19,130,000.00

MACHINERY AND EQUIPMENT

1. Feed Mill (10MT cap. per day)	₱1,200,000.00	
2. Meat Processing Plant	2,500,000.00	
3. Transport Equipment(Pick-up trucks, refrigerated vans, forklift, etc.)	1,800,000.00	
4. Office Laboratory and equipment	200,000.00	
5. Standby Power	200,000.00	
6. Tractor Pool (5 tractors, 9 corn shellers)	4,180,000.00	
7. Communication Equipment	<u>20,000.00</u>	10,270,000.00

FURNITURE AND FIXTURES

100,000.00

CAPITAL REQUIREMENTS

1. Pre-operating Costs	₱ 150,000.00	
2. Operating Capital	<u>5,000,000.00</u>	5,150,000.00
TOTAL INVESTMENT OUTLAY		<u>₱36,700,000.00</u>

at ₱23.00 : #1

vvvvvvvvvvvvvvvv
₱ 1,595,652.10
vvvvvvvvvvvvvvvv

Financing for the production of feed grains and additives will be provided by the Land Bank, Cooperative Bank, Credit Cooperatives, Rural Banks and other local financial sources and is not taken into account in the investment outlay.

Schedule 1A: SCHEDULE OF SALARIES OF ADMINISTRATIVE STAFF

<u>Number</u>	<u>Position</u>	<u>Monthly Salary</u>	<u>Annual Salary</u>
1	General Manager	₱ 7,500.00	₱ 97,500.00
1	Comptroller	6,000.00	78,000.00
3	Extension Technicians	2,750.00	107,250.00
1	Accountant	4,500.00	58,500.00
1	Loan Officer	3,000.00	39,000.00
2	Bookkeeper	3,500.00	91,000.00
1	Cashier	2,750.00	35,750.00
1	Supply Officer	3,000.00	39,000.00
1	Storekeeper	3,000.00	39,000.00
3	Clerks	2,000.00	78,000.00
2	Utility Men	2,000.00	52,000.00
3	Security Guards	2,000.00	78,000.00
1	Driver	2,000.00	26,000.00
Total			₱819,000.00
			vvvvvvvvvv

Schedule 1B: SCHEDULE OF SALARIES OF MARKETING STAFF

1	Marketing Manager	₱ 5,000.00	₱ 65,000.00
3	Sales Representatives	3,500.00	136,500.00
1	Clerk	2,000.00	26,000.00
3	Driver/Delivery Men	2,000.00	78,000.00
Total			₱305,500.00
			vvvvvvvvvv

Schedule 1C: SCHEDULE OF SALARIES OF MEAT PROCESSING PLANT PERSONNEL

1	Manager	₱ 5,000.00	₱ 65,000.00
1	Administrative Assistant	3,500.00	45,500.00
1	Refrigeration Supervisor	3,500.00	45,500.00
1	Meat Processing Supervisor	3,500.00	45,500.00
1	Supply Officer	3,000.00	39,000.00
1	Quality Control Officer	3,500.00	45,500.00
1	Lab Technician	3,000.00	39,000.00
1	Clerk	2,000.00	26,000.00
6	Technicians	3,000.00	234,000.00
6	Machine Operators	2,500.00	195,000.00
6	Processors	2,500.00	195,000.00
6	Utility Men	2,000.00	156,000.00
Total			₱1131000.00
			vvvvvvvvvv

Schedule 1D: SALARIES OF FARM PRODUCTION PERSONNEL
(Livestock, Farm, Feedmill)

<u>Number</u>	<u>Position</u>	<u>Monthly Salary</u>	<u>Annual Salary</u>
1	Farm Manager	₱ 5,000.00	₱ 65,000.00
1	Farm Technician	4,500.00	58,500.00
1	Feedmill/Warehouse-in-charge	3,000.00	39,000.00
1	Breeding-in-charge	3,000.00	39,000.00
1	Farrowing-in-charge	3,000.00	39,000.00
1	Feed Mixer Operator	2,500.00	32,500.00
1	Feed Mixer Helper	2,300.00	29,900.00
1	Hamtermill Operator	2,500.00	32,500.00
1	Hamtermill Helper	2,300.00	29,900.00
2	Breeding House Farmhand	2,300.00	59,800.00
2	Farrowing House Farmhand	2,300.00	59,800.00
1	Nursery/Weaning House Farmhand	2,300.00	29,900.00
2	Growing House Farmhand	2,100.00	54,600.00
2	Finishing House Farmhand	2,100.00	54,600.00
1	Utility Farmhand	2,100.00	27,300.00
1	Watchman (Night Detail)	2,300.00	29,900.00
1	Farm Driver	3,000.00	39,000.00
1	Farm Secretary	3,000.00	39,000.00
2	Security Guards	2,500.00	65,000.00
1	Farm Cook/Marketer	2,300.00	29,900.00
	total		₱754,100.00
			vvvvvvvvvvvv

Schedule 1E: SCHEDULE OF SALARIES - TRACTOR POOL

2	Challer Operators	₱ 12.50/hour	₱108,000.00
1	Equipment Supervisor	3,500.00	45,500.00
5	Tractor Operators	15.00/hour	117,000.00
2	Mechanic	2,000.00	26,000.00
1	Utility Man	2,000.00	26,000.00
	Total		₱374,500.00
			vvvvvvvvvvvv

Note: Schedule 1D is not included in the computation in the Operations Budget. It is already part of the production cost in the Livestock Farm Income

Schedule 2: SCHEDULE OF HONORARIA

<u>Number</u>	<u>Officers</u>	<u>Total</u>
5	Directors at ₱200.00 per Board Meeting for 12 meetings per year	₱ 12,000.00
5	Directors at ₱300.00 per Special Meeting for 6 meetings per year	9,000.00
1	President monthly Honoraria of ₱1,000.00 for 12 months	12,000.00
1	Corporate Secretary at Monthly Honoraria of ₱600.00 per month for 12 months	7,200.00
1	Treasurer at Monthly Honoraria of ₱1,500.00 per month for 12 months	18,000.00
2	Consultants at ₱1,000.00 per month for 12 months	24,000.00
2	Members of Audit and Inventory Committee at ₱200.00 per month for 12 months	7,200.00
2	Members of Credit Committee at ₱200.00 per meeting for 24 meetings	14,400.00
3	Members of Education and Training Committee at ₱200.00 per month for 12 months	7,200.00
2	Members of Election Committee at ₱300.00 per election	900.00
	Total	<u>₱111,900.00</u> vvvvvvvvvvv

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	Year 1	Year 2	Year 3	Year 4
1. Feedmill				
Gross Profit Rate	₺ 15,000,000.00	₺ 18,150,000.00	₺ 21,780,000.00	₺ 26,353,800.00
Gross Income	₺ 3,000,000.00 20%	₺ 3,630,000.00 20%	₺ 4,356,000.00 20%	₺ 5,270,760.00 20%
2. Tractor Pool				
Fuel, Oil and Maintenance	₺ 1,710,000.00	₺ 1,881,000.00	₺ 2,076,000.00	₺ 2,286,000.00
Gross Income	₺ 547,593.75	₺ 608,569.00	₺ 660,975.00	₺ 718,538.00
	₺ 1,162,406.25	₺ 1,272,431.00	₺ 1,415,025.00	₺ 1,567,462.00
3. Corn Shellers				
Fuel, Oil and Maintenance	₺ 829,440.00	₺ 1,026,432.00	₺ 1,254,528.00	₺ 1,517,789.00
Gross Income	₺ 194,235.00	₺ 222,847.00	₺ 255,053.00	₺ 291,747.00
	₺ 635,205.00	₺ 803,585.00	₺ 999,475.00	₺ 1,226,042.00
4. Meat Processing				
Manufacturing/Processing Cost	₺ 12,000,000.00	₺ 16,560,000.00	₺ 22,852,800.00	₺ 31,008,000.00
Gross Income	₺ 9,000,000.00	₺ 12,420,000.00	₺ 17,139,600.00	₺ 23,256,000.00
	₺ 3,000,000.00	₺ 4,140,000.00	₺ 5,713,200.00	₺ 7,752,000.00
5. Farm Inputs:				
Fertilizers				
Gross Profit Rate x 2	₺ 8,600,128.80	₺ 9,460,142.00	₺ 10,406,156.00	₺ 11,446,772.00
Gross Profit	₺ 688,010.30 4%	₺ 756,811.00 4%	₺ 832,492.00 4%	₺ 915,742.00 4%
Chemicals				
Gross Profit Rate x 2	₺ 4,145,848.80	₺ 4,560,434.00	₺ 5,016,477.00	₺ 5,518,125.00
Gross Profit	₺ 1,243,754.60 15%	₺ 1,368,130.00 15%	₺ 1,504,943.00 15%	₺ 1,655,437.00 15%
Seeds				
Gross Profit Rate x 2	₺ 2,219,719.50	₺ 2,441,601.00	₺ 2,685,860.00	₺ 2,954,446.00
Gross Profit	₺ 266,366.30 6%	₺ 293,003.00 6%	₺ 322,303.00 6%	₺ 354,534.00 6%
6. Rice Trading				
	₺ 320,560.50	₺ 352,617.00	₺ 387,878.00	₺ 426,666.00
7. Feed Grains Production				
Production Cost	₺ 1,680,000.00	₺ 1,848,000.00	₺ 2,032,800.00	₺ 2,236,080.00
Gross Profit	₺ 648,000.00	₺ 712,800.00	₺ 784,080.00	₺ 862,488.00
	₺ 1,032,000.00	₺ 1,135,200.00	₺ 1,248,720.00	₺ 1,373,592.00

Income Projections

	Year 6	Year 7
1. Feedmill		
Gross Profit Rate	P 31,624,560.00	P 42,517,464.00
Gross Income	<u>P 6,324,912.00</u>	<u>P 8,503,493.00</u>
2. Tractor Pool		
Fuel, Oil and Maintenance	P 2,534,400.00	P 3,072,000.00
Gross Income	<u>P 1,750,804.00</u>	<u>P 2,143,237.00</u>
3. Corn Shellers		
Fuel, Oil and Maintenance	P 1,821,658.00	P 2,760,480.00
Gross Income	<u>P 1,488,346.00</u>	<u>P 2,307,690.00</u>
4. Meat Processing		
Manufacturing/Processing Cost	P 42,000,000.00	P 61,056,000.00
Gross Income	<u>P 10,500,000.00</u>	<u>P 15,260,000.00</u>
5. Farm Inputs:		
Fertilizers		
Gross Profit Rate x 2	P 12,591,449.00	P 15,235,653.00
Gross Profit	<u>P 1,007,316.00</u>	<u>P 1,218,852.00</u>
Chemicals		
Gross Profit Rate x 2	P 6,069,938.00	P 7,344,625.00
Gross Profit	<u>P 1,820,981.00</u>	<u>P 2,203,388.00</u>
Seeds		
Gross Profit Rate x 2	P 3,249,891.00	P 3,932,368.00
Gross Income	<u>P 389,987.00</u>	<u>P 471,884.00</u>
6. Rice Trading		
Gross Income	<u>P 469,333.00</u>	<u>P 567,892.00</u>
7. Feed Grains Production		
Production Costs	P 2,459,688.00	P 2,976,222.00
Gross Profit	<u>P 948,737.00</u>	<u>P 1,147,972.00</u>
Gross Profit	<u>P 1,510,951.00</u>	<u>P 1,828,250.00</u>

	Year 1	Year 2	Year 3	Year 4
8.. Livestock Farm	₱ 7,603,200.00	₱ 8,515,584.00	₱ 9,573,454.00	₱ 10,681,049.00
Cost of Production	₱ 6,636,168.00	₱ 7,432,508.00	₱ 8,324,409.00	₱ 9,322,238.00
Gross Profit	₱ 967,032.00	₱ 1,083,076.00	₱ 1,213,045.00	₱ 1,358,611.00
9. Income from Production Loan	₱ 5,600,000.00	₱ 6,160,000.00	₱ 6,776,000.00	₱ 7,453,600.00
10. Others:				
Interest on Bank Deposits	₱ 25,000.00	₱ 27,500.00	₱ 30,250.00	₱ 33,275.00
Sale of Wastes and other				
Surplus	₱ 90,000.00	₱ 99,000.00	₱ 108,900.00	₱ 119,790.00
Gross	₱ 115,000.00	₱ 126,500.00	₱ 139,150.00	₱ 153,065.00
TOAL INCOME	₱ 18,030,335.00	₱ 21,121,353.00	₱ 24,908,231.00	₱ 29,507,511.00

	Year 5	Year 6	Year 7
8. Livestock Farm	₱ 11,963,782.00	₱ 13,399,436.00	₱ 15,007,369.00
Cost of Production	<u>10,442,139.00</u>	<u>11,695,195.00</u>	<u>13,098,619.00</u>
Gross Income	₱ <u>1,521,643.00</u>	₱ <u>1,704,241.00</u>	₱ <u>1,908,750.00</u>
9. Income from Production I an	₱ <u>8,198,960.00</u>	₱ <u>9,018,856.00</u>	₱ <u>9,920,742.00</u>
10. Others			
Interest on Bank Deposits	₱ 36,605.00	₱ 40,266.00	₱ 44,293.00
Sale of Wastes and Surplus	<u>131,769.00</u>	<u>144,946.00</u>	<u>159,441.00</u>
Gross	₱ <u>168,374.00</u>	₱ <u>185,212.00</u>	₱ <u>203,734.00</u>
TOTAL INCOME	₱ 35,151,607.00	₱ 40,486,497.00	₱ 46,541,912.00

Projected Cash Flow

Cash Inflows:	Year 1	Year 2	Year 3
1. Capital Contribution from Members	₱ 3,670,000.00	₱ 367,000.00	403,700.00
2. Borrowings(long term)	33,030,000.00		5,000,000.00
3. Net Savings	6,610,457.00	8,906,000.00	
4. Add back: Depreciation	1,993,500.00	1,993,500.00	1,993,000.00
KBGF	180,303.00	211,214.00	249,082.00
CETP	734,495.00	989,55.00	1,373,191.00
5. Retention of 50% Interest on Cap. and Patronize Refund		2,974,705.00	4,007,700.00
Totals	<u>₱ 46,218,755.00</u>	<u>₱ 15,441,974.00</u>	<u>₱ 13,027,173.00</u>
Cash Outflows:			
1. Land and Land Development	2,050,000.00		
2. Buildings	19,130,000.00		
3. Machinery & Equipment	10,270,000.00		
4. Furniture & Fixture	100,000.00		
5. Pre-Operating Costs	150,000.00		
6. Repay meats of borrowings		5,505,000.00	5,505,000.00
7. Distribution / Payment of Interest/ Reverted Refund			5,549,411.

Year 4

Year 5

Year 6

Cash Inflows:

1. Capital Contribution from Members	₱ 500,000.00	₱ 600,000.00	₱ 750,000.00
2. Borrowings			
3. Net Savings			
4. Add back: Depreciation	1,993,500.00	1,993,500.00	1,993,500.00
KBGF	295,075.00	351,516.00	404,865.00
CEFF	1,840,046.00	2,383,038.00	2,888,210.00
5. Retention of 50% of Interest on Capital and Patronage Refund	5,561,426.00	7,452,185.00	9,651,305.00
Totals	<u>₱ 10,190,047.00</u>	<u>₱ 12,780,239.00</u>	<u>₱ 15,687,880.00</u>
	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX

Cash Outflows:

1. Land and Land Improvements	₱	₱	₱
2. Buildings			
3. Machinery and Equipment			
4. Furnitures and Flixtures			
5. Pre-Operating Costs			
6. Repayments of Borrowings	5,505,000.00	5,505,000.00	5,505,000.00
7. Distribution/Payment of Interest/Patronage Refund	5,561,426.00	7,452,185.00	9,651,305.00

Cash Inflows:

Year 7

1. Capital Contribution from members	850,000.00
2. Barrowings (long term)	
3. Net Savings	
4. Add back: Depreciation	1,993,500.00
Kbgf	465,419.00
Cetf	3,444,107.00
5. Retention of 5.0 % Interest on Capital and Patronage Refund	11,77,250.00
Totals	<u>₹ 18,450,276.00</u>

vvvvvvvvvvvvvvvvvvvv

Cash Outflows:

1. Land and Land Improvements	
2. Buildings	
3. Machinery & Equipment	
4. Furniture & Fixture	
5. Pre-operating Costs	
6. Repayments of borrowing	5,505,000.00
7. Distribution/Payment of Interest/ but refund	11,697,250.00

	Year 1	Year 2	Year 3
P. GSTP used & Remitted			
Totals	<u>₱ 31,700,000.00</u>	<u>₱ 505,000.00</u>	<u>₱ 650,000.00</u>
	<u>₱ 31,700,000.00</u>	<u>₱ 11,954,411.00</u>	<u>₱ 10,162,700.00</u>
Working Capital Balances	₱ 14,518,755.00	₱ 3,487,563.00	₱ 2,864,473.00

	Year 4	Year 5	Year 6
8. CETF used and remitted	₱ 100,000.00	₱ 150,000.00	₱ 200,000.00
Totals - - - - -	₱ 11,166,426.00	₱ 13,107,185.00	₱ 15,356,305.00
Working Capital Balances	(₱ 976,379.00)	(₱ 326,946.00)	₱ 331,575.00

	Year 7
8. GETF used & Remitted	P 150,000.00
	<hr/>
Total	P 18,352,250.00
	<hr/>
Working Capital balances	P 98,026.00

LOAN REPAYMENT PLAN
(Local Borrowing)

For A Total Loan of ₱33,030,000.00

	Year 1	Year 2	Year 3	Year 4	Year 5
Principal	₱ 5,505,000.00	₱ 5,505,000.00	₱ 5,505,000.00	₱ 5,505,000.00	₱ 5,505,000.00
Plus: Interests					
For the 1 year grace period	3,063,600.00				
For the year of payment	3,063,600.00	3,302,000.00	3,642,400.00	1,091,800.00	1,321,200.00
	₱13,432,200.00	₱ 8,807,000.00	₱ 9,147,400.00	₱ 7,496,800.00	₱ 6,826,200.00

	Year 6	Totals
Principal	₱ 5,505,000.00	₱33,030,000.00
Plus: Interests		
For the 1 year grace period		
For the year of Payment	660,600.00	17,836,200.00
	₱ 6,165,600.00	₱50,866,200.00

Note 1: Repayment will start on the second year after release of the loan.

Note 2: Interests are computed at 12% per annum based on the unpaid loan.

	Net Profit Ratio	Profit Ratio of Capital
Year 1	$\frac{6,610,457.00}{18,030,335.00} = 36.66\%$	$\frac{₱ 6,610,457.00}{3,670,000.00} = 180\%$
Year 2	$\frac{₱ 8,906,000.00}{21,121,353.00} = 42.17\%$	$\frac{₱ 8,906,000.00}{7,011,705.00} = 127\%$
Year 3	$\frac{₱ 12,358,725.00}{24,908,231.00} = 50\%$	$\frac{₱ 12,358,725.00}{11,423,105.00} = 110\%$
Year 4	$\frac{₱ 16,560,414.00}{29,507,511.00} = 56\%$	$\frac{₱ 16,560,414.00}{17,484,531.00} = 100\%$
Year 5	$\frac{₱ 21,447,339.00}{35,151,607.00} = 61\%$	$\frac{₱ 21,447,339.00}{25,536,716.00} = 90\%$
Year 6	$\frac{₱ 25,993,889.00}{40,486,497.00} = 64\%$	$\frac{₱ 25,993,889.00}{35,938,021.00} = 80\%$
Year 7	$\frac{₱ 30,996,958.00}{46,541,912.00} = 67\%$	$\frac{₱ 30,996,958.00}{48,485,271.00} = 64\%$

Operations Budget

	Year 1	Year 2	Year 3	Year 4
Income	₱ 18,030,335.00	₱ 21,121,353.00	₱ 24,155,760.00	₱ 29,507,511.00
Less Expenses				
Amortization of Pre-Operating Expenses	50,000.00	50,000.00	50,000.00	50,000.00
Salaries & Wage(1)	2,820,675.00	3,159,156.00	3,538,255.00	3,962,845.00
Honoraria (2)	111,900.00	125,538.00	140,368.00	157,211.00
Interests on loans	3,963,600.00	3,963,600.00	3,303,000.00	2,642,400.00
Fuel & Labricants	180,000.00	198,000.00	221,760.00	243,940.00
Light & Power	120,000.00	135,000.00	147,850.00	165,580.00
Transportation	100,000.00	110,000.00	125,000.00	140,000.00
Communications	45,000.00	50,000.00	55,000.00	60,000.00
Insurance for property				
Plant & equipment	21,840.00	25,000.00	28,000.00	31,500.00
Depreciation Expenses				
Buildings	956,500.00	956,500.00	956,500.00	956,500.00
Machinery/Equipment	1,027,000.00	1,027,000.00	1,027,000.00	1,027,000.00
Furniture	10,000.00	10,000.00	10,000.00	10,000.00
Office Supplies	60,000.00	65,000.00	72,000.00	80,000.00

	Year 1	Year 2	Year 3	Year 4
Advertisement and Promotion	₱ 240,000.00	₱ 260,000.00	₱ 285,000.00	₱ 320,000.00
Meeting Expenses	60,000.00	65,000.00	72,500.00	80,000.00
Miscellaneous Expense	36,000.00	40,000.00	45,000.00	50,000.00
Group Insurance Expense	702,565.00	775,000.00	850,000.00	935,000.00
Provision for KBGF	180,303.00	211,214.00	249,082.00	295,075.00
Provision for CETF	734,495.00	989,555.00	1,373,191.00	1,840,046.00
	₱ 6,610,457.00	₱ 8,906,000.00	₱ 12,358,725.00	₱ 16,460,414.00

Allocated as follows:

10% General Reserve Fund	₱ 661,046.00	₱ 890,600.00	₱ 1,235,872.00	₱ 1,656,041.00
Interest on Capital and Patronage Refund	5,949,411.00	8,015,400.00	11,122,853.00	14,904,373.00

Operations Budget

	Year 5	Year 6	Year 7
Income	₱ 35,151,607.00	₱ 40,486,497.00	₱ 46,541,912.00
Less: Expenses			
Amortization of prepaid operating expenses	50,000.00	-	-
Salaries and Wages (1)	4,438,387.00	5,104,145.00	5,869,766.00
Honoraria (2)	176,077.00	202,488.00	232,862.00
Interest on Loans	1,981,800.00	1,321,200.00	660,300.00
Fuel and Lubricants	273,210.00	305,995.00	351,890.00
Light and Power	185,450.00	207,705.00	238,000.00
Transportation	155,000.00	175,000.00	200,000.00
Communications	66,000.00	75,000.00	85,000.00
Insurance for Property Plant and Equipment	35,290.00	39,500.00	45,450.00
Depreciation Expense Buildings	956,500.00	956,500.00	956,500.00
Machinery/Equipment	1,027,000.00	1,027,000.00	1,027,000.00
Furnitures	10,000.00	10,000.00	10,000.00
Office Supplies	90,000.00	100,000.00	110,000.00

	Year 5	Year 6	Year 7
Advertisement and Promotion	₱ 350,000.00	₱ 385,000.00	₱ 425,000.00
Meeting Expenses	90,000.00	100,000.00	110,000.00
Miscellaneous Expenses	55,000.00	60,000.00	67,500.00
Crop Insurance Expense	1,030,000.00	1,130,000.00	1,250,000.00
Provision for KBGF	351,516.00	404,865.00	465,419.00
Provision for CETF	2,383,038.00	2,888,210.00	3,444,107.00
	₱ 21,447,339.00	₱ 25,993,889.00	₱ 30,996,958.00

Allocated as follows:

10% General Reserve Fund	₱ 2,144,734.00	₱ 2,599,389.00	₱ 3,009,606.00
Interest on Capital and Patronage Refund	19,302,605.00	23,394,500.00	27,987,352.00

Chapter 8 Recommendations

1. It will be observed that on Year 4 and 5 the working capital of the project is lessened due the yearly distribution of 50% of the interest on Capital and Patronage Refund. It is recommended that the distribution of such should be deferred until after the loan of the project is fully paid.

It is also recommended that it would be more good to the project if it can obtain a grant money of ₦ 5,000,000.00 or US \$ 217,391.20 .

2. The project is integrated that it is engaged in several lines of activities. The study on Financing, Procurement, Feed Milling and Diggery is quite complete. However the study on Meat Processing and Marketing is rather vague.

In the Feed Mill machines, the capital outlay is ₦ 1,200,000.00 to purchase and install a very high technology machineries. However, after consultations with engineers knowledgeable on the subject, it is more advantageous to fabricate the machineries locally, more economical but with almost the same working efficiency. By using the local machines, the project can save ₦ 1,000,000.00 and this can be allocated to the construction of the Solar Dryer (2000 sq. meters @ ₦ 500.00 per square meter).

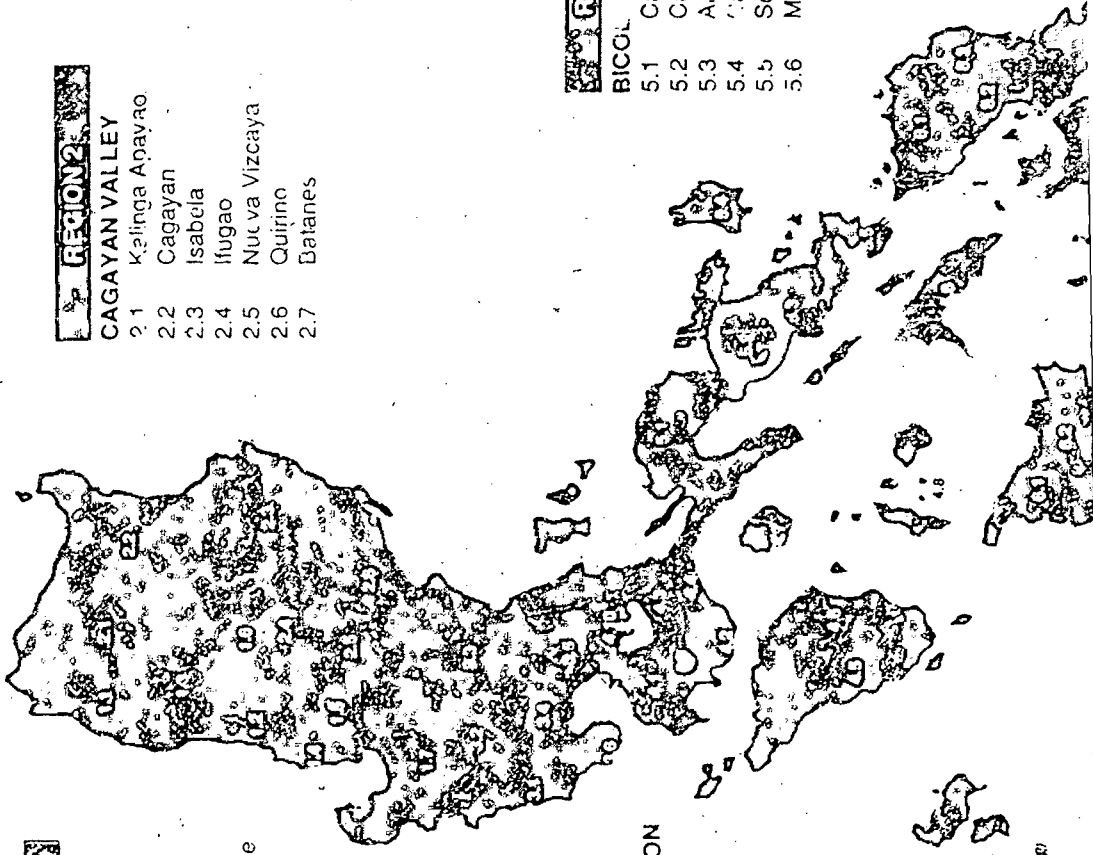
Detailed study on Meat Processing and Marketing will be submitted by (a) _____ near the office of _____ of the Feed Mill and _____.

3. The Project is imperative to countryside socio-economic development of the people involved.
4. It can help to stabilize (unify) peace and order in the rural areas covered.
5. It will generate rural employments.

6. Given the above recommendations and comments it is concluded that the Project be given the utmost importance, be considered as one of the priorities of funding.

Any comments, suggestions, revisions and recommendations of persons knowledgeable on the subject/s are welcomed.

PHILIPPINES REGIONAL MAP



REGION 1

- ILOCOS REGION**
- 1.1 Ilocos Norte
 - 1.2 Ilocos Sur
 - 1.3 Abra
 - 1.4 La Union
 - 1.5 Benguet
 - 1.6 Mountain Province
 - 1.7 Pangasinan

REGION 2

- CAGAYAN VALLEY**
- 2.1 Kalinga Apayao
 - 2.2 Cagayan
 - 2.3 Isabela
 - 2.4 Ifugao
 - 2.5 Nueva Vizcaya
 - 2.6 Quirino
 - 2.7 Batanes

REGION 3

- CENTRAL LUZON**
- 3.1 Zambales
 - 3.2 Tarlac
 - 3.3 Nueva Ecija
 - 3.4 Pampanga
 - 3.5 Bataan
 - 3.6 Bulacan

REGION 4

- NATIONAL CAPITAL REGION
METRO MANILA**

REGION 5

- SOUTHERN TAGALOG**
- 4.1 Cavite
 - 4.2 Batangas
 - 4.3 Laguna
 - 4.4 Quezon
 - 4.5 Occidental Mindoro
 - 4.6 Oriental Mindoro
 - 4.7 Marinduque
 - 4.8 Romblon
 - 4.9 Palawan
 - 4.10 Tuzal

REGION 6

- BICOL**
- 5.1 Camarines Norte
 - 5.2 Camarines Sur
 - 5.3 Albay
 - 5.4 Sorsogon
 - 5.5 Masbate

REGION 8

- EASTERN VISAYAS**
- 8.1 Northern Samar
 - 8.2 Samar
 - 8.3 Eastern Samar
 - 8.4 Leyte

★ NATIONAL CAPITAL REGION
METRO MANILA

- 5.1 Camarines Norte
- 5.2 Camarines Sur
- 5.3 Albay
- 5.4 Sorsogon
- 5.5 Masbate



REGION 4

- SOUTHERN TAGALOG**
- 4.1 Cavite
 - 4.2 Batangas
 - 4.3 Laguna
 - 4.4 Quezon
 - 4.5 Occidental Mindoro
 - 4.6 Oriental Mindoro
 - 4.7 Marinduque
 - 4.8 Romblon
 - 4.9 Palawan
 - 4.10 Rizal

REGION 6

- WESTERN VISAYAS**
- 6.1 Aklan
 - 6.2 Capiz
 - 6.3 Antique
 - 6.4 Iloilo
 - 6.5 Negros Occidental

REGION 7

- CENTRAL VISAYAS**
- 7.1 Negros Oriental
 - 7.2 Cebu
 - 7.3 Bohol
 - 7.4 Siquitor

REGION 9

- WESTERN MINDANAO**
- 9.1 Zamboanga del Norte
 - 9.2 Zamboanga del Sur
 - 9.3 Basilan
 - 9.4 Sulu
 - 9.5 Tawi-Tawi

REGION 8

- EASTERN VISAYAS**
- 8.1 Northern Saitp
 - 8.2 Samar
 - 8.3 Eastern Samar
 - 8.4 Leyte
 - 8.5 Southern Leyte

REGION 10

- NORTHERN MINDANAO**
- 10.1 Surigao del N
 - 10.2 Agusan del N
 - 10.3 Misamis Ori
 - 10.4 Bukidnon
 - 10.5 Agusan del S
 - 10.6 Misamis Occid
 - 10.7 Camiguin

REGION 11

- SOUTHERN MINDANAO**
- 11.1 Cotabato del Sur
 - 11.2 Davao Oriental
 - 11.3 Davao
 - 11.4 Davao del Sur
 - 11.5 Southern Cotabato

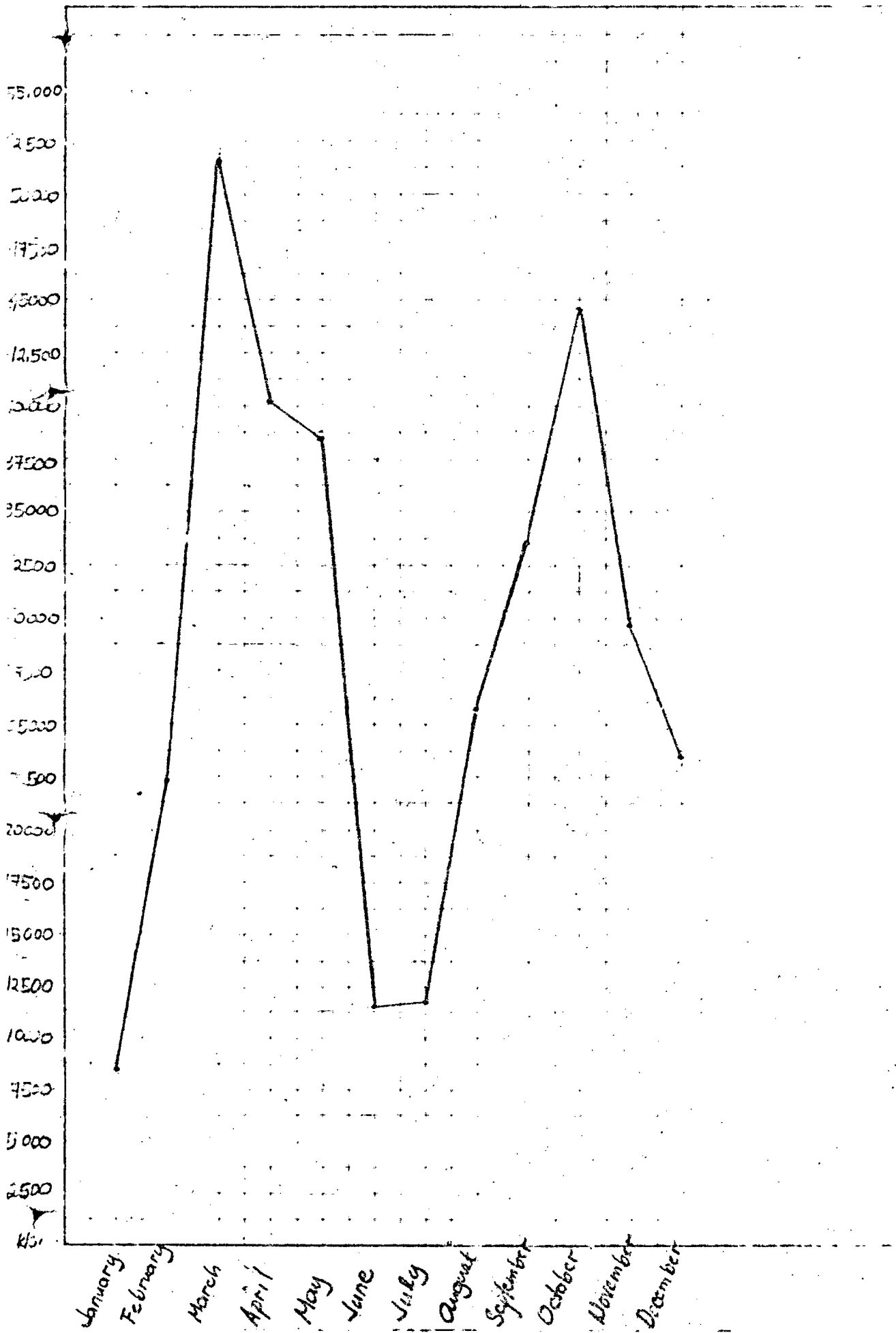
REGION 12

- CENTRAL MINDANAO**
- 12.1 Lanao del Norte
 - 12.2 Lanao del Sur
 - 12.3 Maguindanao
 - 12.4 North Cotabato
 - 12.5 Sultan Kudarat



PROJ CT COMMAND AREA

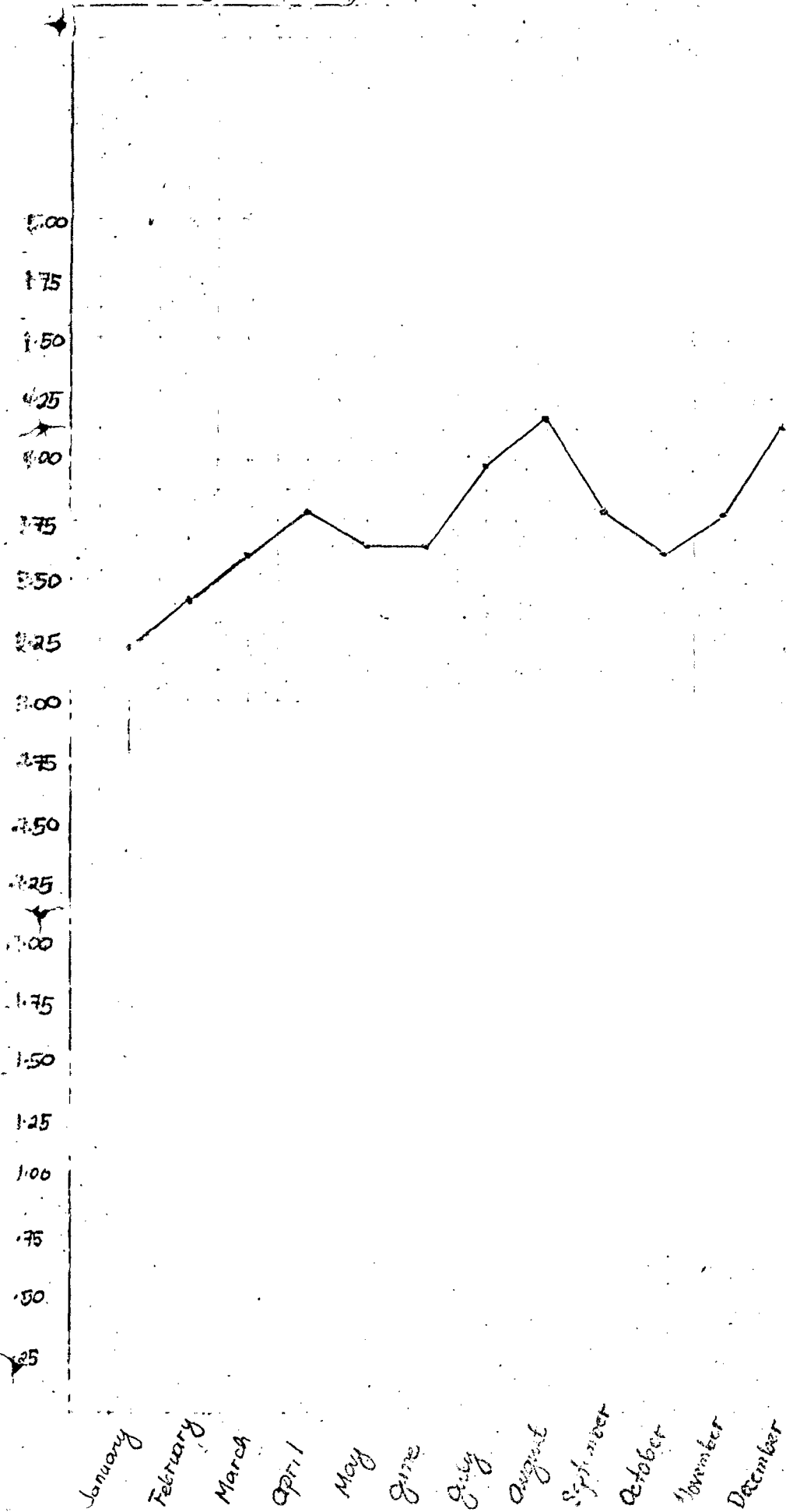
Palay - Fresh - 1 way - Annuals at SIDERCO for the Year 1989
NO. 2 1989 Purchases (in kg) 1989



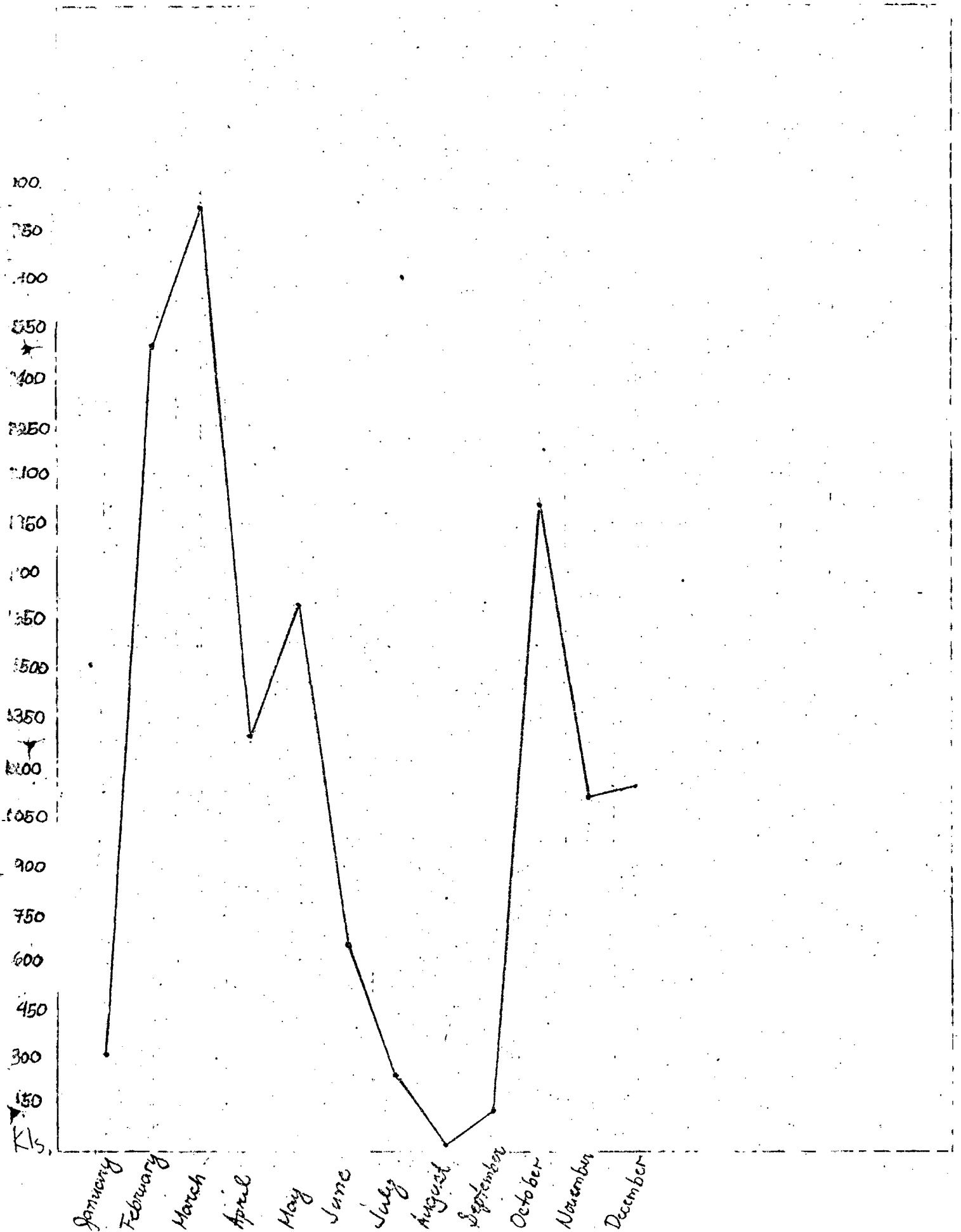
Kalaya - Fresh

Price Per Kilo of Kalaya at SIBECO for the Year 1989

2-- Average Purchase Price / Kilo (1989)
(In Pesos)



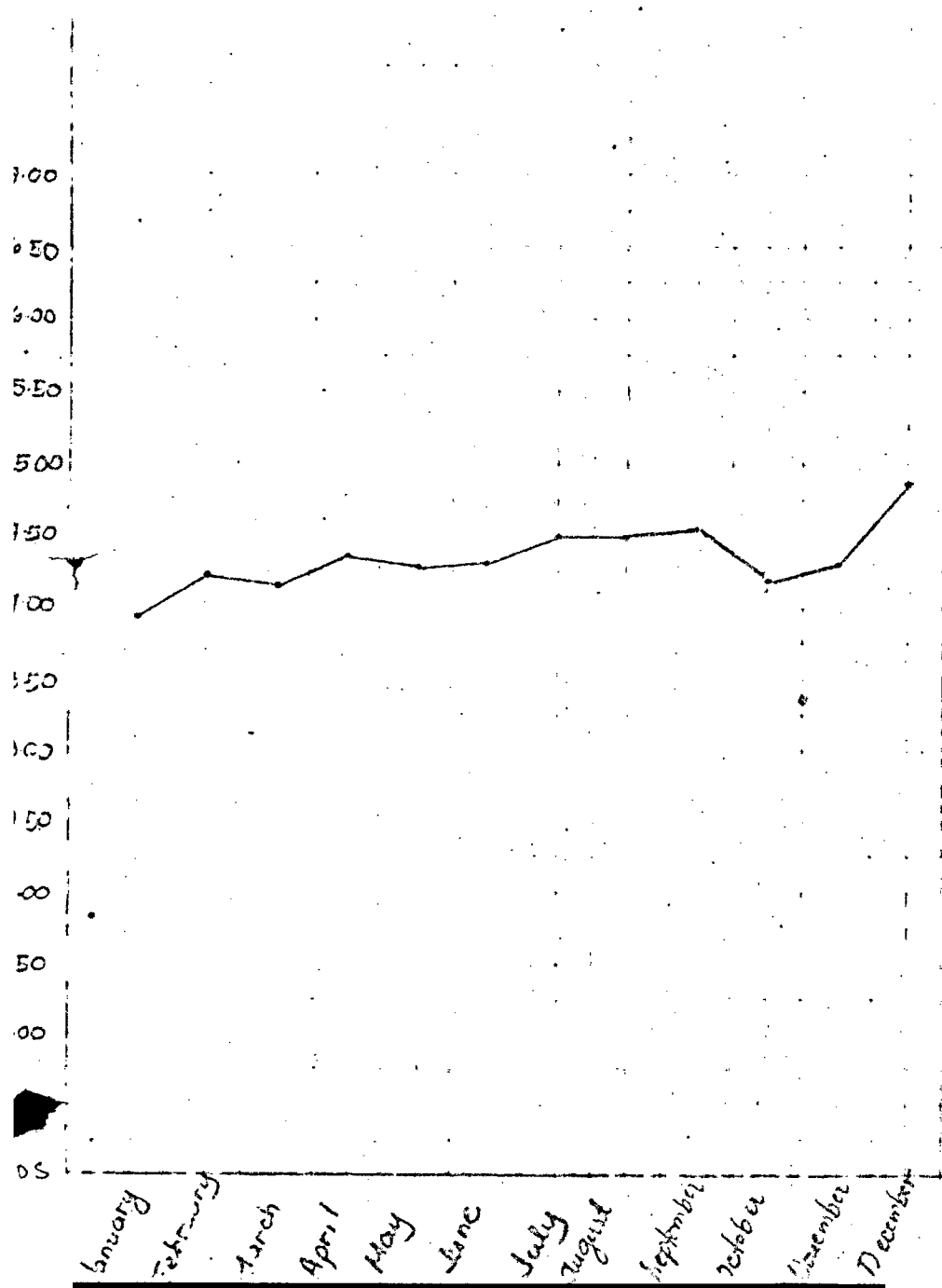
Palay - Dried Palay Announcements of SIBPCO for the Year 1989
1989 Purchases (in Kls.)



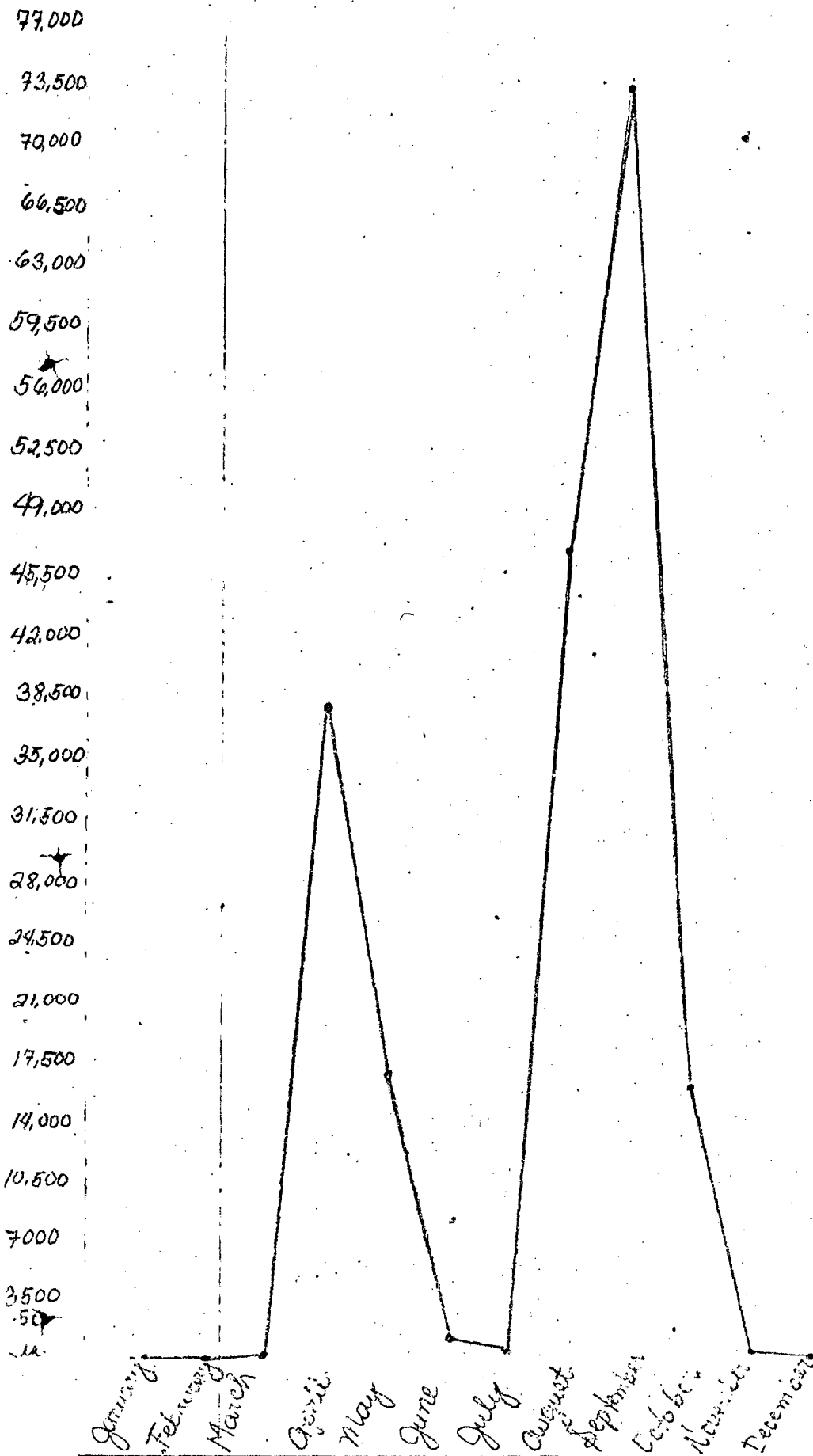
Palay - Dried Price of Dried Palay per Kilo at SIDERCO for the Year 1989

HA Average Purchase Price (in Pesos) (kilo (1989))

44



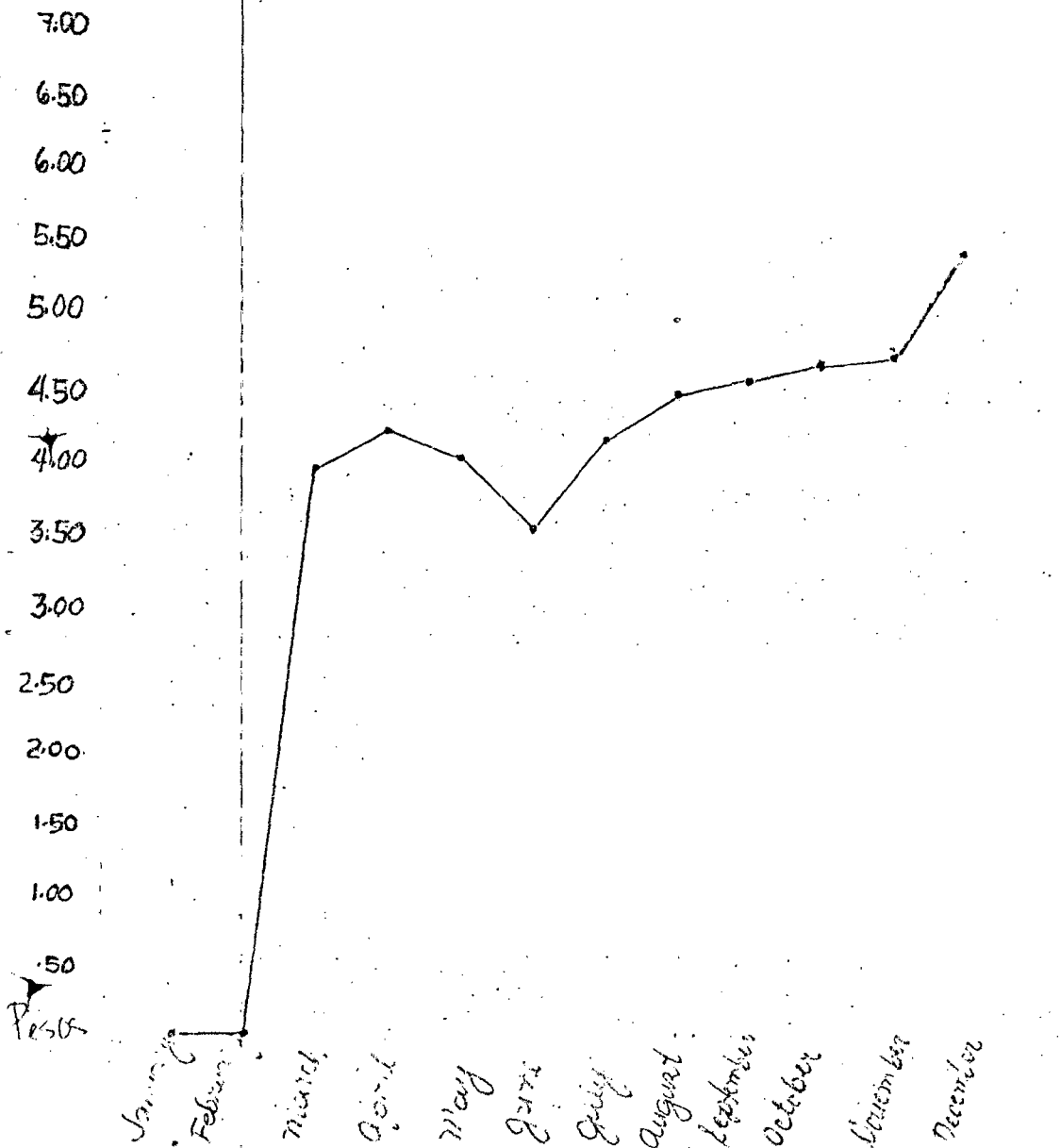
CORN Corn Arrivals at SIDECO for the Year 1989
 1 1989 Purchases (in kg.)

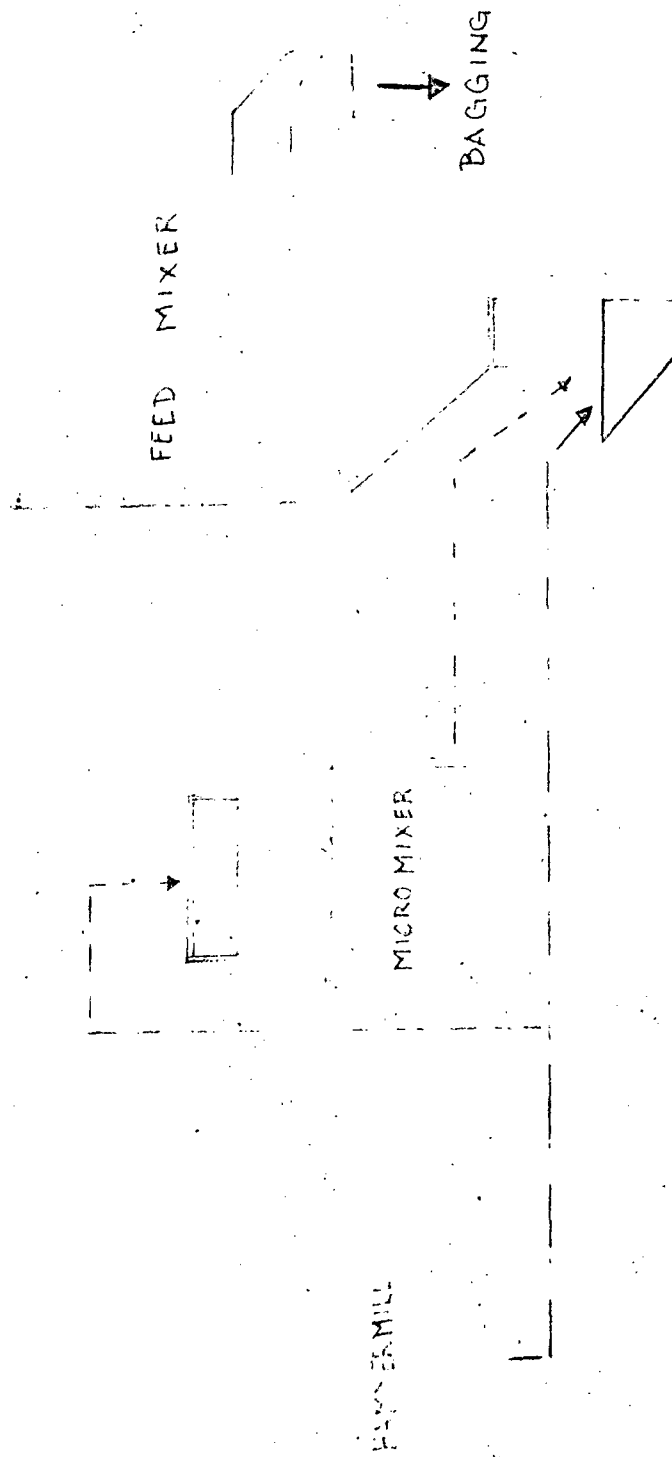


Corn

Price of Corn per kilo at SIOECD for the Year 1989

2 1989 Average Purchase Price / kilo
(in Pesos)





FLOW DIAGRAM FEED MILLING PROCESS

NUMBER OF FAMILIES, TOTAL AVERAGE FAMILY INCOME AND EXPENDITURES BY INCOME CLASS: 1985

	INCOME		EXPENDITURES	
	Total no. of Families in (100)	Total in (P1000) : Average in (P)	Total (P1000) : Average in (P)	Average in (P)
Total Philippines	95,663	294,142,802 : 30,748	255,553,832	26,714
Total Urban	36,024	166,664,101 : 42,309	140,311,490	38,949
Total Rural	59,639	127,678,702 : 21,409	115,242,342	19,323
Bicol Region	6,340	12,670,066 : 19,986	12,172,169	19,200
Urban	1,305	4,184,179 : 32,070	3,812,994	29,225
Rural	5,035	8,485,887 : 16,854	8,359,176	16,602

PERCENTAGE DISTRIBUTION OF TOTAL FAMILY EXPENDITURES BY MAJOR EXPENDITURE GROUP

	1961	1965	1971	1985
Total Philippines (In Thousand pesos)				
(Percent)	7,934,063	14,748,076	28,430,424	255,553,832
Food	53.8	53.7	53.7	51.2
Food consumed at home	51.6	50.8	51.0	48.1
Cereals & cereal preparation	20.2	21.1	19.6	18.1
Fish & marine products	10.5	9.3	8.9	7.7
Meat & meat preparations & dairy products & eggs	7.9	8.4	9.7	7.2
Roots, tubers, fruits and vegetables	6.1	5.0	5.5	5.2
Miscellaneous	6.9	6.9	7.4	6.9
Food regulatory consumed outside the home	2.3	2.9	2.7	3.1
Alcoholic beverages	1.7	1.6	1.7	1.1
Tabacco	4.2	3.2	3.3	2.3
Housing	8.3	9.1	9.4	12.5
Fuels Light & Water	4.0	3.6	3.6	5.2
Household furnishing & equipment	2.1	2.0	2.3	1.9
Household Operations	2.6	2.5	2.4	2.4

Clothing, footwear & other wear	:	7.0	:	6.5	:	6.2	:	3.6
Personal Care and effects	:	2.3	:	2.5	:	2.2	:	2.1
Medical Care	:	1.7	:	1.7	:	1.8	:	2.1
Transportation & Communication	:	2.3	:	2.6	:	2.9	:	4.5
Recreation	:	1.8	:	1.8	:	1.8	:	.5
Education	:	3.1	:	3.5	:	3.7	:	3.5
Gifts and Contributions	:	0.9	:	0.9	:	0.6	:	1.8
Taxes	:	0.4	:	0.6	:	0.3	:	1.1
Special Occasions	:	2.3	:	2.7	:	2.5	:	0.9
Other expenses	:	1.4	:	1.5	:	1.5	:	4.0

PROJECTED POPULATION OF REGION V (BICOL) BY PROVINCE, BY CITY AND BY MUNICIPALITY: 1985 - 2000

(As of July 1. Based on Series 2 - Moderate Fertility and Moderate Decline. Details may not add up to totals due to roundings)

	Y E A R				
Region / Province :					
City / Municipality :	1985	1986	1987	1988	1989
	1990	1990	1990	1990	2000
Region V, Total :	3921550	3988069	4104522	4197970	4292575
					4388134
					5354815

Average Income, Median Income for the year - 1961, 1965, 1971, 1985 of a Filipino Family

Philippines	1961	1965	1971	1985
Average Income	1,804	2,541	3,736	30,748
Median Income	1,105	1,648	2,454	19,993

AGRICULTURAL DATA I. CENSUSES SUR

Total Physical Area of Farms by Type: 1980

All Types	: 295,537 Has. :
Rajay	: 104,031 Has. :
Corn	: 19,513 Has. :
All other types	: 171,993 Has. :

Number of Farms Reporting, Area Harvested and Production
by kind of Temporary Crops: 1980

Rajay

No. of Farms Reporting	: 58,677 :
Area Harvested	: 117,439 Has. :
Production	: 5,007,701 Cavans :

Corn

No. of Farms Reporting	: 19,043 :
Area Harvested	: 23,096 Has. :
Production	: 433,305 Cavans :

** 1 cavan is equal to 50 kg.

Profile of the Camarines Sur Federation of Agricultural Cooperatives as of December 31, 1960

City/ Municipality	No. of Coop. Society	No. of Members	Area of Farms (Hect.)		Total Paid - up Capital
			Riceland	Cornland	
1. Naga City	11	1,540	1,078	1,540	₱ 1,096,360.10
2. Pili	10	899	719	809	910,576.67
3. Ocampo	8	580	474	522	1,422.26
4. Bula	3	80	136		46,100.00
5. Minalabac	2	201	341		89,396.76
6. Bombon	3	169	202	84	15,000.00
7. Pamplona	3	153	168	91	20,567.00
8. Libmanan	10	507	861		240,715.00
9. Camaligan	1	70	119		7,000.00
10. Canaman	1	30	51		5,000.00
11. Gainza	1	47	79		8,500.00
12. Magarao	2	144	216	28	120,791.12
13. Jatusao	1	45	76	0	14,000.00
14. Siruma	1	47	9	14	10,000.00
15. Tigaon	1	30	23	15	6,850.00
16. San Jose	1	40	68		55,000.00
17. Goa	1	38	41	22	7,200.00
18. Balatan	1	38	0	0	7,600.00
19. Buhi	2	54	81	10	10,000.00
20. Nabua	2	55	93	0	10,000.00
	65	4,767	4,835	3,135	₱ 3,718,178.87

ASSUMPTIONS USED IN THE STUDY OF BICOL INTEGRATED COOPERATIVE FARMING SYSTEM

Average size of farm per coop. member.	1.7 hectares
Total Amount of Production Loan Granted per Hectare:	
Corn	₱6,000.00
Rice	₱4,500.00
Amount of Seeds per Hectare:	
Corn - 20kls. @₱40.00/kl.	₱ 800.00 (13.33%)
Rice - 50kls. @₱8.00/kl.	₱ 400.00 (8.88%)
Amount of Fertilizer per Hectare:	
Corn - 8.55 bags @₱270.00 per bag	₱2,310.00 (38.5%)
Rice - 7.62 bags @₱270.30 per bag	₱2,060.00 (45.77%)
Amount of Chemicals per Hectare:	
Corn (insecticide, fungicide, herbicide).	₱1,134.00 (18.9%)
Rice (insecticide, fungicide, herbicide).	₱ 980.00 (21.77%)
Amount for Labor:	
Corn	₱1,545.00 (25.76%)
Rice	₱ 970.00 (21.55%)
Amount for Insurance Premium:	
Farmer's Share	
Corn	₱ 210.00 (3.5%)
Rice	₱ 90.00 (2%)
Cooperative's Share (L.F.)	
Corn	₱ 120.00 (2%)
Rice	67.50 (1.5%)
Number of Croppings per year	2
Number of days per Cropping for Land Preparation	60
Required Number of Passing for Land Preparation:	
Disc Plow	1
Trailing Harrow	2
Fees for Land Preparation:	
Disc Plow	₱ 250.00/hour
Trailing Harrow	200.00/hour
Number of Hours Worked for Land Preparation:	
Disc Plow	2.5 hrs./hectare
Trailing Harrow	4 hrs./hectare
Average Working Hour Per Day Per Unit:	
Tractor	13
Corn Sheller	8
Average Consumption Per Hour Per Unit:	
Tractor	7.5 liters
Corn Sheller	1.5 liters

Price Per Liter:	
Regular Gasoline	₱6.87
Diesel	₱5.15
Oil Consumption of Tractor and Corn Sheller	25% of Fuel Cost
Maintenance Cost of Tractor and Corn Sheller	10% of Income
Shelling Fee	₱.08/kl.
Average Land Area Financed by the Cooperative:	
Corn	1,567.5 hectares
Rice	2,417.5 hectares
Average Production Per Hectare (Yield):	
Corn	3,500 kilos
Rice	75 bags
Income from Production Loan:	
Interest	12%/annum
Service Fee	2% of Amount Loaned
Shrinkage of Palay (Drying)	15%
Recovery rate of Rice (Milling)	65%
Interest on Loans Per Annum:	
Foreign	6%
Local	12%
Depreciation:	
Building	5%
Equipment	10%
Furnitures and Fixtures	10%
Provisions for:	
IRGF (Socials)	1% of Income
CEFF	10% of Net Income before CEFF
Average Capacity of Feedmill/Day at 8 hours a day	10 MT
Average Working Days a year	300

Assumptions on Projected Income

1. Feed Mill
10% increase in volume from year to year
10% increase in price from year to year
2. Tractor Pool
Increase by 10% of rental rate yearly and incidental expenses by 8% yearly and maintenance of 10% of gross income.
3. Corn Shellers
Increase of 10% of volume of shelling and increase of 10% in shelling rate. Fuel and other expenses - increase of 8% yearly. Maintenance - increase to 10% of gross income.
4. Meat Processing
20% increase in production and 15% increase in Selling Price. Gross profit maintained at 25% yearly up to year 5 and 10% in production and 10% increase in Selling Price on the 6th and subsequent year.
5. Farm Input
Fertilizers, chemicals and seeds - increase of 10% in farm areas and budget.
6. Rice Trading.
10% increase yearly
7. Feed Grains Production
10% increase on gross income yearly
8. Livestock Farm
12% increase yearly
9. Increase in production loans - 10%
10. Others - 10% yearly increase
11. Exchange rate is projected to increase at 12% annually
12. Schedule 1A to 1E, Schedule 2 are assumed to increase yearly to 10 to 15% yearly
13. Pre-operating expenses amortized for 5 years

SELLING PRICE OF FEED INGREDIENTS IN NAGA CITY MARKET:

1990

Ingredients	Unit / kilo	Price
Binlod	1 kilo	₱ 5.25 - 6.00
Rice brand B ₁	1 kilo	4.50
Rice brand B ₂	1 kilo	3.00
Ipil-Ipil meal	1 kilo	3.80
Fishmeal - first class	1 kilo	8.75
low class		4.00
Copra	1 kilo	4.60
Meat and bone	1 kilo	13.00
Oyster Shell	1 kilo	1.00
Soybean	1 kilo	11.00
Molasses	1 kilo	3.80
Ground Corn	1 kilo	7.50
Brown Sugar	1 kilo	10.50

NOTE:

Price varies depending on class of ingredients.

SELLING PRICE OF LIVESTOCK AND BOWLTRY PRODUCTS IN NAGA CITY MARKET:

1 9 9 0

Products	Live weight per kl.	Price
Carabao	1 kilo	30.00
Cow	1 kilo	35.00
Pig	1 kilo	30.00-35.00
Chicken	1 kilo	35.00

Note:

Price varies depending on size and class of hog

SELLING PRICE OF FRESH MEAT PRODUCTS IN NAGA CITY MARKET:

1989 - 1990

Product	Unit/ kilo	Price
Beef and lean meat	1 kilo	₱ 60.00
Beef and meat with bones	1 kilo	50.00
Beef liver	1 kilo	70.00
Beef heart	1 kilo	35.00
Pork lean meat	1 kilo	50.00
Pork meat with bones	1 kilo	42.00
Pork pata (front)	1 kilo	32.00
Pork lungs	1 kilo	32.00
Pork liver	1 kilo	50.00
Pork heart	1 kilo	32.00
Chicken fully dressed	1 kilo	48.77
Chicken native	1 kilo	41.38
Chicken entrails liver and gizzard	1 kilo	44.23

CURRENT MARKET PRICES OF PROCESSED MEAT

1990

<u>Product</u>	<u>Price / kg.</u>	<u>Packaging</u>
1. Corned Beef _____	₱ 104.68 _____	Canned
2. Potted Meat _____	94.00 _____	Canned
3. Pork and Beans _____	32.60 _____	Canned
4. Mechado _____	64.28 _____	Canned
5. Luncheon meat _____	39.75 _____	Canned
6. Lechon Paksiv _____	61.66 _____	Canned
7. Sausage _____	74.50 _____	Canned
8. Meat Loaf _____	51.30 _____	Canned
9. Hotdogs _____	72.00 _____	Plastic Wrapper
10. Bacon _____	90.00 _____	Plastic Wrapper
11. Cooked Ham _____	66.00 _____	Plastic Wrapper
12. Cooked Salami _____	43.00 _____	Plastic Wrapper
13. Tocino _____	70.00 _____	Plastic Wrapper
14. Longaniza _____	96.00 _____	Plastic Wrapper
15. Chinese Sausage _____	75.00 _____	Plastic Wrapper

Swine Production Guides and Targets

(200 Sow Level)

Breeding Herd

Farrowing Index	2.2
Number born alive (viable only)	9.0
Number reared alive per sow per litter	8.1
Mortality Rate - birth to weaning, %	10.0
Liveweight, kg.:	
at birth	1.2
30 days old	5.5
Conception Rate (at 21 days), %	90.0
(at 42 days), %	88.0
Farrowing Efficiency, %	85.0
Flushing Period, No. days	10.0
Pigs reared per sow per year	17-18
Farrowing per month	28-29
Services per month	33-34
Weaners per month	227
Weaners per year	2724
Replacement gilts per year	70-80
Boar Requirements	10
Replacement boars per year	4

Feeding Herd

Sales of Fatteners per month	220
Sales of Fatteners per year	2640
Mortality - weaning to market, %	3.0
Liveweight, kg.:	
60 days	15.0
90 days	35.0
120 days	60.0
165 days	90.0
Feed Efficiency - weaning to market	3.4

Space Requirements of Swine

Weight or Phase of Production	Solid Floor : Space (sq.m.)	Feeder : Space (cm.)	Water : Space (cm.)	Automatic Drink : (No. of pigs,
Nature Boar	: 5.0	: 50	: 20	: 1
Sows with litter	: 5.0	: 50	: 20	: 1
Sows or Gilts (in groups)	: 2.0	: 50	: 20	: 10
Replacement Boars	: 2.5	: 50	: 20	: 10
Growing Pigs:				
5-15 kg.	: 0.3	: 15	: 10	: 10-20
15-30 kg	: 0.5	: 20	: 10	: 10-20
30-45 kg	: 0.6	: 25	: 15	: 10-20
45-65 kg	: 0.75	: 30	: 20	: 10-20
65 kg- Market	: 1.0	: 35	: 20	: 10-20

Floor space can be rounded up to 20% in growing-pig units with partial or total slotted floor.

During summer or in hot areas, floorspace for growing pigs should be increased up to 25%.

With self-feeders, one feeder, one feeder hole per 4-5 pigs should be allotted.

Housing Requirements of a 200 - Sow Unit

Farrowing Crates or Pens	- 60 units
Dry Sow pens (4 pigs per pen)	- 8 units
Individual Gestating Stalls	- 140 units
Individual Boar Pens	- 10 units
Replacement Breeder Pens:	
- Gilts (4 pigs/pen)	- 4 units
- Boar	- 2 units
Flat Deck or Weaning Pens (20 pigs/unit)	
	- 24 units
Grower Pens (20 pigs/unit)	- 32 units

The foregoing requirements are based on the following assumptions

Farrowing Index (No. of litters/sow/year) - 2.2

Litter Size (No. of pigs):

At birth	- 9.0
Weaning (30 days old)	- 8.1
60 days old	- 8.0
90 days old	- 7.9
135 days old	- 7.87
180 days old (market)	- 7.86

Boar Ratio - 1:20

Annual Replacement rate of breeders
(boars and sow) - 35%

COST OF PRODUCTION PER KG. OF PORK

I. INPUTS:

A. Cost of Stock/piglets.....	₱	450.00
B. Cost of Feeds		
a. Pre-Starter	₱	75.00
b. Starter		180.00
c. Grower		702.00
d. Finisher		648.00
Sub-Total -	₱	1605.00
C. Cost of Veterinary medicines:		160.50
(10% of feed cost)		
D. Labor cost		228.25
E. Cost of electricity (per head)		11.15
F. Miscellaneous expenses		100.00
		<hr/>
	₱	2,514.00

II. OUTPUT

Assumption No. 1:		
Yield of fatter (20 kg. * ₱ 33.00)	₱	2,970.00
Assumption No. 2: (20 kg. * ₱ 30.00)		2,970.00
Assumption No. 3: (20 kg. * ₱ 31.00)		2,790.00

Cost and Return Analysis

	<u>Net Profit/kg.</u>
Assumption No.1	₱ 5.06
Assumption No.2	4.06
Assumption No.3	3.06

FEED FORMULATION

Hog Gestation Ration

<u>INGREDIENTS</u>	<u>PARTS BY WEIGHT</u>
Ground Corn	43.0
Soybean Oil Meal	5.0
Rice Bran D ₁	25.0
Rice Bran D ₂	12.0
Copra Oil Meal	10.0
Fish Meal (65%)	2.0
Meat and Bone Meal (50%)	1.0
Oyster Shell	1.0
Limestone	0.5
Salt	0.5
Vit. Min. Supplement	0.2
Antibiotic	0.2
Choline Chloride	0.1

Total (kgs.)	100.00
Feed Cost per kg.	₱ 4.85

Proximate Analysis

Gross Protein %	13.28
Metabolizable Energy (kcal.) %	2628
Calcium %	0.75
Phosphorous %	0.76
Gross Fat %	2.62
Gross Fiber %	6.83
Lysine %	0.55
Methionine %	.21

FEED FORMULATION

Hog Lactation Ration

<u>INGREDIENTS</u>	<u>PARTS BY WEIGHT</u>
Ground Corn	40.0
Soybean Oil Meal	6.0
Rice Bran D ₁	27.0
Rice Bran D ₂	10.0
Copra Oil Meal	10.0
Fish Meal (65%)	3.0
Meat and Bone Meal (50%)	2.0
Oyster Shell	1.2
Salt	0.5
Vit. Min. Supplement	0.2
Antibiotic	0.2
Choline Chloride	0.1
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Total (kgs)	100.20
Feed Cost per kg.	₱ 5.00

Proximate Analysis

Crude Protein %	14.84
Metabolizable Energy (kcal.) %	2802
Calc. Ca. %	0.82
Phosphorus %	0.90
Crude Fat %	2.67
Crude Fiber %	6.54
Lysine %	0.67
Methionine %	0.25

FEED FORMULATIONS

Hog Pre-Starter Ration

<u>INGREDIENTS</u>	<u>PARTS BY WEIGHT</u>
Ground Corn (Fine)	49.0
Soybean oil meal	25.0
Rice Bran D ₁	10.0
Fish Meal (65%)	4.0
Meat and Bone meal (50%)	2.5
Skimmed Milk Powder	5.0
Brown Sugar	3.0
Oyster Shell Powder	0.6
Salt	0.25
Vit. Min. Supplement	0.25
Lysine	0.10
DL-Methionine	0.10
Megalox Plus (Anti-Scour)	0.10
Sulfamethazine (antibiotic)	0.10
<hr/>	
Total (kgs.)	100.0
Feed Cost per kg.	¥10.00

Proximate Analysis

Crude Prot in %	21.81
Metabolizable Energy (kcal.) %	20.48
Calcium %	0.9
Phosphorus %	0.78
Crude Fat %	2.57
Crude Fiber %	3.8
Lysine %	1.23
Methionine %	0.49
Methionine + Cystine	0.82

FEED FORMULATIONS

Hog Starter Ration

INGREDIENTS

PARTS BY WEIGHT

Ground Corn (Fine)	50.0
Soybean oil meal	22.0
Rice Bran D1	16.0
Fish Meal (65 %)	3.0
Meat and Bone meal (50 %)	2.5
Skimmed Milk Powder	2.0
Brown Sugar	2.6
Oyster Shell (Fine)	1.0
Salt	0.25
Vit. Min. Supplement	0.25
Lysine	0.10
DL - Methionine	0.10
Mecadox Plus (Anti-Scour)	0.10
Sulfamethazine (Antibiotic)	0.10
<hr/>	
Total (kgs.)	100.00
Feed Cost per kg.	6.00

Proximate Analysis

Crude Protein %	10.65
Metabolizable Energy (kcal.) %	3032
Calcium	0.94
Phosphorus %	0.84
Crude Fat %	2.62
Crude Fiber %	4.04
Lysine %	1.17
Methionine %	0.45
Methionine + Cystine %	0.73

FEED FORMULATION

Hog Grower Ration

<u>INGREDIENTS</u>	<u>PARTS BY WEIGHT</u>
Groundcorn	50.0
Soybean Oil Meal	12.0
Rice Bran D ₁	20.0
Copra Oil Meal	10.0
Ipil-Ipil Leaf Meal	4.0
Meat and Bone Meal (50%)	2.0
Oyster Shell	1.25
Salt	0.43
Vit. Min. Supplement	0.25
Sulfamothazine (Antibiotic)	0.11

Total (krs.)	100.01
Feed Cost per kg.	₱ 5.20

Proximate Analysis

Crude Protein %	16.34
Metabolizable Energy (kcal.)	3000
Calcium %	0.80
Phosphorus %	0.82
Crude Fat %	3.06
Crude Fiber %	4.93
Lysine %	0.69
Methionine %	0.79

FEED FORMULATION

Hog Finisher Ration

<u>INGREDIENTS</u>	<u>PARTS BY WEIGHT</u>
Ground Corn	42.0
Soybean Oil Meal	8.0
Rice Bran D ₁	32.0
Copra Oil Meal	9.0
Ipil-Ipil Leaf Meal	5.0
Meat and Bone Meal (50%)	2.0
Oyster Shell	1.2
Salt	0.5
Vit. Min. Supplement	0.2
Posistac (Growth Promotant)	0.1
Copper Sulfate	0.04
Zinc Oxide	0.01

Total (kgs)	100.05
Feed Cost per kg.	₱ 4.80

Proximate Analysis

Crude Protein %	13.96
Metabolizable Energy (kcal.)	2786
Calcium %	0.78
Phosphorus %	0.72
Crude Fat %	3.18
Crude Fiber	5.29
Lysine %	0.65
Methionine	0.23

FEED INVENTORY
(3 month period)

<u>INGREDIENTS</u>	<u>QUANTITY</u>
Ground Corn	117,791.0
Soybean Oil Meal	24,608.8
Rice Bran D1	69,998.0
Rice Bran D	9,045.0
Copra Oil ² Meal	22,627.0
Ipil-Ipil Leaf Meal	7,719.0
Fishmeal (imp.)	2,436.0
Meat and Bone Meal	4,756.0
Skimmed milk	673.0
Brown Sugar	2,188.0
Oyster Shell	3,001.0
Salt	555.0
Limestone	344.0
DL-Methionine	25.69
Lyzine	25.69
Choline Chloride	76.23
Vitamin-Mineral Supplement	536.01
Mecadox Plus (anti-scour)	25.69
Sulfamethazine (anti-biotic for piglets)	75.29
Feed Antibiotic (for breeders)	153.36
Posistac (growth promotant for finishers)	118.26
Zinc Oxide	11.83
Copper Sulfate	47.30

TOTAL 266,837.75

PROXIMATE ANALYSIS OF FEEDSTUFFS

Feedstuff	: Crude : Protein : %	: Crude : Fat : %	: Crude : Fiber : %	: Calcium : (Ca.) : %	: Phosphorous : (P.) : %	: ME : M. Ener : (kcal)
Ground Corn	: 8.7	: 3.8	: 2.5	: 0.02	: 0.30	: 3476
Soybean Oil Meal	: 44.0	: 0.5	: 7.0	: 0.25	: 0.60	: 2800
Rice Bran D ₁	: 11.0	: 0.6	: 7.2	: 0.1	: 1.8	: 2500
Rice Bran D ₂	: 8.0	: - - -	: 22.0	: 0.09	: 0.6	: 1800
Copra Oil Meal	: 20.0	: 5.7	: 9.0	: 0.07	: 0.2	: 1700
Ipil-Ipil Leaf M.	: 24.0	: 6.0	: 11.0	: 1.0	: 0.3	: 2000
Fishmeal (imp.)	: 65.0	: 7.5	: 1.0	: 4.5	: 2.5	: 2970
Meat and Bone M.	: 50.0	: 8.5	: 2.8	: 11.0	: 6.0	: 2434
Skimmed milk	: 33.0	: 0.5	: - - -	: 1.2	: 1.2	: 2500
Brown Sugar	: - - -	: - - -	: - - -	: - - -	: - - -	: 3000
Oyster Shell	: - - -	: - - -	: - - -	: 37.0	: - - -	: - - -
Limestone	: - - -	: - - -	: - - -	: 33.0	: - - -	: - - -
Fishmeal (Serum ²)	: 58.0	: - - -	: 1.0	: - - -	: - - -	: - - -

Feedstuff	Methionine %	Methionine + Cystine %	Lyzine %
Ground Corn	0.14	0.30	0.18
Soybean Oil Meal	0.68	1.34	2.78
Rice Bran D ₁	0.24	0.33	0.60
Rice Bran D ₂	---	---	---
Copra Oil Meal	0.25	0.30	0.55
Ipil-Ipil Leaf M.	0.31	0.50	1.48
F shmeal (imp.)	1.90	2.67	5.62
Meat and Bone Meal	0.57	1.14	2.44
Skimmed milk	0.93	1.33	2.20
Brown Sugar	---	---	---
Oyster Shell	---	---	---
Limestone	---	---	0---
Fishmeal (serum ²)	---	---	---

FEED CONVERSION EFFICIENCY
ESTIMATE

Age/Stage of growth	: Kind of Feed	: Ave. Daily Consumption (kg.)	: Total Feed Consumed (kg.)	: Final Weight (kgs.)	: Weight Gain (kgs.)
15-30 days	: Pre-starter	: 0.5	: 7.5	: 5.0	: 5.0
31-60 days	: Starter	: 1.0	: 30.0	: 15.0	: 10.0
61-90 days	: Grower	: 2.0	: 60.0	: 35.0	: 20.0
91-120 days	: Grower	: 2.5	: 75.0	: 60.0	: 25.0
121-165 days	: Finisher	: 3.0	: 135.0	: 90.0	: 30.0
			307.5		
				90.0	

Feed Conversion Efficiency = $\frac{\text{Total Feed Consumed}}{\text{Total gain in weight}} = \frac{307.5}{90.0} = 3.4$

Total _____ Mill Machine, 2000

Item	Description	Specification	Price
1	Mill eqpt	Mill machine, Micro: 1 ton/hr	190,000.00
2	Mill eqpt	Mill machine, scale : 100 kg. cap.	30,000.00
3	Motor	Electric motor : 10 HP.	30,000.00
4	Motor	Electric motor	30,000.00
5	Motor	Electric motor	10,000.00
		Installation cost	
		of machinery	10,000.00
			<u>290,000.00</u>
			vvvvvvvvvv

Total _____ Motor eqpt

Item	Description	Specification	Price
1	Motor	100,000 - 5000	4,200,000.00
2	Motor	100,000 - 5000	21,000.00
3	Motor	100,000 - 5000	21,000.00
4	Motor	100,000 - 5000	21,000.00
			<u>4,180,000.00</u>
			vvvvvvvvvvvv

FINANCIAL PROJECTIONS

1. FEED MILL

Annual Production - 60,000 bags at 50 lbs.
 Sales: 60,000 bags x ₱250.00/bag
 Gross Profit Rate
 Gross Income

₱15,000,000.00	
x 20%	
<u>₱3,000,000</u>	

2. TRACTOR POOL

5 Units at Average of 13 hours per Day
 Plowing - 2.5 hrs. at ₱250.00/hr - ₱625.00
 Harrowing - 4 hrs. at ₱200.00/hr - ₱800.00
 Total Income/tractor at 6.5 hrs. ₱1,425.00

₱1,425.00 x 5 tractors x 2 x 120 days
 ₱5.15 x 7.5 liters x 13 hrs. x 120
 days x 5 tractors - Fuel
 Oil is 25% of fuel cost
 Total Fuel and Oil
 Maintenance (10%)
 Total
 Gross Income

<u>₱1,710,000.00</u>	
₱301,275.00	
75,318.75	
<u>₱376,593.75</u>	
171,000.00	
<u>₱547,593.75</u>	

1,162,406

3. CORN SHELLER

9 Units at Average of 8 hours per Day
 1,000 lbs. x 8 hrs. x 120 days x 9
 Price/kl. shelling fee
 Gross Income
 Fuel - ₱6.27 x 1.5 liters x 8 hrs. x 120 days
 x 9 units
 Oil - 25% of Fuel Cost
 Total Fuel and Oil
 Maintenance (10%)
 Total
 Gross Income

10,368,000 k	
₱.02	
<u>₱207,360.00</u>	
₱99,035.20	
22,258.80	
<u>₱121,294.00</u>	
12,129.40	
<u>₱133,423.40</u>	

635,205

4. MUNG BEAN

10,000 kgs per month at average selling price
 of ₱10.00/kg of processed mung
 Sales: 10,000 kg. x ₱100.00 x 12
 Gross Profit Rate
 Gross Income

₱12,000,000.00	
25%	
<u>₱3,000,000.00</u>	

5. RICE

Turnover: Corn - ₱6,000.00
 Salary - ₱4,500.00

Fertilizers:

Corn - 1,567.5 hectares x ₱6,000.00 x 38.5%	₱ 3,620,975.00
Palay - 2,417.5 hectares x ₱4,500.00 x 45.77%	4,979,103.80
Total	<u>₱ 8,600,128.80</u>

₱8,600,128.80 x 4% (Gross Profit Rate) x 2 688,010

Chemicals:

Corn - 1,567.5 hectares x ₱6,000.00 x 11.9%	₱ 1,777,545.00
Palay - 2,417.5 hectares x ₱4,500.00 x 21.77%	2,368,203.80
Total	<u>₱4,145,848.80</u>

₱4,145,848.80 x 15% (Gross Profit Rate) x 2 1,243,754

Seeds:

Corn - 1,567.5 hectares x ₱6,000.00 x 13.33%	₱ 1,253,696.50
Palay - 2,417.5 hectares x ₱4,500.00 x 2.2%	966,033.00
Total	<u>₱2,219,719.50</u>

₱2,219,719.50 x 6% (Gross Profit Rate) x 2 266,366

6. RICE TRADING

75 bags/hectare; 40 kils per bag fresh palay	
75 bags x 40 x 2,417.5 hectares	7,252,500 k
7,252,500 kilos x 85% x 65% (rice)	4,007,006 k
4,007,006 + 50 kls/bag x ₱2.00 (Profit/sack) x 2	320,560.

7. PALS GRAIN PRODUCTION

40 hectares at 3.5 MT/hectare at ₱6.00/kl.	
40 x 3,500 x ₱6.00 x 2	<u>₱1,580,000.00</u>
Harvesting and Post-harvesting cost - drying and chulling (10%)	₱ 168,000.00
Production Cost at ₱6,000.00/hectare x 2	250,000.00
Total	<u>₱ 648,000.00</u>
Gross Profit	1,032,000.

8. PORK FIRM

Annual Production	
2,640 heads at 90kls/head at ₱32.00/kl.	₱ 7,603,200.00
Cost of Production: 2,640 x 90 x ₱27.93/kl.	<u>6,636,168.00</u>
Gross Profit	967,032.00

9. INTEREST FROM PRODUCTION LOANS EXTENDED

Interest at 12% for ₱40,000,000.00	₱4,800,000.00
Service Fees at 2% of Amount of Loan	<u>800,000.00</u>
Total	5,600,000.00

10. OTHERS

Interest on Bank Deposits
Sale of Waste and Surplus
Total
TOTAL INCOME

₱ 25,000.00	
<u>90,000.00</u>	₱ 115,000.00
	<u>₱ 18,030,335.00</u>
	XXXXXXXXXXXX

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

Mr Abundio V Felin, Philippines.

(other those made by the group presentations)

- * To find out exact movement of prices and production, graphs should indicate trends for at least four five years.
- * There are eight components in the project. Major anchor activity is feed mill. It looks like a set of proposed activities and not a project proposal.
- * Activities may have to be implemented one by one and finance requirements also made accordingly. Evaluation of one activity should be done before starting another activity.
- * Integration between different activities need more clarifications.
- * Existing coops could develop activities related to their activities and develop other activities in phases.
- * Analysis have been done based on many assumptions. Profitability and even procurement will change on change of assumptions.
- * Project in its present form is not bankable. Land Bank can help in putting the document in proper shape.
- * Project idea and initiative from author is good. Reflects his knowledge of area. But project document, as an investment document needs revision.

Bicol Integrated.

3/3/90 G. eto

Management → Marketing → Farmer

1. ORGANIZATIONAL MANAGEMENT PLAN OF THE PROJECT AND FUNCTIONS IS NOT BEEN MADE AND ALSO DUTIES OF THE PERSONEL AND OFFICIAL OF THE ORGANIZATION MUST BE GIVEN TO RUN BUSINESS ACTIVITIES OF THE PROJ.

(14 Pas)

2. NO PREVIOUS DETAILS OF ^{Selling} PRICES/ARRIVAL IS GIVEN FOR KNOWING THE TREND OF MARKETING, ONLY 1 YR. DATA IS NOT SUFFICIENT TO KNOW THE TRENDS IT MUST BE AT LEAST 5 YRS.

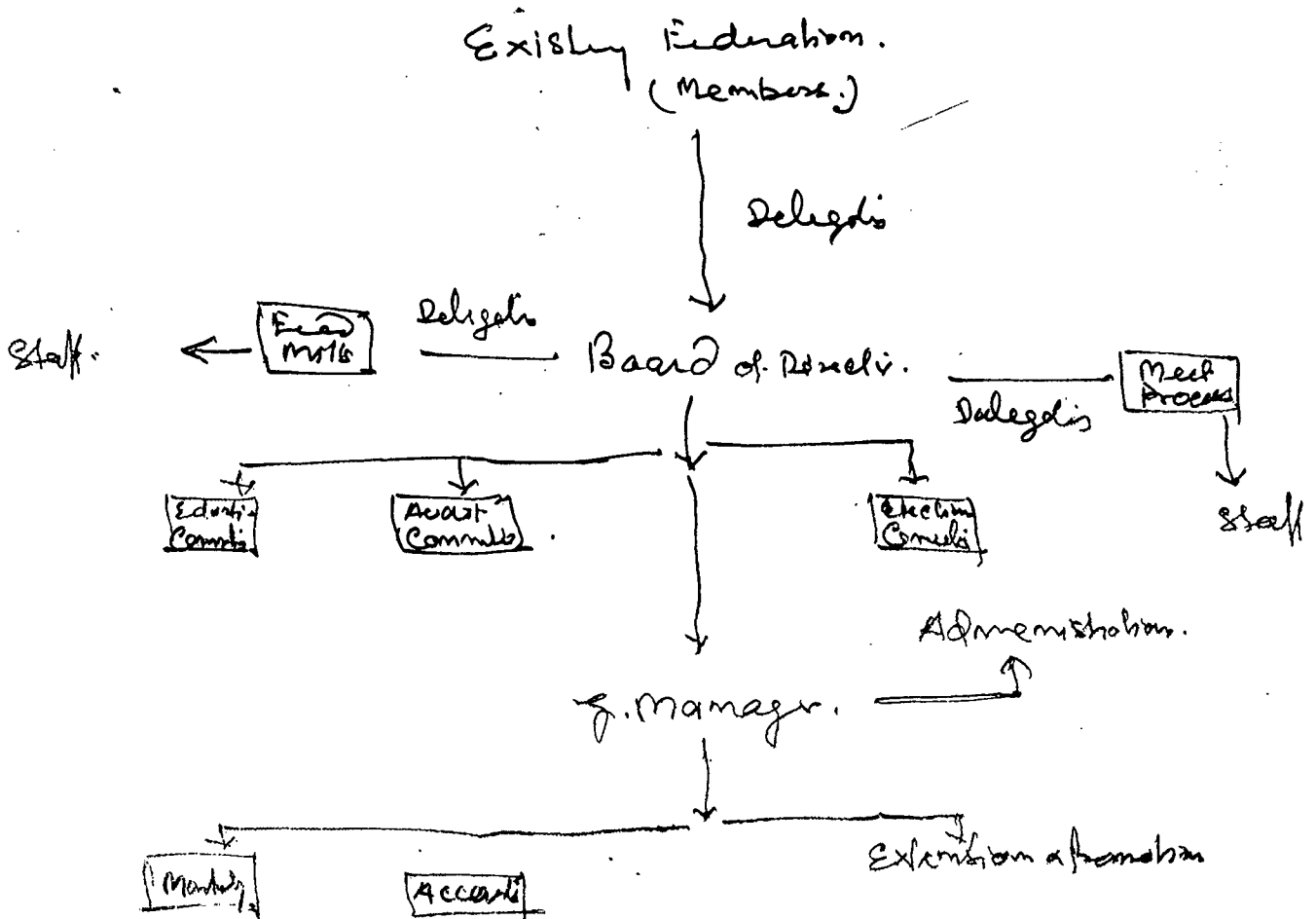
(14-48)

3. NO MARKETING STRATEGY IS GIVEN THROUGH WHICH ORGANIZATION. THEY WILL SALE, HOW MUCH COMMISSION WILL BE GIVEN, WHAT SYSTEM THEY WILL ADOPT FOR GETTING RAW MATERIALS MUST BE INCLUDED.

A. REGARDING THE PAYMENTS TO FARMER WHAT SYSTEMATIC WILL ADOPT, MUST BE MENTIONED.

5. NO EXTENSION AND PROMOTION PROGRAM TO THE FARMER MEMBERS, IT MUST BE INCLUDED.

6.



Group B - Philippines - Abundio - Felin 3/3/90

Background / Justification

Data given not sufficient and irrelevant even some of them are out dated.

Data should at least indicate 5 years trend. Example Family Income / Expenditure Data:

There are many activities involved in the project such as feed mill, tractor pool, corn sheller, meat processing, farm inputs, rice trading, food-grains production, livestock farm.

Justification for each activities is not correct and background data of each activities not mentioned.

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	: DAIRY PROJECT IN BANDARAWELA.
<i>COUNTRY</i>	: SRI LANKA.
<i>PROJECT PREPARED BY</i>	: S. DEERASINGHE

Funded by the Government of Japan

and

Executed by the ICA in collaboration with its Member Organisations in

India, Thailand, Japan and Korea

ICA Management Training Project for Agricultural Cooperatives in Asia

INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters:
Route des Morillons 15
CH 1218, Le Grand Saconnex
Geneva, Switzerland

Regional Office for Asia:
43 Friends Colony (East)
New Delhi 110 065
India

DAIRY PROJECT IN BANDARAWELA

SUMMARY:

1. Name of the Project: DAIRY RPROJECT IN BANDARAWELA
2. Project Area : Upper Uwa Province
3. Objective of the Project: At present the dairy farmers in Bandarawela area are getting a marginal income for their products. It is aimed to reach the gross income to increase by 90% within four years.
4. Total Project Costs:

First phase:	Rs. 1,968,000
Second Phase:	Rs. 18,056,500
5. Total INitial Investment:

First Phase:	Rs. 1,814,400
Second Phase:	Rs. 8,807,000
Total	Rs. 10,621,400
6. Working Capital:

First Phase :	Rs 153,675
Second Phase:	9,249,500
7. Source of Funds: Equity (25%) Rs. 492,000
Long term loans and govt. grant: Rs. 1,476,000
8. Installed Capacity: Plain Milk 9,000 liters of milk in half litre bottles per month.
Flavoured Milk: 180,000 bottles per month each bottle 180 ml.
9. Capacity Utilisation: First year - 88%
second year onwards - 100%
10. Raw material availability" Enough raw milk can be collected without failure.
11. Marketing of proudcts: Area within 25 km of radius thru. coop societies.
12. Organisation and Management: To be managed by the newly set up Uwa Province Milk Producers Coop Ltd.
13. Financial Analysis: Pay Back Period - 4 years.
Net Present Value - 124%
Cost Benefit Ratio: 2.68
Internal Rate of Return: 20.4%
14. Pre-operational period: 25 months.

PROJECT FOR INCREASING INCOME OF THE
DAIRY FARMERS OF BANDARAWELA AREA IN
SRI LANKA

Project Report submitted to the ICA/Japan Programme of
Strengthening /Agricultural Co-operatives in Asia in
1989/1990

The Board of Directors of the National Co-operative Council of Sri Lanka, instructed me to prepare the Project for Bandarawela Area. (Board Minutes on 28th December 1989) After few discussion with the farmers in Bandarawela area, I select the project for processing milk, which is the most common commodity for the farmers, and it has not given propose for its development.

Project Area:-

In Sri Lanka milk processing is doing by two big companies. The companies paid poorly to the farmers although the prices of output increasing rapidly. So the farmers can not bargain for better price.

And it is not viable to put up big projects in Sri Lanka, average transport cost for one litre of raw milk is Rs. 1.10, it is nearly 20% the price paid by the companies. Due to heavy transport cost and lack of capital I suggest small projects for milk of the initial stage such as producing Yaghart, Gec and curd.

As shown in the those is a high potential for milk production. At present due to weak backward forward horizontal intergration, the productively is very low. I suggest to form small primary societies of milk producers. At present one milk producers co-op. and other multipurpose Co-operative Societies collect milk and act as the agents of the companies.

Schedule is shows the average maximum and minimum milk collection per month.

The project period can be divided two major components. First five year project is for the Bandarawela Milk Producers Ltd., for processing milk and producing Yogurt, Gec and curd.

At the same period it is necessary to form milk producers societies.

Second stage of the Project:

After forming few Milk Producers primary societies, the second stage should start that those should be a secondary union, after that the union can start a viable project. The Second stage can be started after and three years.

At the second stage the union should start plain milk and favourable milk producing project.

Building and Land

Where sketching the land we should locate a place in middle of milk packet and the population to facilitate each and every supplier as much as most possible minimum distance to the centre. We have the idea to acquire the four acre land from Demodara which is two milk from the Bandarawela Municipal area with the help of the Provincial Government. The availability of water within the premises would be an advantage. The building is approximately 150 squarer meters.

Road Access:

Good Road Access to the Centre is essential as the collecting milk has to reach the centre for dispatching milk to the processing centre. The road condition is suitable for milk transport in Demodara Area.

Equipment :

The equipment we used to milk testing, cleaning and storage at the primary centre is listed out and annexed.

Basic Training for the primary centre staff:

If we select the employees/persons to affairs of the primary milk collecting centres it is advisable to find persons with knowledge of milk as it need in their work. We have to provide with these selected persons training in the procedures which they have to follow such as:

- I) Disciplined how they could develop the relationship with the procedures and how they could co-operate in solving their problems.
- II) Maintenance of the centre including cleaning of glass wares, aluminium wares, house keeping, general hygienical procedures and the centre premises.
- III) Using and chemicals
- IV) Testing procedures and practical training.
- V) Book keeping and accounting procedures.
- VI) Co-operative Laws and procedures.

Basic Training for the Producers

As we can't expect all the farmers are educated to pass the message through the printed materials we have to keep close collaboration with the institute such as Agricultural Training Centre and Veterinary Sargent in Bandarawela.

Establishment of Primary societies:-

Milk Producers should be encourage to ~~farmers~~ farm primary societies in that village for better advantages. The officials of the Co-operative Department would have to render necessary assistance for organising primary societies.

Milk Testing:

At present no co-operative society trusts the fat content of the individual producers. So it is not encourage the producers to produce better quality milk. When the primary societies stated it is necessary to less the fat contents should be allocated considering fat content.

Marketing of the Produce:-

We conducted a sample survey within 50 miles from Bandarawela and estimated the demand as the other commodities. The products of our society should be better quality we must careful to maintain the standard of the product.

As compare to increase of raw milk prices the prices of milk products is increasing high in Sri Lanka, the marketing would not be difficult because the project expect to sell its product at reasonable price.

Under 'JANASAVIYA' - strengthening skill of people programme the society will able to market its products through schools.

At present the producers get a price Rs. 4.20 - 4.60 per raw milk.

During 1st stage of the project a litre of milk would added its value Rs. 4/90 in processing and in the second year Rs. 5/05. But the project is unable to process its whole collection 15% of the milk collect by the society would be process. In the second stage of the project value addition per litre of milk process is Rs. 11.78. As the work production average value addition per litre is Rs. 1.42.

Funds Requirement and Sources of Funds:-

At the first stage of the project

Fixed capital Requirement	-	1,314,400
Working capital Requirement	-	153,675
Total capital requirement	-	<u>1,968,075</u> *****

Funds Raised from the society

25% i.e. Rs. 492,000 from members deposits and share capital and balance financial requirement from Government donation.

At the second stage of the project.

Fixed capital - additional requirement	-	Rs. 8,807,000
Working " " " "	-	Rs. 9,249,500
		<u>Rs. 18,056,500</u> *****

For the second stage the society has to form an own fund 10% and balance 90% from financial institutions and Government contributions.

1st stage Administrative Expenses per year

Salaries and wages

Employees

Manager	2,400 x 12	-	28,800.00
Sales Assistants - 2			
	1,500x2x12	-	36,000.00
Propaganda		-	12,000.00
postage & stamp	200x12	-	2,400.00
Delagments	300x12	-	3,600.00
			32,800.00

Value addition:

curd - K selling price	-	14.00
less cost of sales	-	7.19
		6.81

Total projects in curd
per day 6.81x62 422.22

Yoghart retail selling price	-	3.50
less cost of sales	-	2.31
		1.19

Total project in yoghart per day
Rs. 1.19 x 2325 3004.75

Gec. selling price per day	-	1,160
cost of sales "	-	793
		367.00

3790.97

value addition per litre of raw milk

which engage in production of yoghart, gec and curd.

1st year Rs. 4/90

2nd year onwards 5/05

contd..7

Production per day:-

Raw milk 300 litres

250 litres	50 litres
2525 cups of yogharts	(25 pots (750 ml))
Cream 14 liters	
Gec - 7 litres	

Production cost: (per day) for 2525 cups

<u>Yoghurt</u>	<u>Rs.</u>
Cost of milk 4.70 x 250 litres	1,775
Skim milk power Rs. 85x2.3-kg.	196
Sugar Rs. 35 x 28 kgs.	980
Culture Rs. 600x0.259	15
Culture milk Rs. 5/25x4.9 litre	26
Culture and thronre	210
Cups and lids Rs. 1.10 @ 2525 cups	2,778
Wages - (Mondays 4)	160
Electricity and fuel	300
	<hr/>
Total	6,440
Deduct	600
Total value Rs. 2.40	<hr/>
cost of yoghart	5,840

Cost of yoghart per cup	Rs. 2.31
Selling price (whole sale -	Rs. 3.50
Retail -	Rs. 4.50

Gec:

value of cream	-	600
packing	-	53
Wages		100
Electricity and fuel	-	40
		<hr/>

793

Frank Colting - deductibility Gec price

<u>Sec - Packing per day:</u>	<u>empties</u>	<u>Selling</u>	<u>Total sales</u>
1 litre	1 bottle @ Rs. 2/50	price each 140	140
1/2 litre	4 bottle @ Rs. 1/50	75	300
One 90 bottle	Rs. 0.50	8	720
			1160

Curd (per day) (750 litre 62 pots)

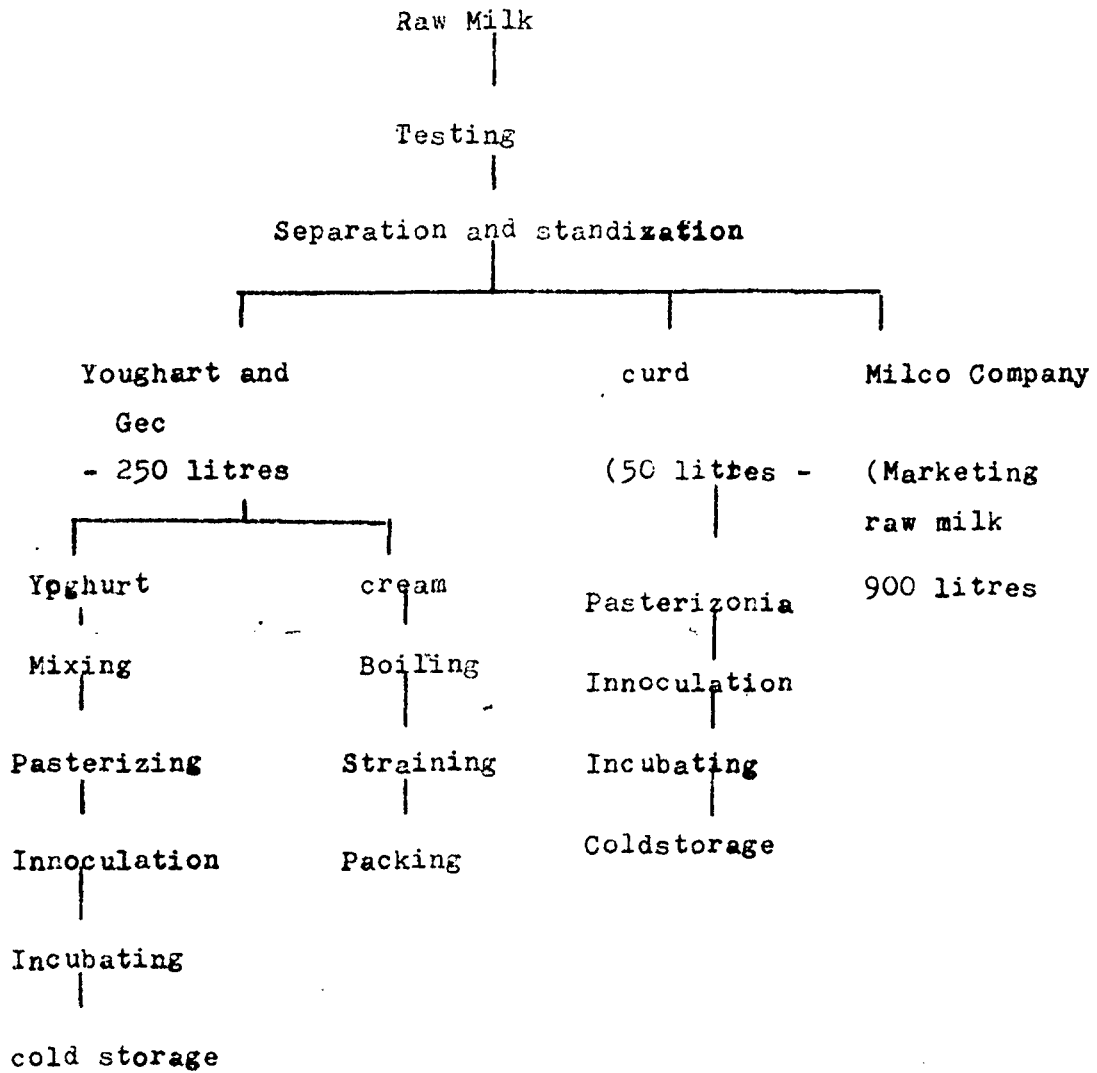
Cost of milk 50 litre @ Rs. 4.70	240
Pots: Rs. 62 @ Rs. 1.40	87
Packing materials @ Rs. 0.30	19
Electricity and fuel	20
Wages - two man day	80
	446

Cost of Curd : Rs. 7.19 each
 Selling Price : Wholesale Rs. 14
 Retail Rs. 16

Production days

1st years	300
2nd yr.	340
3rd yr.	340
4th yr.	340
5th yr.	340

PRODUCTION FLOW CHART



FIRST STAGE OF THE PROJECT:

Machine and Equipment:

(A)		
	Milk can 15 @ Rs. 2,500	37,500
	Dump tank	17,000
	Laboratory equipment	35,000
	Separator 500 litres/hour	180,000
	Chilling tank	5,000
	S S lati	15,000
	Boiling vessels 02 hardware	20,000
	Inner aluminium vessels 02	10,000
	Heating element incubators	1,000
	Bottle cooler 02	40,000
	Refrigerators	10,000
	Boiling vessels - 2	1,300
	Weighting scale	10,000
	Sundries	100,000
		<hr/>
		481,700
(B)	Furniture	
	Stainless s tables - 3 @ Rs. 15,000	45,000
	Chairs - 8 @ Rs. 150	1,200
(C)	Sales:	
	Truck	500,000
	Packing instruments	20,000
	Electricity supply	20,000
	Water supply	12,000
	Chilling tank 1000 litres	400,000
		<hr/>
	Building 1115 square feet @ Rs. 300	1,479,000
		334,500
		<hr/>
		1,814,400

1. Pay back period
3 years and 4 months:
2. Benefits cost retail 1.21
3. Net present value:
at 18% interest rate 114.4% (Rs. 261,108)
4. Internal rate of return 22.9% (approx.)

PROJECT OF DAIRY1st stage: Yoghurt, Gec and Curd Production:-

<u>Yrs</u>	<u>Production cost</u>	<u>Administration cost</u>	<u>Total cost</u>	<u>Income</u>	<u>Net cash In flow</u>
1	2,123,700	82,800	2,206,500	2,651,250	444,750
2	2,406,860	82,800	2,489,660	3,004,750	515,090
3	2,406,860	82,800	2,489,660	3,004,750	515,090
4	2,406,860	82,800	2,489,660	3,004,750	515,090
5	2,406,860	82,800	2,489,660	3,004,750	515,090

Project-1st Stage:

Capital investment:

<u>Year</u>	<u>Cash out flow</u>	<u>Cash in flow</u>	<u>Net cash inflow</u>	<u>cumulative cash inflow</u>	<u>Disconnect factors 18%</u>	<u>present value of cost</u>	<u>present value of benefits</u>
00	1,814,400	-	(1,814,400)	(1,814,400)	-	-	-
01	2,206,500	2,651,250	(444,750)	(1,369,650)	.847	1,868,906	2,246,000
02	2,489,660	3,004,750	(515,090)	(854,560)	.718	1,787,576	2,157,000
03	2,489,660	3,004,750	(515,090)	(339,470)	.609	1,516,203	1,830,000
04	2,489,660	3,004,750	(515,090)	170,620)	.516	1,284,664	1,550,000
05	2,489,660	3,004,750	(515,090)	1,819,730	.437	1,087,981	749,000
	salvage value	2,200,000	1,200,000	.			

7,543,330 8,538,000

Cost - benefit ratio = 1.13

(charging value of accuracy)

Net Present Value:

Year	net cash inflow	Discount factor 18%	present value	Discount factor 22%	Present value	Discount factor 23%	Present value
01	447,750	.847	376,703	.820	364,695	.813	361,582
02	515,090	.718	369,835	.672	346,140	.661	340,474
03	515,090	.609	313,690	.550	283,299	.538	277,118
04	515,090	.516	265,786	.450	231,790	.437	225,094
05	1,715,090	.437	749,494	.370	634,583	.355	608,857
Gross present value			2,075,508	1,860,507			1,813,125
Less: capital investment			1,814,400	1,814,400			1,814,400
Net present value			261,108	46,107			1,274
Net present value			261,108	46,107			1,274
Net present value			261,108	46,107			1,274

Net present value 114.4%

Internal rate of return : 22.9%

ANNEXTURE:

THE BASIC REQUIREMENTS OF SETTING OF
MILK PRODUCERS (COLLECTION CENTRE) SOCIETY

1. Land and building
2. Good road access equipment
4. Basic training for the persons handling the centres.
5. Basic training for the producers.
6. Establishment of the primary producers co-operative societies.
7. Milk and animal survey.

Basic equipment for setting up a dairy processing centre:

1. Land and building
2. Good road access
3. Good quality water
4. Waste water disposability
5. Electrical power supply
6. Adequate supply of raw milk and raw materials.
7. Transport for collection and sales equipment.

MILK COLLECTION IN THE COMMAND AREA OF BANDARAWELA

MILK PRODUCERS CO-OPERATIVE SOCIETIES:

Milk collection in thousand litres:

<u>Month</u>	1987	1988	1989	1990	1991	1992
January	35	63	56			
February	30	53	50			
March	32	52	53			
April	30	50	46			
May	37	62	65			
June	40	68	56			
July	39	67	54			
August	36	68	54			
September	35	53	60			
October	35	62	62			
November	57	34	58			
December	60	51	59			
Total	466	683	673	=	700	
Average	38.8	56.9	56.1			
Minimum	30	34	46			
Maximum	60	68	65			

Bandarawela Milk Producers Co-operative Society Ltd.,

Bandarawela is situated in Central Hill of Sri Lanka. Average temperature is 20.1° celcius and average rainfall is 2259 milimeter per year. Number of rainy days is 144.

There is no enough statistics readily available about the society. The area of operation of the society approximately 16 square miles. The population of milk cows in 2,000, Approximately 50% of the milk produced in this area collect by the cooperative and whole sal quantity materials to the Milco Company. The average price given to the members in last year Rs. 4.10. The farmers could produce 30% of the protential production.

BANDARAWELA MILK PRODUCERS UNION

<u>Primary societies</u>	Maximum	Minimum	Total milk supply per day	Curd Production	Yogurt Production	Other milk board etc
Bandarawela Milk Producers Society Ltd.	2,300	1,700		50		
Haputale MPCs Ltd.,	1,900	1,300			250	litre of milk
Uva Paranaagama MPCs Ltd.,	2,100	1,100				
Udawalatha MPCs Ltd.,	1,000	600				
	<u>7,300</u>	<u>4,700</u>				<u>1700</u>
	=====	=====				

COST OF RAW MILK PER C Per cattle : Per month

Income from milk	Rs. 1,800
450 litre	
Cowdone	250
	<hr/>
	2,050

<u>Less</u> Poonac - 1 packet	200	
Picutin 5 gm.	60	
calciam	15	
Veternary s	50	
Fadder-grass	400	725
	<hr/>	<hr/>
Net Income per month		13.25

Net income in selling

Raw milk per litre Rs. 2.94

In average cow in this area given 1,000 litres of milk, but there is a potential to increase the quality up to 3,500 litres. If the necessary backward intergration exist.

FIRST STAGE OF THE PROJECT

BREAK-EVEN ANALYSIS:

Yoghurt, Gec and Curd.

Selling price of a day

Youghart	Rs. 8,838	
Gec	1,160	
Curd	<u>868</u>	10,866

Variable cost of sales:

Youghart	5,840	
Gec	793	
Curd	<u>446</u>	<u>7,079</u>

Contribution per day Rs. 3,787

Fixed cost

Administration cost per day	Rs. 21,435
Depreciation " "	362
($\frac{1,814 - 1,200}{340 \times 5}$) x thousand	<u>2797</u>

BREAK EVEN POINT

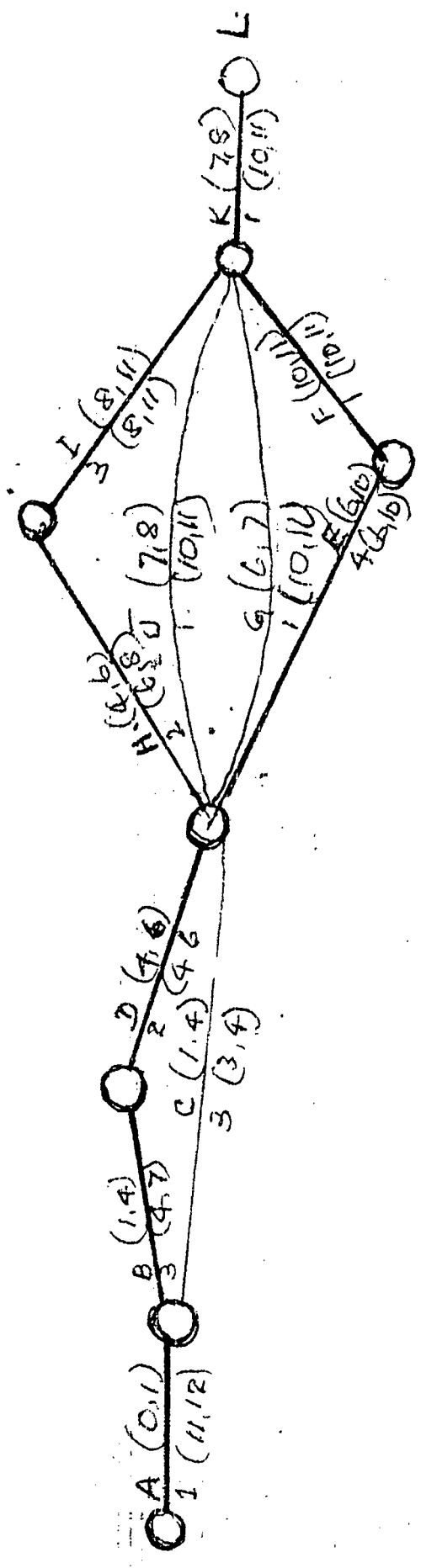
Yoghurt $\frac{2,797 \times 2,525}{3,787}$ 1,877

Safety of margin of the project is 26% of the capacity utilized.

Activity number	Activity -proceeding/successing	Dura tion months	ES	EF	LS	LF	SLACK LS-6S
A	Authority of the Project proposal of B.C	2	0	1	0	1	0
B	Acquisition of land -A/D	3	1	4	1	4	0
C	Loans/funds raising -A/D	3	1	4	3	4	2
D	Building construction -CB/EH	2	4	6	4	6	0
E	Instalation of Machines D/F	4	6	10	6	10	0
F	Electrification - E/K	1	10	11	10	11	0
G	Watersupply - D/K	1	6	7	10	11	4
H	Recruitment of employees-C/I	2	6	8	6	8	0
I	Training employees - C/K	3	8	11	8	11	0
J	Purchasing intencils -C/K	1	7	8	10	11	3
K	Equipment producers- I/L	1	11	12	11	12	0
L	Business production - K/	1					

CRITICAL PATH - A B D E F H I K

FIRST STAGE OF THE PROJECT



SECOND STAGE OF THE PROJECT

The second stage of the project will commence in the fourth year.

In the second stage 9,000 litres of plain milk and 180,000 bottles of 180 milli litres of flavoured milk can be produced per month.

Before starting the second stage the milk producers co-op. union should be formed.

The additional capital expenditure for the second stage as follows:

Chilling tank - 1600 litres capacity	1,800,000
Installation charges	10,000
Measuring instruments	
furniture:	
Two stainless tables	30,000
5 chairs @ Rs. 200	1,000
Overhead water tank - 2000 litres capacity	16,000
-	200,000
5 sales centres - Rs. 25,000	125,000
Packing materials	20,000
Packeting machine	6,500,000
Sundries	100,000
Total capital investments	Rs. 8,807,000

Before ordering the machine and _____, the Co-op. Union should carefully notify the technical viability of the machines. The information of the machine and equipment are not enough supply us when prepare the project report.

Plain milk

9,000 litre of milk, ½ litre bottle can produce per month.

Production and selling price of

½ litre bottles plain milk,

Direct expenses:

Cost of milk Rs. 5/25 @ 9,000 litres	47,250
Bottles and crown cork @ .75	13,500
Electricity	4,000
Wages (300 mandays)	32,100
Administration expenses calculated pro-rata basis	20,000
	<hr/>
Total cost	116,850
Selling price - Rs. 8/- each 18,000	144,000
	<hr/>
surplus	27,150

Flavoured Milk 180,000 bottles per month
180 milli litre bottles

Direct Expenses:

Cost of milk	Rs. 4/80 x 31418 litres	150,806
Sugar	Rs. 40 x 3,140 kgs.	125,600
Cocoa powder	Rs. 160 x 325 kgs.	40,320
Bottle label and card		60,000
Electricity		5,000
Wages (320 mandays)		24,000
		<hr/>
Direct expenses		405,726
Indirect expenses		50,000
		<hr/>
Total expenses		455,726
Selling price Rs. 5/- each 180,000 bottles		900,000
		<hr/>
Net surplus		444,279

Per month:	<u>Plain milk</u>	<u>Flavoured milk</u>	<u>Total</u>
Expenses	116,850	455,726	572,576
Income	144,000	900,000	1,044,000

CASH FLOW STATEMENTS FOR THE FIRST STAGE OF THE PROJECT

	0 year	first year	second year	third year	fourth year	fifth year
<u>Source of funds</u>						
Contribution from society					492,000	
Govt. contribution					1,476,075	
Income of the project						1,968,075
Less:						
Fixed capital	1,814,400	444,750	515,090	515,090	515,090	515,090
Less:	153,675					
Loan- refund annually including 18% interest		386,257	386,257	386,257	386,257	386,257
Net cash flow	153,675	58,493	128,833	128,833	128,833	128,833
Cumulative cash balance	153,675	212,168	341,001	469,834	598,667	727,500

To be paid in 10 years

SECOND STAGE OF THE PROJECT
PRODUCTION OF THE PLAIN MILK AND FLAVOURED MILK: CAPITAL INVESTMENT Rs. 1, 8056, 000

Year	cash outflow '000	cash inflow '000	Net cash flow '000	cumulative cashflow '000	Disconnect factor 18%	cost benefits	Gross Disconect factor 20%	present value	Disconect factor 21%	
0	-	-	-	-	-	-	-	-	-	
1	-	-	-	-	-	-	-	-	-	
2	-	-	-	-	-	-	-	-	-	
3	18,056 (capital)			(18,056)						
4	5,160	9,396	4,236	(13,820)	.847	7,958	3,588 .833	3,529	.826 3,499	
5	6,304	11,484	5,180	(8,640)	.718	8,246	3,719 .694	3,595	.683 3,538	
6	6,304	11,684	5,180	(3,460)	.609	6,994	3,155 .579	2,999	.564 2,922	
7	6,304	11,484	5,180		.516	7,990	4,737 .462	2,497	.467 2,419	
Salvage value		14,000				7,224	7,224 .402	5,628	.386 5,404	
Grass present value						38,412	22,423	18,248		17,781
Capital Investments						18,056	18,056	18,056		18,056
Net present value						4,367		192		(275)

WORKING CAPITAL REQUIREMENTS

First stage of the project

Raw milk collection	
for 3 days	22,125
Cost of products	
7 days	49,550
Cost of Raw materials	
skim milk - 14 days	2,700
sugar - 7 days	6,900
Culture and flavour 14 days	2,900
Cups elids - one month	69,500
	<hr/>
	153,675

Second stage of the project

Additional working capital requirement:

cost of products - 10 days	5,720,000
stock of raw materials	
Bottle, crown and cokes	
one month	1,837,500
sugar - 7 days requirements	875,000
Cocoa power - 10 days requirement	400,000
Obetors - one week of produce	417,000
	<hr/>
	9,249,500

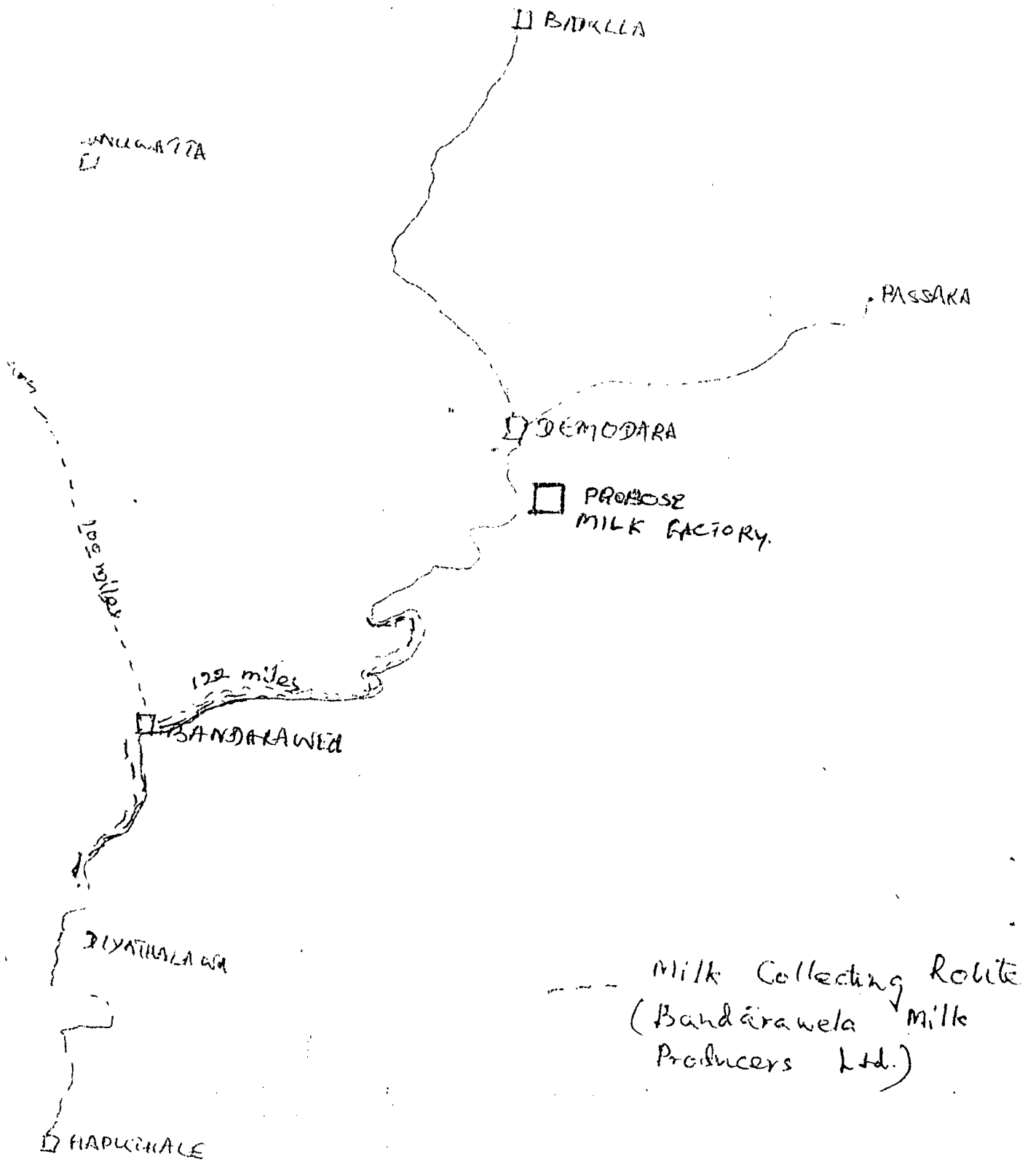
Net Present value: Rs. 4,367,000
24%

Cost Benefits Rate 2.68

Internal rate of return: = 20% + $\frac{1}{468} \times \frac{192}{468}$
= 20.4%

Pay Back Period : Three years and 08 months

SKETCH OF THE BANDARAWELA MILK PRODUCERS
SOCIETY LTD.



BREAK-EVEN ANALYSIS

FIRST STAGE OF THE PROJECT

VALUE

IN

R.S.

8000

6000

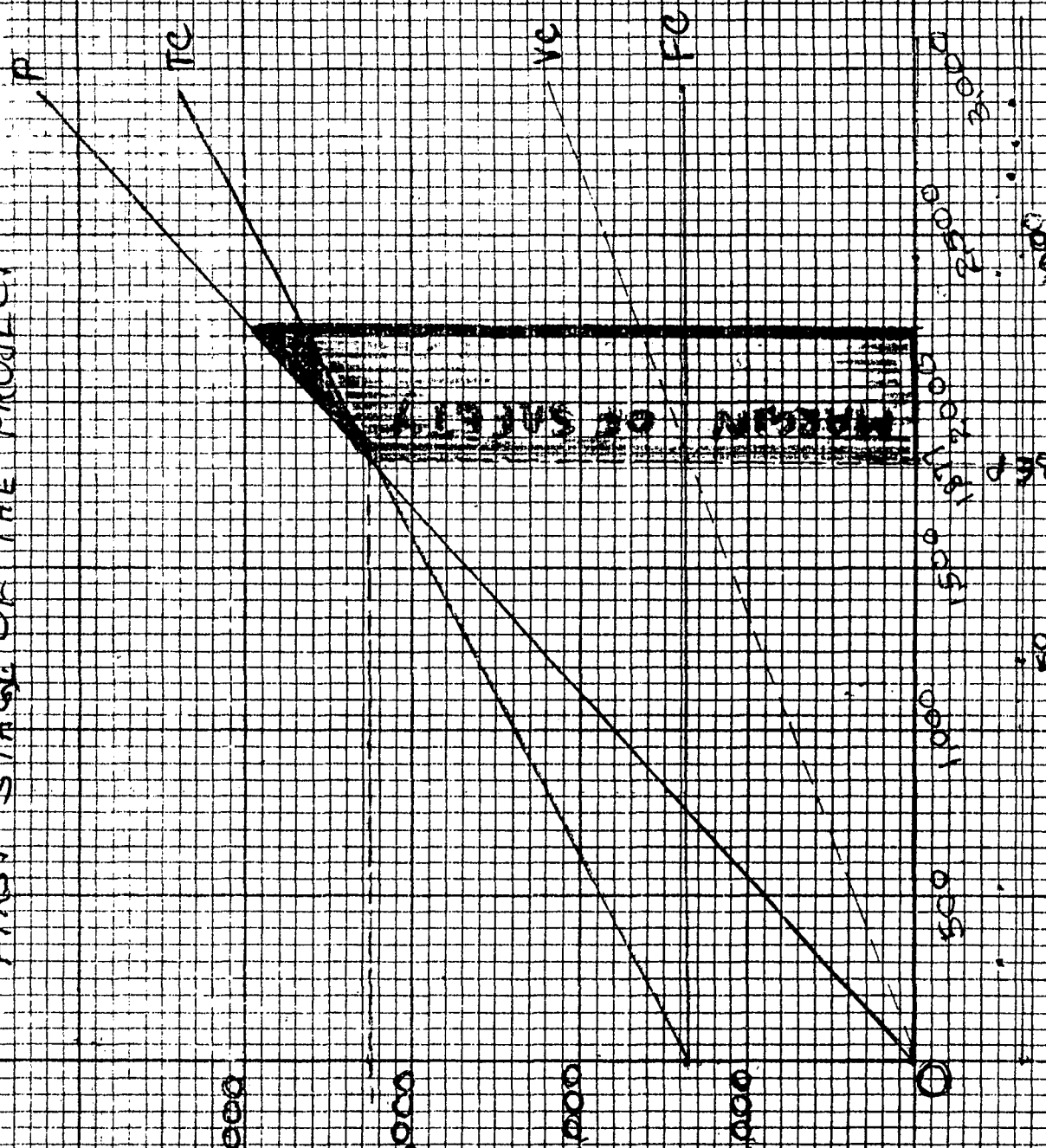
4000

2000

0

QUANTITIES

50



4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

Mr Sam Deerasinghe, Sri Lanka

(other than those included in group presentations)

1. Staff strength included in the project for implementation is too low. Require more staff if quality of processing and marketing is to be maintained.
2. Commodity movement from procurement stage to marketing is missing.
3. Government licensing for food processing and sale may be needed.
4. Organisation chart for first and second phases should be shown separately.
5. First phase operation of 300 lts per day is too low.
6. Backward integration needs strengthening.
7. Given the situation in Sri Lanka project seems viable. Regrouping and redrafting of project may be attempted.
8. Yogurt is a special product - technical ability, consistency and quality of flavour and product should be taken care of.
9. For preservation of milk before processing, no plans for refrigeration etc. provided for in the project.
10. Inflation angle has been taken care of. The report should be written in a more systematic manner.
11. Profitability of different components should be worked out. Transfer pricing has been attempted by author.

BACKGROUND

DAIRY P. SRILANKA 2/3/90

G. A

1. DETAILS OF SOCIETY (BANDARAWELA)

IS NOT GIVEN. MUST BE GIVEN BECAUSE

THIS SOCIETY WILL OPERATE THE PROJECT.
(PROFIT-LOSS, CAPITAL, BALANCE SHEET ETC.)

2. PROJECT WILL BE OPERATED BY BANDARAWELA

SOCIETY NOW AND LATER ON MILK

PRODUCER SOCIETY WILL BE FORM WHO START

PLAIN MILK AND FLAVOUR MILK PROJECT.

SUGGESTION: BANDARAWELA SOCIETY MUST ALSO DO

1 PHASE WORK DETAILS MUST BE GIVEN

FOR JUSTIFICATION OF ANOTHER SOCIETY.

3. BASIC DATA REGARDING DAIRY PRODUCTION

OF MILK IN THE AREA PREVIOUS TRENDS

FOR MARKETING STATISTIC MUST BE

GIVEN FOR JUSTIFICATION.

4. NOT MENTIONED THE OBJECTIVE OF THE PROJECT.

5. DETAILS OF PROMOTIONAL ACTIVITIES

ALSO NOT MENTIONED.

6. MILK IS A PERISHABLE COMMODITY COLLECTION

AND STORAGE PROG. NOT MENTIONED FOR

JUSTIFICATION.

7. THERE ARE PRODUCING MANY PRODUCTS,

DETAILS OF MARKETING STATISTIC

MUST BE GIVEN

Group B - Sri Lanka

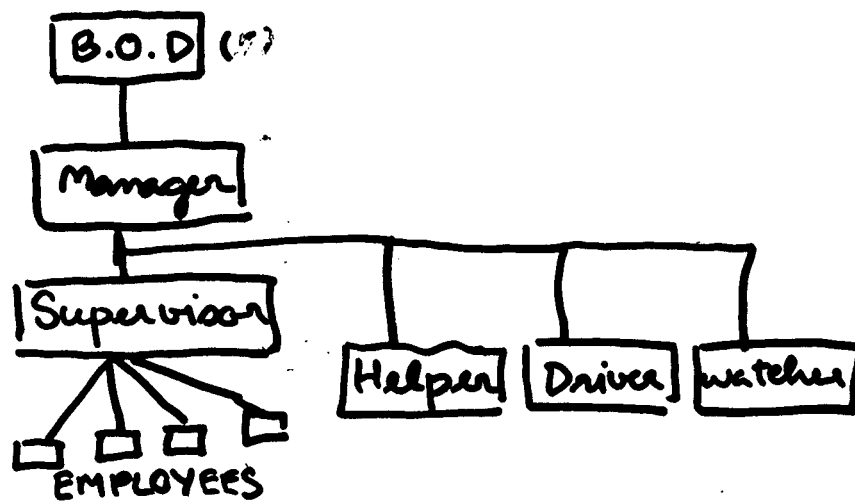
1. FINANCIAL STATEMENT HAVE NOT BEEN DRAWN UP SYSTEMATICALLY AND AS SUCH VERY DIFFICULT TO FIND RELATIONSHIP WITH EACH OTHER. HOWEVER THE STATEMENT SHOULD BE REGROUPED.
2. MANAGEMENT STAFF TOO SMALL
3. VARIABLE COST (PROPAGANDA, POSTAGE/STAMP, DELAGENTS) SHOULD NOT BE INCLUDED AS FIXED COST. (P.6)
4. MACHINERY TO BE IMPORTED NOT SHOWN IN FOREIGN CURRENCY.
5. CASH FLOW STATEMENT NOT CLEAR (PAGE 23)
(with no details)

2/3/90

GROUP C

DAIRY PROJECT

1) Should to show the organization chart. - 1st, 2nd stage.



2) Marketing, they must considered this element :-

- Advertisement
- Sales commission
- What kind of packing?
- Fat contain in the product.
- marketing in 2nd stage.

3) Member Participation

- Members participated in B.O.D.

♡♡♡♡♡♡♡♡

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	:	SERICULTURE PROMOTION AND RAW SILK PRODUCTION
<i>COUNTRY</i>	:	THAILAND
<i>PROJECT PREPARED BY</i>	:	JANSUDA WATCHARAYON

Funded by the Government of Japan

and

**Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and Korea**

ICA Management Training Project for Agricultural Cooperatives in Asia

INTERNATIONAL COOPERATIVE ALLIANCE

**Headquarters:
Route des Morillons 15
CH 1218 , Le Grand Saconnex
Geneva, Switzerland**

**Regional Office for Asia:
43 Friends Colony (East)
New Delhi 110 065
India**

ACKNOWLEDGEMENTS

THIS PROJECT PROPOSAL FOR "SERICULTURE PROMOTION AND RAW SILK PRODUCTION" IS A REQUIREMENT FOR THE ACCOMPLISHMENT OF THE "TRAINING COURSE FOR STRENGTHENING MANAGEMENT OF AGRICULTURAL COOPERATIVE IN ASIA" SPONSORED BY THE INTERNATIONAL COOPERATIVE ALLIANCE (ICA).

DURING OUR TRAINING COURSE IN ICA REGIONAL OFFICE IN NEW DELHI I WOULD LIKE TO THANK TO ALL RESOURCE PERSONS WHO TRIED HARD TO GIVE US KNOWLEDGEMENT AND ALSO ALL ICA OFFICERS WHO WILLINGLY ASSIST US AND WITH DEEP EXPRESS GRATITUDE TO MR. M.V. MADANE, PROJECT DIRECTOR, WHO TRIED HIS BEST TO HELP AND ENCOURAGE US TO GAIN BENNEFIT FROM THIS TRAINING COURSE.

A SPECIAL WORDS OF THANKS IS DUE TO :-

1. MR. SONGPHOL KONG - ASA CPD. DISTRICT OFFICER, MS. WILAI PORN BHOCHAI MANAGER, AND ALL COMITTEE BOARD OF CHAKARAJ COOPERATIVE LIMITED.
2. MR. PATIPARN SAI - AROON, INDUSTRIAL PROMOTION DIVISION
3. MR. PINAI HONGTONGDAENG, SERICULTURE TRAINING AND RESEARCH CENTER OF NAKORNRAJSIMA PROVINCE.
4. MR. PIENLERT WONGBHIROMSANT, RESEARCH OFFICER BANK OF AGRICULTURAL AND AGRICULTURAL COOPERATIVE.
5. OFFICERS OF SERICULTURE SECTION, CROP PROMOTION DIVISION, DEPARTMENT OF AGRICULTURAL EXTENSION.
6. MR. BHANUWAT NA - NAKORN BHANOM AND MR. TAWORN SUPANAWAN FROM THE COOPERATIVE PROMOTION DEPARTMENT, THE 2ND ICA PARTICIPANT FROM THAILAND.

JANSUDA WATCHARAYON

FEBRUARY 1990

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CHAPTER 1

SUMMARY

1. THE PROJECT FOCUS ON PROMOTED MEMBER TO CULTIVATE MULBERRY AND REARING SILKWORM IN THE FIRST THREE YEAR, IN THE FORTH YEAR THE COOPERATIVE CAN ESTABLISH SILK REELING FACTORY. THE PROJECT WILL BE OPERATED BY THE CHAKARAJ COOPERATIVE LIMITED.

THE CHAKARAJ COOPERATIVE LIMITED IS LOCATED IN CHAKARAJ DISTRICT, NAKORNRAJSIMA PROVINCE IN NORTHEAST, ABOUT 275 KM. FROM BANGKOK.

THE CHAKARAJ COOPERATIVE IS COVERED 11 TAMBOL (SUB DISTRICT) OF CHAKARAJ DISTRICT WITH AGRICULTURAL AREA 280, 326 RAIS (2.6 RAIS EQUAL TO 1 ACRE) WHICH IS IRRIGATED BY CANAL FROM 2 RIVERS.

THE CHAKARAJ COOPERATIVE HAS 1,600 MEMBERS, THEIR OCCUPATION ARE CULTIVATED PADDY CASAVA AND ANIMAL RAISING, WHICH GIVE VERY LOW INCOME. SO THE COOPERATIVE TRY TO PROMOTE THE NEW OCCUPATION THAT IS SERICULTURE WHICH GIVE HIGHER INCOME IN A SHORT PERIOD. ACCORDING TO THE PEOPLE IN THE NORTHEAST KNEW ABOUT SERICULTURE FOR A LONG TIME AND THE CLIMATE IS VERY SUITABLE FOR SERICULTURE.

2. THE OBJECTIVE OF THE PROJECT ARE INCREASE INCOME OF THE MEMBER BY PROMOTED THEM TO CULTIVATE MULBERRY AND REARING SILKWORM, THIS IS RELATED TO THE GOVERNMENT POLICY TO PROMOTE SERICULTURE AND RAW SILK PRODUCTION FOR DECREASE IMPORTED FROM ABROAD.

3. THE PROJECT COMPONENT CONSIST OF :

3.1 SERICULTURE PROMOTION

THE CHAKARAJ COOP. WOULD LAUNCH THE PROJECT AT 5 SUB DISTRICT CONSIST OF 11 GROUPS OF MEMBERS, BY SELECTING 300 MEMBERS TO JOIN THE PROJECT. THE COOPERATIVE WOULD PROVIDED LOAN FROM THE COOPERATIVE PROMOTION DEPARTMENT AT INTEREST RATE OF 6% AND DISBURSE TO THE MEMBER AT INTEREST RATE OF 8% THE AMOUNT OF LOAN IS 45.99 MILLION BAHTS FOR INVESTMENT COST AND 3.57, 7.91 AND 12.05 FROM THE FIRST TO THE THIRD YEAR CONSEQUENTLY FOR OPERATING COST.

THE PROJECT MEMBER HAS TO CULTIVATE MULBERRY 12 RAIS AND REARING SILKWORM 2 CROPS IN THE FIRST YEAR, 4 CROPS IN THE SECOND YEAR AND 6 CROPS IN THE THIRD YEAR FORWARD. THE MEMBER WOULD SELL THEIR COCOON TO THE COOP. AT THE PRICE OF 90 ฿/KG. THEN IN THE FIRST YEAR THE MEMBER CAN GET INCOME 28,080 ฿; THE SECOND YEAR 60,480 ฿ AND 97,200 ฿ IN THE THIRD YEAR.

INVESTMENT ANALYSIS FOR FARMER MEMBER

IRR 27.85%

NPV AT 12% 116,474

NPV AT 15% 82,779

BENEFIT : COST RATIO AT 12%

PV OF BENEFITS 458,214.4

PV OF COSTS 327,763.7

DENEFIT COST RATIO 1.4

PAY BACK PERIOD 4 YRS.

3.2 RAW SILK PRODUCTION

AFTER RUN THE SERICULTURE PROMOTION FOR 3 YEARS THE MEMBERS COULD PRODUCE SUFFICIENT COCOON WHICH THE COOP. COULD ESTABLISH SILK REELING FACTORY. THIS BUSINESS NEEDS FUND FOR OPERATING COST 33.15 MILLION BAHTS AND INVESTMENT COST 12.97 MILLION BAHTS. THE AMOUNT OF THIS LOAN THE COOPERATIVE WOULD PROVIDED FROM THE BANK OF AGRICULTURAL AND AGRICULTURAL COOPERATIVE AT THE INTEREST RATE OF 9.5%

THE PROJECT MEMBERS CAN PRODUCE COCOON 324,000 KGS. IN A YEAR, AND THEY CAN SELL 90 ฿/KG . THE MACHINE CAN PROCESS 600 KG. OF COCOON/SHIFT IT WOULD WORK 2 SHIFTS/DAY. EACH SHIFT IS OF 8 HOURS, IN ONE YEAR IT HAS 270 WORKING DAYS. THE MACHINE CAN PRODUCE 43,200 KGS. OF RAW SILK WHICH IT COULD SELL 1100 ฿/KG ., SO VALUE OF RAW SILK IS 47.52 MILLION BAHTS.

INVESTMENT ANALYSIS FOR SILK REELING FACTORY

IRR > 50%

NPV AT 10% 72,730,858

BENEFIT COST RATIO 1.46

BREAK EVEN REVENUE 7,498,612

BREAK EVEN POINT 6,816.92

PAY BACK PERIOD 1.9 YEAR

CHAPTER 2

BACKGROUND

1. OVERALL SITUATION

THE SERICULTURE IN THAILAND ESPECIALLY IN THE NORTHEAST, THOUGH IT HAS A LONG HISTORY, IS LOW IN THE TECHNICAL LEVEL, PRODUCING RAW SILK IN A SMALL QUANTITY. IT APPEARS THAT THAI SERICULTURE AS AN INDUSTRY, HAS BEEN DORMANT FOR A LONG TIME. IT IS BECAUSE FARMER ARE PRODUCING COCOON NOT FOR EARNING CASH, BUT FOR SUPPLYING THEIR OWN USE WHICH IS NATURALLY SMALL IN QUANTITY. AS AVERAGE FARMER YIELDS ONLY A FEW KG OF COCOON IN A SEASON. APPENDIC 1

THE AGRICULTURAL PROMOTION DEPARTMENT TRY TO PROMOTE MULBERRY CULTIVATING, REARING SILKWORM, DEVELOP RAWSILK QUALITY AND INTEGRATED THE FARMER FOR OPERATING MARKETING SYSTEM. UNTIL THERE IS THE FARMER CULTIVATE MULBERRY AND REARING SILKWORM 400,000 HOUSEHOLDS. CULTIVATE MULBERRY 300,000 RAIS IN 46 PROVINCE IN THAILAND ESPECIALLY 17 PROVINCE IN NORTHEAST. WHICH CAN GET RAWSILK 987,057 KG. OF VALUE NOT LESS THAN 500 MILLION BAHTS. (1988). APPENDIC 2

AT PRESENT THE NEEDS OF RAW SILK IN THE COUNTRY IS INCREASINGLY DUE TO THE EXPANSION OF EXPORT SILK CLOTH AND SILK PRODUCT AND ALSO DUE TO INCREASE IN INTERNAL CONSUMPTION. DUE TO MORE EXPORT SILK COMMODITIES, BUT THE QUANTITY OF RAW SILK PRODUCE IN THE COUNTRY IS NOT SUFFICIENT SO WE HAVE TO IMPORT RAW SILK FROM ABROAD. APPENDIC 3

AS CLEARLY SHOWN BY THAI SERICULTURE, IT IS NECESSARY TO MAKE COCOON A CASH CROP, IF SERICULTURE IS TO BE PROMOTED. FOR THE PURPOSE THERE MUST BE A NEW STRUCTURE THROUGH WHICH COCOON IS SOLD AND BOUGHT. IN OTHER WORDS, FARMERS MUST BE ENSURED THAT THEY CAN ALWAYS SELL COCOON. WHICH MEANS THAT SILK REELING FACTORY MUST EXIST IN THE COUNTRY. APPENDIC 4

2. THE AREA OF THE PROJECT

THE CLIMATE IN THE NORTH EAST IS VERY SUITABLE FOR CULTIVATING MULBERRY AND REARING SILKWORM. IN NAKORNRAJSIMA PROVINCE THE LAND IS COMPOSED WITH FERTILE SOIL WITH SANDY TEXTURE. IT RAINS FOR 6 MONTHS FROM MAY TO OCTOBER EVERY YEAR WITH AN AVERAGE RAINFALL OF 1,137.4 MM/YEAR, MAXIMIZE IN SEPTEMBER AVERAGE 310.0 MM. AND MINIMIZE IN DECEMBER, TEMPERATURE AVERAGE 26.4°C. APPENDIC 5

THE AREA OF THE PROJECT IS AT CHAKARAJ COOPERATIVE LIMITED WHICH IS IN THE DISTRICT OF NOKORNRAJSIMA PROVINCE IN THE NORTHEAST OF THAILAND. (275 KM. FAR FROM BANGKOK)

THE PROJECT AREA SPREAD ALL OVER FIVE TAMBOL NAMELY KLONG MUANG, SRI LAKOR, SRISUG, THACHANG AND NONG YANG. IN THIS AREA HAS MORE THAN 5,000 RAIS THAT CAN CULTIVATING MULBERRY. IT HAS 13 GROUPS OF MEMBER WHICH IS CULTIVATE CASAVA, JUTE, PADDY AND GROUNDNUT. SOME OF THEM STARTING CULTIVATE MULBERRY FOR SALE ONLY. APPENDIC 6

GENERAL DATA OF THE AREA

- CHAKARAJ DISTRICT COVER 11 TAMBOL (MEANS 11 SMALL DISTRICT)
- POPULATION 89,092 (WHICH IS COME TO COOP. MEMBER 1,600)
- AGRICULTURAL AREA 280,326 RAIS (2.6 RAIS = 1 ACRE)
- OCCUPATION - CULTIVATE PADDY, CASAVA, JUTE AND GROUNDNUT.
 - ANIMAL RAISING - PIG, COW, BUFFALO AND POULTRY
- TRANSPORTATION TRAIN AND ROAD
- IRRIGATION-- 2 RIVERS NAMELY MOOL AND LUM CHAKARAJ THAT CAN IRRIGATED BY CANAL.
- SOCIAL HABIT - PEOPLE SPEND THEIR LIFE PEACEFUL THAT CAN BE ATTEND GROUP ACTIVITY AND CAN FOLLOW THE LEADER MANAGEMENT.

3. PROBLEM FACED BY THE FARMER

1. DUE TO FLUCTUATING OF CASAVA PRICES AND NOT SO SUCCESSFUL IN OTHER CROPS THE MEMBER SUFFER AND THEY CANNOT REPAY LOAN TO THE COOP.

2. THE LIMITED MONEY OF THE FARMERS. THEY WILL SELL THEIR PRODUCT AS SOON AS POSSIBLE AFTER FINISHED HARVEST TIME BECAUSE THEY NEEDS MONEY, TO PLANT HIS PLANTATION IN NEXT PLANTING SEASON. THAT MAKES THEY GET UNREASONABLE PRICES.

3. THERE IS NO CIRCLE AMONG ACTIVITIES OF CREDIT, INPUT SUPPLY PROCESSING AND MARKETING OF ALL THEIR PRODUCTION.

4. THERE'S NO SPECIALIST IN EACH CROP TO CONSULT THEIR PROBLEMS DURING THE PLANTATION.

5. THE RELATIONSHIP BETWEEN THE FARMERS AND THE COOPERATIVE ARE STILL NOT GOOD AND THE FARMERS DOESN'T TRUST THE COOPERATIVE IN ITS HANDLING THE FARMERS PRODUCT ARE STILL NOT SHOWING A REALITY INCREASING INCOME, SO THEIR PARTICIPATION ARE STILL LOW.

6. THE MEMBER SELL THEIR PRODUCT THROUGH THE MLDDLEMEN THAT REDUCE THEIR PRICE UNREASONABLE.

4. NEED AND JUSTIFICATION FOR THE PROJECT.

1. ACCORDING TO THE NAKORNRAJSIMA GOVERNER HAS POLICY THAT THAT SERICULTURE SHOULD BE INTRODUCED, DEVELOPED AND PROMOTED TO THE FARMER. THE CHAKARAJ COOPERATIVE AGREED TO THIS BY INCREASING IN COME OF THE MEMBER TO REAR SILKWORM INSTEAD OF CULTIVATE OTHER CROP WHICH GIVES LOW INCOME. APPENDIC 7

2. THE PROBLEM FACED BY THE MEMBER THE COOPERATIVE TRY TO SOLVE THE PROBLEM AND FOUND THAT THIS OCCUPATION GIVES HIGH INCOME AND REGULAR EARNING IN SHORT PERIOD. BECAUSE OF IN SERICULTURE. THE MORE COCOONA FARMER PRODUCES THE HIGHER INCOME THEY GET.

3. THE ACTIVITY TO INCREASE INCOME OF MEMBER FARMERS SHOULD BE THROUGH INTEGRATED COOPERATIVE SYSTEM BY

- GUIDANCE AND COUSELING TO THE MEMBERS IN DOING THEIR FARMING.
- THE PREPARATION OF CREDIT TO THE MEMBERS FARMERS AS MUCH AS THEY NEED AND MAKE IT IN TIME.
- BY PREPARING INPUT SUPPLY WITH LOWER PRICE.

4. RELATED TO THE PROBLEM ABOUT INCOME, THE SERICULTURE CAN SOLVE THAT BECAUSE OF INCOME OF SERICULTURE IS VERY HIGH IN SHORT PERIOD.

5. ON PROCESSING UNIT CAN ENSURED TO MEMBER THAT THEY HAS MARKET TO SELL THEIR PRODUCT.

CHAPTER 3

PROJECT

1. THE OWNER OF THE PROJECT

THE CHAKARAJ COOPERATIVE LIMITED

2. PROJECT SITE

CHAKARAJ DISTRICT NAKORNRAJSIMA PROVINCE

3. PROJECT PERIOD

FROM YEAR 1991 - 2000 FOR SERICULTURE PROMOTION

FROM YEAR 1994 - 2004 FOR PROCESSING FACTORY

4. OBJECTIVE OF PROJECT

A. TO INCREASE MEMBERS INCOME BY PROMOTING THE SERICULTURE OCCUPATION TO COOP. MEMBERS INSTEAD OF GROWING ANOTHER CROP WHICH GIVES LOW INCOME.

B. TO IMPLEMENT THE PROVINCIAL POLICY OF SERICULTURE PROMOTION AND RAW SILK PRODUCTION INDUSTRY IN THE COUNTRY.

5. AREA OF OPERATION

THE PROJECT WILL BE CONDUCTED IN AREA OF CHAKARAJ COOPERATIVE WITH 300 HOUSEHOLDS OF MEMBERS IN AREA OF CULTIVATING MULBERRY 3600 RAIS THAT'S MEAN 12 RAIS EACH.

6. PROJECT COMPONENTS

THE OPERATION WOULD BE DEVIDED INTO 2 STEPS.

A. SERICULTURE PROMOTION

TO PROMOTE COOP. MEMBER TO DO SERICULTURE IN SUBSTITUTION OF ORIGINAL OCCUPATION BY CULTIVATE MULBERRY FOR REARING SILKWORM TO PRODUCE COCOON.

THE COOP. WILL SUBMIT THE PROJECT TO COOPERATIVE PROMOTION DEPARTMENT (CPD) FOR LONG TERM LOAN OF 45.99 MILLION BAHTS AND SHORT TERM LOAN OF 3.57, 7.91, 12.05 IN THREE YEARS CONSEQUENTLY THEN GIVE LOAN TO THE PARTICIPATING MEMBERS FOR CAPITAL INVESTMENT AND OPERATING COST.

THE COOP. WILL PROVIDE LOAN IN FORM OF CREDIT IN CASH AND IN KIND FOR PREVENTING THEM FROM USING LOAN FOR OTHER PURPOSES.

IN FIRST 3 YEAR, THE COOPERATIVE WILL PROCURE ALL COCOON PRODUCED BY MEMBERS AT PRICE OF 90 BAHTS PER KILOGRAM AND SELL IT TO THE SILK REELING FACTORY AT A PRICE OF 95 BAHTS PER KILOGRAM. THE PROFIT MARGIN IS NEEDED FOR OPERATING COST AND TO BUILD RESERVE FUND.

B. RAW SILK PRODUCTION

IN THE FOURTH YEAR THE COOP. CAN ESTABLISH SILK REELING FACTORY. THE INVESTMENT IS 19.83 MILLION BAHTS WHICH WOULD BE FINANCED AS 3.85 MILLION BAHTS OF RESERVED FUND (RETAINED PROFITS) DURING LAST 3 YEARS, 3.31 MILLION BAHTS OF SHARE VALUES AND 12.65 MILLION BAHTS LOAN FROM BANK OF AGRICULTURAL AND AGRICULTURAL COOPERATIVE (BAAC).

COOPERATIVE PROCURE ALL COCOON PRODUCED BY MEMBERS AT AN AVERAGE PRICE OF 90 BAHT/KG. TO PRODUCE RAW SILK BY PROCESSING OF COCOON AND SELL IT TO TEXTILE FACTORIES AT AN AVERAGE PRICE OF 1100 BAHT/GK. WHICH IS NOT LOWER THAN GOVERNMENT FIXED PRICE. APPENDIC 8

CHAPTER 4

DETAILS OF OPERATION

AS MENTIONED IN CHAPTER 3 THAT THE PROJECT CHARACTER HAS 2 STEPS.

STEP 1 SERICULTURE PROMOTION

1. THE PROJECT MANAGER HAS TO STUDY FEASIBILITY IN DETAILS OF THIS PROJECT AND SUBMIT TO THE BOARD OF DIRECTOR TO APPROVE AS THE COOPERATIVE PLAN.

LS

2. HELD THE MEMBER'S GROUP MEETING TO INFORM ABOUT THE DETAIL OF PROJECT OPERATION, RESTRICTION AND BENEFIT THAT THEY CAN GET FROM THE PROJECT. THAT IS THE DATA CAN HELP THEM MAKE DECISION THE MANAGER WILL ALSO TO SEE THEIR AREA OF CULTIVATING MULBERRY. THEN SELECT 300 MEMBERS. (CHAKARAJ COOP. HAS 1,600 MEMBERS)

3. SUBMIT THE PROJECT TO COOPERATIVE PROMOTION DEPARTMENT (CPD) FOR LOAN AND REFUND TO PROJECT MEMBERS FOR INVESTMENT COST AND OTHER EXPENSES.

4. ARRANGE FUNDS TO FINANCE THE PROJECT.

4.1 LONG TERM LOAN

COOPERATIVE WILL BORROW LONG - TERM LOANS FROM CPD. WITH THE AMOUNT OF 45.99 MILLION BAHTS AT 6% PER ANNUM OF INTEREST RATE AND DISBURSE IT TO PROJECT MEMBERS AT 8% PER ANNUM FOR INVESTMENT COST.

INVESTMENT ON CULTIVATING MULBERRY 12 RAIS	18,700 BAHTS	
SERICULTURE TRAINING	7,700 BAHTS	
SILKWORM REARING HOUSE AND EQUIPMENT	119,600 BAHTS	
TOTAL INVESTMENT 1 PROJECT MEMBER	146,000 BAHTS	
300 PROJECT MEMBER	43,800,000 BAHTS	43,800,
SHARE HOLDING WITH COOPERATIVE	2,190,000 BAHTS	
TOTAL LONG TERM LOAN	45,990,000 BAHTS	

ACCORDING TO COOPERATIVE'S REGULATION, EVERY 1,000 BAHT OF LOAN PROVIDE TO MEMBER HAVE TO HOLD SHARE 50 BAHT. APPENDIC 9

4.2 SHORT TERM LOAN FROM CPP AT THE SAME RATE OF INTEREST AND PROVIDE TO PROJECT MEMBER FOR OPERATING COST.

FIRST YEAR NEEDS 3.57 MILLION BAHTS TO GIVE TO EACH MEMBER 11,360 BAHTS.

SECOND YEAR NEEDS 7.91 MILLION BAHTS AND GIVE TO EACH MEMBER 25,120 BAHTS.

FROM THE THIRD YEAR COOPERATIVE NEEDS 12.05 MILLION BAHTS FOR EACH MEMBER 38,280 BAHTS. APPENDIC 10

FOR THE SHORT TERM LOAN THE COOPERATIVE HAS TO RECIEVE REPAYMENT FROM THE PROJECT MEMBERS TO REPAY TO CPD. IN 1 YEAR.

5. AFTER MAKING THE COMITMENT WITH THE COOP. THE MEMBER HAS TO ATTEND THE TRAINING COURSE OF REARING SILKWORM FOR ABOUT 35 DAYS. IF NOT QUALIFIED TO REAR THEY HAS TO ATTEND REVISED COURSE FOR 10 DAYS.

6. THE PROJECT MEMBER HAS TO CONSTRUCT STANDARD REARING HOUSE MEASURING $8 \times 16 \text{ M}^2$ AS PER PROJECT PLAN. APPENDIC 11

7. TO REAR SILKWORM AS PER THE ACTION PLAN EACH CROP TAKES 26 DAYS.

8. COCOON PRODUCTION

ALL THE PROJECT MEMBERS HAVE TO FOLLOW THE PRODUCTION PLAN WHICH IS SET UP BY THE COOPERATIVE. THAT IS THEY HAVE TO REAR HYBRID SILK EGGS. THE PROJECT MEMBERS HAVE TO CULTIVATE MULBERRY IN AREA OF 12 RAIS EACH WHICH CAN REAR AT LEAST 6 BOXES SILKWORM EGGS. (1 BOX INCLUDE 20,000 SILKWORM EGGS; GENERALLY 1.2 - 1.5 RAIS OF MULBERRY CAN REAR 1 BOX). IN ONE YEAR MEMBER CAN REAR AT LEAST 6 CROPS AS ONE CROP TAKES ONLY 26 DAYS. THE COOPERATIVE HAS TO SET UP THE ACTION PLAN FOR ALL MEMBERS TO REAR IN THE SAME TIME. IN THE FIRST YEAR OF PROJECT, MEMBERS WILL REAR ONLY 2 CROPS BECAUSE OF MULBERRY WILL FULLY GROW DURING OCTOBER AND NOVEMBER WHICH ARE LAST 2 MONTHS TO REAR SILK WORM. (BEFORE REARING IT TAKES 6 - 7 MONTHS FOR GROWING OF MULBERRY.) IN THE SECOND AND THIRD YEAR ONWARD THE CROPS WILL INCREASE UP TO 6 CROPS. APPENDIC 12

THE COOP. HAS THE SPECIALIST ON MULBEERY AND SILKWORM TO ADVICE TO THE MEMBER.

9. PROJECT FUND

AFTER SELLING COCOON TO COOP. THE PROJECT MEMBER WILL CONTRIBUTE 0.50 ฿/KG . OF COCOON SELLING TO THE PROJECT FUND.

THE OBJECTIVES OF PROJECT FUND ARE :-

1. FOR EXPENSES ON PROJECT OPERATION TO ACHIEVE THEIR AIMS.
2. FOR EXPENSES TO ASSIST THE PROJECT MEMBER WHO FACED NATURAL DAMAGED.
3. FOR EXPENSES ON USEFUL ACTIVITIES TO ALL MEMBERS.

THE PROJECT FUND WILL BE MANAGED BY THE REPRESENTATIVE OF GROUP MEMBER AND THE PROJECT FUND WILL DEPOSIT IN THE COOPERATIVE.

YEAR	PROJECT MEMBER	COCOON PRODUCED KG./MBR./YR.	PROJECT FUND BAHT/MBR/YR.	TOTAL	PROJECT FUND BAHT/YR.
1	300	312	156		46,800
2	300	672	336		100,000
3 - 10	300	1,080	540		162,000

10. PROCUREMENT AND MARKETING

THE PROJECT MEMBERS HAVE TO SELL ALL OF THEIR COCOON THROUGH THE COOP. TO CHUL THAI SILK COMPANY, THAI SILK PRODUCT AND BOONMA THAI SILK. THE COOP. WILL PROCURE FROM MEMBERS AN AVERAGE PRICE OF 90/KG. AND SELL AN AVERAGE PRICE OF 95/KG. (THE COCOON PRICE FIXED BY GOVERNMENT IN DIFREENT PRICES DEPEND ON THE PERCENTAGE OF COCOON SHELL AND PERCENTAGE OF ABNORMAL COCOON.) THE PROFIT OF 5B/KG. IS FOR THE EXPENSES AND RESERVED FUND IN ORDER TO ESTABLISH PROCESSING UNIT IN THE FOURTH YEAR.

YEAR	MEMBERS	COCOON PRODUCE KG./MBR./YR.	INCOME PER MEMBER	COOP'S PROFIT PER MEMBER	TOTAL COOP'S PROFIT	EXPENSES 1 B/KG.	COOP'S NET PROFIT
1	300	312	28,080	1,560	468,000	93,600	374,400
2	300	672	60,480	3,360	1,008,000	201,600	806,400
3 - 10	300	1,080	97,200	5,400	1,620,000	324,000	296,000
TOTAL							2476800

11. REPAYMENT OF LOAN

11.1 SHORT TERM LOAN : THE PROJECT MEMBERS HAVE TO REPAY ALL THE AMOUNT OF SHORT TERM LOAN AND INTEREST WITHIN 1 YEAR.

11.2 LONG TERM LOAN : THE PROJECT MEMBERS WILL GET 2 YRS. OF GRACE PERIOD TO PAY PRINCIPAL. THE TOTAL LOAN AMOUNT WITH INTEREST WOULD BE PAID WITHIN 5 YEARS.

12. SELLING OF INPUT SUPPLY

PROJECT MEMBERS RECEIVE LOAN IN THE FORM OF PRODUCTION INPUT SUPPLIES INORDER TO PREVENT THEM FROM USING LOAN FOR OTHER PURPOSES THE COOPERATIVE SOCIETY WILL BUY ALL THE SUPPLIES DIRECTLY FROM PRODUCERS AND

NOT FROM THE MIDDLEMEN TO BUY CHEAP. IT WOULD SELL THESE SUPPLIES TO PROJECT MEMBERS AT A MARGIN OF 3%, THAT WILL BE KEPT AS RESERVED FUND FOR RAW SILK PROCESSING. APPENDIC 13

STEP 2 RAW SILK PRODUCTION

IN THE THIRD YEAR OF PROJECT, MEMBERS WOULD PRODUCE COCOON WHICH WOULD BE SUFFICIENT TO ESTABLISH SILK REELING FACTORY. IN THIS PERIOD THE COOPERATIVE HAS OWN FUND FROM :

- SHARE HOLDING	3,311,400.- BAHTS
- PROFIT OF COCOON BUSINESS	2,476,800.- BAHTS
- PROFIT OF CREDIT AND INPUT SUPPLY	769,320.- BAHTS
TOTAL COOPERATIVE FUND	6,557,520.- BAHTS
INVESTMENT COST	19,531,000.- BAHTS
COOPERATIVE OWN FUND	6,557,520.- BAHTS
LOAN REQUIREMENT	12,973,480.- BAHTS

1. LOAN REQUIREMENT

1.1 LONG TERM LOAN : COOPERATIVE REQUIRES 12.97 MILLION BAHTS FOR INVESTMENT COST THAT WILL BORROW FROM BANK OF AGRICULTURAL AND AGRICULTURAL COOPERATIVE (BAAC) WITH INTEREST 9.5% PER ANNUM WHICH IS LOWER THAN COMMERCIAL BANKS. REPAYMENT PERIOD IS 6 YEARS.

1.2 SHORT TERM LOAN : COOPERATIVE REQUIRES FOR OPERATING COST AMOUNT OF 33.15 MILLION BAHTS WHICH WOULD BE BORROWED AS SHORT-TERM LOAN. THIS LOAN WILL ALSO BORROW FROM BAAC.

2. PROCUREMENT : COOP. WILL PROCURE ALL COCOONS PRODUCED BY PROJECT MEMBERS WITH THE AVERAGE PRICE OF 90 B/KG.

3. RAW SILK PROCESSING : THE PROCESSING OF RAW SILK CONSIST OF
A. COCOON DRYING IN ORDER TO KILL PUPAE INSIDE COCOON TO PREVENT THEM BECOME BUTTERFLIES AND ALSO TO ADJUST MOISTURE OF OUTER AND INNER COCOON.

B. COCOON STORAGE : DRIED COCOONS WHICH ARE WAITING FOR PROCESSING SHOULD BE KEPT IN COCOON STORAGE WHICH CAN BE KEPT FOR 8 MONTHS.

C. COCOON COOKING : TO PULL OUT SILK FIBER FROM COCOONS EASILY BY BOILING TO MELT "SERICIN".

D. REELING : TO PULL OUT SILK FIBER FROM COCOONS.

E. RE - REELING : TO EXPAND SILK FIBER.

F. TWISTING YARN OF SILK : TO INCREASE THE ELASTICITY OF SILK FIBER AND MAKE IT ROUND.

G. TWISTING FIXING OR SETTING : TO PREVENT FIXED STRAND FROM LOOSENING.

H. RE-WINDING : REWIND SILK THREAD TO INCREASE THE SIZE.

APPENDIC 14

TO PROCESS RAW SILK USES 7.5 KG. OF COCOON TO PRODUCE 1 KG. OF RAW LILK. RAW SILK CAN BE SOLD AT AN AVERAGE PRICE OF 1,100 B/KG. WHICH IS FIXED BY GOVERNMENT. IN 1 YEAR THE PROJECT MEMBERS CAN PRODUCE 324,000 KG. OF COCOONS. THE MACHINE CAN PROCESS 600 KG. OF COCOONS/SHIFT. THE MACHINE WORKS 2 SHIFTS A DAY. EACH SHIFT IS OF 8 HRS.

SO PROCESSING MACHINE CAN PRODUCE 160 KG. OF RAW SILK DAY ASSUMING 270 WORKING DAYS IN A YEAR. IN ONE MONTH PROCESSING MACHINE CAN PRODUCE 3,600 KG. OF RAW SILK OF THE VALUE 3.96 MILLION BAHTS IN 1 YEAR THE PROCESSING MACHINE CAN PRODUCE 43,200 KG. OF RAW SILK WITH VALUE 47.52 MILLION BAHTS.

4. BY PRODUCT

THE WEIGHT OF PUPAE INSIDE COCOON IS 35% OF COCOON WEIGHT, IN 1 YEAR OF COCOON PROCUREMENT 324,000 KGS. THE WEIGHT OF PUPAE IS 113,400 KGS. THESE PUPAE WE CAN SELL TO FISHERY FARM OR ANIMAL FEED PLANT WITH THE PRICE OF 8 BAHT/KG., THE VALUE OF PUPAE IS 907,200 BAHTS/YR. OR 75,600 BAHTS/MONTH.

5. REVENUE

- MACHINE CAN PRODUCE 600 KG. OF COCOON PER SHIFT
- IN 1 DAY CAN PRODUCE 2 SHIFTS
- IN 1 YEAR HAS 270 WORKING DAYS
- 7.5 KG. OF COCOON CAN PRODUCE 1 KG. OF RAW SILK
- PRODUCTION OF RAWSILK

$$\begin{aligned} \frac{600 \times 2 \text{ SHIFTS}}{7.5} &= 160 \text{ KG. PER DAY} \\ &= 160 \text{ KG.} \times 270 \text{ DAYS.} \\ &= 43,200 \text{ KG.} \end{aligned}$$

- VALUE OF SILK
- $43,200 \times 1,100 = 47,520,000$
- REVENUE FROM RAW SILK = 47,520,000 BAHTS

- PUPAE INSIDE COCOON IS 35% OF COCOON WEIGHT
- 324,000 OF COCOON WEIGHT HAS PUPAE = $324,000 \times .35$
= 113,400

- VALUE OF PUPAE 8 B /KG. = $113,400 \times 8$
- REVENUE FROM PUPAE = 907,200

- TOTAL REVENUE = $47,520,000 + 907,200$
= 48,427,200 BAHTS PER YEAR

6. REPAYMENT OF LOAN

THE COOPERATIVE WILL REPAY THE LONG TERM LOAN AND ITS INTEREST (9.5%) IN 6 YEARS PERIOD.

7. DIVIDEND

NET PROFIT SHOULD BE DIVIDED FOR DIFFERENT PURPOSES AS:-

(A) BONUS TO THE PROJECT MANAGERS : 2% OF NET PROFIT.

(B) BONUS TO BOARD OF DIRECTORS AND MANAGING STAFF : 2% OF NET PROFIT.

(C) OTHER FUNDS : 10% OF NET PROFIT FOR :-

1. EDUCATION AND TRAINING FOR MEMBERS, MANAGING STAFF AND BOARD OF DIRECTORS.

2. WELFARE OF MEMBERS AND THEIR FAMILIES.

(D) RESERVE FUND : 50% OF NET PROFIT IS REQUIRED FOR :-

1. YOUNG SILKWORM PRODUCTION

2. PROVIDING LOAN FOR EXPANSION OF PROJECT MEMBERS TO ALL COOPERATIVE MEMBER.

3. EXPANSION OF PROCESSING UNIT, SINCE THE COCOON PRODUCT IS INCREASING.

CHAPTER 5

ORGANIZATION AND MANAGEMENT

THE ORGANIZATION CHART OF THE PROJECT CONSIST OF

1. BOARD OF DIRECTOR WHICH IS COMPRISE OF 9 COOPERATIVE MEMBERS WHO ARE ELECTED IN GENERAL MEETING. THEY ARE INCHRRGE OF POLICY MAKING, ADMINISTRATIVE FOR THE BENEFIT OF MEMBERS AND MANAGE ALL AFFAIRS IN APPROPRIATE WAYS ACCORDING TO THE LAW, BY LAWS REGULATIONS AND RESOLUTION OF THE GENERAL MEETING.

2. MANAGING STAFF WHICH IS COMPRISE OF

2.1 GENERAL MANAGER IS THE CHIEF OF STAFFS AND TAKES RESPONSIBLE FOR THE PROJECT MANAGEMENT, THE GENERAL MANAGER WILL BE ASSISTED BY VARIOUS OFFICERS THROUGH MANAGER OF 4 DIVISION WHICH ARE

ES

(A) SERICULTURE DIVISION CONSIST OF MULBERRY AND SILKWORM SPECIALIST AND INPUT SUPPLY OFFICER THEY INCHARGE OF

- GIVING TECHNICAL SUGGESTION OF GROWING AND CULTIVATING MULBERRY AND REARING SILKWORM.

- LOOKING AFTER DEVELOPMENT PROGRAMME TO INCREASE YIELD AND QUALITY OF MULBERRY AND COCOON AND ALSO ASSIST MEMBERS TO SOLVE THEIR SERICULTURE PROBLEMS.

- RESPONSIBLE FOR PURCHASING INDUT SUPPLY SUCH AS FERTILISER, PESTICIDE, COCOON FRAME, SILK EGGS AND PRODUCTION INPUT FOR MEMBER.

(B) PLANT DIVISION CONSIST OF

- ENGINEER SECTION : TO LOOK AFTER, KEEP MAINTENANCE AND REPAIR ALL MACHINES.

- PRODUCTION SECTION : TO PROCESS COCOON INTO RAW SILK.

(C) FINANCE AND ACCOUNT DIVISION CONSIST OF MANAGER, CASHIER, ACCOUNTANTS, CLERKS AND TYPISTS THIS DIVISION WILL BE RESPONSIBLE FOR FINANCIAL ARRANGEMENT, BANKING, COST ACCOUNTING AND MAINTENANCE OF ALL DOCUMENTS AND ACCOUNTS.

(D) MARKETING DIVISION : CONSIST OF COCOON PROCUREMENT SECTION AND RAW SILK SALE DIVISION WHICH ARE INCHARGE OF

- PROCURE COCOON FROM MEMBERS

- SELL RAW SILK TO TEXTILE FACTORY

- SELL PUPAE (BY PRODUCT) TO FISH RAISING FARM OR ANIMAL FEED FACTORY. APPENDIC 15

3. GOVERNMENT AGENCIES WHICH ARE PROMOTE AND SUPPORT THE MANAGEMENT OF COOPERATIVE AND PROJECT COMPRISE OF

3.1 CPD. PROVINCIAL OFFICE AND CPD DISTRICT OFFICE AT CHAKARAJ DISTRICT NAKORNRAJSIMA PROVINCE IN CHARGE OF

(A) PROMOTION, SUGGESTION AND INSPECTION OF ADMINISTRATION AND MANAGEMENT ALL COOPERATIVE AFFAIRS IN APPROPRIATE AND ACCEPTABLE BY LAWS IN ORDER TO PROVIDE BENEFITS TO THE MEMBERS AND COOPERATIVE.

(B) TO COOPERATE AND CONTACT WITH OTHER CONCERNED GOVERNMENT AGENCIES TO ENCOURAGE SOLVE COOPERATIVE'S PROBLEMS AND ASSIST THE COOPERATIVE TO FULFIL ITS OBJECTIVE.

(C) TO ENCOURAGE THE COOPERATIVE OF GETTING LOAN FROM CPD AND OTHER FINANCIAL INSTITUTES.

(D) TO INSPECT THE USE OF LOAN PROVIDED BY CPD.

3.2 RESERCH AND TRAINING SERICULTURE CENTER TAKES RESPONSIBLE FOR SUGGESTION TO MEMBERS AND COOPERATIVE STAFF ABOUT SERICULTURE.

3.3 DIVISION OF THAI SILK DEVELOPMENT (BELONGS TO INDUSTRY PROMOTION DEPARTMENT TAKES RESPONSIBLE FOR.

(A) SUGGESTION CONCERN WITH SILK REELING INDUSTRY.

(B) TRAINING PRODUCTION STAFF OR SILK REELING PROCEDURE.

(C) ACTING AS CONSULTANT OF COOPERATIVE IN SILK REELING PROCEDURE AND RAW SILK MARKETING.

4. PRIVATE AGENCY

CHUL THAI SILK INCHARGE OF SET TRAINING PLAN FOR PROJECT MEMBER, PREPARE SUFFICIENT SILKWORM EGGS AND MULBERRY SCIONS AND BUYING ALL OF COCOON FROM COOP.

CHAPTER 6

FINANCIAL ANALYSIS

FINANCIAL ANALYSIS OF THE PROJECT HAS BEEN KEEPING THE FOLLOWING MAIN ASSUMPTIONS :

1. AVERAGE COCOON PRICE THAT THE MEMBER CAN SELL AT 90 ₪/KG.
2. THE SILKWORM REARING HOUSE AND EQUIPMENTS LIFE IS 10 YEARS.
3. THE SILK REELING FACTORY AND MACHINES LIFE IS 10 YEARS.
4. THE SILK REELING FACTORY WOULD CONSTRUCTION IN THE FOURTH YEAR, PRODUCTION IN THE FIFTH YEAR IS 90% OF CAPACITY AND WOULD BE FULL CAPACITY FROM THE SIXTH TO TENTH YEAR.
5. IN ONE YEAR THE MACHINE CAN PROCESS 270 WORKING DAYS.
6. THE AVERAGE PRICES OF RAW SILK THAT THE COOPERATIVE CAN SELL AT 1,100 ₪/KG.

1. STEP 1 SERICULTURE PROMOTION

1.1 INVESTMENT COST

IT IS ESTIMATED THAT THE COST OF INVESTMENT WILL BE 146,600 ₪ BROKEN DOWN AS FOLLOW :

CULTIVATING MULBERRY	18,700 ₪	
SERICULTURE TRAINING	7,700 ₪	
REARING HOUSE AND EQUIPMENTS	119,600 ₪	
TOTAL	146,000 ₪	APPENDIC 9

1.2 OPERATING COST

IT IS ESTIMATED THAT THE COST OF OPERATING WILL BE

THE 1ST YEAR	11,360 ₪	
THE 2ND YEAR	25,120 ₪	
FROM THE 3RD YEAR	38,280 ₪	APPENDIC 10

1.3 INCOME ESTIMATION

THE FARMER WILL GET COCOON AS THE MAIN PRODUCT IT WILL SELL AT THE PRICE OF 90 ₪/KG. THE FIRST YEAR THEY CAN PRODUCE 312 KG. THE VALUE OF COCOON IS (312 x 90) 28,080 ₪. THE SECOND YEAR THEY CAN PRODUCE 672 KG. THE VALUE OF COCOON IS (672 x 90) 60,480 ₪. AND THE THIRD YEAR THEY CAN PRODUCE 1,080 KG. THE VALUE OF COCOON IS (1,080 x 90) 97,200 ₪. APPENDIC 12

1.4 RETURN ON INVESTMENT

FROM THE ASSUMPTION ABOVE CAN CALCULATE NET PROFIT BENEFIT COST ANALYSIS NET PRESENT VALUE AND INTERNAL RATE OF RETURN.

A) NET PROFIT

NET PROFIT FOR THE FIRST YEAR	16,720	Ø
NET PROFIT FOR THE SECOND YEAR	35,360	Ø
NET PROFIT FOR THE THIRD YEAR	58,920	Ø

APPENDIC 12

B) COST BENEFIT ANALYSIS

THE PROJECT HAS BEEN ASSUMED TO USE DISCOUNT RATE AT 12 PERCENT ACCORDING TO THE TABLE THE B/C RATIO IS 1.40. APPENDIC 16

C) NET PRESENT VALUE

THE PRESENT VALVE OF THE PROJECT AT 12% IS 116,474 Ø.
AT 15% IS 82,779 Ø.

D) INTERNAL RATE OF RETURN

INTERNAL RATE OF RETURN (IRR) OF THE PROJECT IS 27.85%

F) SENSITIVITY ANALYSIS

IF ASSUMED THAT :

REDUCE THE INCOME BY 20% IRR WILL BE 17.29%

INCREASE COST BY 10% IRR WILL BY 25.91%

APPENDIC 16, 17, 18

1.5 LOAN REPAYMENT

THE MEMBER CAN PAY BACK LOAN AND INTEREST ALL IN THE 7TH YEAR OF THE PROJECT. APPENDIC 19

2. STEP 2 RAW SILK PRODUCTION

2.1 PROJECT COST

IT IS ESTIMATED THAT THE COST OF SILK REELING PLANT WILL BE 19,531,000 Ø. BROKEN DOWN AS FELLOW :

LAND AND BUILDING	843,000	Ø
MACHINERY	17,800,000	Ø
VEHICLE	400,000	Ø
OTHERS .	488,000	Ø
TOTAL	19,531,000	Ø

APPENDIC 20, 21

2.2 OPERATING COST

A) RAW MATERIAL : THE FACTORY WOULD USE COCOON WHICH BOUGHT FROM MEMBER 90 Ø/KG. IN ONE YEAR IT WILL USE 324,000 KGS. OF COCOON.

VALUE OF RAW MATERIAL IS $324,000 \times 90 = 29,160,000$ Ø

B) SALARY AND WAGES : THE SALARY FOR GENERAL MANAGER AND 30 STAFFS AND WAGES FOR 42 WORKERS IS 1,694,400 Ø. APPENDIC 22.

C) UTILITIES

ELECTRICITY AND WATER EXPENSES	600,000	₪
D) CHEMICAL	240,000	₪
E) ADMINISTRATION COST		
TRAVELING ALLOWANCE	120,000	₪
WRITING AND PRINTING MATERIAL	50,000	₪
FUEL AND TRANSPORTATION	100,000	₪
MAINTENANCE	90,000	₪
OTHER EXPENSES	100,000	₪
TOTAL	460,000	₪

F) FINANCIAL COST

IN THE PROJECT MEANS THE COST OF INTEREST PAYMENT, THAT IS 998,000 ₪.

TOTAL OPERATING COST 33,152,000 ₪ APPENDIC 23, 24

2.3 INCOME ESTIMATION

THE PROJECT WILL GET RAW SILK AS THE MAIN PRODUCT IT WILL SELL AT THE PRICE OF 1,100 ₪/KG. THE MACHINE CAN PRODUCE 43,200 KG., SO THE COOP. WOULD GET INCOME (43,200 x 1,100) 47,520,000 ₪.

BY PRODUCT IS PUPAE WHICH GET FROM COCOON 324,000 KG. IT WILL HAVE PUPAE INSIDE 35%. THEN THE VALUE OF PUPAE IS (324,000 x .35) 113,400 KG. WHICH CAN SELL 8 ₪/KG. THE INCOME FROM PUPAE IS (113,400 x 8) 907,200 ₪. TOTAL INCOME IS (47,520,000 + 907,200) 48,427,200 ₪. PER YEAR. APPENDIC 25

2.4 WORKING CAPITAL

WORKING CAPITAL ESTIMATING IS 10,505,000 ₪. APPENDIC 26

2.5 RETURN ON INVESTMENT

FROM THE ASSUMPTION ABOVE CAN CALCULATE NET PROFIT, BREAK EVEN POINT, BENEFIT COST ANALYSIS AND INTERNAL RATE OF RETURN.

A) NET PROFIT

NET PROFIT AFTER TAX ARE AS FOLLOW :

1ST YEAR 12,759,930 ₪.
FROM THE 2ND YEAR 14,476,151 ₪. APPENDIC 25

B) BREAK EVEN POINT

THE BREAK EVEN WILL BE ANALYSED ON THE BASIS OF THE PRODUCTION COST IN THE YEAR FROM 1ST-10TH.

BREAK EVEN POINT 6,816.92
BREAK EVEN REVENUE &,498,612 APPENDIC 28

C) COST BENEFIT ANALYSIS

THE PROJECT HAS BEEN ASSUMED TO USE DISCOUNT RATE AT 10 PERCENT, ACCORDING TO THE TABLE THE B/C RATIO IS 1.46. APPENDIC 29

D) NET PRESENT VALUE

THE PRESENT VALUE OF THE PROJECT AT 10 PERCENT IS 72,730,858 Ø.

E) INTERNAL RATE OF RETURN

INTERNAL RATE OF RETURN (IRR) OF THE PROJECT IS MORE THAN 50 PERCENT. APPENDIC 30

2.6 SENSITIVITY ANALYSIS

IF WE ASSUME THAT :

20% COST INCREASE OR 20% INCOME REDUCE IRR WILL BE MORE THAN 50%. APPENDIC 31, 32

2.7 LOAN REPAYMENT

THE COOPERATIVE CAN REPAY LOAN IN THE SIXTH YEAR. APPENDIC 33

CHAPTER 7

BUDGET

THE BUDGET OF THE PROJECT, PROVIDED BY GOVERNMENT AGENCIES THROUGH THE COOPERATIVE PROMOTION DEPARTMENT (CPD) AND THE BANK OF AGRICULTURAL AND AGRICULTURAL COOPERATIVE (BAAC).

STEP 1 SERICULTURE PROMOTION

- LONG TERM LOAN FOR MEMBER TO USE FOR CULTIVATING MULBERRY 12 RAIS, SERICULTURE TRAINING AND INVESTMENT COST ON REARING HOUSE AND EQUIPMENTS.

TOTAL INVESTMENT COST FOR 1 MEMBER = 153,300.- ฿

TOTAL INVESTMENT COST FOR 300 MEMBER = 45,990,000.- ฿

INTEREST 6%

REPAYMENT 6 YEARS

- SHORT TERM LOAN FOR MEMBER TO USE ON OPERATING COST

TOTAL OPERMING COST FOR

1 ST YEAR

2 ND YEAR

3 RD YEAR

	1 MEMBER	300 MEMBERS
1 ST YEAR	11,928	3,578,400
2 ND YEAR	26,376	7,921,800
3 RD YEAR	40,194	12,058,200

INTEREST 6%

REPAYMENT 1 YEAR

THE AMOUNT OF THIS LOAN PROVIDED BY CPD.

STEP 2 RAW SILK PRODUCTION

- LONG TERM LOAN FOR INVESTMENT COST 19.53 MILLION BAHTS.

INTEREST 9.5%

REPAYMENT 6 YEARS

- SHORT TERM LOAN FOR OPERATING COST 33.15 MILLION BAHTS.

INTEREST RATE 9.5%

REPAYMENT 1 YEAR

THE AMOUNT OF THIS LOAN PROVIDED BY BAAC.

CHAPTER 8

RECOMMENDATIONS

TO ENSURE THAT THE PROJECT WILL MEET SUCCESSFUL IT HAS TO ADJUST SOME OPERATION POINT.

1. JOINT PROJECT WITH THE PRIVATE COMPANY

AT PRESENT THE GOVERNMENT POLICY REGARDS TO SERICULTURE VERY MUCH. THEY TRY TO PROMOTE SERICULTURE IN EVERY PROVINCE THAT SUITABLE EVEN IF ON THE HILLTRIBE. RIGHT NOW THERE IS A JAPANESE COMPANY INVEST ON SERICULTURE FOR TRIBAL AND TREND SEEM TO BE SUCCESSFUL. NOT ONLY FOR JAPANESE COMPANY INVEST ON IT BUT THERE IS NEDERLANDSE FINANCIERING MAATSCHAPPY VOOR ONTIS-ONTWIKKELINGSLANDEN N.V. (FMO) WHICH IS THE TRUST AND FINANCE FROM NETHERLAND. IT JOINT WITH CHUL THAI SILK ON CONSTRUCTED TRAINING CENTRE AND GIVING LOAN FOR SERICULTURE EXPANSION. FROM THE AMOUNT OF THIS LOAN CAN MAKE CHUL THAI SILK EXPAND IT'S WORK TO ANOTHER PROVINCE NEARBY PETCHBOON PROVIVCE SUCH AS NAKORNRAJSIMA AND CHAIYABHOOM PROVINCE. ON THE OTHER HAND CHUL THAISILK JOINT THE PROJECT WITH BAAC THAT ALSO GET SUCCESSFUL. AT THIS POINT THE COOPERATIVE SHOULD BE CONTACT WITH BOTH OF BAAC AND CHUL THAI SILK FOR JOINT PROJECT. THAT'S TO MAKE SURE ABOUT THE LARGE AMOUNT OF FUND CAN PROVIDE. BECAUSE OF THE PROJECT NEEDS VERY HIGH INVESTMENT COST FOR MEMBERS (45.33 MILLION BAHTS) CPD MAY NOT BE ABLE TO PROVIDE THIS AMOUNT OF LOAN. BUT THE COMPANY CAN GIVES CREDIT IN SOME ITEM OF EXPENESE SUCH AS SILKWORM EGGS. THE OTHER GOOD POINT FROM JOINT PROJECT IS THE COOPERATIVE ASSURE THAT COCOON BUSINESS HAS STABLE MARKET THAT CAN SERVE MEMBER NEEDS VERY WELL. IF THE COOPERATIVE WANT TO JOINT WITH OTHER COMPANY IN THAT AREA HAS THAI SILK PRODUCT AND BOONMA THAI SILK THAT RUNS THIS BUSINESS AND WILLING TO DEAL WITH THE COOP. MEMBER.

2. LAUNCH THE PROJECT FROM SMALL AMOUNT OF MEMBER

AS THE FIGURES SHOWN THAT THE COST OF PROJECT IS VERY HIGH FOR 300 MEMBERS IT SHOULD START WITH 50 BY SELECTING FROM THE MOST SUITABLE MEMBERS FROM EVERY GROUP IN THE PROJECT AREA IN ORDER TO :-

- SEE THE POSIBILITY OF THIS PROJECT WHICH RUNS BY COOPERATIVE AND TO SEE THE BENEFIT, EXPENSE, RETURN OF INVESTMENT IN ORDER THAT CPD WILL BE MORE CONFIDENT TO PROVIDE LOAN TO THIS PROJECT.

ATIVE

- DEMONSTRATE TO THE OTHER MEMBERS AND WHEN THIS PROJECT CAN RUN FURTHER WITH INCREASING NUMBER OF MEMBERS THIS FIRST 50 MEMBERS CAN GIVES SUGGESTION TO THE NEW PARTICIPANTS MEMBERS.

IF THE PROJECT BEGINS WITH 50 MEMBERS IN THE FIRST PERIOD, THE LOAN REQUIREMENT IS ONLY 7.66 MILLION BAHTS WITH THIS AMOUNT CPD MAY NOT REFUSE TO PROVIDE LOAN. AFTER THE 50 MEMBERS FULFILL SUCCESSFUL IN FIRST YEAR UP TO THE SECOND AND THIRD YEAR THE MEMBERS SHOULD INCREASE 100, 150, 200 FINALLY 300 MEMBERS.

3. COOPERATIVE SHOULD ESTABLISH YOUNG SILKWORM REARING HOUSE

DR. SEINOSUKE OMURA, THE JAPANESE EXPERT IN REARING SILKWORM, WHO SPENT 5 YEARS OF STUDY AND RESEARCH IN SERICULTURE IN THAILAND, WAS WRITTEN THE BOOK "TECHNIQUE OF SILKWORM REARING IN THE TROPIC", SUGGESTED THAT IN THE FIRST 2 STAGES OF SILK WORM REARING CAN BE OPERATED BY COOPERATIVE METHOD. IN SUCH PERIOD SILKWORM REARERS HAVE TO SPEND HALF OF TOTAL SILKWORM REARING TIME. THE COOPERATIVE WILL REAR SILKWORM IN THAT PERIOD FOR ITS MEMBERS AND THEY HAVE TO PAY THE EXPENSES TO THE COOP.

OR THE MEMBERS CAN SAVE THEIR MONEY BY ROTATE THEIR LABOUR THEMSELVES TO REAR UNDER SUPERVISE OF THE SILKWORM REARING SPECIALIST. BY SUCH METHOD, IN STEAD OF SPENDING TIME FOR REARING FROM FIRST STAGE THEY CAN REAR FROM STAGE 3 WHICH IS CAN REAR SILK WORM 12 CROPS IN A YEAR. THAT'S MEAN THEY CAN INCREASE THEIR INCOME.

TO ESTABLISH YOUNG SILK WORM REARING HOUSE, COOPERATIVE HAS TO SET THE SCHEDULE FOR USING LABOUR FROM MEMBERS THEMSELVES, BY ROTATE FROM EACH GROUP IN EACH CROP. SIDE EFFECT FROM THIS ACTIVITY, CAN INCREASE THE RELATIONSHIP AMONG MEMBER AND COOPERATIVE.

4. INTEGRATE THE PROJECT WITH ANOTHER COOP.

AS SHOWN IN THE DETAIL THAT RAW SILK PROCESSING NEEDS A LOT OF MONEY TO RUN THIS BUSINESS. THE CHAKARAJ COOPERATIVE MAY NOT BE ABLE TO RUN THE BUSINESS ALONE. THEY SHOULD JOINT PROJECT WITH ANOTHER COOP. SUCH AS BHIMAI COOPERATIVE BECAUSE IT IS THE VERY BIG AND SUCCESSFUL COOPERATIVE AND IT HAS CONNECTED OPERATING AREA AT THE BORDER.

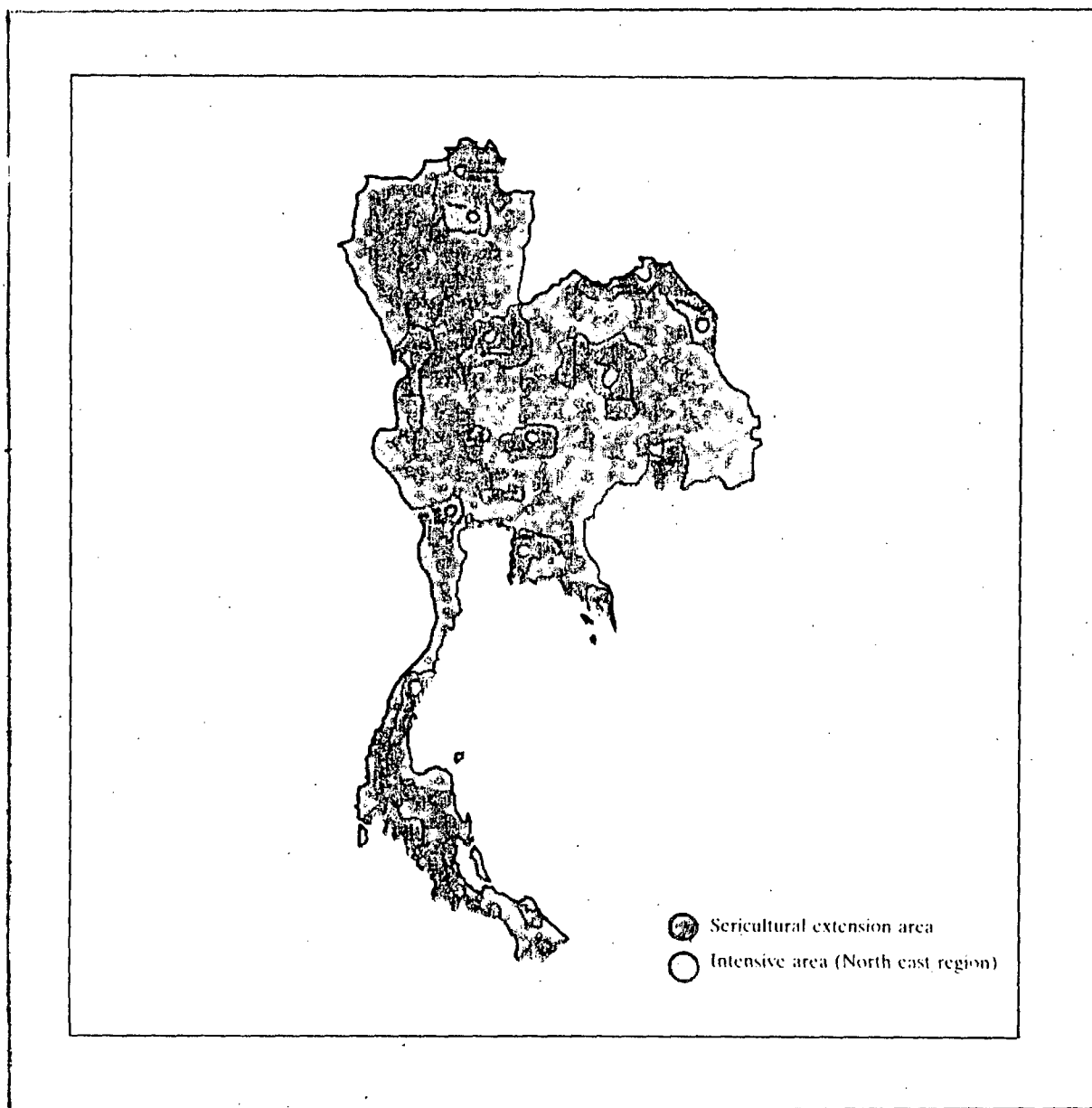
APPENDIC 1

COMPARE PRODUCT AND INCOME

HYBRID SILKWORM REARING AND LOCAL SILKOWORM REARING.

ITEM	HYBRID SILKWORM	LOCAL SILKWORM
1.SILKWORM EGGS/CROP	6 BOX	6 SHEET
2.PRODUCTION/BOX AND/SHEET	25 KG. OF COCOON/BOX	1 KG. OF SILK YARN
3.PRODUCTION/CROP	150 KG. OF COCOON	6 KG. OF SILK YARN
4.PRICE/UNIT	90 ₪	500 ₪
5.INCOME/CROP	13,500 ₪	3,000 ₪

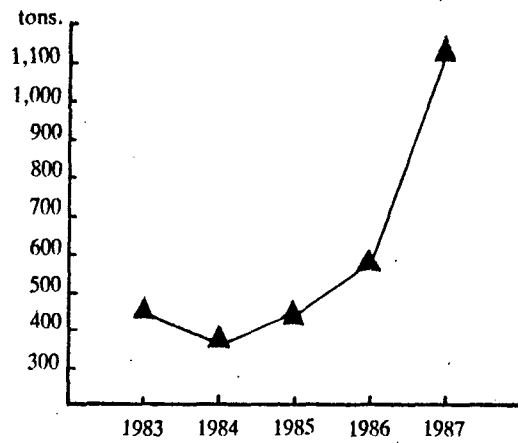
RESOURCE : PUNEE SRIBUNTAO, TECHNICAL OF SILKWORM REARING IN THAILAND
(HYBRID SILKWORM EGGS).



RESOURCE : DEPARTMENT OF AGRICULTURAL EXTENSION

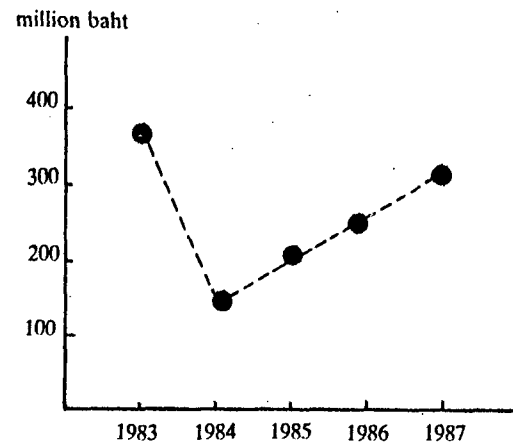
Imported silk yarns

	(tons)
1983	432.78
1984	368.09
1985	429.53
1986	589.37
1987	1,175



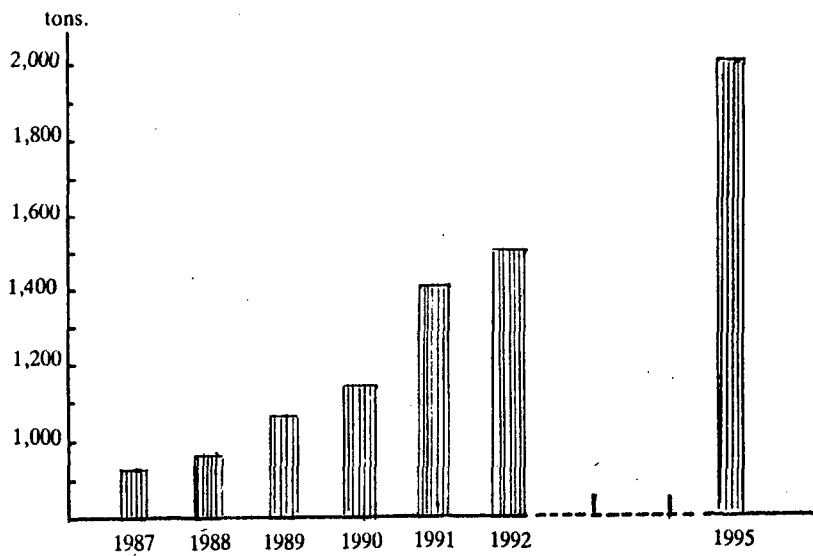
Silk Febric export

	(million baht)
1983	388.49
1984	159.26
1985	202.98
1986	254.82
1987	306.35



Aim of Extension work

It is prospected that in the year 1995, Thailand will produce raw silk to meet domestic consumption and can export to world market in 1996.



CLIMATOLOGICAL DATA FOR THE PERIOD 1951 - 1980

Station Nakornrajsima
 Index Station 48 405
 Latitude 15° 48' N.
 Longitude 102° 02' E.

Elevation of station above MSL. 102 meters
 Height of barometer above MSL. 103 meters
 Height of thermometer above ground 1.50 meters
 Height of wind vane above ground 14.50 meters
 Height of raingauge 1.00 meters

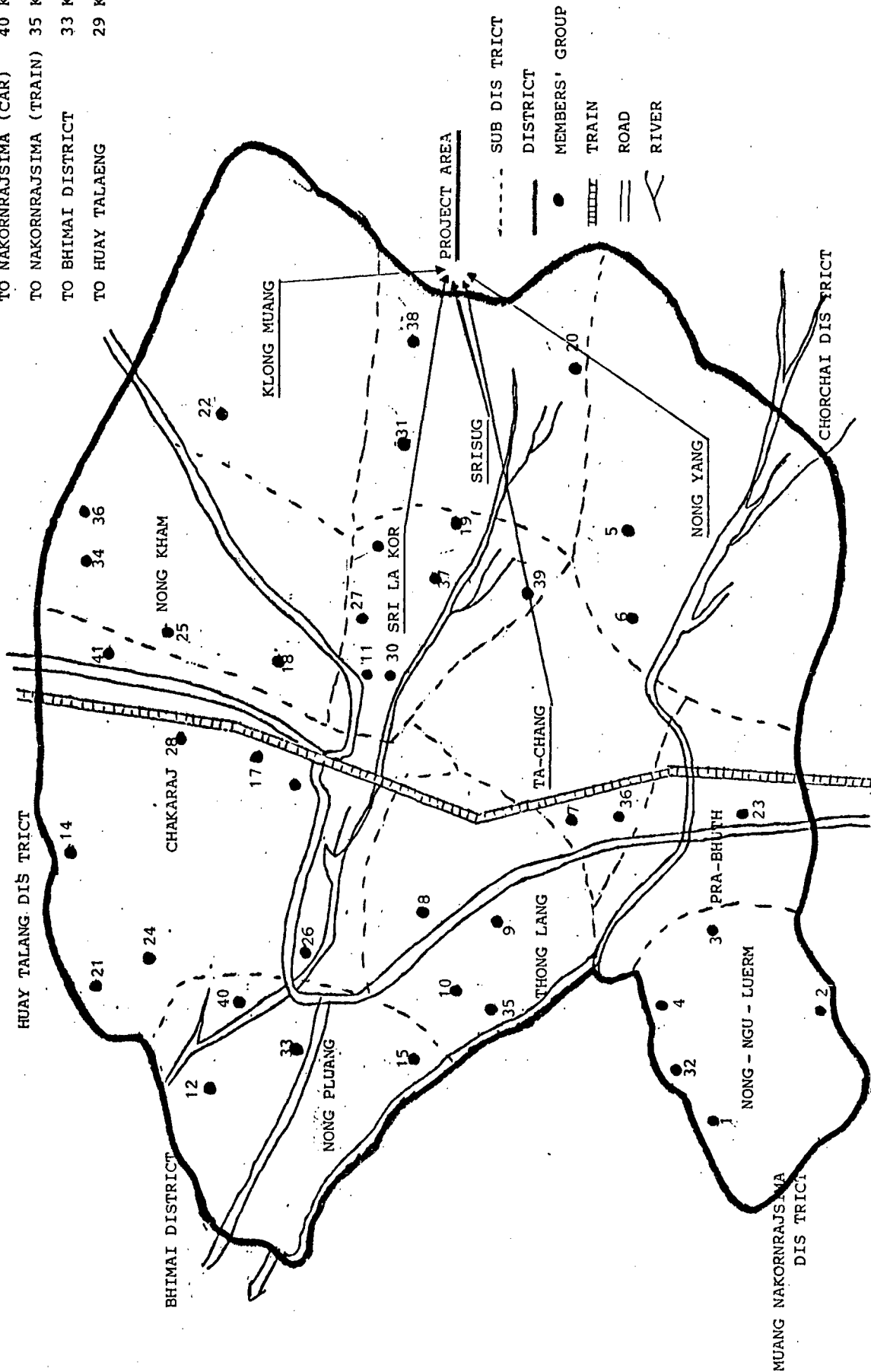
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
<u>Pressure (+ 1000 or 900 abs.)</u>													
Mean	13.65	11.78	09.64	08.06	06.42	05.45	05.62	05.49	07.02	10.43	12.90	13.91	09.20
Ext. Max.	25.64	24.20	23.79	21.35	14.06	12.84	12.48	13.14	14.64	19.36	22.51	24.59	25.64
Ext. Min.	02.15	01.16	00.69	98.52	98.96	96.26	97.04	96.69	98.08	01.64	03.76	02.94	96.26
Mean daily range	5.66	6.01	6.00	5.55	4.95	4.24	3.98	4.12	4.58	4.64	4.78	5.15	4.97
<u>Temperature (°C.)</u>													
Mean	24.4	26.6	29.2	30.3	29.5	28.7	28.0	27.6	27.1	27.2	25.8	24.4	27.4
Mean Max.	30.2	32.4	35.0	35.8	34.3	32.6	32.0	31.5	30.8	30.6	30.0	29.5	32.1
Mean Min.	17.1	19.6	22.4	24.0	24.5	24.3	23.9	23.7	23.5	23.0	20.4	17.7	22.0
Ext. Max.	36.7	39.3	40.5	42.5	40.4	40.5	37.7	36.0	35.3	33.9	33.0	35.5	42.5
Ext. Min.	6.3	11.5	12.3	17.8	20.2	21.3	20.4	20.5	21.0	17.7	11.4	8.2	6.3
<u>Relative Humidity (%)</u>													
Mean	55.0	54.0	55.0	60.0	70.0	73.0	75.0	77.0	80.0	72.0	63.0	58.0	66.0
Mean Max.	79.0	77.3	78.5	81.9	86.7	88.5	89.7	91.3	92.7	87.3	82.5	81.0	84.7
Mean Min.	36.8	36.2	36.1	41.3	51.8	58.1	60.2	62.9	66.3	57.9	47.9	41.1	49.7
Ext. Min.	13.0	11.0	14.0	14.0	25.0	32.0	36.0	42.0	43.0	23.0	21.0	16.0	11.0
<u>Dew Point (°C.)</u>													
Mean	13.9	15.6	18.1	20.7	22.6	23.0	22.8	22.9	23.2	21.3	17.7	14.9	19.7
<u>Evaporation (mm.)</u>													
Mean - Pan	152.9	158.7	213.2	209.3	162.6	163.3	151.1	141.4	121.8	153.5	165.5	159.9	1983.2
<u>Cloudiness (0 - 8)</u>													
Mean	2.8	3.1	3.4	4.3	5.6	6.4	6.6	6.8	6.5	4.9	3.7	3.2	4.8
<u>Sunshine Duration (hr.)</u>													
Mean	No Observation												
<u>Visibility (km.)</u>													
0700 L.S.T.	5.2	4.5	4.6	7.4	10.6	11.0	10.5	10.1	9.8	9.6	7.9	6.2	8.1
Mean	7.6	6.1	5.8	8.4	11.2	11.7	11.4	11.1	10.6	11.1	10.5	9.5	9.6
<u>Wind (Knots)</u>													
Prevailing wind	E	E	E	W	W	W	W	W	W	NE	NE	NE	-
Mean wind speed	4.7	5.0	5.2	5.3	5.4	5.8	5.9	5.6	4.3	5.2	5.7	5.3	-
Max. wind speed	33 ENE	33 S	39 N.E. SE	40 SSW	35 WSW	33 S.W NW	35 W	35 NNE	34 N	30 E	27 S	25 NNE	40 SSW
<u>Rainfall (mm.)</u>													
Mean	3.8	17.5	50.6	84.0	164.4	147.1	153.4	146.2	310.0	121.9	15.6	3.5	1218.0
Mean rainy days	1.0	2.2	5.2	7.7	14.0	13.1	14.6	16.9	19.3	9.6	1.8	0.9	106.3
Greatest in 24 hr.	119.6	79.2	65.9	95.9	141.6	93.3	149.4	91.5	158.0	113.3	67.3	32.6	158.0
Day/Year	31/74	28/75	5/69	7/63	23/59	25/68	12/62	27/66	2/69	25/66	7/63	12/72	2/69
<u>Number of days with</u>													
Heze	24.0	25.9	26.7	17.3	1.2	0.0	0.0	0.0	0.6	4.6	11.3	18.0	129.6
Fog	0.6	0.2	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	1.8
Hail	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Thunderstorm	0.0	1.7	6.5	12.2	16.0	9.1	8.5	8.2	12.9	5.2	0.5	0.0	80.8
Squall	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Remark 1

1. Data for 1956 - 1980
2. Pressure 1957 - 1980
3. Evaporation 1975 - 1980

MAP OF CHAKARAJ DISTRICT

DIS TANCE FROM CHAKARAJ
 TO NAKORNRAJSIMA (CAR) 40 KM.
 TO NAKORNRAJSIMA (TRAIN) 35 KM.
 TO BHIMAI DISTRICT 33 KM.
 TO HUAY TALAENG 29 KM.



MUANG NAKORNRAJSIMA
 DIS TRICT

CHORCHAI DIS TRICT

HUAY TALANG. DIS TRICT

BHIMAI DISTRICT

CHAKARAJ 28

NONG KHAM

KLONG MUANG

PROJECT AREA

NONG PUANG

THONG LANG

TA-CHANG

SRI LA KOR

SRISUG

NONG YANG

NONG - NGU - LUERM

PRA-BHUTH

NONG YANG

--- SUB DIS TRICT
 — DISTRICT
 ● MEMBERS' GROUP
 [Hatched] TRAIN
 == ROAD
 ~ RIVER

COMPARE INCOMECULTIVATING OTHER CROPS WITH HYBRID SILKWORM REARING

ITEM	CROP					
	PADDY	MAIZE FOR ANIMALFEED	SUGARCANE	MUNGBEAN	SORGHUM	SILKWORM REARING
VARIABLE COST (฿/RAI)	739	595	1,550	449	309	2,256.85
FIXED COST (฿/RAI)	169	110	252	124	97	822.46
TOTAL COST	908	705	1,802	573	406	3,079.31
PRODUCTION (KG./RAI)	312	412	7,061	98	222	68.88
SELLING PRICE (฿/KG.)	2.3	1.8	.3	6.6	1.8	90
INCOME (฿/RAI)	718	742	2,118	647	400	6,181.20
NET INCOME (฿/RAI)	-190	37	316	74	-6	3,101.89
TOTAL INCOME (12 RAIS)	-2,470	481	4,108	962	-78	40,324.57

REMARKS.

1. OTHER CROPS IS THE FIGURES OF PLANTING YEAR 1987/1988
BASE ON ALL COUNTRY AVERAGE RESOURCE FROM OFFICE OF
AGRICULTURAL ECONOMIC MINISTRY OF AGRICULTURAL AND
COOPERATIVE
2. FIGURES OF HYBRID SILKWORM REARING BASE ON AVERAGE OF
EXPENSES AND INCOME 10 YEARS RESOURCE FROM CHUL THAI SILK
FACTORY.

RESOURCE : PUNEE SRIBUNTAO, TECHNICAL OF SILKWORM REARING IN THAILAND
(HYBRID SILKWORM EGGS)

APPENDIC 8

THAI SILK ASSOCIATIONPRICE OF SILK YARN OCTOBER 1989

UNIT : BAHTS

<u>WARP SILK</u>		<u>SEPTEMBER</u>	<u>OCTOBER</u>
DOMESTIC PRODUCTION	PER KG.	1,400	1,300
IMPORT	PER KG.	1,450 - 1,500	1,450 - 1,500
 <u>WEFT SILK</u>			
SILK YARN GRADE 1	PER KG.	700 - 750	680 - 750
SILK YARN GRADE 2	PER KG.	550 - 600	550 - 600
SILK YARN GRADE 3	PER KG.	400 - 450	350 - 400
DOUBLING WEFT SILK	PER KG.	1,250 - 1,300	1,250 - 1,300
DOUPPION SILK SIZE 100/120	PER KG.	920	920
SIZE 100/150	PER KG.	920	920

RESOURCE : THAI SILK ASSOCIATION

ANALYSIS FOR A MEMBER

INVESTMENT COST

1. FOR CULTIVATING MULBERRY 12 RAIS.

1.1	LAND PREPARATION (@ RAI 300)	3,600
1.2	MULBERRY SCION (2,000 PIECES/RAI @.20)	4,800
1.3	MULBERRY SCION PREPARATION BEFORE CULTIVATE (RAI/25)	300
1.4	SCION TRANSPORTATION (RAI/150)	1,800
1.5	LABOURS FOR CULTIVATING MULBERRY (RAI/360)	4,320
1.6	LABOURS FOR TAKECARE OF MULBERRY BEFORE REARING (RAI/100)	1,200
1.7	EQUIPMENTS (PRUNER, DISINFECTOR ETC.)	2,000
1.8	CONTINGENCIES	680
	<u>TOTAL (1)</u>	<u>18,700</u>

2. SERICULTURE TRAINING

TOTAL (2) 7,700

3. INVESTMENT ON REARING HOUSE AND EQUIPMENTS

3.1	SILKWORM REARING HOUSE (6 x 12 M ²) AND REARING SHELVES (3 STEPS 2 SETS)	85,000
3.2	WELL FOR KPEPING WATER (2 CEMENT WELL)	1,500
3.3	EQUIPMENT FOR REARING	2,000
3.4	COCOON FRAME (PAPER 29 SETS @450, WOOD 67 SETS @ 190 AND WIRE 40 SETS @91)	29,420
3.5	CONTINGENCIES	1,680
	<u>TOTAL (3)</u>	<u>119,600</u>

TOTAL INVESTMENT COST 146,000

LOAN REQUIREMENT

INVESTMENT COST

HOLDING SHARE (1,000 OF LOAN/1 SHARE = 50)

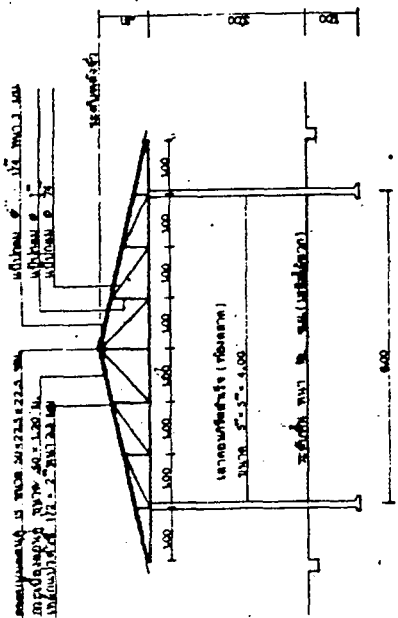
LONG TERM LOAN

	1 MEMBER	300 MEMBER
INVESTMENT COST	146,000	43,800,000
HOLDING SHARE (1,000 OF LOAN/1 SHARE = 50)	7,300	2,190,000
LONG TERM LOAN	153,300	45,990,000

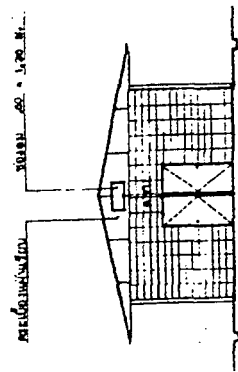
APPENDIC 10

OPERATING COST FOR 1 PROJECT MEMBER

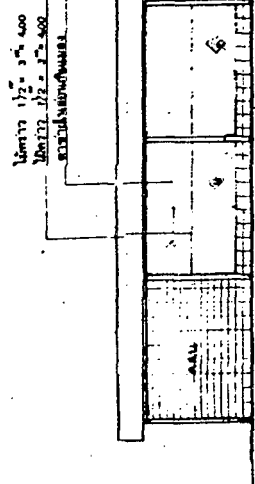
	YEAR 1	2	3 - 10
1. EXPENSES ON MULBERRY CULTIVATING			
1.1 FERTILISER 1 ST TIME (6/KG./RAI)	-	-	300
@ 50 PER KG 2 ND TIME (4/KG./RAI)	100	200	200
3 RD TIME (4/KG./RAI)	-	200	200
1.2 PESTICIDE	50	100	100
1.3 TOTAL FOR 12 RAIS	1,800	6,000	9,600
2. EXPENSES ON REARING SILKWORM			
2.1 CHEMICAL FOR DISINFECTANT (270/TIME)	540	1,080	1,620
2.2 CHEMICAL FOR DISINFECTANT IN REARING HOUSE (100/TIME)	200	400	600
2.3 SILKWORM EGGS (380/BOX)	4,560	9,120	13,680
2.4 CHEMICAL FOR DISINFECTANT SILKWORM (1 BOX/2 KGS. @ 20)	480	960	1,440
2.5 LABOURS FOR REARING SILKWORM (300/BOX)	3,600	7,200	10,800
2.6 CONTINGENCIES	180	360	540
TOTAL OPERATING COST	11,360	25,120	38,280
<u>LOAN REQUIREMENT</u>			
TOTAL OPERATING COST	11,360	25,120	38,280
HOLDING SHARE (1,000 OF LOAN/1 SHARE = 50 ₪) 1 MBR.	568	1,256	1,914
300 MBRS	170,400	376,800	574,200
SHORT TERM LOAN REQUIREMENT	11,928	26,376	40,194
FOR 300 MEMBERS	3,578,400	7,912,800	12,058,200



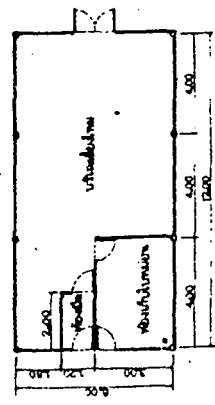
รูปที่ 11.80



รูปที่ 11.75



รูปที่ 11.100



รูปที่ 11.100

ลำดับ	รายละเอียด	จำนวน	หน่วย
1	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
2	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
3	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
4	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
5	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
6	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
7	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
8	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
9	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
10	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
11	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
12	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
13	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
14	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
15	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
16	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
17	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
18	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
19	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
20	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%
21	งานก่อสร้างโครงสร้างหลังคา (โครงสร้างเหล็ก) ขนาด 5.5 x 11.00 ม.	0	6%

APPENDIC 12

PRODUCTION PLAN AND TRADING ACCOUNT

ITEM	YEAR	1	2	3 - 10
1. PRODUCTION PLAN				
1.1 CROP OF REARING		2	4	6
1.2 NEEDS OF SILKWORM (BOX)		6	6	6
1.3 TOTAL OF SILKWORM/YEAR (1.1) x (1.2)		12	24	36

2. PRODUCTION AND INCOME				
2.1 PRODUCTION OF COCOON FROM 1 BOX (KG.)		26	28	30
2.2 COCOON PRODUCTION IN A YEAR (KGS.) (1.3) x (2.1)		312	672	1,080
2.3 TOTAL INCOME FROM COCOON IN A YEAR		28,080	60,480	97,200

1. ESTIMATION OF COCOON PRODUCTION RELATED TO EXPERIENCE AND SKILL
- INCREASE OF REARER.
2. COCOON PRICE 90/KG.
3. SILKWORM EGGS 1 BOX = 20,000 EGGS.
4. ESTIMATION ON SUFFICIENT MULBERRY FOR REARING

NET PROFIT FOR 1 PROJECT MEMBER

UNIT : BAHT

ITME	YEAR	1	2	3 - 10
1. INCOME FROM COCOON SELLING		28,080	60,480	97,200
2. EXPENSES ON MULBERRY CULTIVATING AND REARING SILKWORM		11,360	25,120	38,280
3. NET PROFIT FROM PROJECT		16,720	35,360	58,920

2. DETAILS IN APPENDIC 10

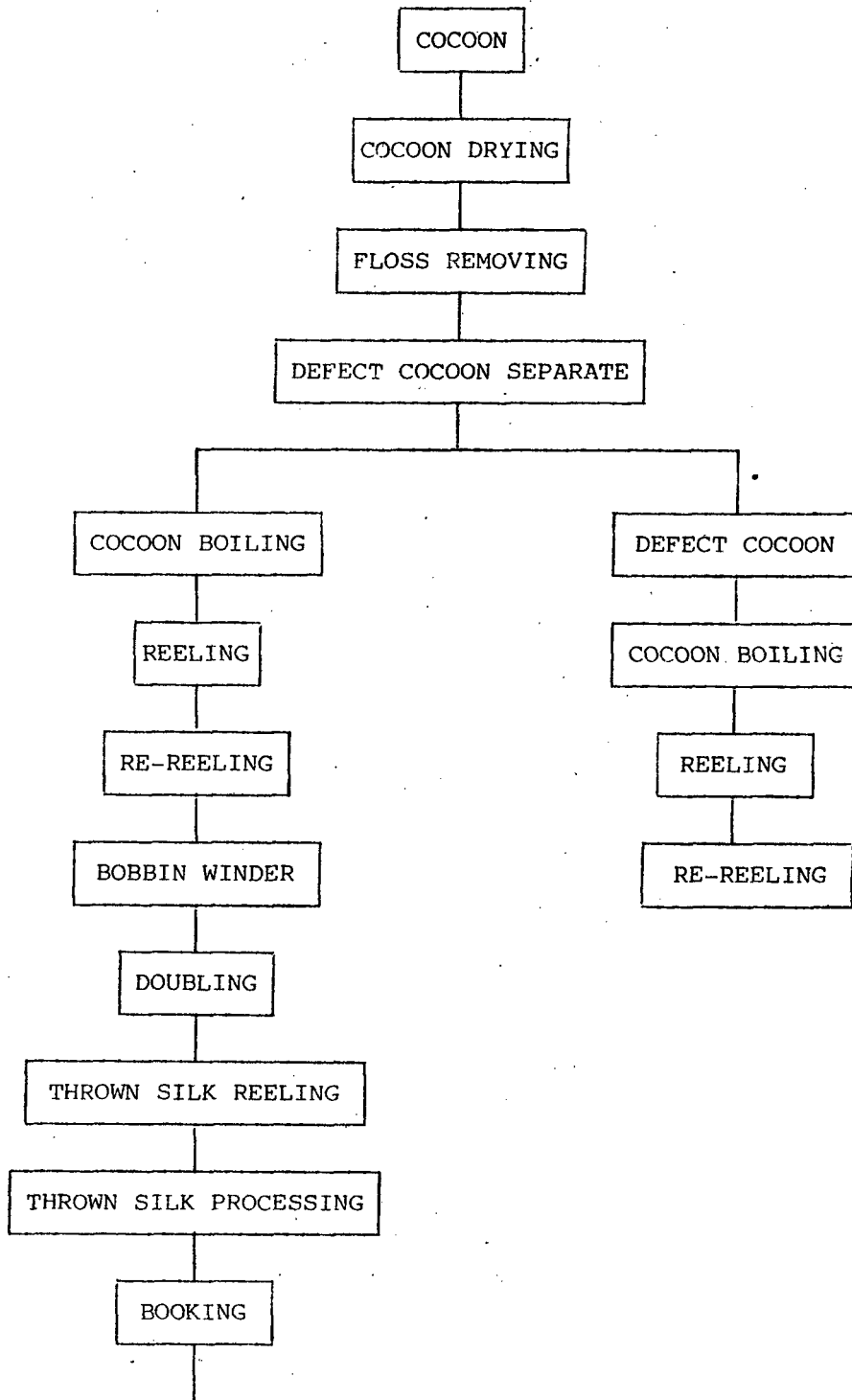
APPENDIC 13

PROFIT OF CREDIT AND INPUT SUPPLY

ITEMS	1ST YEAR	2ND YEAR	3 - 10 YEAR
EQUIPMENT FOR CULTIVATING MULBERRY	2,000	-	-
EQUIPMENT FOR REARING	2,000	-	-
COCOON FRAME	29,400	-	-
FERTILISER AND PESTICIDE	1,800	6,000	9,600
CHEMICAL FOR DISINFECTANT	1	540	1,080
	2	200	400
	3	480	960
SILKWOKM: EGGS	4,560	1,120	13,680
TOTAL	40,980	17,560	26,940
COOP. GOT 3% FROM 1 MEMBER	1,229.40	526.80	808.2
FROM 300 MEMBERS.	368,820	158,040	242,460
	(1)	(2)	(3)
TOTAL PROFIT (1) + (2) + (3) = 769,320			

WHICH BECOMES COOPERATIVE OWN FUNDS.

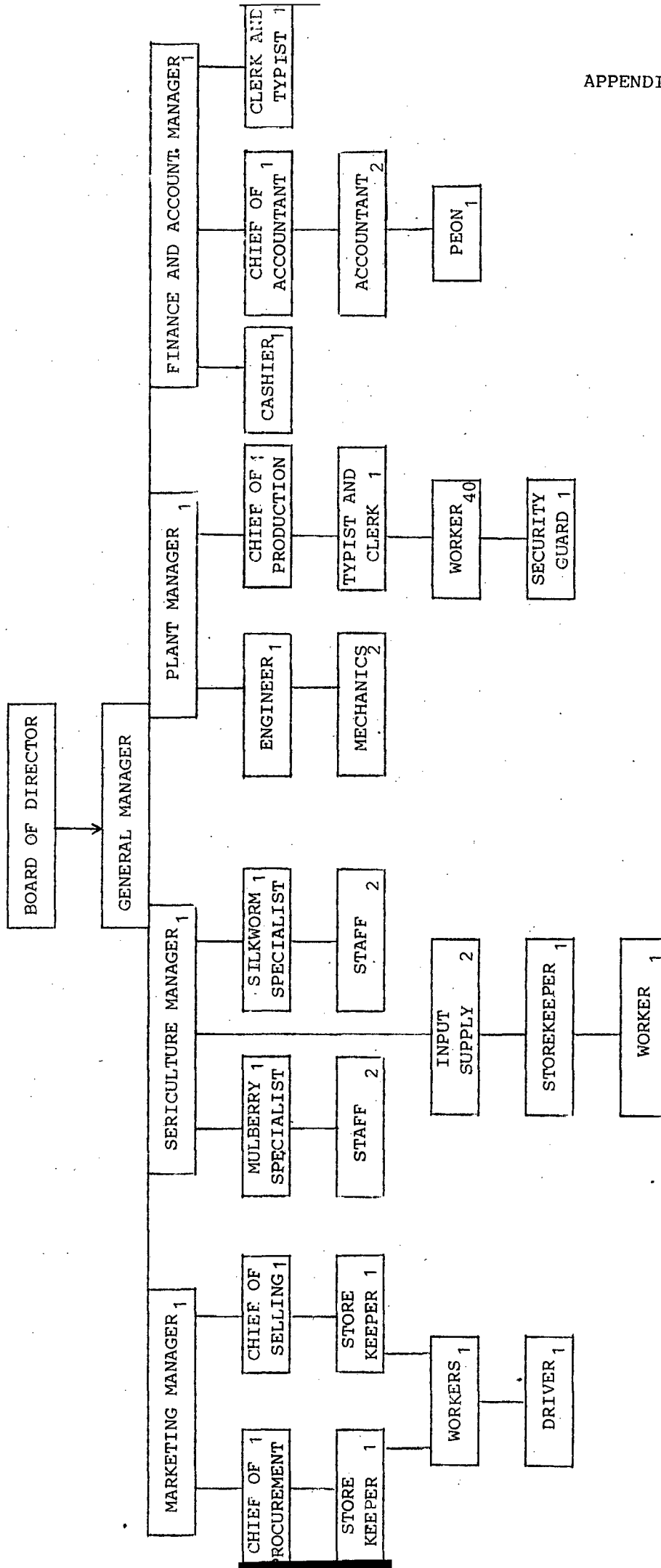
PROCESSING CHART



SILK YARN # 3 x 21 DENIER

RESOURCE : THAI SILK PRODUCT.

ORGANIZATION CHART



INTERNAL RATE OF RETURN

	0	1	2	3	4	5	6	7	8	9	10
Investment	146000										
Income		28080	60480	97200	97200	97200	97200	97200	97200	97200	97200
Cash outflow		11360	25120	38280	38280	38280	38280	38280	38280	38280	38280
Net Cash Flow	-146000	16720	35360	58920	58920	58920	58920	58920	58920	58920	58920
Cum Cash flow	-146000	-129280	-93920	-35000	23920	82840	141760	200680	259600	318520	377440
IRR		27.85%									
NPV at 12%		116474									
NPV at 15%		82779									
Benefit :Cost Ratio at 12 %											
P.V. of Benefits		458214.4									
P.V. of Costs		327763.7									
Benefit Cost Ratio		1.40									
			PAY BACK PERIOD 3 YEARS								

APPENDIC 17

SENSITIVITY ANALYSIS

INTERNAL RATE OF RETURN

Reduce the income by 20%

	0	1	2	3	4	5	6	7	8	9	10
Investment	146000										
Income		22464	48384	77760	77760	77760	77760	77760	77760	77760	77760
Cash outflow		11360	25120	38280	38280	38280	38280	38280	38280	38280	38280
Net Cash Flow	-146000	11104	23264	39480	39480	39480	39480	39480	39480	39480	39480
Cum Cash flow	-146000	-134896	-111632	-72152	-32672	6808	46288	85768	125248	164728	204208
IRR		17.29%									
NPV at 12%		34650									
NPV at 15%		13221									
Benefit :Cost Ratio at 12 %											
P.V. of Benefits		366571.5									
P.V. of Costs		327763.7									
Benefit Cost Ratio		1.12									
			PAY BACK PERIOD 4 YEARS								

APPENDIC 18

SENSITIVITY ANALYSIS

INTERNAL RATE OF RETURN

Increase cost by 10%

	0	1	2	3	4	5	6	7	8	9	10
Investment	146000										
Income		28080	60480	97200	97200	97200	97200	97200	97200	97200	97200
Cash outflow		12496	27632	42108	42108	42108	42108	42108	42108	42108	42108
Net Cash Flow	-146000	15584	32848	55092	55092	55092	55092	55092	55092	55092	55092
Cum Cash flow	-146000	-130416	-97568	-42476	12616	67708	122800	177892	232984	288076	343168
IRR		25.91%									
NPV at 12%		100245									
NPV at 15%		68974									
Benefit :Cost Ratio at 12 %											
P.V. of Benefits		458214									
P.V. of Costs		345940									
Benefit Cost Ratio		1.32									

BENEFIT AND LOAN REPAYMENT
FOR MEMBER

YEAR	REVENUE	EXPENSE	INTEREST FOR SHORT TERM LOAN	LONG TERM LOAN REPAYMENT	INTEREST FOR LONG TERM LOAN	SHARE HOLDING	CASH REMAIN
1	28,080	11,360	909	0	0	7,868	3,855
2	60,480	25,120	2,010	0	24,528	1,256	7,566
3	97,200	38,280	3,062	30,660	12,264	1,914	11,020
4	97,200	38,280	3,062	30,660	9,811	1,914	13,473
5	97,200	38,280	3,062	30,660	7,358	1,914	15,926
6	97,200	38,280	3,062	30,660	4,906	1,914	18,378
7	97,200	38,280	3,062	30,660	2,453	1,914	20,831
8	97,200	38,280	0	0	0	0	58,920
9	97,200	38,280	0	0	0	0	58,920
10	97,200	38,280	0	0	0	0	58,920

FROM THE 8TH YEAR MEMBER HAS THEIR OWN FUND, SO NEED NOT THE SHORT TERM LOAN.

APPENDIC 20

INVESTMENT COST FOR RAW SILK PROCESSING

UNIT : 1,000 ₪

1. LAND 2 RAIS @ 20,000 ₪	40
(FOR OFFICE, STORAGE OFFICE BUILDING AND STORAGE 600 M ² @ 800 ₪)	48
2. BOUNDARY WALL	20
3. GODOWN FOR COCOON 200 M ² @ 600 ₪	120
4. FACTORY BUILDING 100 M ² @ 600 ₪	600
5. 2 GARAGES	15
6. 1 TRUCK	300
7. 5 MOTORCYCLES @ 20,000 ₪	100
8. 2 TYPEWRITERS @ 12,000 ₪	240
9. 20 SETS OF TABLES AND CHAIRS @ 2,400 ₪	48
10. SAFE AND DOCUMENT CASE	150
11. PLANTS AND MACHINES	17,800
12. OTHER	50
TOTAL INVESTMENT COST	19,531

APPENDIC 21

PLANT AND MACHINE	UNIT : 1,000 ฿
1. STEAM BOILER	1,200
2. MULTI END SILK REELING 10 BASINS	3,000
3. COCOON COOKING MC.	1,500
4. SILK RE-REELING MC.	1,200
5. SILK TWISTING MC.	1,000
6. SILK BOOKING MC.	1,000
7. SILK DOUBLING MC.	1,000
8. BOBBIN WINDER	800
9. COCOON FLOSS REMOVER	800
10. PUPAE THROWING MC.	800
11. TESTING EQUIPMENT	1,200
12. WEIGHING MC.	1,000
13. VACUUM TREATING MC.	800
14. DUPION SILK REELING MC.	1,000
15. ELECTRIC INSTALLATION	800
16. WATER WORK INSTALLATION	500
17. OTHERS	200
TOTAL	17,800

RESOURCE : THAI TRADING MACHINERY

STAFF AND SALARY

NO.	POST	AMOUNT	SALARY (BAHTS)	
			1 MONTH	1 YEAR
1.	GENERAL MANAGER	1	5,000	60,000
2.	SECTION MANAGER	4	4,000	192,000
3.	CHIER ACCOUNTANT	1	3,000	36,000
4.	CASHIER	1	3,000	36,000
5.	MULBERRY SPECIALIST	1	3,000	36,000
6.	SILK WORM SPECIALIST	1	3,000	36,000
7.	CHIEF OF PROCUREMENT	1	3,000	36,000
8.	CHIEF OF SELLING	1	3,000	36,000
9.	ENGINEER	1	3,000	36,000
10.	CHIEF OF PRODUCTION	1	3,000	36,000
11.	ACCOUNTANT	2	2,500	60,000
12.	MULBERRY STAFF	2	2,500	60,000
13.	SILKWORM STAFF	2	2,500	60,000
14.	MECHANICS	2	2,500	60,000
15.	INPUT SUPPLY OFFICER	2	2,000	48,000
16.	STORE KEEPERS	3	2,000	72,000
17.	CLERK AND TYPIST	2	2,000	48,000
18.	SECURITY GUARD	1	2,000	24,000
19.	DRIVER	1	2,000	24,000
20.	PEON	1	1,500	18,000
21.	WORKERS 60/DAY FOR 270 DAYS	42		680,400
TOTAL		72		1,694,400

APPENDIC 23

OPERATING COST/YEAR

UNIT : 1,000 ₪

1. SALARY AND WAGES	1,694
2. TRAVELLING ALLOWANCE	120
3. WRITING AND PRINTING MATERIAL	50
4. FUEL AND TRANSPORTATION	100
5. VEHICLE & MACHINE MAINTENANCE	50
6. OFFICE STORE GODOWN MAINTENANCE	40
7. ELECTRICITY EXPENSE	480
8. WATER EXPENSE	120
9. CHEMICAL	240
10. OTHER EXPENSE	100
TOTAL	2,994
11. RAW MATERIAL (COCOON 324,000 KG. x 90 ₪)	29,160
COST OF GOODS SOLD	32,154
12. INTEREST ON WORKING CAPITAL	998
(WORKING CAPITAL 10,505)	
(INTEREST RATE 9.5%)	
TOTAL	<u>33,152</u>

COST OF PRODUCTION

YEAR	1	2	3	4	5	6	7	8	9	10
PRODUCTION PROGRAM	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%
A. FIXED COST										
- SALARY	1,694,000	1,694,000	1,694,000	1,694,000	1,694,000	1,694,000	1,694,000	1,694,000	1,694,000	1,694,000
- FINANCIAL COST	998,000	998,000	998,000	998,000	998,000	998,000	998,000	998,000	998,000	998,000
TOTAL FIXED COST	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000
B. VARIABLE COST										
- RAW MATERIAL	26,244,000	29,160,000	29,160,000	29,160,000	29,160,000	29,160,000	29,160,000	29,160,000	29,160,000	29,160,000
- UTILITIES	540,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000
- CHEMICAL	216,000	240,000	240,000	240,000	240,000	240,000	240,000	240,000	240,000	240,000
- ADMINISTRATION COST	414,000	460,000	460,000	460,000	460,000	460,000	460,000	460,000	460,000	460,000
TOTAL VARIABLE COST	27,414,000	30,460,000	30,460,000	30,460,000	30,460,000	30,460,000	30,460,000	30,460,000	30,460,000	30,460,000
AVERAGE VARIABLE COST	705.10	705.10	705.10	705.10	705.10	705.10	705.10	705.10	705.10	705.10
TOTAL COST	30,106,000	33,152,000	33,152,000	33,152,000	33,152,000	33,152,000	33,152,000	33,152,000	33,152,000	33,152,000

NET INCOME STATEMENT

YEAR	1	2	3	4	5	6	7	8	9	10
PRODUCTION PROGRAM	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%
A. SALES										
- RAW SILK	42,768,000	47,520,000	47,520,000	47,520,000	47,520,000	47,520,000	47,520,000	47,520,000	47,520,000	47,520,000
- PUPAE	816,480	907,200	907,200	907,200	907,200	907,200	907,200	907,200	907,200	907,200
TOTAL INCOME	43,584,480	48,427,200	48,427,200	48,427,200	48,427,200	48,427,200	48,427,200	48,427,200	48,427,200	48,427,200
B. PRODUCTION COST	30,106,000	32,152,000	32,152,000	32,152,000	32,152,000	32,152,000	32,152,000	32,152,000	32,152,000	32,152,000
C. GROSS PROFIT	13,478,480	15,275,200	15,275,200	15,275,200	15,275,200	15,275,200	15,275,200	15,275,200	15,275,200	15,275,200
D. INCOME TAX (1.65%)	718,550	799,049	799,049	799,049	799,049	799,049	799,049	799,049	799,049	799,049
E. NET PROFIT	12,759,930	14,476,151	14,476,151	14,476,151	14,476,151	14,476,151	14,476,151	14,476,151	14,476,151	14,476,151
D. DIVIDEND (13% FROM SHARE HOLDING)	430,482	430,482	430,482	430,482	430,482	430,482	430,482	430,482	430,482	430,482
E. BONUS 2%	265,122	300,463	300,463	300,463	300,463	300,463	300,463	300,463	300,463	300,463
F. UNDISTRIBUTED PROFIT	12,064,326	13,745,206	13,745,206	13,745,206	13,745,206	13,745,206	13,745,206	13,745,206	13,745,206	13,745,206

WORKING CAPITAL REQUIREMENT

ITEMS	NO OF MONTHS	YEAR'S EXPENSE	BAHT IN 1,000
1. RAW MATERIAL	2	29,160	4,860
2. SALARY WAGES	1	1,694	141
3. WRITING AND PRINTED MATERIAL	2	50	8
4. FUEL AND TRANSPORTATION	2	100	17
5. VEHICLE & MACHINE MAINTENANCE	3	50	12
6. OFFICE AND STORE GODOWN MAINTENANCE	3	40	10
7. ELECTRICITY EXPENSE	1	480	40
8. WATER EXPENSE	1	120	10
9. CHEMICAL	2	240	40
10. OTHER EXPENSE	1	100	9
			5,147
FINISHED GOODS INVENTORY	1		2,679
COLLECTION PERIOD (A/R)	1		2,679
TOTAL			10,505

CASH FLOW Budget

	0	1	2	3	4	5	6	7	8	9	10
A. CASH INFLOW											
- INVESTMENT COST	19,531										
- SALE		43584,000	48427,000	48,427,000	48,427,000	48,427,000	48,427,000	48,427,000	48,427,000	48,427,000	48,427,000
- WORKING CAPITAL		10505,000	10505,000	10,505,000	10,505,000	10,505,000	10,505,000	10,505,000	10,505,000	10,505,000	10,505,000
TOTAL CASH INFLOW		54089,000	58932,000	58,932,000	58,932,000	58,932,000	58,932,000	58,932,000	58,932,000	58,932,000	58,932,000
B. CASH OUT FLOW											
- OPERATING COST		29118,000	32154,000	32,154,000	32,154,000	32,154,000	32,154,000	32,154,000	32,154,000	32,154,000	32,154,000
- FINANCIAL COST		998,000	998,000	998,000	998,000	998,000	998,000	998,000	998,000	998,000	998,000
- SHORT TERM LOAN REPAYMENT		10505,000	10,505,000	10,505,000	10,505,000	10,505,000	10,505,000	10,505,000	10,505,000	10,505,000	10,505,000
- LONG TERM LOAN REPAYMENT		2,162,247	2,162,247	2,162,247	2,162,247	2,162,247	2,162,247	2,162,247	2,162,247	2,162,247	2,162,247
- INTEREST REPAYMENT		1,297,348	1,081,123	854,900	648,679	432,449	216,225				
TOTAL CASH OUT FLOW		44080,594	46,900,370	46,674,147	46,467,926	46,251,696	46,035,472	43,657,000	43,657,000	43,657,000	43,657,000

AT THE END OF THIRD YEAR, FARMERS WOULD PRODUCE 324,000 KG. OF COCOONS AND THEN CAN START PROCESSING HOUSE. SO 0 YEAR IN THE TABLE MEANS BEGINNING OF 4TH YEAR.

BREAK EVEN POINT

YEAR	1	2	3	4	5	6	7	8	9	10
PRODUCTION PROGRAM	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%
A. FIXED COST	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000	2,692,000
B. AVERAGE VARIABLE COST	705.10	705.10	705.10	705.10	705.10	705.10	705.10	705.10	705.10	705.10
C. PRICE	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
D. B.E.Q. (B.E.P.)	6,816.92	6,816.92	6,816.92	6,816.92	6,816.92	6,816.92	6,816.92	6,816.92	6,816.92	6,816.92
E. BREAK EVEN REVENUE	7,498,612	7,498,612	7,498,612	7,498,612	7,498,612	7,498,612	7,498,612	7,498,612	7,498,612	7,498,612

BREAK EVEN REVENUE = P x B.E.Q

= 1,100 x 6,816.92

B.E.R. = 7,498,612

BREAK EVEN POINT = $\frac{\text{TOTAL FIX COST}}{P - \text{AVERAGE VARIABLE COST}}$

= $\frac{2,692,000}{1,100 - 705.10} = \frac{2,692,000}{394.9}$

B.E.P. = 6,816.92

BENEFIT COST ANALYSIS

YEAR	COST	BENEFIT	PWF 10%	PRESENT VALUE COST	PRESENT VALUE BENEFIT
0	19,531,000			19,531,000	
1	30,106,000	43,584,480	0.9091	27,369,365	39,622,651
2	33,152,000	48,427,200	0.8264	27,396,813	40,020,238
3	33,152,000	48,427,200	0.7513	24,907,098	36,383,355
4	33,152,000	48,427,200	0.6830	22,642,816	33,075,778
5	33,152,000	48,427,200	0.6209	20,584,077	30,068,448
6	33,152,000	48,427,200	0.5644	18,710,989	27,332,312
7	33,152,000	48,427,200	0.5132	17,013,606	24,852,839
8	33,152,000	48,427,200	0.4665	15,465,408	22,591,289
9	33,152,000	48,427,200	0.4241	14,059,763	20,537,976
10	33,152,000	48,427,200	0.3855	12,780,096	18,668,686
TOTAL	229,018,000	334,147,680		158,624,763	231,355,621

B/C RATIO = 1.46 : 1

NPV AT 10% = 72,730,858

IRR > 50%

$$\begin{aligned} \text{PAY BACK PERIOD} &= \frac{\text{INVESTMENT}}{\text{NET BENEFIT PER YEAR}} \\ &= \frac{19,531,000}{\frac{(334,147,680 - 229,018,000)}{10}} \\ &= \frac{19,531,000}{105,129,680} \\ &= \frac{19,531,000}{10,512,968} \end{aligned}$$

PAY BACK PERIOD = 1.9 YEAR

INTERNAL RATE OF RETURN

YEAR	EV COST AT DISCOUNT RATE AT 10 %	PRESENT VALUE BENEFIT AT 10 %	PWF 50 %	PV COST 50 % (A)	PV BENEFIT 50 % (B)
0	19,531,000				
1	27,363,365	39,622,651	0.6667	20,071,670	29,057,773
2	27,369,813	40,020,238	0.4444	14,732,749	21,521,048
3	24,907,098	36,383,355	0.2962	9,819,622	14,344,137
4	22,642,816	33,075,778	0.1975	6,547,520	9,564,372
5	20,584,077	30,068,448	0.1317	4,366,118	6,377,862
6	18,710,989	27,332,312	0.0878	2,910,746	4,251,908
7	17,013,606	24,852,839	0.0585	1,939,392	2,832,991
8	15,465,408	22,591,289	0.0390	1,292,928	1,888,661
9	14,069,763	20,537,976	0.0260	861,952	1,259,107
10	12,780,096	18,668,686	0.0173	573,530	837,791
TOTAL	158,624,763	231,355,621		60,387,817	87,950,091

$$\begin{aligned}
 \text{NPV} &= \text{PV COST} - \text{PV BENEFIT} \\
 &= 60,387,817 - 87,950,091 \\
 &= 27,562,274
 \end{aligned}$$

$$\text{IRR} = \text{DR}_L + (\text{DR}_U - \text{DR}_L) \times \left(\frac{\text{NPV}_L}{\text{NPV}_L - \text{NPV}_U} \right)$$

DR_L = LOWER BOUND DISCOUNTED FACTOR

DR_U = UPPER BOUND DISCOUNTED FACTOR

NPV_L = NET PRESENT VALUE OF DR_L

NPV_U = NET PRESENT VALUE OF DR_U

$$= 10 + (50 - 10) \times \left(\frac{72,730,858}{72,730,858 - 27,562,274} \right)$$

$$= 10 + 40 \times \left(\frac{72,730,858}{45,168,584} \right)$$

$$= 10 + (40 \times 1.6) = 10 + 64$$

$$\text{IRR} = 74\%$$

SENSITIVITY ANALYSIS
INTERNAL RATE OF RETURN

INCOME REDUCE 20 %

YEAR	COST	BENEFIT	PV AT 10%	PV COST	PV BENEFIT
0	19,531,000			19,531,000	
1	30,105,000	34,867,584	0.9091	27,368,456	31,698,121
2	33,152,000	38,741,760	0.8264	27,396,813	32,061,190
3	33,152,000	38,741,760	0.7513	24,907,098	29,106,684
4	33,152,000	38,741,760	0.6830	22,642,816	26,460,622
5	33,152,000	38,741,760	0.6209	20,584,077	24,054,759
6	33,152,000	38,741,760	0.5644	18,710,989	21,865,849
7	33,152,000	38,741,760	0.5132	17,013,606	19,882,271
8	33,152,000	38,741,760	0.4665	15,465,408	18,073,031
9	33,152,000	38,741,760	0.4241	14,059,763	16,430,380
10	33,152,000	38,741,760	0.3855	12,780,096	14,934,948
TOTAL	229,017,000	267,318,144		158,623,854	185,084,497

B/C RATIO = 1.17 : 1

NPV AT 10% = 26,460,643

IRR > 50 %

SENSITIVITY ANALYSIS
INTERNAL RATE OF RETURN

COST INCREASE 20 %

YEAR	COST	BENEFIT	PV AT 10%	PV COST	PV BENEFIT
0	23,437,200			19,531,000	
1	36,172,200	43,584,480	0.9091	32,843,238	39,622,651
2	39,782,400	48,427,200	0.8264	32,876,175	40,020,238
3	39,782,400	48,427,200	0.7513	29,888,517	36,383,355
4	39,782,400	48,427,200	0.6830	27,171,379	33,075,778
5	39,782,400	48,427,200	0.6209	24,700,892	30,068,448
6	39,782,400	48,427,200	0.5644	22,453,187	27,332,312
7	39,782,400	48,427,200	0.5132	20,416,328	24,852,839
8	39,782,400	48,427,200	0.4665	18,558,490	22,591,289
9	39,782,400	48,427,200	0.4241	16,871,716	20,537,976
10	39,782,400	48,427,200	0.3855	15,336,115	18,668,686
TOTAL	274,821,600	334,147,680		190,349,716	231,355,621

B/C RATIO = 1.22 :1

NPV AT 10% = 41,005,905

IRR > 50 %

APPENDIC 33

LONG TERM LOAN REPAYMENT SCHEDULE

YEAR	CAPITAL	INTEREST (10)	CAPITAL REPAYMENT	ANNUAL REPAYMENT	LOAN REMAIN
1	12,973,480.00	1,297,348	2,162,246.67	3,459,594.67	10,811,233.33
2	10,811,233.33	1,081,123	2,162,246.67	3,243,369.67	8,548,986.66
3	8,648,986.66	854,900	2,162,246.67	3,017,146.67	6,486,739.99
4	6,486,739.99	648,674	2,162,246.67	2,810,920.67	4,324,493.32
5	4,324,493.32	432,449	2,162,246.67	2,594,695.67	2,162,246.65
6	2,162,246.65	216,225	2,162,246.65	2,378,471.65	0.00
7	0.00	0	0.00	0.00	0.00
8	0.00	0	0.00	0.00	0.00
9	0.00	0	0.00	0.00	0.00
10	0.00	0	0.00	0.00	0.00

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

by Mrs Jansuda Watcharayon, Thailand.

(other than those presented by groups)

- * The project has two phases - one for the benefit to farmers and the second one supply of raw silk to the private buyers.
- * Thai silk industry is a dominant industry, hence competition with established traders may be acute. Risk analysis in this context may be useful.
- * International competition from countries producing silk like china may be another factor to be considered.
- * Additional benefits to farmers by way of this project should be added in the project.
- * Backward linkages from society to farmers need elaboration.
- * Distribution of surplus = policy re dividend to members should be kept in mind.
- * Cross checking of data is difficult due to absence of cross reference in the document.
- * While calculating IRR (appendix 30) formulae of interpolation may be applicable only for small percentages.
- * Preoperative expenses have not been calculated and should be included.
- * Stock of boiled cocoon, if kept for two months, before processing may get damaged. This should be checked.
- * Cash budget needs modification. Terms used are wrong.
- * Marketing becomes risky if the two parties who will buy do not keep up commitments. Need for long-term agreement necessary. Otherwise private buyers can dictate price.
- * Margin money on working capital in financial investment is necessary. Entire working capital cannot be borrowed.
- * If all 300 members do not have 12 rai of land for cultivation of mulberry, as envisaged in project, it will affect project.
- * 7.5 kg of cocoon may not give 1 kg of raw silk, needs checking
- * Processing of raw silk into silk should be added as final phase to add more value to farmers and less dependence on private traders for marketing of raw silk.

SILK PROJ.

5/3/90 G. A.

Background.

1. DETAILS REGARDING CHAKARAJ SOC. OF

PREVIOUS DATA WAS NOT MENTIONED.

- a.) Statistics of the society should be stated.
- b.) Cost and Profit data

2. DETAILS REGARDING REELING FACTORY (COMPETITOR)

IN PRIVATE SECTOR WAS NOT GIVEN.

3. PROCUREMENT PRICES ^{of cocoon} 90 \$/KG. ^{RS} FIXED, BUT

FOR JUSTIFICATION NO PREVIOUS YEAR'S

DATA GIVEN. IT MUST BE INCLUDED.

4. SELLING PRICE OF RAW SILK 1100 \$/KG.

WHEN THE GOVERNMENT FIXED THE PRICE

1250 - 1300 \$. WHAT CRITERIA HAS BEEN FIXED

FOR SELLING PRICE? NO PREVIOUS YEARS SELLING

PRICE DATA, INCLUDED FOR JUSTIFICATION, IT

BE INCLUDED.

GROUP - B

THAILAND

JANSUDA

FINANCIAL ANALYSIS

2. SENSITIVITY ANALYSIS IS NOT DONE CORRECTLY.
3. WASTAGE AND SPOILAGE NOT PROVIDED.
4. NO PROVISION FOR INCREASE IN SALARY/
WAGES

5. Cash flow (step I) \rightarrow (AP 16)

(A) Cash outflow = V.C + F.C

V.C = mixed working capital
(interest, repair & maintenance,
water electric, etc.)

(B) pay back period = 5 \rightarrow 4 year.

\rightarrow not fund sources.

2. step (AP 27)

① IRR 24% → cost 20% increase

② investment → ^{750%} pre-operation expenses.

③ cash flow

④ working capital (AP-26)

raw material
inventory } How can be calculated
receivables ?

⑤ working capital cannot be
cash inflow.

⑥ outflow (V.L. F.C.)

- o loan
- o interests.
- o operating cost
- o financial cost.

⑦ payback period year wrong?

⑧ no Budget.

5/3/90

GROUP C

SILK : THAILAND

In silkworm rearing a farmer member can get 40,300 ฿ p.a.

Is the basis of surplus distribution agreed with law?

There is no surplus distribution according to the contribution of the members. It is necessary ^{that} surplus distribution ^{be done} according to contribution to practice to coop. activities.

Marketing : No need ^{of} so many staff (Chief of Selling) because this co-op. just sell direct to others private sector. This can ^{be} run by the Marketing Manager or Chief of Procurement.

Marketing channel should be explained. There are only two buyers because it is necessary to get contract with companies.

Marketing Price of raw silk to be verified thoroughly.

Fourth ICA/Japan Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & KOREA

October 23, 1989-May 10, 1990

<i>TITLE OF PROJECT</i>	:	<i>SOYABEAN PROJECT</i>
<i>COUNTRY</i>	:	<i>THAILAND</i>
<i>PROJECT PREPARED BY</i>	:	<i>PORNRAJ SATTONGSUK</i>

Funded by the Government of Japan

and

Executed by the ICA in collaboration with its Member Organisations in

India, Thailand, Japan and Korea

ICA Management Training Project for Agricultural Cooperatives in Asia

INTERNATIONAL COOPERATIVE ALLIANCE

**Headquarters:
Route des Morillons 15
CH 1218, Le Grand Saconnex
Geneva, Switzerland**

**Regional Office for Asia:
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New Delhi 110 065
India**

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Acknowledgements

The objective of agricultural co-operative is how to increase income of the farmer members. There are many ways to help the farmers. One of that is the person who work in co-operative should have the knowledge about management, expectully the manager.

The fourth ICA/Japan training course for strengthening management of agricultural co-operative in Asia has provided me with an opportunity to learn and study in management of agricultural co-operative. For this training course, I prepared some project for San-Pa-Tong Agricultural Co-operative Ltd. followed by the subject that I have learnt in ICA. By the writing of the project proposal, I would like to express my deep gratitude to MR. SWAD JALEARNSUK the manager of San-Pa-Tong Agricultrual Co-operative Ltd. and his staff.

For warmest hospitality, I would like to thanks for ICA staff. Specially to MR. M.V. Madane, the project director, who guided and helped me very much and very kind.

I would like to give my gratitude to Prof. Ramash Gupta and the professor from IIMA, who gave me an useful knowledge.

Finally, I would like to express my deep gratitude to the chairman of CLT, MR. SURIN CHONPRASERT, the director of CLT, MR. NARONG MARUKATUT and all CLT staff who nominated and gave me a big chance to participate in the training course,

PORNRAT SAITONGSUK

FEBRUARY, 1990

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Chapter 1

Summary

- 1) San-Pa-Tong Agricultural Co-operative Ltd. (SAC) is located in Cheang-Mai Province in the northern part of Thailand. It is far from Cheang-Mai centre about 22 km. Total members are 6,267 persons in 13 sub-district where is 31.43% of the total farmers.
- 2) Cropping pattern in this area is according to availability of irrigation water. The farmers cultivate paddy twice a year and grain soyabean (some grain onion) one time a year. The production of soyabean in this area is very good because of good climate and soil. Total production of soyabean in 1989 which San-Pa-Tong Agricultural Co-operative Ltd. collected from the farmer is 4,150 tons (from area 18,495 rais)

The members will sell their product to the society by transporting it from their farm to the society. The price in 1989 is 9 Bath/kg. After that the society will grade soyabean in 3 grades. (A,B,C). Grade A price is 11 Bath/kg. (30%) B and C price is 8-9 Bath/kg. (70%). All of the soyabean the Society will sell to the private factory. The farmer member can get a little value addition from grading.

- 3) The market of soyabean is very good because the government is promoting this commodity. This project suggest the society to process the soyabean into oil and soyabean cake to have additional value. It is expected that this project will increase incomes of the farmer member.

4) This project would be implemented in the following phases :-

A. Set up the factory for processing the soyabean. The estimated budget is 140 million Bath

In the first period, the society will process only B and C grade (A grade will sell in the market directly) After processing, the society will sell the semi-refined oil to the private factory for further processing. The private factory will process it to pure oil and market it directly. The soya-bean cake will also be sold to the private factory.

B. In future, the society will set up a small factory to make the food for cattle and develop its own brand name. Finally set up a factory to make pure oil and run marketing activity in the name of San-Pa-Tong Agricultural Co-operative Ltd.

This project covers only phase A. Phase B is recommended for future implementation.

5) According to the financial analysis:-

IRR	29.5%
Net Present Value	
at 12.5%	36,261
at 15.0%	27,847
at 20.0%	13,009
at 29.5%	0
Break-even Point (in term of %)	83.5%
at 70% of capacity B.E.P.	58.45%

Chapter 2

Background

2.1 Overall situation

Soyabean is one of the economic commodity in Thailand. The demand of soyabean is more than the supply. There are many factories which buy soyabean to extract oil and use soyabean cake as the input to make food for the animal.

But the government has the policy to limit the imports of soyabean and soyabean cake from outside country. And it want to promote and expand the area of soyabean to make supply balance demand.

One of interesting point is that the price of soyabean cake is higher than the price of soya-bean because the factory which want the soyabean cake is more than the factory which process soya-bean to be oil. Imports of soyabean cake are given in table 1.

Cost of production in last 5 years are given in table 2.

Table 2 : Cost of soya-bean production in northern part of Thailand

<u>Year</u>	<u>Cost (Bath/kg)</u>
1983/84	5.49
1984/85	4.80
1985/86	4.67
1986/87	4.67
1987/88	6.72

from : Agricultural Economic Research Division.

Table 1 The amount of production, imported and the used of soya-bean cake and other cake

	soya-bean cake				other cake				Total	
	production	used	imported	production	used	import	production	used	import	
1977-78	55.44	167.52	112.08	133.40	163.83	30.44	188.84	331.35	142.51	
1978-79	64.53	103.39	38.86	124.23	132.63	8.40	188.76	236.02	47.26	
1979-80	54.19	186.04	131.85	131.88	144.63	12.75	186.07	330.67	144.60	
1980-81	77.44	213.03	138.59	147.96	153.47	5.51	222.40	366.50	144.10	
1981-82	62.33	251.22	188.89	133.93	138.48	4.55	196.26	389.70	193.44	
1982-83	70.29	271.18	200.89	145.03	146.89	1.86	215.32	418.07	202.75	
1983-84	53.94	294.26	240.32	119.99	13.37	11.38	173.93	425.63	251.70	
1984-85	93.14	316.27	223.13	123.05	132.97	9.92	216.19	449.24	233.05	
1985-86	134.62	363.78	229.16	159.26	172.56	13.30	293.88	536.34	242.45	
1986-87	183.91	409.19	225.28	100.39	168.75	68.36	284.30	579.94	293.64	
1987-88	193.08	425.26	232.18	133.53	272.71	139.18	326.61	697.97	371.36	
		11.93			3.37			8.41		

unit : 100 tons

The production/rai in 1987-88 from the area in Cheang-Mai Province is 205 kg/rais. (production area is 246,725 rais and total production is 50,597 tons)

And the price that the farmer can get as the farm price is 8-9 Bath/kg

2.2 Area of Project

San-Pa-Tong district is in Cheang-Mai province in the northern part of Thailand. Total area is 890.586 km² (556.616 rais) 126,907 rais is the area for agricultural, Forest area is 392,300 rais. Water area is 6,250 rais and others area is 31,159 rais 1/3 of the total area is the mountain and there are 3 rivers pass-through the San-Pa-Tong district.

San-Pa-Tong Agricultural Co-operative Ltd. was registered in 1935. Now it has 6,267 members (January, 1990). It has a rice mill which began with 900 kg/day capacity. Later on the capacity was to 1440 kg/day. After that, it build 2 warehouses with 30,000 kg. capacity for each one.

The operation of this society

The society has the objective to improve standard of living of the member by helping them in very possible manner. Some of the activities of the society are :-

- 1) to give credit to the members.
- 2) to accept deposits from the members.

- 3) to provide input supplies and the consumer goods to sell at the fair price.
- 4) to give extension facilities to the members.
- 5) to provide irrigation facilities.
- 6) to procure the members' production. (paddy and soyabean)
- 7) do processing to add values. They already have a rice mill and plan to have a soyabean oil mill.
- 8) to promote new activities to provide implement.
- 9) Social welfare.

The area that can grow soyabean plant in Cheang-Mai province divide by area of co-operative societies is given in table 3

Table 3 : Area and Production in Cheang-Mai Province

<u>Cheang-Mai Province</u>	<u>Production area (rais)</u>	<u>Production (tons)</u>
1. San-Pa-Tong Agricultural Co-op.	18,495	4,150
2. Hang-Dong Agricultural Co-op.	7,389	1,663
3. Ma-Rim Agricultural Co-op.	2,684	725
4. Praw Agricultural Co-op.	3,600	648
5. Jom-Tong Agricultural Co-op.	2,199	560
6. Doi-Tow Agricultural Co-op.	6,050	1,513
7. Ma-Sa-rang Agricultural Co-op.	216	50
8. Ma-La- Noi Agricultural Co-op.	1,770	340
9. Ma-Hong-Sorn Agricultural Co-op.	<u>1,324</u>	<u>299</u>
Total	<u>43,727</u>	<u>9,948</u>

2.3 Problems faced by farmers

1) The main problem is the uncertainty of the market price. And their commodity is perishable. They have to sell it immediately which makes the price to go down during the harvest season. Since every farmer is trying to sell, supply increase and price of the product falls considerably and farmer gets low price.

2) Some farmer want to grow soyabean, but they face the water problem. Some area can not get the irrigation water.

3) The cost of input supply is higher year by year. It make the high cost of production.

2.4 Need and Justification for the project

Since the society does not have the processing factory, the society sells the crop in raw material form. And the member do not receive adequate price.

At present, the society procures many kind of crops from the members. The society processes only paddy through its rice mill and thus it can give good price to the farmers. If the society can process soyabean also into soyabean oil and soyabean cake, the society can get better price and can pay the farmers member by patronage refund (bonus). This way the society can achieve its objectives by helping the farmers. To do this, The society has adequate resources such as

- 1) Enough land to build the factory and this location is very suitable because it is in area where farmers can grow soyabean. It will reduce cost of procurement and transportation.
- 2) The society have members who produces soyabean, and thus, procurement would be easy.

- 3) The government has the policy to promote and expand the soyabean through co-operatives. It is easy to collect the soyabean as much as the society want.
 - 4) The society has experience in procurement of soyabean and it has good location and has the warehouses to keep the inventory and finished goods.
 - 5) Soyabean is a good-return crop, compare to other crops, because the price of soyabean cake is very high. And the demand is more than supply. The competitor is not much and the risk is not very high.
 - 6) The labour cost is low because there are many and easy to find local labour. It would save cost for society and the members would get employment also.
-

Chapter 3

Project

3.1 Objective

The basic objective is to increase income of San-Pa-Tong Agricultural Co-operative Ltd.'s members who grow the soyabean by set up the factory to process the soyabean into oil and soyabean cake. This project will include as below :-

- 1) Strengthening guidance and extension service including new technical know-how in paddy fields
- 2) to give credit to the farmer members as the fund to grow soyabean or give credit as a input supply form.
- 3) Collecting soyabean from the member at the fair price
- 4) to process the soya-bean to make value addition.
- 5) Pay-back the value addition to the farmer in form of patronage refund and dividend refund in a high rate in the end of the year.
- 6) Give social welfare to improve the standard of farmers' living.

3.2 Area of operation

This project is located in San-Pa-Tong distric, Cheang-Mai province. It operates in 12 sub-districts (villages). It also covers other agricultural co-operatives in Cheang-Mai province. This area can make production/year 9,948 tons in area 43,727 rais

The climate in this area is suitable for agricultural. It can grow the plant in every seasons. In winter season the minimum temperature is 4-5°C, in summer season maximum temperature is 35-40°C. Rainy season start in July. Maximum rainfall is in September about 711.4-968.9 mm/year. The farmer grow soyabean in January-March. It take time for 100 days to cultivate the soyabean.

San-Pa-Tong distric has a road connect to the highway of Cheangmai-Hod-Ma-Hong-Sorn. The society can set up the factory in the area 9 rai inside the society's area. As present, The society use project area as a demonstration soyabean farm for experiment and improve the growing pattern.

3.3 Project Component

This project can be implemented by San-Pa-Tong Agricultural Co-operative Ltd. and can find the source of fund from the Bank for Agricultural and Agricultural Co-operative. (BAAC) at 9.5% of interest rate.

Promotion to grow the soyabean

For this project, the soyabean that the society procure not enough to send to the factory. And for some members when they compare the co-operative price and marchant price if the marchant price higher than co-operative price they sell their product to the marchant. It made the procurement not much. To solve this problem, the society should encourage the farmer to grow the soyabean by giving them credit and give extensive facilities such as irrigation water, technical how to increase the production per yield.

Procurement

In the past, the society procure the soyabean by the farmer sent farmers their product, to the society and the transportation cost .10 Bath/kg. was included the soyabean price. This way some member have some problem in transportation because some have pick-up car, some did not have. To slove this problem the society try to give service by send the pick-up car or vehicle to recieve the soyabean at their farm.

After procurement, the society grade the soyabean in 3 grades sell A grade directly to the private merchant. B and C grade will sent to the factory to precess to make oil (semi-refined oil) and soya-bean cake.

Processing

The society will process soyabean by extract method. The factory have 50 tons/day capacity. It will work 24 hours in 3 shifts. In 1 month work 28 days and in 1 year work 10 month.

The capacity in first year is 70%, the second year is 80% from the third year to the future is 90% of capacity.

The ratio of raw meterial to make production is below :-

Raw Meterial

- | | |
|--------------|--------|
| 1) Soya-bean | 1 ton. |
| 2) Haxean | 5 kgs. |

Production

- | | |
|---------------------|--------------|
| 1) Semi-refined oil | 160-180 kgs. |
| 2) Soyabean cake | 770 kgs. |

For this processing section, it need factory manager to manage the work in the factory seperatily and the work can find easily in the area

For all production, the society sell to the private factory with has contract to recieve the production by recieve from the society. In this way it make the society to save transportation cost

Marketing

The distribution channal is to sell to the private sector. For the oil, the private factory will process to make it pure again and do the marketing activity such as promotion, advertising, packaging by itself. The reason why the society is not do marketing activity because it need very high cost and want the experience person to do it. For the society should to start in the simple thing and develop to expand the activity in the future. Only the investment cost of factory it use a high cost and want time to get payback period

Extensive service

The San-Pa-Tong Agricultural Co-operative Ltd. will coordinate with the government officer in their district or province or the Co-operative League of Thailand (CLT) for giving the knowledge in Co-operative system and new technology of soyabean planting. The objective will emphasis in how to plan about selecting the varieties of soyabean, what time they should grow and if the members get problem, the society will coordinate with the expert institute in that problem to help the farmers.

Chepter 4

Details of Operation

This project suggest the society to set up the factory to make soyabean into oil and soyabean cake. The detail of each operation will relate to each component. The activity are below :-

1. To give credit to the members.

The society will give the credit to the farmer members in the low rate of interest. The society should to give the credit in the supply input such as seed, fertilizer, preticide, etr instade to give cash to them. The reason is in this way it can guarantee that the farmer use the money in the right purpose because sometime the farmer use the money in other purpose and when they want to buy input supply they have not enough money. Another reason is the price of input supply in the society is lower than the others shop.

The source of fund in this purpose come from

- borrowing from BAAC.
- Acception deposit from the members.
- Cash Flow.

Not only give credit and input supply to the members the society also give extensive facilities to the member such as

- irrigation facilities.
- giving new technology of soyabean planting

2. Procurement

The society procure the soyabean from the members and send to the processing section but for this factory the purcurement from the members not enough to reach the capacity. So, the society will

procure some more from the other societies and other farmers.

The detail in cash year is below :-

	<u>from</u>	<u>month</u>	<u>quantity(ton)</u>	<u>total</u>
<u>The first year</u>	members	April	9,000	
	others	September	3,000	
	others	December	<u>1,720</u>	13,720
<u>The second year</u>	members	April	9,000	
	others	September	4,000	
	others	December	<u>2,680</u>	15,680
<u>The 3rd-10th year</u>	member	April	9,000	
	others	September	5,640	
	others	December	<u>3,000</u>	17,640

The others means others society in Cheang-Mai Province and the Province nearby. If not enough they will buy from the other farmer.

The procurement section will collect the soya-bean from the members by the farmers transport their product to the society. The society give the price follow by the market price and include transportation cost 10 ¢/kg.

After that the member will get the income immediately in form of input supply or consumer goods. If they want the cash they must be waiting for 2-3 days because it is the condition of the society.

The procurement section will check the quantity before send to grading. And after grading they will send B & C grade to the processing factory.

After processing, the procurement staff in the factory will procure the production and prepare to send to the private factory follow by the marketing section order.

3. Processing Section

The factory will receive the soyabean in B and C grade from the procurement section.

Most of extraction process has 2 methods. One is the small factory use the screw press machine. The cost in this way is not much, but the loss^{rate} of oil rate is very high. Even it has a low cost, but it can not give a good quantity of production.

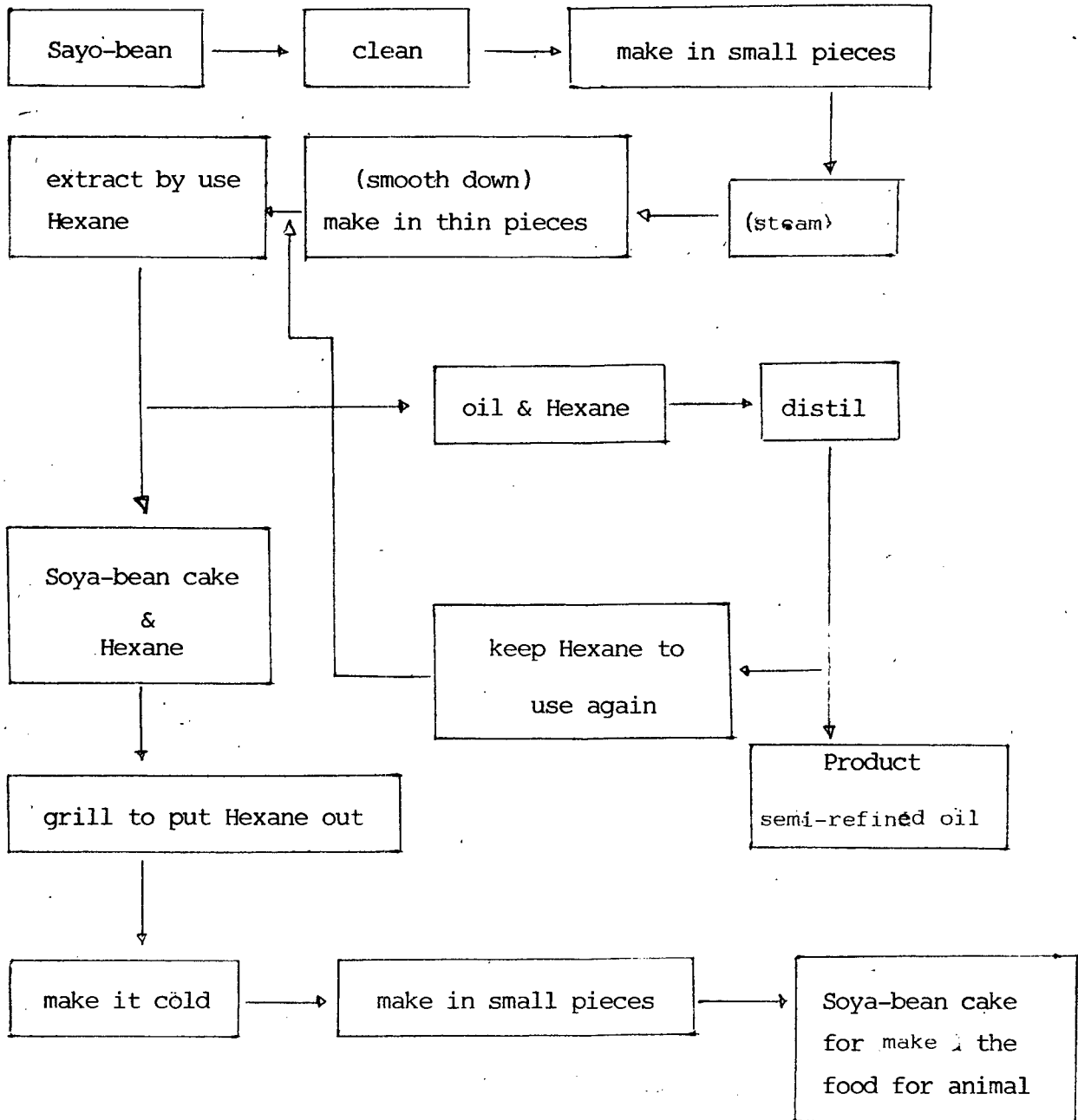
Another way to extract the oil from soyabean must have a high cost. It is a big factory and use solvent extraction method. It reduce the loss rate of oil and get the good quantity of soyabean cake.

This project have a data from China National Machinery Imp. and Exp. Corp. (Zhejiang Branch). The machinery is the excellent system and can get only the semi-refined oil. If the society want to make pure oil it need very high cost. So, in this phase this project should to process the semi-refined oil. After that it should try to develop to make pure oil in its own brand.

The step to make semi-refined oil and soyabean cake is below :-

Technology

Method : Solvent Extraction. From China National Machinery Imp. and Exp. Corp.



The detail of cost and expenditure in processing section.

1. Machinery from China

Capacity 50 tons of raw material/24 hours

2. The machinery work 24 hours, 28 days/months, 10 months/year

3. <u>Capacity</u>	1 st year	70%
	2 nd year	80%
	3 rd future	90%

4. rate of raw material product.

<u>raw material</u>		<u>product</u>
Soya-bean 1 ton	} can get	semi-refined oil 170 kg.
Hexane 5 kg		Soya-bean cake 770 kg.

5. Cost

- Soya-bean $\text{P} 8.12/\text{kg}$. (include transportation cost $\text{P} .10/\text{kg}$.)

(average price in the north part in last 3 year)

- Hexane $\text{P} 10/\text{kg}$

- semi-refined oil $\text{P} 19.65/\text{kg}$

- Soya-bean cake $\text{P} 8.89/\text{kg}$

6. Labour & Staff

Administration section $\text{P} 1,548,000/\text{year}$

Processing section $\text{P} 1,926,000/\text{year}$

7. electricity 500 KVA

- 174 P/KVA for factory

- 1.23 $\text{P}/\text{KVA-hour}$ for office

8. Fuel for steam machinery 77 liter/1 ton of raw material

price $\text{P} 3/\text{liter}$

9. Packaging for soya-bean cake $\text{P} 165/\text{ton}$

- 10. other expenditure for factory 0.5% of raw material cost
- 11. other expenditure in management 0.75% of revenue
- 12. tax 1.65% of revenue

13. Investment Policy

- 1) Investment for set up the factory & machinery from San-Pa-Tong Agricultural Co-operative Ltd.
- 2) Fund Flow of BAAC
 - interest rate 9.5%/year
 - pay-back in 10 years
 - value of pay-back money is equal value of soya-bean in each month
- 3) Plan for buy the raw-material
 - 1st year 13,720 ton
 - 2nd year 15,680 ton
 - 3-10 year 17,640 ton
- 4) The profit in each year will use to be fund flow 80% for decrease the amount of loan of BAAC

14. Maintainance

Building	0.5 - 1.0%
Machinery	0.5 - 2.0%
car	5.0 - 10.0%

- 15. Insurance 0.4% of value of asset

<u>investment</u>	
	฿
Cost of improve the land	2 million
Building	13.90 million
Machinery & equipment	33.61 million
Expenditure before operation	<u>2.00</u> million
Total	<u><u>51.51</u></u> million

<u>Investment in building</u>	(million Bath)
1. Godown (30/60 m)	4.50
2. raw material shed & tank 500 ton (9/16 m)	1.50
3. preparation shed (9/12 m)	0.80
4. 1 st extract shed (9/18 m)	0.40
5. solvent extraction shed (9/24 m)	2.20
6. cold storage	2.00
7. Hexane tank	0.50
8. boiler shed (10/20 m)	0.40
9. fence	0.80
10. sluice (left of water system)	0.30
11. Electricity control room	0.30
12. others	<u>0.20</u>
Total	<u><u>13.90</u></u>

Investment in machinery & equipment

	<u>Import</u>	<u>U.S.Dollar</u>	<u>million Bath</u>
1. Solvent Extraction machinery	600,000		15.60
2. Screw Press machinery (2 sets)	70,000		1.82
3. electricity system	50,000		1.30
4. boiler (6 tons)	60,000		1.56
5. oil tank	35,000		0.91
6. Chemical equipment	11,172		0.29
7. import tax			<u>6.44</u> 27.92
<u>Buy in the country</u>			
8. accumulator			0.70
9. weighting machinery (30 tons)			0.35
10. rickshaw			1.00
11. lapping motor			0.75
12. pick-up car (1)			0.26
13. cold storage (2 set)			0.10
14. underworld pool			0.80
15. others transport equipment			<u>0.30</u> 4.26
<u>Installment</u>			
16. machinery installment			0.87
17. service & transport			<u>0.56</u> <u>1.43</u>
	Total		<u>33.61</u>

4. Marketing

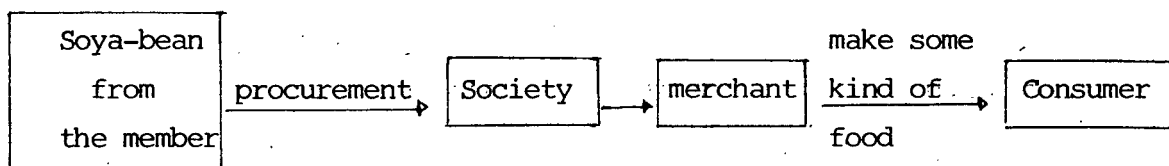
Distribution Channel

After procurement the crops. The society will grading the soya-bean in 3 grade. The ratio of 3 grade is

Grade A	30%
Grade B & C	68%
loss	2%

For A-grade the society will sell directly to the merchant. It make a good price, In 1983, the cost of soya-bean (farm price) was $\text{₹ } 8-9$ while the price of A grade was $\text{₹ } 11$. But the price for B & C grade that sent to the private factory was only $\text{₹ } 8-9$

Distribution Channel Chart I



For B & C grade will send to the factory to make soya-bean oil and soya-bean cake before sell.

The situation of soya-bean product is in the competition market. Now, there are at least 6 brands of soya-bean oil and they have a high cost in advertising (expectully in television, cost for 1 minite is 10,000-15,000 ₹). For this project, the society will have a contract with a private factory in a guarantee price.

Because the oil that the society produce is the Semi-refined oil, the private factory will process to make it pure again and use their own brand. And the price of semi-refined oil last 6 years is below :-

Table 4 The wholesale price of semi-refined oil

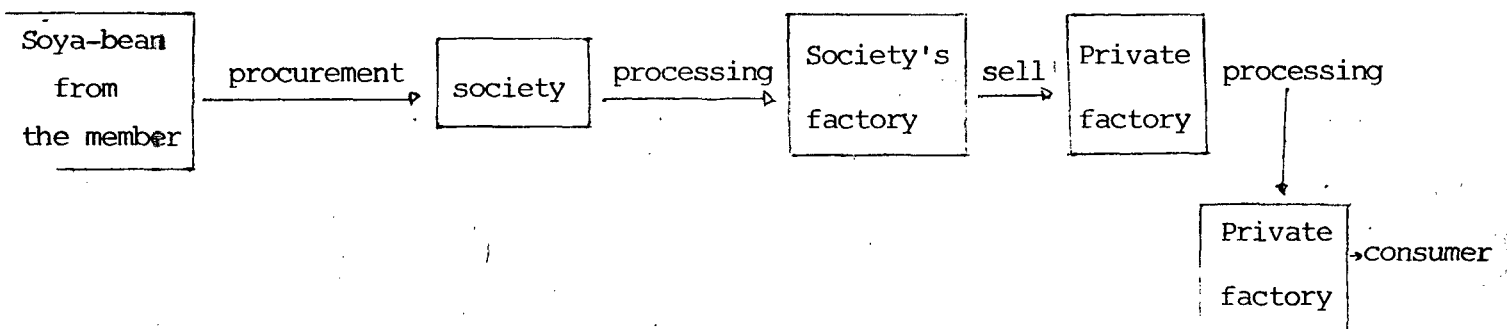
unit bath/kg.

<u>year</u>	JAN	FEB	MAR	ARI	MAY	JUN	JULY	AUS	SEP	OCT	NOV	DEC	AVERAGE
1983	15.01	14.99	15.01	15.00	15.07	15.04	15.05	15.07	15.87	18.26	20.44	20.63	16.29
1984	21.63	22.52	20.90	20.72	21.25	21.35	21.75	21.00	21.25	21.25	21.25	-	21.35
1985	18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50	18.50
1986	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.40	18.40	18.65	18.12
1987	18.75	18.75	18.25	17.75	17.75	17.15	17.75	17.75	19.75	21.75	22.25	23.25	19.29
1988	24.25	24.25	24.25	24.25	20.64	19.00	19.00	19.00	19.25	21.50	21.50	21.50	21.53

FROM : Domestic trade Department

The project use the average price for last 3 years. Thus, the price of soya-bean oil is $\text{B } 19.65/\text{kg}$

Distribution Channel Chart



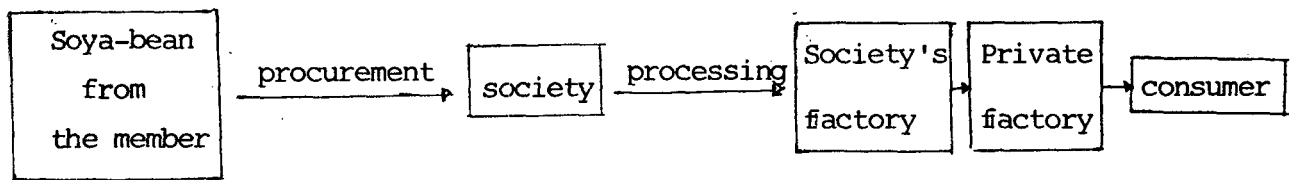
Because the society is in the good location. It is very convenient to transportation So, every activity will done at the society. Many private factory give the condition to the society that they will get the transportation cost by recieve the oil from the society.

And the supply and demend of oil consumption in Thailand in the year 1988-89/1996-97 is in table 5..

TABLE 5 SUPPLY AND DEMAND OF OIL CONSUMPTION IN THAILAND YEAR 1988-89 - 1996-97

YEAR	POPULATION (1,000 PERSONS)	INCOME/PERSON (BATH/YEAR)	OIL/PERSON(DG/YEAR)				TOTAL OIL (1,000 TONS)				THE DIFFERENT BETWEEN SUPPLY AND DEMAND (1,000 TONS)	
			SUPPLY	DEMAND		SUPPLY	DEMAND		MIN	MAX		
				MIN	MAX		MIN	MAX				
88-89	54,536	23,613	5.48	5.15	6.82	298.69	279.93	371.94	18.76	-73.25		
89-90	55,448	24,924	5.96	5.53	7.33	330.69	306.63	406.43	24.06	-75.74		
90-91	56,340	26,307	6.36	5.94	7.87	358.21	334.66	443.40	23.55	-85.19		
91-92	57,196	27,783	6.84	6.39	8.46	391.20	365.48	403.00	25.72	-92.68		
92-93	58,040	29,283	7.76	6.85	9.07	450.40	397.57	526.42	52.83	-76.02		
93-94	58,874	30,876	8.30	7.34	9.73	488.77	432.14	572.89	56.63	-24.12		
94-95	59,695	32,550	8.73	7.88	10.43	529.38	470.40	622.62	58.98	-93.24		
95-96	60,506	34,314	9.13	8.44	11.18	552.54	510.67	676.46	41.85	-123.92		
96-97	61,312	36,174	9.60	9.05	11.99	589.15	554.87	735.13	34.31	-145.95		

For the soya-bean cake will Use the same Channel

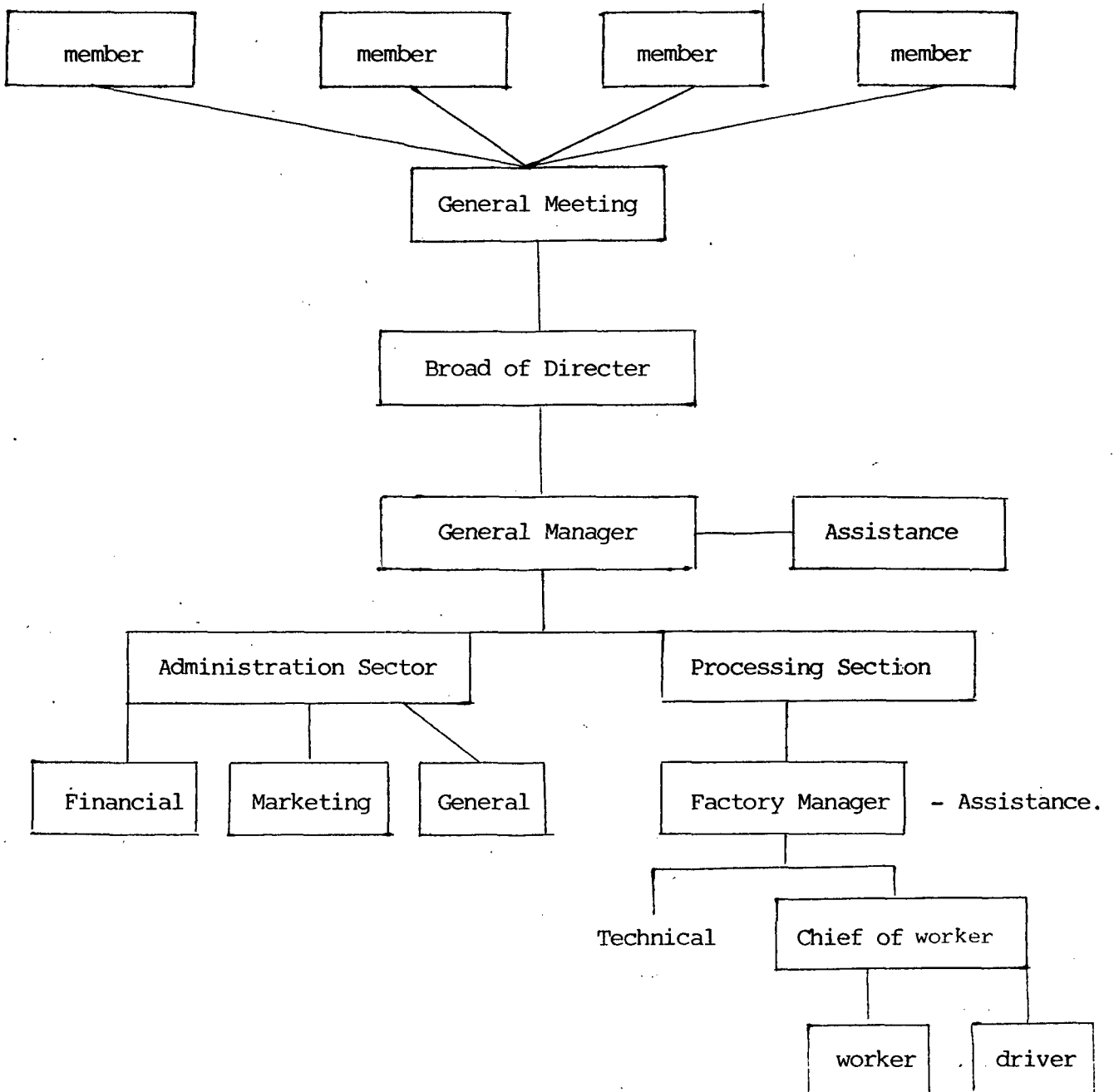


From table 1 in Chapter 2, It showed the demand and supply of soya-bean cake. The demand was more than the supply, so it made the price of soya-bean cake is very good. In the case of Thailand the price of soya-bean cake (฿ 8.89) is more than the price of soya-bean (฿ 8.12)

Chapter 5*

Organisation and Management

Generally the structure of co-operative has 3 sections. Member, Board of Director and Management to achieve the objective of the society. In the existing structure. Of the society, on other section for Soya-bean processing will be added.



- | | | |
|--------------|------------------------|-------------------------------------|
| - Financial | - procurement | - Public Relation
(co-ordinator) |
| - Accounting | - Selling | - cleaner : |
| - Credit | (input, consumer good) | - driver |
| - deposit | | - general worker |
| | | - security |

k

Task and Functions.

1. Members

- To cultivate soya-bean plant in their land.
- To sell the soya-bean harvest to the society.
- Join the society meeting and give the suggestion how to improve the society in the meeting.
- Join every activity in the society such^{/as} buying input supply, consumer goods, deposit etc.

2. Broad of director

To create the policy to fulfill the objective of the society and collaborate in the activity of the society.

3. Management Section

- General Manger.

To manage the society execute, the policy of the broad of director and supervise the staff. He will have 1 assistant.

In this project the general manger will head 2 section. One is administration section and the other is processing section.

- Administration Section

The task of this section are :

a) Financial

- to control and check cash receive & payment.
- to record and do accounting.
- to consider and give credit to the members.
- to take deposit from the members.
- to pay the money in order of the manager.
- to make the financial reports.

b) Marketing

- to plan the implementation of the procurement system.
- to sell the input supply.
- to sell the consumer goods.
- to promote the marketing activity and find the market for the output.

c) General

- to co-ordinate and give facilities to every section in the society as the center of the message.
- to promote and receive the information/suggestion,
- Report the progress of the work of every section every month to the general manager.

- Processing Section

The tasks of this section are :

- to control the quality and quantity of the product.
- to develop the factory how to decrease the cost of production and how to increase the efficiency of the factory.

- to produce the product as the marketing section want.
- to take stock inventory of the product yielded.

The number of the staff and labour is 61 persons

Position	Person	Wage/month	Wage/year
Administration Section			
General Manager	1	18,000	216,000
Assistant Manager	1	15,000	180,000
Chief of financial sector	1	9,000	108,000
Accountance	2	8,000	192,000
Financial person	2	8,000	192,000
Chief of Marketing sector	1	9,000	108,000
Procurement	2	3,000	72,000
Seller	2	3,000	72,000
Chief of General sector	1	9,000	108,000
Co-ordinater	2	8,000	192,000
Cleaner	1	1,500	18,000
Driver	1	2,500	30,000
General worker	1	2,500	30,000
Security-gurad	1	<u>2,500</u>	<u>30,000</u>
Total		<u>99,000</u>	<u>1,548,000</u>

Position	Person	Wage/month	Wage/year
<u>Processing Section</u>			
Factory Manager	1	12,000	144,000
Assistance Manager	1	10,000	126,000
Accounter	1	8,000	96,000
Salesman	1	7,000	24,000
Technical	3	8,000	288,000
Chief of worker	3	5,000	180,000
worker	30	3,000	1,080,000
driver (truck)	2	2,500	60,000
driver (tractor)	1	3,000	36,000
cleaner	1	<u>1,500</u>	<u>18,000</u>
Total		<u>60,000</u>	<u>2,106,000</u>

per ton B/unit

Soyabean	1	8.12	111406	127321	143236	143236	143236	143236	143236	143236	143236	143236
Harvest (in tons)	0.005	10	466	533	600	600	600	600	600	600	600	600
Fuel (In It.)	0.077	3	2155	2463	2771	2771	2771	2771	2771	2771	2771	2771
Packaging for Cake		0.165	1185	1355	1524	1524	1524	1524	1524	1524	1524	1524
Factory Overhead as % of												
raw material cost		0.5%	379	433	487	487	487	487	487	487	487	487
Maintenance % of revenue		0.75%	1052	1203	1353	1353	1353	1353	1353	1353	1353	1353
Tax % of Revenue		1.65%	2315	2646	2976	2976	2976	2976	2976	2976	2976	2976
Interest on Working Capital			4921	5624	6327	6327	6327	6327	6327	6327	6327	6327
Total Variable Cost			123880	141577	159274	159274	159274	159274	159274	159274	159274	159274
Contribution			16425	18772	21118	21118	21118	21118	21118	21118	21118	21118
Fixed Cost												
Salary			2106									
Inflation	10%		2106	2317	2548	2803	3083	3392	3731	4104	4514	4966
Electricity	89		89	89	89	89	89	89	89	89	89	89
Insurance % of value												
Of investment	51510	0.40%	206	206	206	206	206	206	206	206	206	206
Total Fixed Cost			2401	2612	2844	3098	3379	3687	4026	4399	4810	5261

Soyabean Project

Investment Analysis:

Year	0	1	2	3	4	5	6	7	8	9	10
Investment	51510										
Cash Inflow		140305	160349	180390	180390	180390	180390	180390	180390	180390	180390
Cash Outflow		126282	144189	162118	162373	162653	162962	163301	163674	164084	164536
Net Cash Flow - 51510		14024	16160	18275	18020	17739	17431	17092	16719	16308	15857
Cum. Cash flow - 51510		-37486	-21326	-3052	14968	32708	50139	67231	83950	100258	116115

Payback Period 3 years

RR 29.5%

Net Present Value at

12.5%	36261
15.0%	27847
20.0%	15009

Benefit Cost at 12.5% 15.0% 20.0%

P.V. of Benefits	947262	855335	708966
P.V. of Costs	906468	823310	690955

Ratio 1.045 1.039 1.026

ESTIMATION OF WORKING CAPITAL REQUIREMENT

Planned Production 50 tons per day

At 70% Capacity, Raw Material Processed 13720 tons in a year

	Price ('000 B/ton)	Ratio of Consumption to R.M.	Consumption per month in tons	Months in Stock	Value in Stock
<hr/>					
Raw Material :					
Soyabean	8.12	0.1143	1143.3	3	27852
Haxena	10	0.005	5.7	2	114
Fuel in '000 Liters	3	0.077	88.0	1	264
Packaging	0.165	0.777	880.4	1	145
Finished Goods					
Oil	19.65	0.17	194.4	1	3819
Cake	8.85	0.77	880.4	1	7791
Accounts Receivable					
Oil	19.65	0.17	194.4	1	3819
Cake	8.85	0.77	880.4	1	7791
Cash for Operating Exp.				1	200
Total Working Capital Required					51796
Interest Rate 9.5%					
Interest Exp. on Working Capital Loan					4920.6

Calculation of Break-even Point using 1st year data

Total Cash Outflow	126281
Variable Cash Outflow	123880
Fixed Cashoutflow	2401.4
Sales	140305

Contribution Margin as % of Sales 10.00%

Instalment on original investment to be paid

Total Investment	51510
Capital Recovery Factor	
@ 9.5% for 10 years	5.5364
Instalment Amount	9303.8
Total Fixed Cash Expe.	11705.
Break-even Point	117107
(in terms of %)	83.5%

3. Sensitive Analysis

If the society want to process all the soyabean (grade A, B and C) The solution is below:-

- 1) IRR 15.4%
- 2) Payback Period 4 years
- 3) Net Present Value at
 - 12.5% 5,550
 - 15.0% - 719
 - 20.0% - 6,540
- 4) Benefit Cost Rate at

	12.5%	15.0%	20.0%
P.V. of Benefits	924,636	834,905	692,032
P.V. of Cost	918,392	834,078	699,880
Ratio	1.007	1.001	0.989
- 5) Contribution Margin as % of Sales 6.50%
- 6) Break-even Point (in terms of %) 131.4%

It means that the society should not to process A grade.

CHAPTER 7

BUDGET

UNIT : '000 BAT

YEAR	1	2	3	4	5	6	7	8	9	10
<u>CASH RECEIPT</u>										
PROFIT	140305	160349	180390	180390	180390	180390	180390	180390	180390	180390
LOAN	51510	-	-	-	-	-	-	-	-	-
DEPRECIATION	<u>4751</u>	<u>4751</u>	<u>4751</u>	<u>4751</u>	<u>4751</u>	<u>4751</u>	<u>4751</u>	<u>4751</u>	<u>4751</u>	<u>4751</u>
TOTAL	196566	165,100	185141	185141	185141	185141	185141	185141	185141	185141

<u>CASH PAYMENT</u>										
LAND DEVELOPMENT 2000	-	-	-	-	-	-	-	-	-	-
BUILDING	13900	-	-	-	-	-	-	-	-	-
MARCHINE	36610	-	-	-	-	-	-	-	-	-
PRE-OPERATING	2000	-	-	-	-	-	-	-	-	-
INTEREST LOAN	4839	4404	3915	3425	2936	2447	1957	1468	978	489
REPAYMENT	<u>5151</u>	<u>5151</u>	<u>5151</u>	<u>5151</u>	<u>5151</u>	<u>5151</u>	<u>5151</u>	<u>5151</u>	<u>5151</u>	<u>5151</u>
TOTAL	64854	9555	9066	8576	8087	7598	7108	6619	6129	5640
SURPLUS	<u>132012</u>	<u>155545</u>	<u>176075</u>	<u>176565</u>	<u>177054</u>	<u>177543</u>	<u>178033</u>	<u>178522</u>	<u>179012</u>	<u>17950</u>

GIVE BACK TO THE MEMBERS

- PATRONAGE REFUND : GENERAL MEETING DETERMINED
- DIVIDENT REFUND : GENERAL MEETING DETERMINED
BUT NOT MORE THAN 13 %.

AFTER

- 1) CLT 5% OF NET PROFIT (NOT MORE THAN 10,000 BATH)
- 2) RESERVE FUND AT LEAST 10 % OF NET PROFIT.

Chapter 7

Budget

The budget of this project in the first operating has been given below

1) Revernue

Grade A	45,276
Oil	31,166
Cake	<u>68,864</u>
Total	<u>140,305</u>

2) Cost

2.1 Variable Cost

- Soyabean	111,406
- Haxcan	466
- Fule	12,155
- Packaging	1,185
- Factory Overhead	379
- Maintainance	1,052
- Tax	2,315
- Interest of Working Capital	4,921
Total	123,880

2.2 Fixed Cost

- Salary (inflactor 10%)	2,106
- Electivity	89
- Insurance	<u>206</u>
Total	2,401
Total Cost	<u>126,281</u>
Surplus	<u>14,024</u>

NOTE UNIT : BAHT

Interest rate 9.5%

Chapter 8

8.1 Benefits of the project

By implementing the project following benefits can be enumerated.

1. Farmer members can sell all of their product to the society.

It means they will have certainly market and it reduce the risk that they cannot sell their product.

2. The society can expand the factory and have a chance to develop the marketing activity by used his own bran and this way can help the farmer to get the quanlity goods in a fair price.
3. The project can increase income of the farmers concerned by buying, processing and pay the devident payment and patronage refund back to the farmer in a high rate.
4. The financial analysis reveals that the total investment cost is 51,510,000 Bath; the profitability is 10 % with an internal rate of return 29.5% and a pay-back period of 3 years.

Recommendation

- 1) BAAC should to help the society to give credit in the lower rate.
 - 2) The society should to coordinate with the foreign collaboration because many country want the soyabean cake and the cost of investment in Thailand is low when compar^e their country.
-

San Pa Tong Agricultural Co-operative Ltd.

Balance Sheet

as at 30 June 1989

<u>Asset</u>		<u>Bath</u>
<u>Current asset</u>	<u>1989</u>	<u>1988</u>
Cash/Bank deposit	<u>847,511.37</u>	<u>1,095,274.56</u>
A/C receivable		
on Trading	1,234,942.05	1,636,767.05
on loan	66,937,380.50	64,364,300.50
others	<u>53,719.40</u>	<u>160,195.07</u>
Table A/C receivable	68,226,041.95	65,161,262.62
<u>less</u> doubtful debt	<u>615,539.95</u>	<u>715,665.36</u>
Net A/C receivable	<u>67,610,502.00</u>	<u>65,445,597.26</u>
interest to be received	786,368.90	1,333,332.10
<u>less</u> doubtful debt	<u>178,732.08</u>	<u>160,946.60</u>
Net interest to be received	<u>607,636.82</u>	<u>1,172,385.50</u>
Paddy inventories (at year 1987/88)	0.00	2,983,056.96
Rice inventories	0.00	67,304.20
Paddy inventories	9,082,827.62	0.00
Inventories	17,570,898.77	15,042,501.70
<u>less</u> Provision for loss	<u>97,937.84</u>	<u>97,937.84</u>
<u>less</u> Provision for can not use	<u>0.00</u>	<u>24,228.28</u>
Net inventories	<u>17,472,960.93</u>	<u>14,920,335.58</u>
Materials	676,136.70	298,896.00
Other current asset	<u>315,661.37</u>	<u>77,533.59</u>
Total Current Asset	<u>96,613,236.81</u>	<u>86,060,383.65</u>

<u>Fixed Assets-net</u>	743,616.24	816,616.24
Land	2,913,638.08	1,227,285.41
building	143,306.61	124,222.19
Engine/equipment	1,280,217.67	527,701.00
Vehicle	500,473.37	376,981.25
Office equipment	0.00	6,232.00
Toilet Construction	<u>5,581,251.97</u>	<u>3,079,038.09</u>
Total Fixed Asset	<u>907,963.43</u>	<u>2,315,874.48</u>
Total Asset	<u>103,102,452.21</u>	<u>91,455,296.22</u>

Liabilities and Co-operative own fund

Current Liabilities

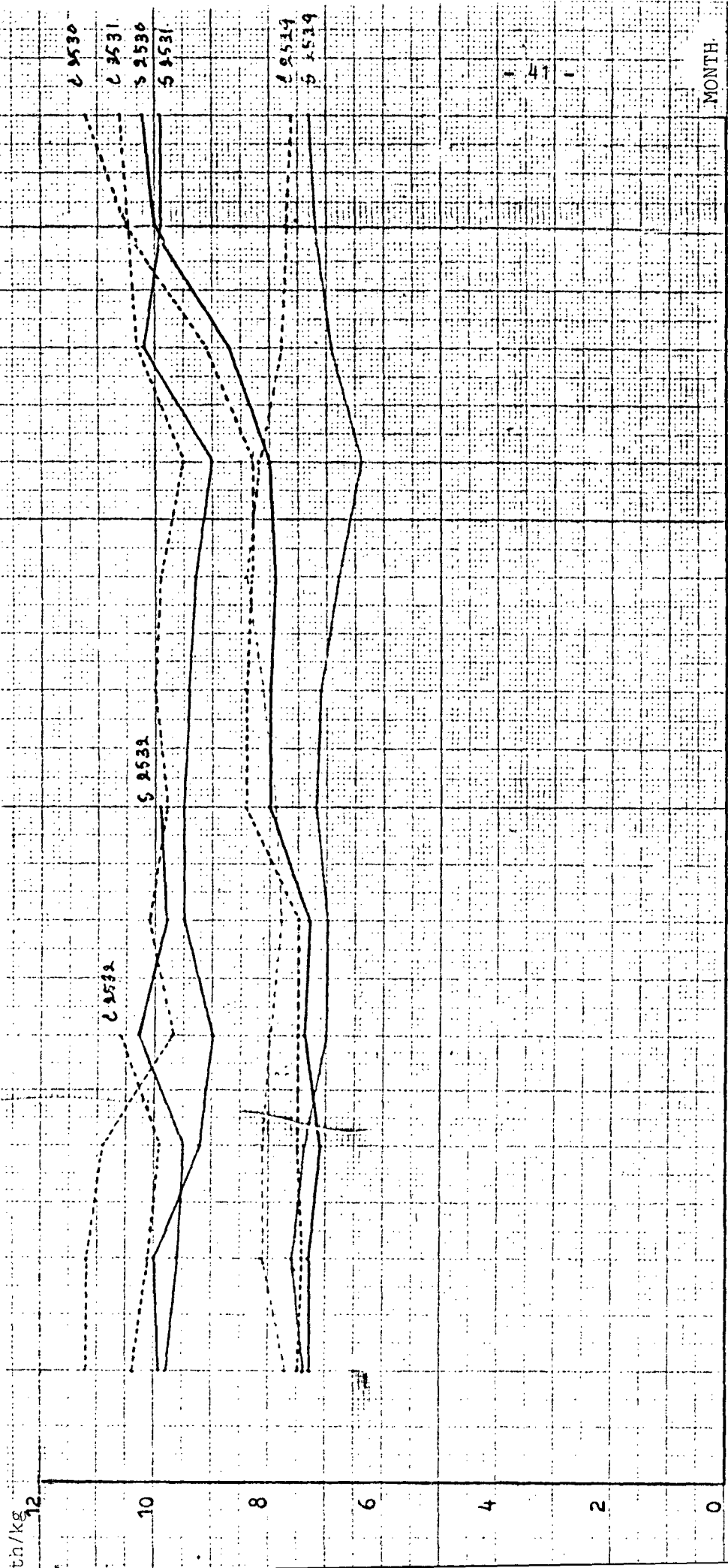
Borrowings	19,517,961.94	27,886,829.61
Contract payment bill	24,478,950.00	0.00
A/C payable on trade	1,043,111.79	386,321.81
Long term loan to be paid in a year	16,983.71	27,393.05
Deposit	23,915,707.27	31,820,372.61
Others Current Liabilities	<u>1,500,912.78</u>	<u>723,289.86</u>
Total Current Liabilities	<u>70,473,627.45</u>	<u>60,844,206.94</u>

Long-term Liabilities

Long-term Borrowings	85,845.72	127,000.00
Others	<u>1,567,857.52</u>	<u>2,825,097.34</u>
Total Liabilities	<u>72,127,330.73</u>	<u>63,796,304.25</u>

Co-operative Own Fund

Share Capital	20,271,800.00	18,167,100.00
Reserve Fund	6,052,952.34	5,536,258.76
Others Reserve	<u>1,097,918.60</u>	<u>1,251,179.60</u>
Net Profit/year	3,552,450.54	2,704,453.58
Total Co-operative own fund	<u>30,975,121.48</u>	<u>27,658,991.94</u>
Total Liabilities and Coop. own fund	<u>103,102,452.21</u>	<u>91,455,296.22</u>



Relation between the price of soyabean (B,C grade) and the price of soyabean cake in Bangkok market year 1986-1989

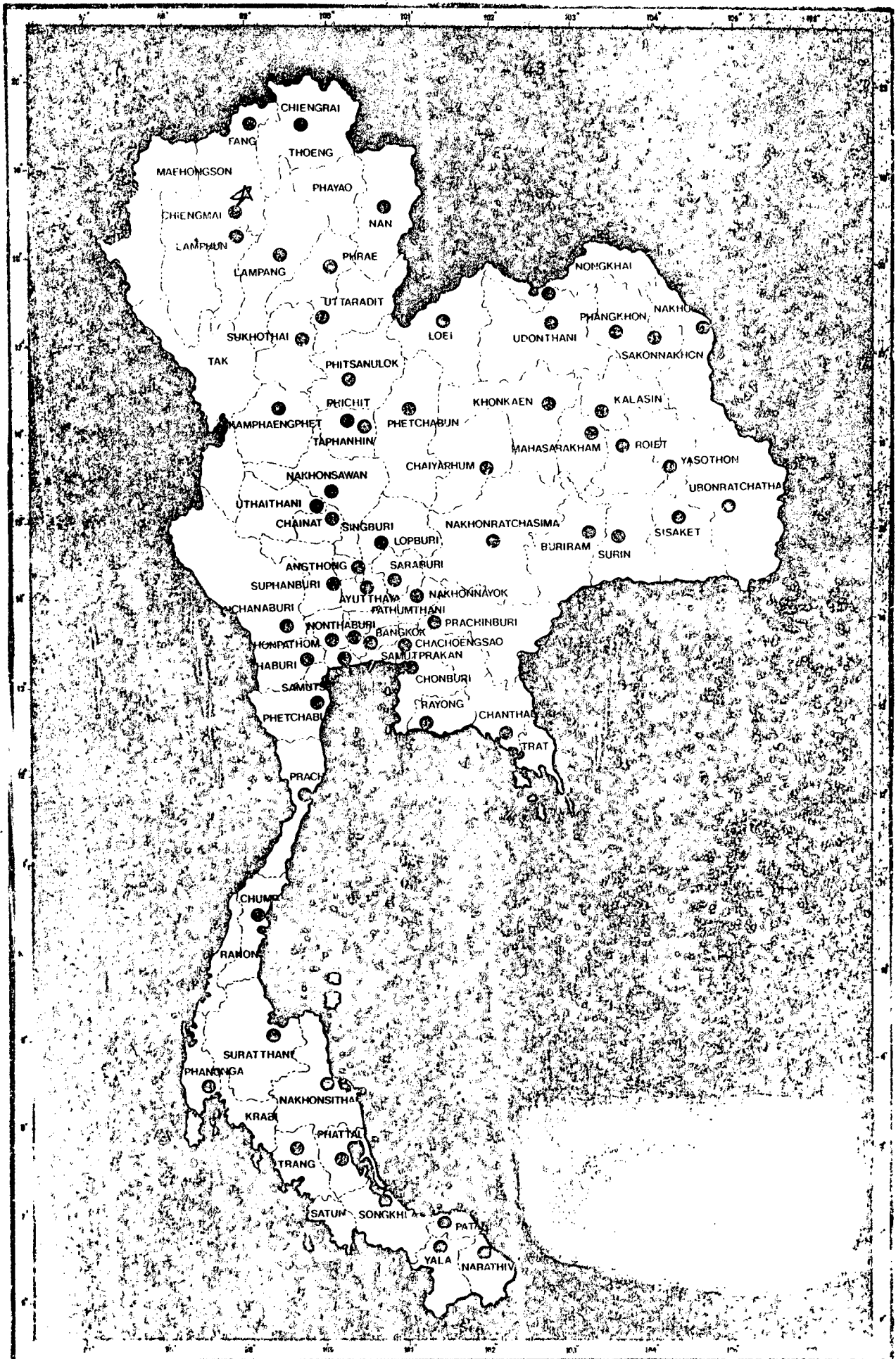
S = Soyabean
C = Soyabean Cake

12
10
8
6
4
2
0

tn/kg

JAN FEB MAR API MAY JUNE JULY AUG SEP OCT NOV DEC

MONTH



4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

Miss Pornfut Saitongsuk, ^{Thailand} Thailand

(other those made by the groups)

- * Marketing of finished product is dependent on private traders. In order to avoid risks, long term agreement may be necessary.
- * Break even point calculation is wrong due to wrong calculation of contribution.
- * In sensitivity analysis, risk factor should be taken into consideration. If no processing done at all, what value-addition may accrue to the farmer should be identified.
- * Insurance on land etc. should be rechecked.
- * In the cash budget the entire revenue is put under profit.
- * Under sources of funds for new activity, entire money is to be raised from loans only. New activity also must involve members' participation by way of new share capital participation.
- * Backward integration with farmers, association of farmers with new venture his role in it and sharing of benefits with farmers are to be included.

SOYABEAN PROJ. 5/3/90 G. A.

Financial Analysis

1. P. 13 SOURCE OF FUND BY BAAC HAS BEEN MENTIONED BUT DOES NOT MENTION HOW MUCH FROM BANK LOAN AND HOW MUCH FROM MEMBER DEPOSIT.

Working capital also does not.

2. BREAK EVEN POINT CALCULATION SEEMS TO BE WRONG.

$$\frac{\text{FIXED C.}}{\text{CONTRIBUTION}} = \frac{11705}{16425} \quad \begin{array}{l} \text{P. 35} \\ \text{P. 32} \end{array} = 71.2\%$$

$$140305 \times 71.2 = 99.985$$

GROUP - B - THAILAND SOYABEAN
MANAGEMENT ORGANIZATION / MARKETING

1. STANDARD & METHOD OF GRADING SOYABEAN NOT MENTIONED FARMERS WILL COMPLAIN.
2. IN EXISTING SOCIETY A NEW SECTION FOR SOYABEAN PROCESSING WOULD BE ADDED. REQUIREMENT OF STAFF ON PAGE (29) & (30) IS NOT CORRELATED WITH PROPOSED PROCESSING SECTION.
3. THE NUMBER OF STAFF IS 61 PERSONS, BUT SALARY WAGES CALCULATED 63 PERSONS.
4. THE SALARY/WAGE GIVEN ON PAGE 29 HAVE NO RELATIONSHIP WITH CASHFLOW
5. SERIOUS MARKETING ASPECT HAVE NOT BEING TAKEN WHETHER THE SOCIETY MADE AGREEMENT WITH PRIVATE SECTOR.
6. THE ACTIVITIES OF MARKETING AND PROCESSING SHOULD BE SEPARATED.

Detail methods of CREDIT TO THE MEMBERS ^{are} NOT MENTIONED.

GROUP CSoyabean Project

- 1) The Government has a policy to promote development of soyabean crop through Co-op. hence the selection of soyabean project through Sam-Pa-Tong A.C. is reasonable.
- 2) The soyabean crop is 2nd largest crop grown in area. From the report it is understood that this crop price is subject to fluctuation therefore considering this project for processing and to give value addition to the farmer is justified.
Data regarding production of various major crops in the area is wanting, in order to know the availability of raw-material for processing.

4th ICA Japan Training Course, IDACA, Tokyo.

Comments/suggestions made on the Project prepared

Miss Pornfut Saitongsuk, ^{Thailand}~~Thailand~~

(other those made by the groups)

- * Marketing of finished product is dependent on private traders. In order to avoid risks, long term agreement may be necessary.
- * Break even point calculation is wrong due to wrong calculation of contribution.
- * In sensitivity analysis, risk factor should be taken into consideration. If no processing done at all, what value-addition may accrue to the farmer should be identified.
- * Insurance on land etc. should be rechecked.
- * In the cash budget the entire revenue is put under profit.
- * Under sources of funds for new activity, entire money is to be raised from loans only. New activity also must involve members' participation by way of new share capital participation.
- * Backward integration with farmers, association of farmers with new venture his role in it and sharing of benefits with farmers are to be included.

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Detail methods of CREDIT TO THE MEMBERS ^{are} / NO? MENTIONED.

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