

THIRD ICA/JAPAN TRAINING COURSE FOR STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA,
1988-89

List of Projects prepared by Third Course Participants

1. Strawberry Processing Project in Mancheng County
by Bi Meijia, China.

Brief presentation by participant

Group discussion report on above project.
2. A Cold Storage for Farm Produces Project
by Gao Jihai, China.

Brief presentation by participant.

Group discussion report on above project.
3. Mango Fruit Processing and Marketing Project
by G.Ganga Rao, India.

Brief presentation by participant.

Group discussion on above project.
4. Project Report on Onion Marketing of Lasalgaon
by Promod Kumar Pandey, India.

Brief presentation by participant.

Group report on above project.
5. Kimchi Processing Mill in Cheong San Primary Agrl
Cooperative.
by Hyang Kyu Lee, Korea.

Brief presentation by participant

Group discussion on above project.
6. Dairy Plant in Jeonbuk Province
by Byung Ho Jeong, Korea.

Brief presentation by participant

Group report on above project.

THIRD ICA/JAPAN TRAINING COURSE FOR STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA,
1988-89

List of Projects prepared by Third Course Participants

1. Strawberry Processing Project in Mancheng County
by Bi Meijia, China.
2. A Cold Storage for Farm Produces Project
by Gao Jihai, China.
3. Mango Fruit Processing and Marketing Project
by G.Ganga Rao, India.
4. Project Report on Onion Marketing of Lasalgaon
by Promod Kumar Pandey, India.
5. Kimchi Processing Mill in Cheong San Primary Agrl
Cooperative.
by Hyang Kyu Lee, Korea.
6. Dairy Plant in Jeonbuk Province
by Byung Ho Jeong, Korea.
7. The Production of Quality Rubber Through Central
Processing Centre,
by Fikri Ghani, Malaysia.
8. Feasibility report on Potato Grading Plant at Okara
by Agha Zaid Hussain, Pakistan.
9. Corn Production Project
by Sofronio E Coliyat, Philippines.
10. An Integrated Expansion Programme of Nisprocom :
Fertiliser Supply and Hauling Services
by Jose C Palmares, Philippines.
11. Initiation of a Coconut Oil Mill
by J K Thungasena, Sri Lanka.
12. Initiation of a Rice Mill
by E.M.E.G. Muthubanda, Sri Lanka
13. Project on Expansion of Rice Mill by Agricultural
Cooperaive Ltd in Derm Bang Nangbuat
by Thawee Thimmasaya, Thailand.
14. Project on Production and Marketing of Mangoes for
Agricultural Coop Ltd.,
by Wasna Junthieng, Thailand.

15. Project could not finalised - FMA Quadir, Bangladesh.

16. Brief presentation modules by participants for each project

17. Group reports on each project based on group discussions.

THIRD ICA/JAPAN TRAINING COURSE FOR STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

TOKYO, 1989

S U M M A R Y

OF

PROJECTS PREPARED BY THE PARTICIPANTS

THE INTERNATIONAL COOPERATIVE ALLIANCE (ICA)

THE INSTITUTE FOR THE DEVELOPMENT OF
AGRICULTURAL COOPERATION IN ASIA (IDACA)

LIST OF PROJECTS PREPARED BY THIRD COURSE PARTICIPANTS:

<u>Sl. No.</u>	<u>Title of the Project</u>	<u>Author</u>
1.	Strawberry Processing Project in Mancheng County (China)	Mr Bi Meijia
2.	A Cold Storage for Farm Produces Project (China)	Mr Gao Jihai
3.	Project Report on Onion Marketing of Lasalgaon (India)	Mr Promod Kumar
4.	Mango Fruit Processing and Marketing Project (India)	Mr G. Ganga Rao
5.	Kimchi Processing Mill in Cheong San PAC (Republic of Korea)	Mr Hyang Kyu Lee
6.	Dairy Plant in Jeonbuk Province (Republic of Korea)	Mr Byung Ho Jeong
7.	The Production of Quality Rubber Through Central Processing Centre (Malaysia)	Mr Fikri Ghani
8.	Feasibility Report on Potato Grading Plant at Okara (Pakistan)	Mr Agha Zaid Hussain
9.	Corn Production Project (Philippines)	Mr S.E.Coliyat
10.	An Integrated Expansion Programme of Nisprocom : Fertiliser Supply and Hauling Services (Philippines)	Mr Jose C Palmares
11.	Initiation of a Coconut Oil Mill (Sri Lanka)	Mr J.K.Thungasena
12.	Initiation of a Rice Mill (Sri Lanka)	Mr E.M.E.G.Muthubanda
13.	Project on Expansion of Rice Mill by Agricultural Cooperative Ltd., in Derm Bang Nangbhuat (Thailand)	Mr Thawee Thimmasaya
14.	Project on Production and Marketing of Mangoes for Agricultural Cooperative Ltd. (Thailand)	Miss Wasna Junthieng

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

STRAWBERRY PROCESSING PROJECT

IN MANCHENG COUNTY

PREPARED BY : MR. BI MEIJIA

THE PEOPLE'S REPUBLIC OF CHINA

Funded by the Government of Japan
and

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

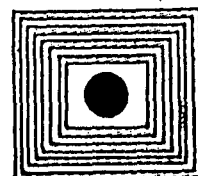
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



CHAPTER I

SUMMARY

Mancheng is a county of Hebei Province, the People's Republic of China. Mancheng County Supply and Marketing Cooperatives Federation is located in Mancheng town, the strawberry processing project is one enterprise of the Federation, it is located in Mancheng town too. The town is about 200 km from Beijing, the capital of China, 10 km from Baoding city. Total area is 1,300 square km, 40% is plain, 60% is mountainous region. The population in the county is 390,000 persons, 90% of the population in the county depend on farming.

The people in the county have been planting strawberry for 20 years. In 1988, they planted strawberry more than 12,000 mu,* total production is 10,932 Tons, ^{Recently,} at the same time, the product was exported to Japan for the first time.

In order to increase the farmers' income, Mancheng County Supply and Marketing Cooperatives Federation decided to establish the strawberry processing project in the Fruit Processing Factory.

* 1 acre= 6 mu(Chinese unit of area).

The total cost of the strawberry processing project is 2,534,683 yuan*, in which 7.11% of is obtained from the coop federation, and 92.89% from the Government bank(Agriculture Bank), the contract sale price from the factory are as follow:

product A = 3,600 yuan/Ton,

product B = 2,800 yuan/Ton,

product C = 2,300 yuan/Ton,

the average price from the factory is 2,970 yuan/Ton. In 10 years, the total cost of the project is 22,024,603 yuan, the production is 15,200 Tons, the sales revenue is 45,144,000 yuan, internal rate of return(IRR) is 17.54%, payback period is 5.71 years, the break-event point of normal capacity is 4,446 Tons. The break-event point of each product is as follow:

product A = 1,617 Tons,

product B = 1,480 Tons,

product C = 2,274 Tons.

* 1 us\$ = 3.72 yuan.

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : strawberry processing project
in Mancheng County
2. Country : the People's Republic of China
3. Prepared by : Mr. BI MEIJI
4. Anchor activity of Project
(Commodity / Service) : other fruits cans
5. Project Duration : 10 years
6. Area of Operation : 2000 acre
7. Total Capacity : 15200 Tons
8. Target Group / Population : 390,000 persons
9. Implementing Organisation : the Supply and Marketing
Coop Federation of Mancheng
County
10. Supporting organisation /
Financial / Technical : All China Federation
Agri Bank
11. Has your government approved
the Project in principle : Yes
12. Total Project Cost : 2534,688 Yuan
(¥1 = 3.72 Yuan)
13. Equity Capital for Project : 2500,000 Yuan

14. Other owned resources for Project : *apple.*
15. Sources of Funds: *Bank of Byri and owners*
- 15.1 Government Fund : *NO*
- 15.2 Banks : *2,354,688 yuan*
- 15.3 Other Sources : *180,000 yuan*
- 15.4 Resources not yet identified : *50,000 yuan*
16. Technical Know - how for Project : *Very easy*
- 16.1 Whether locally available : *yes*
- 16.2 If not, what part of technical know how is desired from outside the country. : *—*
17. Machinery and Equipment : *2/3 made in China*
What percentage : *1/3 need buy from Japan*
- 17.1 Locally available : *2/3 Yes / 1 No*
- 17.2 To be imported : *1/3 Yes / 1 No*
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : *Government and All China Federation of Supply and Markets co-ops.*
- 17.4 Can you start the Project activity with locally : *yes*

18. Skilled Manpower for Project: 40 persons
- 18.1 Trained personnel available for operating the Project : Yes / No Yes / No
- 18.2 Whether training abroad is desired: Yes / No Yes / No
- 18.3 If yes, in what specific fields? :
19. When the work could be started on the Project. Please give details. : If the money is no problem, I think is April of this year, the project could be started.
20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity. : annual
IN 1989, work days is 305, annual processing capacity is about 500-700 tons.
21. Any other details you consider important for follow-up by ICA : this Project supported by the Government and All China Federation of S. M. coops.
22. After the training course, will you be able to help in further improving the project? : Yes. Because I work in All China Federation of Supply and Markets co-op, I have close relation with the project.
23. Address to which we should correspond in future on project matters. : County
Mancheng Fruits Processing Plant, Hebei Province, the People's Republic of China

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

Project: A Cold Storage For Farm Produces

Prepared By: Gao Jihai

Nationality: China

Funded by the Government of Japan
and

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

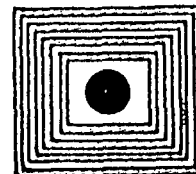
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters:
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



Chapter 1 SUMMARY

1. The proposed project is a storage for storing apples, eggs and garlic bolts with a total capacity of 2700 tons.

The project is proposed in Shandong's Zhucheng county, 250 kms southeast of Jinan. The county has a population of 970 thousands including 870 thousands farmers. It has 1.72 million mu cultivated farm land mainly producing wheat, maize, cotton, groundnut, tobacco, vegetables and fruits. Farmers in this county are also feeding livestock like chicken, pig etc. Normally each family is feeding 7 to 8 pieces of chickens and 1 to 2 pieces of pigs. In west part of this county farmers are having apple trees, on the average each family has 10 to 12 apple trees with an annual output of 1.5 tons. In all the 12 districts of this county, farmers are seeding garlic, each family is having 0.5 mu garlic land with an output of 85 kgs per year.

As the demand is lower than the production in the harvesting season of apple (Sep. 5 to Sep. 25), Egg (March 1 to April 10) and garlic bolt (May 10 to May 30), and the demand is higher than the production in other seasons. In fact there is no production of apple and garlic bolt during non-production seasons and very little production of eggs. So after the farm produces are collected in harvesting season they will be

stored till the non-production season and be sold at a higher price.

The proposed storage project requires a total investment of 1.68 million yuan RMB and needs 1.50 million yuan working capital per year. The investment will be raised from:

Fund from the county supply and marketing cooperative 360,000 yuan.

Loan from the Agricultural Bank of China
1,200,000 yuan.

Shares from grass-root cooperatives within the county 120,000 yuan.

After the storage come into operation, 1.50 million yuan working capital is needed, it will be the bank loan also.

Loan from the bank for the fixed assets will be paid from the second year as the first year is a construction period. All of the loan for the fixed assets is expected to be paid within the seventh year. Loan for the working capital can be paid within the same year.

The project will be fully controlled by the county supply and marketing cooperative and total staff and workers for the project are expected to be 32.

The project can get good profit. Its annual income is expected to be 300,000 yuan, its break-even

point is 514.00 ton and its internal rate of return will be 9.8%.

From the project, farmers in this county can get better farm guidance services and farm input supply from the county cooperative. What is more, farmers who are seeding garlic can get an extra income of 0.3 yuan per kg garlic bolts. Farmers who have apple trees can get an extra income of 0.2 yuan per kg of apples and farmers who are feeding chickens can get an extra income of 0.4 yuan per kg of eggs.

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : Cold storage
2. Country : China
3. Prepared by : Mr. GAO JI MAI
4. Anchor activity of Project
(Commodity / Service) : Storage eggs, garlic knots
and apples.
5. Project Duration : 10 yrs
6. Area of Operation : 4100 m²
7. Total Capacity : 2,700 Tons
8. Target Group / Population : 0.8 million farmers.
9. Implementing Organisation : Zhucheng Supply & Marketing
Coops
10. Supporting organisation /
Financial / Technical : Shandong Federation of
Supply & Marketing coops.
11. Has your government approved
the Project in principle : Yes.
12. Total Project Cost : 1.68 million
13. Equity Capital for Project : ~~1.68~~
~~1.68~~ million
0.48

14. Other owned resources for Project :

15. Sources of Funds:

15.1 Government Fund :

—

15.2 Banks :

1.2 million

15.3 Other Sources :

2.68 million

15.4 Resources not yet identified :

0

16. Technical Know - how for Project :

Cooling / Temperature Control

16.1 Whether locally available :

Yes

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

—

17. Machinery and Equipment :
What percentage

17.1 Locally available :

Yes / ~~No~~

17.2 To be imported :

~~Yes~~ / ~~No~~ / No

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

available locally

17.4 Can you start the Project activity with locally available material? :

Yes

18. Skilled Manpower for Project:

4

18.1 Trained personnel available for operating the Project : ~~Yes~~ / No

18.2 Whether training abroad is desired: ~~Yes~~ / No

18.3 If yes, in what specific fields? :

training can be conducted in China

19. When the work could be started on the Project. Please give details.

Hopefully start from April 1989 and finish Feb. 1990.

20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity.

/

21. Any other details you consider important for follow-up by ICA

/

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

NOT SURE.

23. Address to which we should correspond in future on project matters.

: zhuocheng County supply and marketing coop.
weifang. China.

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

PROJECT REPORT ON
"ONION MARKETING OF LASALGAON"

BY
PRAMOD KUMAR
(Participant from India)

Funded by the Government of Japan
and

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

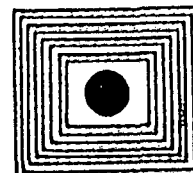
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters:
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



CHAPTER - I

SUMMARY

1. The Project highlights as to how a National Organization like National Agriculture Coop Mkt. Fed. of India (NAFED) could develop its constituent primary marketing Society (VEFCO) and create buffer stocks of onion for exports and internal marketing in Demand Centres like DELHI.
2. The area of operation of the Project is 35 villages within 10 kilometer radius of LASALGAON in Nasik District Maharashtra (Western India). The area is characterized by intensive cultivation of onion.
3. The project will be implemented by VEGETABLE AND FRUITS COOPERATIVE MARKETING SOCIETY LTD (VEFCO) LASALGAON under guidance of NAFED and will benefit its 15000 potential farmer members by generating higher income for summer onion produced by them.
4. VEFCO in association with Associated Agricultural Development Foundation (AADF) will arrange intensive farm guidance and extension education, thereby induce its farmer members for adopting recommended pre and post harvest practices, in order to produce - storer quality of Onion.
5. VEFCO in association with AADF, local credit societies and Nasik Dist. Coop Central Bank shall arrange timely supply of inputs plant protection and production and distribution of 150 MT of improved seeds of storer variety of onion.
6. VEFCO in Cooperation with NAFED and AADF and with Financial Assistance of NCDC and National Horticulture Board shall invest Rs.1,150,000 in construction of 10,000 MT capacity model onion storage warehouse and purchase of

warehousing equipments like fork-lifts, conveyor belts, weigh bridge etc.

7. Every year during April-May VEFCO will procure 10,000 MT of Storer variety of onion from its members and potential members. A working capital of Rs. Seven Million may be arranged by VEFCO with the help of NAFED from Commercial/ Cooperative Banks.
8. Stocks purchased by VEFCO will be stored for 90 to 150 days under close supervision and in model conditions regulating temperature, air circulation and humidity
9. NAFED will provide necessary market intelligence and marketing services to VEFCO for disposal of its stocks. Direct communication shall be maintained between NAFED's Azadpur Delhi, Nasik, Pune and Bombay Branches and VEFCO for this purpose.
10. NAFED will help VEFCO in efficient disposal of the Buffer stock of onion in upcountry markets or for exports.
11. NAFED will assist VEFCO in selling its onion in Delhi Market during October November when onion prices rise to Rs.3.00 to 4.00 per kg level. NAFED will use other public distribution agencies of Delhi for directly reaching the consumers and selling the onion at fixed prices in Delhi.
12. VEFCO will make value addition to the produce,
 - a) By minimizing handling, storage and Transport Losses by atleast 10% through close supervision and strict quality control.

- b) Purchasing the stock in flush season when onion prices in the market are generally depressed (Around Rs.300 to 600 PMT) and releasing the stocks in lean Season when onion arrival in the market is very little and prices rule high. (2000 to 3000 PMT)
 - c) By Profitable disposal of onion at Demand Centres like Delhi.
13. The higher income earned by VEFCO on 10000 MT of onion procured by it in flush season and sold in Lean season will be distributed to the farmers as second price.
 14. 50% of Trading Surplus generated by VEFCO will be distributed to the farmers as second price and the other 50% will be debited to a fund called "Price-Fluctuation Fund" which will be created by VEFCO as a cushion fund, to meet future uncertainties. Losses suffered by VEFCO in any particular year due to vagaries of weather may be absorbed by this fund.
 15. During the year of commencement of the project and next two years the storage structure of 10000 MT capacity and equipments will be created at the Cost of Rs.11.5 million. The amount will be raised as long term loans from NCDC/ National Hor-Board/IDBI/FCI and repaid with interest within a period of ten years, out of the surplus generated by the trading/warehousing operations. The payback period however has been worked out as 4 years.
 16. Taking into account the fixed expenses for administrative cost of VEFCO, Extension services Cost of AADF, Interest On working capital and Capital Recovery Factor @ 12% for 10 years the Break Even Quantity worked out for Marketing at Delhi is 3303 MTs while if marketed in Lasalgaon it is 2657 MTs.

17. The Internal Rate of Return worked out for the operation for marketing at Delhi is 54.1% while marketing at Lasalgaon it is 65.9%.

18. The farmer may get 200/MT as second price due to value addition and cost effectiveness achieved by implementation of this project.

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : ONION MARKETING OF LASALCAON.
2. Country : INDIA
3. Prepared by : PRAMOD KUMAR
4. Anchor activity of Project (Commodity / Service) : STORAGE OF ONION (COMMODITY)
5. Project Duration : THREE YEARS.
6. Area of Operation : 35 Villages in NIPHAD TALUKA, NASIK, DISTRICT MAHARASHTRA, INDIA
7. Total Capacity : 10,000 MT.
8. Target Group / Population : 15000 Farmer Household
9. Implementing Organisation : VEGETABLE AND FRUIT COOPERATIVE MARKETING SOCIETY LIMITED (VEFCO) LASALCAON.
10. Supporting organisation / Financial / Technical : NAFED (TECHNICAL)
NCDC (FINANCIAL)
A.AIDF. (TECHNICAL)
11. Has your government approved the Project in principle : NO
12. Total Project Cost : Rs 11.5 million
13. Equity Capital for Project : from NEW MEMBERS
1.5 million.

14. Other owned resources for Project : Rs. 4.5 m.
15. Sources of Funds:
- 15.1 Government Fund : NCDC LOAN TO THE EXTENT OF Rs 8 million.
- 15.2 Banks : Working Capital Amounting to Rs seven million.
- 15.3 Other Sources : Nil
- 15.4 Resources not yet identified : Nil
16. Technical Know - how for Project : STORAGE TECHNOLOGY
- 16.1 Whether locally available : YES
- 16.2 If not, what part of technical know how is desired from outside the country. : N.A.
17. Machinery and Equipment : ~~LOCALLY~~ AVAILABLE
What percentage
- 17.1 Locally available : Yes / ~~No~~
- 17.2 To be imported : ~~Yes~~ / No
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : ONION GRADING EQUIPMENTS
- 17.4 Can you start the Project activity with locally available resources? : YES

18. Skilled Manpower for Project: LOCALLY AVAILABLE
- 18.1 Trained personnel available for operating the Project : Yes / ~~No~~
- 18.2 Whether training abroad is desired: ~~Yes~~ / No
- 18.3 If yes, in what specific fields? :
NA .
19. When the work could be started on the Project. Please give details. 1990. (After Approval from the BOD of the SOCIETY)
20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity. The society is Presently Handling Onion
21. Any other details you consider important for follow-up by ICA : THE SOCIETY MGT. MAY BE PERSUADED TO UNDERTAKE THE PROJECT
22. After the training course, will you be able to help in further improving the project? YES
23. Address to which we should correspond in future on project matters. : PRAMOD KUMAR
Dy Mgr, NAFED
388, SECTOR-A, (PKT-C)
VASANT KUNJ.
NEW DELHI-110030

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

PROJECT TITLE: MANGO FRUIT PROCESSING
AND MARKETING.

COUNTRY: INDIA

PREPARED BY: G. GANGA RAO
GENERAL MANAGER,
DISTRICT COOP BANK
ELURU.

Funded by the Government of Japan
and

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

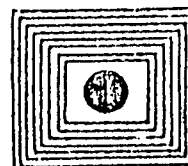
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters:
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



MANGO FRUIT PROCESSING & MARKETING IN DWARAKA
TIRUMALA OF ANDHRA PRADESH, INDIA.

CHAPTER - I.

S U M M A R Y.

- | | |
|--|---|
| 01. Title of the Project | Mango Fruit Processing and Marketing Plant. |
| 02. Area of operation | Dwaraka Tirumala, Kamavarapukota and Nallajerla Mandals in West Godavary District Andhra Pradesh, India |
| 03. Name and address of the implementing organisation. | Sri Venkateswara Large Sized Cooperative Society Ltd., Dwaraka Tirumala, West Godavary District, India. |
| 04. Target group and membership coverage | Farmers in the Mandals of D.Tirumala, Kamavarapukota and Nallajerla Mandals. Initial membership coverage 900 farmers. |
| 05. Total Capacity | 2 M.Tonnes per hour with an output of 50% Expected working days. 90 per year.
Product: Mango Pulp of 1800 M.T. |
| 06. Capital investment | Total capital investment for land, buildings, machinery including pre-operative expenses Rs.36.86 lakhs. |

- | | |
|---|--|
| 07. Source of Fund | Expected to raise equity of Rs.7.36 lakhs from members, pre-operative expenses of Rs.1.50 lakhs from the own resources and Rs.28.00 lakhs from NCDC as Block Capital loan. |
| 08. Sources of funds for working capital requirement. | Expected to obtain Rs.30.00 lakhs from DCCBank, Eluru and mobilise deposits for the remaining amount. |
| 09. Sources of raw material. | Locally through Project Command area. |
| 0.10 Project period | 10 years |
| 0.11 Implementation period | 12 months |

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : Mango Fruit Processing and Marketing.
2. Country : INDIA
3. Prepared by : RANGARAO. G.
4. Anchor activity of Project (Commodity / Service) : Processing of Mangoes
Mango pulp production.
value addition. Better price
5. Project Duration : to members - farmers.
10 Years.
6. Area of Operation : Dewaraya Tirumala,
Kannarasapurkotla, Nellore
Taluk in west Godavari
District AP. India.
7. Total Capacity : 2 M. Tonnes per hour with an
output of 50% produced Mang
8. Target Group / Population : Pulp of 1800 M. Tonnes,
900 (nine hundred) Members
9. Implementing Organisation : Farmers of mango growers.
covering population of 35000
9. Sri Venkateswara Large Sized
Cooperative Society Ltd.
Dewaraya Tirumala (Post) west
Godavari District AP. India
10. Supporting organisation / Financial / Technical : The District Cooperative
Central Bank Ltd. Eluru
west Godavari Dt AP.
11. Has your government approved the Project in principle : The society has to get the
approval of the Government
12. Total Project Cost : Rs 36.86 Lakhs.
13. Equity Capital for Project : Equity Capital Rs 7.36 Lakhs

14. Other owned resources for Project : Pre-operations expenses of Rs 1.50 Lakhs from the own resources of the Society.
15. Sources of Funds:
- 15.1 Government Fund : —
- 15.2 Banks : The District Coop. Central Bank etc. has been w. Govt. is prepared to provide entire working capital.
- 15.3 Other Sources : Block capital requirement of Rs 28 Lakhs from N.C.D.C.
- 15.4 Resources not yet identified : Does not arise.
16. Technical Know - how for Project :
- 16.1 Whether locally available : Yes.
- 16.2 If not, what part of technical know how is desired from outside the country. : —
17. Machinery and Equipment : What percentage
- 17.1 Locally available : Yes / ~~No~~
- 17.2 To be imported : ~~Yes~~ / No
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : Does not arise.
- 17.4 Can you start the Project activity with locally available material? : Yes.

18. Skilled Manpower for Project:

18.1 Trained personnel available for operating the Project : Yes / ~~No~~

18.2 Whether training abroad is desired: ~~Yes~~ / No

18.3 If yes, in what specific fields? :

Does not arise.

19. When the work could be started on the Project. Please give details. : The implementation of the project will be commenced from the month of June 89. The processing plant will commence its work in the month of May 90. The final product will be ready for marketing from the month of June 1990.

20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity. : *Marketing from the month of June 1990*

21. Any other details you consider important for follow-up by ICA : Under marketing of the final product along with other channels. It is also proposed to approach the NAFED. The ICA may kindly advise NAFED to consider the marketing of mango pulp the final product of the society.

22. After the training course, will you be able to help in further improving the project? : *Yes. Very well.*

23. Address to which we should correspond in future on project matters. : 1. President.
Sri Venkateswara Lango Simit
Cooperative Society Ltd.
Dwaravara Tirumala (Post)
West Godavari Dist. A.P.
2. General Manager. The District
Coop. Central Bank Ltd. Eluru
West Godavari Dist. A.P.

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

Project Title : Kimchi Processing Mill in
Cheong San PAC

Country : Korea

Prepared by : Hyang Kyu Lee

Funded by the Government of Japan
and

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

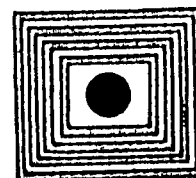
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



Chapter I Summary

- 1.1 This Project deals with the Kimchi Processing Mill to be constructed by the Cheong San PAC, 43Km north east of Seoul.
- 1.2 Various kinds of vegetables are grown in this area, and around 80 - 90% of such products as green pepper, cucumber, eggplant, pumpkin, groundnut and etc. are sold through the marketing channel of Cheong San PAC.
- 1.3 However, due to the problems of storability, relatively high risk in handling and short man-power of the Cooperative, most of radish and chinese cabbage are sold to the brokers on the field at the low prices which considerably reduces the growing farmers' income.
- 1.4 Realizing such problems, the Cheong San PAC is considering carefully to launch a new project of Kimchi processing Mill for the purpose of increasing farmers' farm and non-farm income and at the same time to provide farmers with more services.
- 1.5 Because the vegetable processing industry become new government supporting industry and NACF decided to expand and start processing business and the gradual increase of the demand of plant made Kimchi, Kimchi processing business is judged to have optimistic long-term prospect.
- 1.6 This Project-Mill, with expected processing/production capacity of 12 M/T, requires about 676,48 million Won to be constructed.
- 1.7 The Project life is assumed to be 9 years. One year will be required in construction and operation will be started from the second year with the estimated yearly working ratio of 50%.
- 1.8 The Government will provide 68.5 million Won as subsidy and 53 mil. Won at 8% of low interest rate. The NACF will provide 300 mil. Won for 3 years at no-interest. The balance are supplied by the loan from NACF.
- 1.9 BCR of the Project is 2.03 with IRR 29.65%, NPV 700 million Won and payback period 4.49 years.

- 1.10 For smooth construction and operation of the Project Plant, Cheong San PAC will organize a Project Unit Consisted of 15 staff members including one manager, under the policy guide lines of the existing board of management of the cooperative.
- 1.11 The profit incured from this project will be used for the medical care, living improvement and scholarship fund for member farmers as a means of strengthening service of function of the Cooperative, and this project will play a role of incentive in inducing the participation of member farmers in Cheong San PAC businesses.

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : Kimchi Processing Mill in Cheong San PAC
2. Country : Korea
3. Prepared by : Hyang Kyu Lee
4. Anchor activity of Project (Commodity / Service) : Chinese Cabbage and Radish (processing, value adding)
5. Project Duration : 9 years
6. Area of Operation : Cheong San Coop operation Area.
7. Total Capacity : 12 MT/day
8. Target Group / Population :
9. Implementing Organisation : Cheong San PAC
10. Supporting organisation / Financial / Technical : MACT, Ministry of Agriculture and Fishery
11. Has your government approved the Project in principle : Site of Mill is under sanction
12. Total Project Cost : ₩ 676.483 thousand (# 111.000)
13. Equity Capital for Project : ₩ 74.000 thousand (# 10.000)

14. Other owned resources for Project : ~~222,000~~ thousand
(\$ 327,000)
15. Sources of Funds:
- 15.1 Government Fund : Subsidy (\$ 101,000 thousand)
Loan at 8% interest (\$ 3.000 thousand)
- 15.2 Banks : NACT (\$ 375,000) (\$ 78,000)
254,000 thousand (Loan)
300,000 thousand (Mutual fund)
- 15.3 Other Sources : - (\$ 441,000) at no interest
- 15.4 Resources not yet identified : -
16. Technical Know - how for Project : Not needed specific know-how
- 16.1 Whether locally available : ~~None~~ Yes
- 16.2 If not, what part of technical know how is desired from outside the country. : None
17. Machinery and Equipment : 36.50%
What percentage
- 17.1 Locally available : Yes / No
- 17.2 To be imported : Yes / No
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : None
- 17.4 Can you start the Project activity with locally : Yes

18. Skilled Manpower for Project: -

18.1 Trained personnel available for operating the Project : Yes / No

18.2 Whether training abroad is desired: Yes / No

18.3 If yes, in what specific fields? : *none*

19. When the work could be started on the Project. Please give details. : *If they get the permission of mill site they can start at once (the use of farm land should be transferred)*

20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity.

*New activity of
Cheong San ^{PAC}*

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

22. After the training course, will you be able to help in further improving the project? : *Yes.*

23. Address to which we should correspond in future on project matters.

*: MACT
(Processing Division In Marketing Department)*

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

Project Title : Dairy Plant in Jeonbuk Province

Country : Korea

Prepared by : Byung-Ho Jeong

Funded by the Government of Japan

and

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

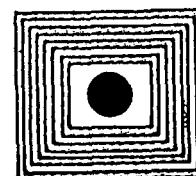
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



Chapter I. Summary

1. The project is to establish the dairy plant of 60 tons of milk collecting capacity per day in Jeonbuk province.
2. The recent demand of milk and milk products are inclined to increase rapidly, which makes NLCF establish the dairy plant.
3. The project will be implemented by NLCF. So NLCF headquarters will regulate all management to establish the plant. And NLCF headquarters can get support of Jeonbuk provincial office about preparation and supervision of construction of the plant.
4. Organization of the plant consists of 4 divisions such as marketing, production, administration and extension division.
5. The construction of dairy plant needs 2 years and 2,600 million Won of capital investment. And the project will be financed by NLCF.
6. By 10 operating years, NPV is 1,339 million Won and IRR is calculated as 18% while the current annual interest rate is 11%.
7. The demand of raw milk by this plant will induce the farmers to raise more dairy cattles and if the milk production in the region meets all demand of raw milk in the plant, the benefit of dairy farmers will be income increase of 2.8 million Won per household a year.

8. At present, the dairy farmers are marketing the raw milk to the private companies mostly. So they want to supply it to the cooperative and to receive better services. Accordingly the dairy plant in this project will be able to satisfy the farmers' desire in the region.
9. The manufactured products will be sold through cooperative, marketing agency, chain store, market and hospital.

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : Dairy Plant
2. Country : Korea
3. Prepared by : Byung-Ho Jeong
4. Anchor activity of Project
(Commodity / Service) : Production of
dairy products
5. Project Duration : 10 years
6. Area of Operation : Jeonbuk Province
7. Total Capacity : 60 tons of milk collecting
per day
8. Target Group / Population : Dairy farming households
(2,000)
9. Implementing Organisation : National Livestock
Cooperatives Federation
10. Supporting organisation /
Financial / Technical : -
11. Has your government approved
the Project in principle : Not necessary
12. Total Project Cost : 2,600 million Won
13. Equity Capital for Project : 2,600 million Won

14. Other owned resources for Project : not

15. Sources of Funds:

15.1 Government Fund :

15.2 Banks :

15.3 Other Sources : self-financing of organization (Federation)

15.4 Resources not yet identified :

16. Technical Know - how for Project :

16.1 Whether locally available : Yes *

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

17. Machinery and Equipment : What percentage

17.1 Locally available : Yes / No

17.2 To be imported : Yes / No

17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : N.A.

17.4 Can you start the Project activity with locally available material? : Yes

18. Skilled Manpower for Project:

18.1 Trained personnel available for operating the Project : Yes / No

18.2 Whether training abroad is desired: Yes / No

18.3 If yes, in what specific fields? :

N.A.

19. When the work could be started on the Project. Please give details.

Within 2-3 years,
The dairy plant to be owned by NLCF is included in organization plan.

20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity.

21. Any other details you consider important for follow-up by ICA

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

Yes.

23. Address to which we should correspond in future on project matters.

: Research Department
National Livestock Cooperative
Federation

Add: #17-9, Yoido-dong, Youngdeungpo
Seoul, Republic of Korea

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

*PROJECT PREPARED DURING HOME
COUNTRY ASSIGNMENT*

*Project Title: The Production of Quality
Rubber Through Central
Processing Centre*

Country : Malaysia

Prepared By : FIKRI GHANI

Funded by the Government of Japan
and

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

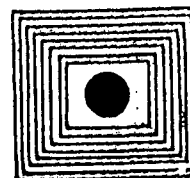
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



CHAPTER 1 : SUMMARY

- 1.1 The proposed project is to establish a Central Processing Centre for the production of quality rubber in the Air Belaga Mini Estet, Machang, Kelantan. A Mini Smokehouse will also be established within the area to provide further value addition for the members' produce.
- 1.2 The project will be undertaken by the Machang District Rubber Smallholders Cooperative which will be providing horizontal and forward linkages.
- 1.3 The objective of the project is to increase the income of the members by providing better price for raw material(latex) and also improve the quality of rubber produced.
- 1.4 The cooperative will also develop better marketing channels and thus helps to eliminate intermediaries which has been patronising the members.
- 1.5 The estimated investment cost for establishing a CPC and a smokehouse with 2 MT/day(10 MT/cycle) is M\$ 219,450. A sum of M\$ 119,450 will be provided as equity by the cooperative and the balance of M\$ 100,000 will be financed by the Cooperative Department with the interest rate of 6%. The loan will be repaid after 2 years of moratorium with 5 equal instalments.
- 1.6 As for working Capital loan, a sum of M\$ 100,000 will be financed by the Agricultural Bank with interest rate of 10%.

- 1.7 The project life is assumed to be 10 years and the implementation schedule is very short. The project is expected to be completed within 3 months. The technical know how and machinery are available locally in Malaysia.
- 1.8 The project covers a total rubber area of 130.30 hectares and will benefit 45 farm families in the area.
- 1.9 The project viability is proven with details of financial analysis as follows:-
NPV = 192,311 : BCR = 1.87 ; and IRR is 25.28%
- 1.10 The estimated pay back period for the project is about 4½ years with the Break-Even-quantity of 344 MT.
- 1.11 Backward linkages will be undertaken by RISDA and the Cooperative will provide horizontal and forward linkage. Thus, with the intergration of backward, horizontal and forward linkages, it is hoped that the project will achieve its objectives, that is, to increase the members' income, from M\$250 to M\$350 - M\$400 monthly.

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : THE PRODUCTION OF QUALITY RUBBER THROUGH CENTRAL PROCESSING CENTRE.
2. Country : MALAYSIA.
3. Prepared by : FIKRI GHANI
4. Anchor activity of Project (Commodity / Service) : RUBBER PROCESSING.
(i) ESTABLISHING CENTRAL PROCESSING CENTRE
(ii) ESTABLISHING A MINI SMOKE HOUSE
5. Project Duration : 10 YEARS
6. Area of Operation : AIR BELAGA MINI ESTATE,
MACHANG, KELANTAN, MALAYSIA
(130.30 HECTARES)
7. Total Capacity : 40 METRIC TONNE/~~DAY~~ MONTH
8. Target Group / Population : RUBBER SMALLHOLDERS/
45 FAMILIES
9. Implementing Organisation : MACHANG RUBBER SMALLHOLDER
COOPERATIVE
10. Supporting organisation / Financial / Technical : RUBBER INDUSTRY
SMALLHOLDERS DEVELOPMENT
AUTHORITY (RISDA)
11. Has your government approved the Project in principle : YES. DISCUSSION WITH
RISDA.
12. Total Project Cost : M \$ 219,450
13. Equity Capital for Project : M \$ 100,000

14. Other owned resources for Project : -
15. Sources of Funds:
- 15.1 Government Fund : THROUGH RUBBER INDUSTRY AND DEVELOPMENT AUTHORITY.
- 15.2 Banks : (~~SUBSIDY~~) (GRANT) M\$100,000
- 15.3 Other Sources : COOPERATIVE DEPARTMENT. (LOAN)
- 15.4 Resources not yet identified : -
16. Technical Know - how for Project : i) RUBBER RESEARCH INSTITUTE OF MALAYSIA (RIRM)
- 16.1 Whether locally available : ii) RISDA. YES
- 16.2 If not, what part of technical know how is desired from outside the country. : -
17. Machinery and Equipment : 95%
- What percentage
- 17.1 Locally available : Yes / No
- 17.2 To be imported : Yes / No
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : -
- 17.4 Can you start the Project activity with locally available resources? : YES

18. Skilled Manpower for Project: 5
- 18.1 Trained personnel available for operating the Project : Yes / ~~No~~
- 18.2 Whether training abroad is desired: ~~yes~~ / No
- 18.3 If yes, in what specific fields? :
—
19. When the work could be started on the Project. Please give details. MIDDLE 1989
20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity. MARKETING OF RUBBER.
21. Any other details you consider important for follow-up by ICA : IMPLEMENTATION STAGE
22. After the training course, will you be able to help in further improving the project? YES
23. Address to which we should correspond in future on project matters. : MACHANG RUBBER
SMALLHOLDERS COOPERATIVE,
RISDA MACHANG, 18500,
MACHANG, KELANTAN.
MALAYSIA.

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

PROJECT : DURING HOME COUNTRY ASSIGNMENT
PREPARED

PROJECT : FEASIBILITY REPORT ON POTATO
TITLE GRADING PLANT AT OKARA

COUNTRY : PAKISTAN

PREPARED: AGHA ZIAD HUSSAIN
BY

Funded by the Government of Japan
and

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

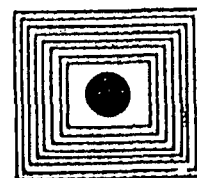
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters:
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



SUMMARY

1. Project: Potato Grading Plant at Okara
2. Sponsoring Agency: The Okara Potatoes, Vegetable & Fruit Growers Cooperative Society Ltd., Okara.
3. Sponsor's Particulars: A cooperative enterprise organized and registered in 1979 under Cooperative Societies Act, 1925. Its present membership is 100, all are progressive farmers and are known for their business minded approach. Its paid-up share capital is Rs. 5,10,000. The activity during 1984-85 was marked with the supply of imported seed valuing Rs.3724 thousand and earned a net profit of Rs.245 thousand working capital stood at Rs. 7,401,440.
4. Project Objectives:
 - i) Reduce the import of seed-potato by introducing own quality seed.
 - ii) Increase the business of the society and thus improve the well-being of the members in particular and the farmers of the area in general.
 - iii) Stabilize prices in the consumer markets by regulating the supply and improving marketing system.
 - iv) Increase the exports by standardizing the quality and the packing arrangements.
5. Project Location: Project is proposed to be located at Okara - well connected central place as far as potato marketing is concerned.
6. Operational Strategy: Initially the society plans to purchase the produce only from its 100 members as the available quantity will be sufficient to meet the plant capacity requirement. Later on potato will be purchased from other farmers of the area and adjoining areas of Sahiwal district. After cleaning and grading about 10% is proposed to be marketed in the local

markets of Punjab. About 60% (packed in attractive and convenient sizes of 2 1/2 or 5 kg) will be disposed off in Karachi and other markets of Sind Province. During scarcity periods, much of the quantity will however be sold in the local markets (including Lahore) of Punjab. Most of the remaining quantity will be exported. About 500 tons will be stored for use as seed for the next crop.

7. Annual rated Production Capacity: Plant capacity has been worked out on the basis of 20 tons per hour for 6-7 hours daily. However, from the 2nd year, double shift system will be adopted. Accordingly the year-wise capacity utilization will be as under:

<u>Qty. in tons</u>			
Year	Potato received	Graded Potato	Exportable
1st	12,360	12,000	5,000
2nd	20,600	20,000	7,500
3-10	30,900	30,000	10,000

8. Project Capital Cost: Major items of costs are as under:
- | | | <u>Rs. in 000)</u> |
|------------|----------------------------|--------------------|
| - | Land | 600.0 |
| - | Buildings | 3160.1 |
| - | Grading/Packing Plant | 1687.9 |
| - | Cold Storage Machinery | 625.0 |
| - | Standy-by Diesel Generator | 120.0 |
| - | Tractor and Trolly | 175.0 |
| - | Other Miscellaneous | 120.0 |
| Sub-total: | | 6488.0 |
| - | Working capital | 6036.9 |
| Total: | | 12524.9 |
| | | ===== |

9.	Financing Plan:		<u>Rs. in 000)</u>
	-	Bank.	7500.0
	-	Member's Equity.	5024.9

		Total:	12524.9
			=====

10.	Project Operational Costs:	1st year of operation	=	Rs.20203 thousand
		2nd year of operation	=	Rs.32755 thousand
		3rd-10th year of operation	=	Rs.48242 thousand

11.	Expected Project Revenues:		<u>Rs. in 000)</u>
		1st year	21997.0
		2nd year	35910.6
		3rd - 10th year	52722.5

12. Securities/ Collateral: The loan will be secured by mortgage of premises, the structure raised and hypothecation of the plant and machinery purchased by the society. In case the estates of the society do not sufficiently cover the loan amount to Bank's satisfaction, the Directors of the Society shall give their landed property to secure the loan

13. Project's Profitability: Based on the cash flow, rate of return of the project has been worked 41.70%. The rate is markedably favourable as it is more than twice as much as the current market return rates.

Similarly the benefit/cost ratio, at a discount rate of 12% comes to 1.05. That project's NPV (at 12% discount) is Rs.11921.2 thousand.

All this show that the project is financially viable.

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : POTATO GRADING PLANT
AT OKARA
2. Country : PAKISTAN
3. Prepared by : AGHA ZIAD HUSSAIN
4. Anchor activity of Project
(Commodity / Service) : COMMODITY (VALUE ADDING)
5. Project Duration : 10 YEARS
6. Area of Operation : DISTRICT OKARA & DISTRICT SAHIVAL
7. Total Capacity : 20 TONS PER HOUR 6-7 HOURS
DAILY AND 25 WORKING DAYS
IN A MONTH
8. Target Group / Population : 100 MEMBERS
9. Implementing Organisation : THE OKARA POTATOES, VEGETABLE
& FRUIT GROWERS COOP. SOCIETY
OKARA (PUNJAB)
10. Supporting organisation /
Financial / Technical : i) NATIONAL COOP. UNION OF PAKISTAN
ii) P.B. PROV. COOP. BANK.
11. Has your government approved
the Project in principle : DRAFT REPORT NOT YET SUBMITTED
(PAPER)
12. Total Project Cost : Rs. 12,524,900
13. Equity Capital for Project : Rs. 5,024,000

14. Other owned resources for Project : NO
15. Sources of Funds:
- 15.1 Government Fund : NO
- 15.2 Banks : 7,500,000
- 15.3 Other Sources : 5,024,900
- 15.4 Resources not yet identified : GOVT GRANT / FOREIGN ASSISTANCE / ICA, E.A.O AND
16. Technical Know - how for Project : TECHNICAL STAFF AVAILABLE
- 16.1 Whether locally available : YES LOCALLY AVAILABLE
- 16.2 If not, what part of technical know how is desired from outside the country. :
17. Machinery and Equipment :
What percentage
- 17.1 Locally available : Yes / ~~NO~~ 86.4%
- 17.2 To be imported : Yes / ~~NO~~ 13.6%
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : GRADING AND PACKING PLANT
- 17.4 Can you start the Project activity with locally available material? : COLD STORAGE CAN BE STARTED FIRST.

18. Skilled Manpower for Project: AVAILABLE IN THE LOCAL AREA.
- 18.1 Trained personnel available for operating the Project : Yes / ~~No~~
- 18.2 Whether training abroad is desired: Yes / ~~No~~
- 18.3 If yes, in what specific fields? : GRADING & PACKING.
SPLY IN PROCESSING (FOR VALUE ADDING). TO EXPLORE HIGHEST-PROFIT FERTILIZERS.
19. When the work could be started on the Project. Please give details. : SOON AFTER THE PROJECT IS FUNDED.
20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity. : FOR ARRANGING OWN SEED-STOCK THE SOCIETY HAS PLANNED FOR ESTABLISHING POTATO GRADING PLANT AT OKARA. THE SOCIETY ALSO INTENDS TO HAVE ITS OWN COLD STORAGE FACILITY SO THAT POTATO SEED COULD BE TAKEN CARE OF FOR BETTER CROP. AND RETURN TO MEMBERS.
21. Any other details you consider important for follow-up by ICA : ICA CAN HELP IN GETTING FUNDS FROM HOME AND ABOARD INSTITUTIONS.
22. After the training course, will you be able to help in further improving the project? : YES.
23. Address to which we should correspond in future on project matters. : SECRETARY
NATIONAL COOPERATIVE UNION OF PAKISTAN.
5-COURT STREET - NEAR
PUNJAB CIVIL SECRETARIATE
LAHORE

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

PROJECT PREPARED DURING HOME
COUNTRY ASSIGNMENT

Project Title: Corn Production

Country : Philippines

Prepared by : SOFRONIO E. COLIYAT
General Manager
SIDCI

Funded by the Government of Japan
and

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

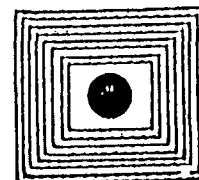
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



CHAPTER: I SUMMARY

- 1.1 The proposed project is to be implemented at Sorosoro Ibaba, Batangas City and adjacent areas presently not planted by any crops.
- 1.2 The project will be undertaken by Sorosoro Ibaba Development Cooperative Inc. (SIDCI) to at least meet $\frac{1}{2}$ of the corn requirements of SIDCI feed mill already in operation since Nov. 02, 1987.
- 1.3 The objective of the project is to increase the income of the members by providing employment for this project and by decreasing the cost of feeds to be provided to them.
- 1.4 The cooperative will also encourage the farmer members to plant this yellow corn hybrid seeds varieties.
- 1.5 The estimated investment cost for this project is ₱2,468,884 for the targeted area of 150 hectares. The sum of ₱1,054,534 is equity of Cooperative and ₱1,414,350 is loan from Bank.
- 1.6 The project life is assumed to be 5 years and to be implemented on May 1990.
- 1.7 The project viability is proven with details of financial analysis of NPV, BCR, and IRR.
- 1.8 Backward integration is presently implemented by SIDCE including horizontal and forward integration.
- 1.9 Source of Hybrids seeds are available in the area and peace and order situation are good.
- 1.10 Climatic condition of the targeted area were proven to be productive by the Appendix 1 to 4.

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : CORN Production ^{Caluyut}
2. Country : Philippines
3. Prepared by : SOFRONIO E. COLIYAT
4. Anchor activity of Project (Commodity / Service) : FEED MILL
LIVESTOCK PRODUCTION
CONSUMER'S STORE
5. Project Duration : five (5) years. after
construction of DAM - whole life
6. Area of Operation : 170 HAS. within the
village of SOSORO TABA,
& Adjacent Barangays
7. Total Capacity : 825 MT
8. Target Group / Population : 723 Household
9. Implementing Organisation : SOSORO TAABA Develop-
ment Coop. Inc. (SIDCI)
10. Supporting organisation / Financial / Technical : Ministry of Agriculture,
National Irrigation Adminis-
tration (NIA), BANKS
11. Has your government approved the Project in principle : YES
12. Total Project Cost : ₱ 7,468,884 + cost of
DAM to be determined.
Shelling & Drying Machine
13. Equity Capital for Project : ₱ 1,054,534 -

14. Other owned resources for Project : Feed mill Warehouse
One (1) Unit Truck
One (1) Unit Jeep
Laborers
15. Sources of Funds:
- 15.1 Government Fund : None
- 15.2 Banks : NONE
- 15.3 Other Sources : NONE
- 15.4 Resources not yet identified : yes
16. Technical Know - how for Project :
- 16.1 Whether locally available : yes - for corn
- 16.2 If not, what part of technical know how is desired from outside the country. : Construction of DAM
Technology operation of DAM
17. Machinery and Equipment : To be determine for
What percentage : shellers, Dryer, ~~and additional~~
~~Warehouse.~~
- 17.1 Locally available : Yes No
- 17.2 To be imported : Yes No
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : Moisture Tester
- 17.4 Can you start the Project activity with locally available materials? : yes

18. Skilled Manpower for Project:

18.1 Trained personnel available for operating the Project : Yes / No for corn

18.2 Whether training abroad is desired: Yes / No

18.3 If yes, in what specific fields? :

- ① Construction of Dam
- ② Technology for Dam operation

19. When the work could be started on the Project. Please give details. : ① corn production T/199 (one crop)

② Construction of DAM upon availability of fund.

20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity.

- ① feed mill
- ② live stock production
- ③ consumer cooperative

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

- 1. financial & technical assistance for the construction of Dam
- 2. financial assistance for the construction of Shelling & Drying machines

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

yes

23. Address to which we should correspond in future on project matters.

: Larosoro IBABA Development Cooperative Inc.
Larosoro Ibaba, Batangas City.
Philippines

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

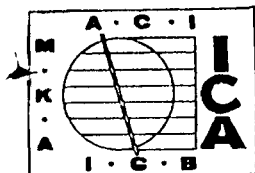
AN INTEGRATED EXPANSION PROGRAM OF
N.S.PROCOM: FERTILIZER SUPPLY AND
HAULING SERVICES

by Jose C Palmares, Philippines

Funded by the Government of Japan
and

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

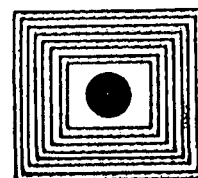
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters:
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



SUMMARY

CHAPTER I

A summary of the results of the investigation carried out in Passi - New Frontier Mill District and national sugar statistics, its relation and effects to the proposed project are hereby presented in this chapter.

I.I. GENERAL BACKGROUND

The sugar industry is a major foreign exchange earner generating more than \$500 million annually. Domestic sugar production in the Philippines is greatly affected by the world market price, characterized by unstable nature experienced time and again in the past. The expiration of the Laurel-Langley Agreement and the U.S. Sugar Act in 1974 have adversely affected sugar production and marketing. For the past eleven years, production and area planted to sugarcane has been steadily going down. Today, our production could barely meet our domestic consumption, therefore it is a must for Philippine Sugar Industry to produce more to catch up not only with our domestic but also with our preferential U.S. quota requirements.

1.2 STUDY AREA

The Municipality of Passi is located in the province of Iloilo composed of 51 barangays (village). Passi has an agricultural based economy being sugar, the

major industry where majority of the people depend their sources of livelihood.

1.3 THE PROJECT

There are four major components of the proposed project. They are:

- a. Fertilizer sale
- b. Truck Hauling business
- c. Sugar marketing
- d. Technical assistance

Those components will be an integrated expansion activities of an existing sugar cooperative (NISPROCUM). There will be 12 units of reconditioned diesel engine trucks, 8-10 ton capacity and about 1,185.75 tons of fertilizer grades proposed based on the requirement of the members. This service will be linked with forward integration activities of the cooperative through marketing their sugar produce and backward integration through provision of technical assistance in sugarcane agriculture. This package will be implemented on a supervised credit scheme.

1.4 FINANCIAL ASPECTS

The investment required for the proposed project is ₱ 8,331,920. The debt equity ratio for capital investment is 80:20%.

Annual operation and maintenance is discussed in details in Chapter 3. The financial analyses were

carried out based on various assumption which were results of interview among authorities on specific fields.

A. For Hauling Trucks:

$$B. E. P_Q = 27,244 \text{ tons/year}$$

B. For Fertilizer Sales:

$$B. E. P_Q = 734 \text{ tons/year}$$

C. Net Present Value :

$$NPV_{(T+F)} = \text{P}1,466,323$$

D. Benefit-Cost Ratio:

$$BCR_{(T+F)} = 1.18$$

E. Internal Rate of Return:

$$IRR_{(T+F)} = 24.78\%$$

The proposed rental rates of hauling trucks were estimated at 20% lower than the existing rate based on distance traveled. Fertilizer prices were based on the existing prices of private traders in the locality.

Total bank loans were spread over 10 years repayment schedule at 19% interest, equal amortization on the principal per year and full interest on the remaining balance every year.

1.5 CONCLUSION AND RECOMMENDATION

Due to the economic benefits that will accrue to the members of the cooperative, this integrated expansion program of NISPROCUM is strongly recommended for implementation.

Farmer's Economic Benefits due to Project:

Fertilizer Input	- - - -	₱ 852.50/Ha.
Hauling Input	- - - -	1,344.58/Ha.

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : Fertilizer Supply and Hauling Services
2. Country : Philippines
3. Prepared by : Jose C. Palmares
4. Anchor activity of Project (Commodity / Service) : Sugarcane Farming
5. Project Duration : 10 years
6. Area of Operation : Passi - New Frontier Mill Dist. Passi, Iloilo
7. Total Capacity : N. A.
8. Target Group / Population : Sugarcane farmers
9. Implementing Organisation : NISPROCUM, Passi, Iloilo
10. Supporting organisation / Financial / Technical :
11. Has your government approved the Project in principle : Not necessary
12. Total Project Cost : ₱8,331,920.00
13. Equity Capital for Project : ₱1,668,866.00
(To be raised)

- 14. Other owned resources for Project : Office building and lot
- 15. Sources of Funds:
 - 15.1 Government Fund :
 - 15.2 Banks : LOAN: ₱ 6,663,054.00
 - 15.3 Other Sources : Additional members contributions (To be raised).
 - 15.4 Resources not yet identified :
- 16. Technical Know - how for Project : Simple managerial operation is needed.
 - 16.1 Whether locally available : Yes
 - 16.2 If not, what part of technical know how is desired from outside the country. :
- 17. Machinery and Equipment What percentage : Trucks, Jeep, Motorcycle 37.50%
 - 17.1 Locally available : Yes / No
 - 17.2 To be imported : Yes / No
 - 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : 12 units Trucks, 10 tons cap.
1 unit Service Jeep
2 units Motorcycle - 125 cc.
 - 17.4 Can you start the Project activity with locally : Yes, if loan is available

18. Skilled Manpower for Project: Truck Drivers

18.1 Trained personnel available for operating the Project : Yes / No

18.2 Whether training abroad is desired: Yes No

18.3 If yes, in what specific fields? :

19. When the work could be started on the Project. Please give details.

Anytime, if loan is available at lower interest (12-15%).

20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity.

The coop now is engaged in supplying gas/diesel fuel to members.

21. Any other details you consider important for follow-up by ICA

If foreign loan is possible at lower rate of interest (12-15%/annum).

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

Yes, I will be directly supervising it.

23. Address to which we should correspond in future on project matters.

JOSE C. PALMARES
NIS PROCOM
PASSI, ILOILO, PHILIPPINES

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

PROJECT PREPARED DURING HOME COUNTRY
ASSIGNMENT

PROJECT TITLE : Initiation of A Coconut
Oil Mill

COUNTRY : Sri Lanka

PREPARED BY : J. K. Thungasena
General Manager
Madampe M.P.C.S. Ltd.

Funded by the Government of Japan
and

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

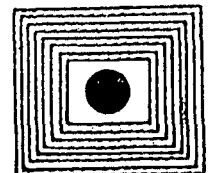
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



CHAPTER 1 SUMMARY

1. TITLE OF THE PROJECT - Initiation of a coconut oil mill
2. NAME AND ADDRESS OF IMPLEMENTING ORGANIZATION - The Madampe Multipurpose Coop Society Ltd. New Town - Madampe Sri Lanka.
3. AREA OF OPERATION - Operational area of the Madampe M.P.C.S. Ltd. in the Puttlam District Sri Lanka
4. INSTALLING AREA - The processing mill has been established in Madampe Town in land owned by the implementing Society.
5. MEMBERSHIP - The project has been related to the members of the Madampe Coop. society.
The total membership of this society in 9000. They are represented through 23 (Sub units) branches of the society, with in the area of its operation
6. TOTAL CAPACITY - Out put of 2 to 2½ m/Tons oil and peencc in 16 hours. Expected working days 250 per year 500 M/tons.
7. CAPITAL INVESTMENT - Total capital investment for the buildings machinery charcoal plant storage tanks Bowsor tank and countruction, erection work etc. 2.26 million
8. SOURCES OF FINANCIAN
 1. CAPITAL - Expected to obtain 1.2 Million from the people's Bank of Madampe at 14% annual rate of interest on a 5 year term loan
 2. WORKING CAPITAL 1.0 Million from Rural Bank fund of the implementing organization at same procedure.

- 2 -

- 9. RAW MATERIAL - Locally available through the project area, under review.
- 10. PROJECT PERIOD - 10 years.
- 11. IMPLEMENTING PERIOD - 1 year

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : Initiation of a Coconut oil mill
2. Country : Sri Lanka
3. Prepared by : J. K. Thungasena -
G. M. Madampe M. P. C. S. Ltd.
4. Anchor activity of Project
(Commodity / Service) : Commodity.
5. Project Duration : Ten (10) Years.
6. Area of Operation : Command area of Madampe
M. P. C. S. Ltd.
7. Total Capacity : Output of 2 to 2 $\frac{1}{2}$ m/Tons
Oil and Lecocac.
8. Target Group / Population : about 55000
9. Implementing Organisation : Madampe M. P. C. S. Ltd.
10. Supporting organisation /
Financial / Technical : i People's Bank - Madampe
ii Coconut Development Authority
iii Department of Coop-Development.
11. Has your government approved
the Project in principle : Yes.
12. Total Project Cost : Rs 2.2 million
13. Equity Capital for Project :

14. Other owned resources for Project :
15. Sources of Funds:
- 15.1 Government Fund : -
- 15.2 Banks : 1.2 million from Madampe
People's Bank.
- 15.3 Other Sources : Society's owned Rural bank
fund Rs. 1.0 million
- 15.4 Resources not yet identified : -
16. Technical Know - how for Project : Coconut Development Authority
Dept of Coop - Development.
- 16.1 Whether locally available : YES
- 16.2 If not, what part of technical know how is desired from outside the country. : -
17. Machinery and Equipment :
What percentage
- 17.1 Locally available : Yes / ~~No~~ 100%
- 17.2 To be imported : Yes / No
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance?
- 17.4 Can you start the Project activity with locally available material? : YES

18. Skilled Manpower for Project:

18.1 Trained personnel available for operating the Project : Yes / ~~NO~~

18.2 Whether training abroad is desired: Yes / ~~no~~

18.3 If yes, in what specific fields? : *production, technology, processing, marketing fields*

19. When the work could be started on the Project. Please give details. : *from June 1989, possibly.*

20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity. /

21. Any other details you consider important for follow-up by ICA : *in the course of installation of the project if there is need for technical assistance ICA may help.*

22. After the training course, will you be able to help in further improving the project? : *YES.*

23. Address to which we should correspond in future on project matters. : *J. K. THUNGESENA.
MADAMPE MULTI PURPOSE
COOP SOCIETY,
NEW TOWN, MADAMPE
SRI LANKA.*

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

PROJECT PREPARED DURING HOME COUNTRY

ASSIGNMENT

PROJECT TITLE :- Initiation of a Rice Mill

COUNTRY :- Sri Lanka

PREPARED BY :- E.M.E.G. Mutu Banda
General Manager
M.P.C.S. - Naula.

Funded by the Government of Japan
and

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

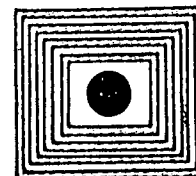
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



S U M M A R Y

1. TITLE OF PROJECT : Starting of a Rice Mill
2. AREA OF OPERATION : Naula MPCS premises in the electorate of Laggala in the district of Matale.
3. NAME AND ADDRESS OF IMPLEMENTING ORGANISATION : The MPCS Naula Ltd., Naula, Sri Lanka.
4. TARGET GROUP AND MEMBERSHIP : The 16 branch co-operatives located in an area where ⁵⁵⁶⁵~~4250~~ families live. There are 1400 member farmers.
5. TOTAL CAPACITY : One million kilos of rice per year. Working 250 days in a single 8 hour shift. 30,000 kilos of broken rice, 10,000 kilos of bran.
6. CAPITAL INVESTMENT AND SOURCE : Rs.11,57,000 through the Co-operative Commissioner from the co-operative Fund for the purchase of paddy Rs.59,07,500 be taken as a short term loan at 14% interest.
7. SOURCE OF RAW MATERIALS : From the project area
8. PROJECT PERIOD : 8 years
9. IMPLEMENTATION : August 1990

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : *Initiation of a rice mill*
2. Country : *Sri Lanka.*
3. Prepared by : *E.M.E.G. Muthu Banda.*
4. Anchor activity of Project (Commodity / Service) : *Processing of paddy into Rice to provide better price to member farmers.*
5. Project Duration : *10 years.*
6. Area of Operation : *Naula M.P.C.S. premises in the electorate of Laggala in the District of the Matale.*
7. Total Capacity : *Capacity 139000 kgs. Processing of paddy per year.*
8. Target Group / Population : *Benefit to 1400 Member farmers covering population 25830*
9. Implementing Organisation : *M.P.C.S. Naula.*
10. Supporting organisation / Financial / Technical : *Peoples Bank Naula and finance from the government through the Commissioner*
11. Has your government approved the Project in principle : *The society has to obtain the approval of the government*
12. Total Project Cost : *RS: 11,57,000*
13. Equity Capital for Project : *—*

14. Other owned resources for Project : —
15. Sources of Funds:
- 15.1 Government Fund : *Cooperative fund from Cooperative department Rs: 11,57,000*
- 15.2 Banks : *Rs: 59,07,500 from the Peoples' Bank, Maunla.*
- 15.3 Other Sources : —
- 15.4 Resources not yet identified : —
16. Technical Know - how for Project :
- 16.1 Whether locally available : *yes*
- 16.2 If not, what part of technical know how is desired from outside the country. : —
17. Machinery and Equipment :
What percentage
- 17.1 Locally available : Yes / No
- 17.2 To be imported : ~~Yes~~ / No
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : —
- 17.4 Can you start the Project activity with locally available material? : *yes.*

18. Skilled Manpower for Project:

18.1 Trained personnel available for : Yes / ~~No~~
operating the Project

18.2 Whether training abroad is desired: Yes / No

18.3 If yes, in what specific fields? : _____

19. When the work could be started : *The work will be started*
on the Project. Please give *from November 1989*
details. *and the rice mill will be ~~ready~~ ready for*
processing by March 1991

20. If the Project is based on the :
on-going activity of a coop, *this project will be an*
please give brief description *additional activity of*
of the present activity. *the Nauala M.P.C.S.*

21. Any other details you consider : *It is requested that the*
important for follow-up by ICA *ICA may kindly address*
the Commissioner for Cooperatives
Dept. Sri Lanka -
for sanction of finance for implementing the project.

22. After the training course, will : *yes.*
you be able to help in further
improving the project?

23. Address to which we should : *The president*
correspond in future on *Nauala M.P.C.S*
project matters. *Nauala*
Sri Lanka

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

PROJECT ON
EXPANSION OF RICE MILL
BY
AGRICULTURAL COOPERATIVE LIMITED
IN
DERM BANG NANGBUAT, SUPHANBURI
THAILAND

Prepared by : Thawee Thimmasaya,
Participant from Thailand.

Funded by the Government of Japan
and
Executed by the ICA in collaboration with its Member Organisations in
India, Thailand, Japan and China

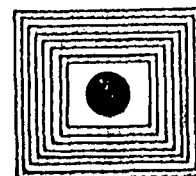
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



PROJECT ON
EXPANSION RICE MILL

CHAPTER 1 SUMMARY

1. EXPANSION RICE MILL PROJECT FOR DAC. WILL COLLECTING THE PADDY FROM MEMBERS MORE OVER THAN USUAL
2. SHOULD INCREASE INCOME OF THE MEMBERS AND SOLVING THE FLUCTUATION OF PADDY PRICE, PROBLEM.
3. PLAINING FOR COLLING PADDY FROM MEMBERS AT LEAST ONE TON PER EACH CROP AND CAN GET GET AMOUNT 9,550 MT/YEAR (2 CRCPPINGS A YEAR)
4. THE PROJECT INCREASE 2 TIMES OF PROCESSING BUSINESS QUALITY
5. DAC. WILL PAY BACK MONEY TO MEMBERS WHOSE SALE PADDY TO DAC. (ABOUT 85 BATH/TON)
6. ENHANCING MEMBERS' PARTICIPATION BECAUSE THEY CAN GET BETTER SERVICE FROM DAC.
7. RICE MILL CAN PROCOSS THE PADDY ONLY 25 % OF MEMBER PRODUCTION
8. THIS PROJECT HAVE INVESTMENT BY OWN FUND
9. BY PESUADING MEMBERS TO HOLD THE SHARE CAPITAL AT LEAST 2 SHARES (50 BATH/SHARE)
10. OPERATING PERIOD 7 YEAR AFTER SET - UP ENGINE AND EQUIPMENTS
11. BENEFIT AND COST RATIO IS 1.06 AND IRR 43.69 % IN 7 YEARS

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : EXPANSION OF RICE MILL
2. Country : THAILAND
3. Prepared by : MR. THAWEE THIKHASAYA
4. Anchor activity of Project
(Commodity / Service) : PROCESSING COMMODITY
5. Project Duration : 7 YEARS
6. Area of Operation (0.7HA) : DERMBANG NANGBUAT DISTRICT
SUPHAINBURI PROVINCE
7. Total Capacity : 60 MT./DAY (32 MT./8 HRS.)
8. Target Group / Population : 4,400 FARM HOUSEHOLD
9. Implementing Organisation : DERMBANG NANGBUAT AGRICULTURAL
COOPERATIVE LTD.
10. Supporting organisation /
Financial / Technical : CPD./BAAC / CPD.
11. Has your government approved
the Project in principle : YES
12. Total Project Cost : 500,000 BAHT.
13. Equity Capital for Project : 100 %

14. Other owned resources for Project : SHARE CAPITAL FROM MEMBER
15. Sources of Funds:
- 15.1 Government Fund : CPD.
- 15.2 Banks : BAAC.
- 15.3 Other Sources : ACFT.
- 15.4 Resources not yet identified : -
16. Technical Know - how for Project : ELECTRICITY MOTOR
ORDINARY PROCESSING
- 16.1 Whether locally available : YES
- 16.2 If not, what part of technical know how is desired from outside the country. : -
17. Machinery and Equipment : 60% ADDING AND CHANGE
What percentage
- 17.1 Locally available : (Yes) / No
- 17.2 To be imported : Yes / (No)
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : -
- 17.4 Can you start the Project activity with locally available material? : YES

18. Skilled Manpower for Project:

18.1 Trained personnel available for operating the Project : Yes / No

18.2 Whether training abroad is desired: Yes / No

18.3 If yes, in what specific fields? : -

19. When the work could be started on the Project. Please give details. : - MARCH '89 RECONFIRM WITH CPD.
- APRIL-MAY '89 CHANGING ENGINE AND EQUIPMENT

20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity. : 1. RICE PROCESSING
2. PADDY PROCUREMENT
3. MARKETING

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

22. After the training course, will you be able to help in further improving the project? : YES

23. Address to which we should correspond in future on project matters. : (1) THE AGRICULTURAL COOP. FED OF THAILAND (ACFT)
79/3 NGAMWONGWAN RD.,
BANGKHEN, BANGKOK 10900 THAILAND.
(2) DERMBANGNANGBUAT AGRI. COOP., DERMBANGNANGBUAT DIST. SUPHANBURI PROVINCE, THAILAND

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

PROJECT ON

PRODUCTION AND MARKETING OF MANGOES

FOR

AGRICULTURE COOPERATIVE LTD.

MAE CHAEM, CHIENGMAI PROVINCE

THAILAND

by Miss Wasna Junthieng, Thailand

Funded by the Government of Japan
and

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

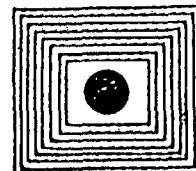
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters:
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



SUMMARY

The objectives of mangoes production and marketing project of Mae Chaem Agriculture Cooperative Ltd, are four folds,

1. To increase income of the members with long run activities,
2. to increase family income from fruit tree production besides paddy and upland Crops, and
3. to increase fruit tree planted area to offset the deforestation and to improve the environment in the project area,
4. to increase the cooperative service for the member and the members will be associated with the cooperative

This is due to mango is another crop that farmers can generate more income under the circumstance that the price of other crops is expecting to have a decreasing trend in the future i.e., paddy, soyabean and garlic.

The project is located at Chang Kerng and TaPa sub - district, District of Mae Chaem, Chiangmae Province.

The target area of production is 200 rai in Chang Kerng and 100 rai in TaPa, a total 300 rai. The farmers in Chang Kerng sub - district will plant 1 rai of mango which $\frac{1}{2}$ rai is planted Kaew-Saweay variety 2 and $\frac{1}{2}$ rai is planted Nang Klang Wan variety 3. The total farm families participate in this sub - district will plant 2 rai of mango which 1 rai is planted Nam Daug Mai variety 1, $\frac{1}{2}$ rai is planted Kaew Saweay variety 2, and $\frac{1}{2}$ rai is planted Nang Klang Wan variety 3. The total farm families participate in this sub - district is 100 families.

The first year of the project area in 2 sub - district one sub-district 50 families. The total project area 150 rai and second year 100

families, the area of project total 150 rai. The cooperative will buy 2 pumps and ten sprayers. And one employee to take care the mangoes. In addition, Mae Chaem Agriculture Cooperative (MCAC) will coordinate with members who want to participate in the project and they have to sign an agreement for selling mango to cooperative so that MCAC will also coordinate with the Institute of Agricultural Technology of Maejo in order to set up a training for prospective members.

MCAC will secure long term loan from the financial institution with the phasing period of two years. The amount required in the first year is $\text{฿ } 1,150,000$ and $\text{฿ } 1,300,000$ in the second year for the procurement of seed, Chemical, fertilizer, labour cost and other equipment.

Short term the cooperative will use the capital of cooperative. The grace period of long term loan is two years and will repay loan in the third year onward to year tenth.

The results of the study shows that the internal rate of return of the project before financing (IRR) is 24.60 %, NPV = 2,478,445 and B/C ratio is 1.79 for the MCAC. After the financing the IRR is 30.10 , NPV = 1,433,253 and B/C ratio is 1.09

To sum up the mango production and marketing of MCAC is financially viable with a high rate of return.

THIRD ICA/JAPAN TRAINING COURSE ON STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

BASIC INFORMATION ON PROJECTS PREPARED BY PARTICIPANTS

1. Name of the Project : PRODUCTION AND MARKETING
OF MANGOES
2. Country : THAILAND
3. Prepared by : WASNA JUNTHIANG.
4. Anchor activity of Project : COMMODITY
(Commodity / Service)
5. Project Duration : 10 YEARS
6. Area of Operation : MAE CHAEM DISTRICT, 2 TUM BOL
CHANG KERY AND THA PHA.
CHIANGMAI PROVINCE.
7. Total Capacity : -
8. Target Group / Population : 200 MEMBERS
9. Implementing Organisation : MAE CHAEM AGRICULTURAL
COOPERATIVE
10. Supporting organisation /
Financial / Technical : EPD , BAAE,
INSTITUTE OF AGRICULTURAL
TECHNOLOGY OF MAEJO
11. Has your government approved
the Project in principle : YES.
12. Total Project Cost : 2,450,000
13. Equity Capital for Project : -

14. Other owned resources for Project : -
15. Sources of Funds:
- 15.1 Government Fund : 2,450,000
- 15.2 Banks : -
- 15.3 Other Sources : -
- 15.4 Resources not yet identified : -
16. Technical Know - how for Project : TRAINING TECHNICAL TO PLANT THE MANGO. SUCH AS PRUNING HARVESTING.
- 16.1 Whether locally available : YES.
- 16.2 If not, what part of technical know how is desired from outside the country. : -
17. Machinery and Equipment : 10 %
What percentage
- 17.1 Locally available : Yes / No
- 17.2 To be imported : Yes / No
- 17.3 If external assistance is available what specific machinery/equipment would be desired through such assistance? : -
- 17.4 Can you start the Project activity with locally available material? : YES.

18. Skilled Manpower for Project:

18.1 Trained personnel available for operating the Project : Yes / ~~No~~

18.2 Whether training abroad is desired: ~~Yes~~ / No

18.3 If yes, in what specific fields? :

19. When the work could be started on the Project. Please give details. : 1990 - 1991 - TRAINING INTO 200 MEMBER
- PROCURE OF MANGO

- HIRE ONE OF AGRICULT.

1991 - 1999 - CONTACT MANGO EXPORTER

- REPAYMENT OF LOAN

20. If the Project is based on the on-going activity of a coop, please give brief description of the present activity. : COOP - PROCURE THE PLANT OF MANGO.
- FINANCIAL INSTITUTE.

- SELECT THE MEMBER.

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

22. After the training course, will you be able to help in further improving the project? : YES.

23. Address to which we should correspond in future on project matters.

: MAE CHAEM AGRICULTURAL COOP.

38 SUTSANIT RD.

MAE CHAEM.

CHIANG MAI 50270

Note: Participants should revise the project during their stay in IDACA on the basis of available information. Additional information should be sent to ICA Regional Office in New Delhi.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

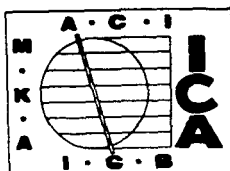
October 24, 1988—May 7, 1989



Funded by the Government of Japan
and

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

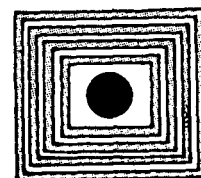
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters:
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



THIRD TCA/JAPAN TRAINING COURSE FOR STRENGTHENING
MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA

OCTOBER 24, 1988 to MAY 7, 1989

STRAWBERRY PROCESSING PROJECT
IN MANCHENG COUNTY

PREPARED BY : MR. BI MEIJIA

THE PEOPLE'S REPUBLIC OF CHINA

CONTENTS

CHAPTER I Summary -----	1
CHAPTER II INTROUDUCTION-----	3
1. Background-----	3
2. Prouduction growth and famers-----	3
3. Coop fruit processing factory-----	4
4. The problems-----	7
CHAPTER III THE BUSINESS OF THE PROJECT-----	8
1. Objectives-----	8
2. Location-----	8
3. Components-----	9
4. Processing-----	9
5. Marketing-----	10
6. Management-----	12
CHAPTER IV ORGANIZATION AND MANAGEMENT-----	14
1. System of organization-----	14
2. Personnel re uired-----	14
CHAPTER V CAPITAL REQUIRED-----	18
1. Conditions-----	18
2. Investment cost-----	18
3. Working capital -----	19
4. Expenses-----	20
5. Total cost r qui er-----	21

CHAPTER I

SUMMARY

Mancheng is a county of Hebei Province, the People's Republic of China. Mancheng County Supply and Marketing Cooperatives Federation is located in Mancheng town, the strawberry processing project is one enterprise of the Federation, it is located in Mancheng town too. The town is about 200 km from Beijing, the capital of China, 10 km from Baoding city. Total area is 1,300 square km, 40% is plain, 60% is mountainous region. The population in the county is 390,000 persons, 90% of the population in the county depend on farming.

The people in the county have been planting strawberry for 20 years. In 1988, they planted strawberry more than 12,000 mu,* total production is 10,932 Tons, at the same time, Recently, the product was exported to Japan for the first time.

In order to increase the farmers' income, Mancheng County Supply and Marketing Cooperatives Federation decided to establish the strawberry processing project in the Fruit Processing Factory.

* 1 acre= 6 mu(Chinese unit of area).

The total cost of the strawberry processing project is 2,534,688 yuan,* in which 7.11% of is obtained from the coop federation, and 92.89% from the Government bank(Agriculture Bank), the contract sale price from the factory are as follow:

product A = 3,600 yuan/Ton,

product B = 2,800 yuan/Ton,

product C = 2,300 yuan/Ton,

the average price from the factory is 2,970 yuan/Ton. In 10 years, the total cost of the project is 22,024,603 yuan, the production is 15,200 Tons, the sales revenue is 45,144,000 yuan, internal rate of return(IRR) is 17.54%, payback period is 5.71 years, the break-event point of normal capacity is 4,446 Tons. The break-event point of each product is as follow:

product A = 1,617 Tons,

product B = 1,480 Tons,

product C = 2,274 Tons.

* 1 us\$ = 3.72 yuan.

CHAPTER II

INTRODUCTION

1. Background

The farmers in Mancheng County have been producing strawberry for 20 years. Because the processing facilities are very poor (so far only one Government cold storhouse with 100 Tons capacity in the county), the farmers have to sell their product in the local market or sell to the cooperatives. The coop purchase limited quantities of fresh strawberry , the farmers sell the fresh strawberry at local market in the price of 0.70 yuan per kg, sell to the coop 0.75 yuan per kg. Therefore, to develop the strawberry processing capacity is necessary to the farmers.

2. The Production Growth of Strawberry and Farmer Families

During last 5 years the production of strawberry and farmer families grows faster then before. Because one mu strawberry area income is 1,000 yuan, but one mu wheat income 500 yuan. As a result, more and more farmers like producing strawberry. In 1988, there were 10,081 farmer families who produced strawberry and the total output was 10,732 Tons.

Table II--1 the Production of Strawberry
and Farmers

year	farmer families	strawberry	
		area(mu)	output(Ton)
1984	4963	4210	3731
1985	5827	4998	4148
1986	7944	8173	7506
1987	9572	9980	9734
1988	10081	12000	10932

3. Cooperative's fruit Processing Factory

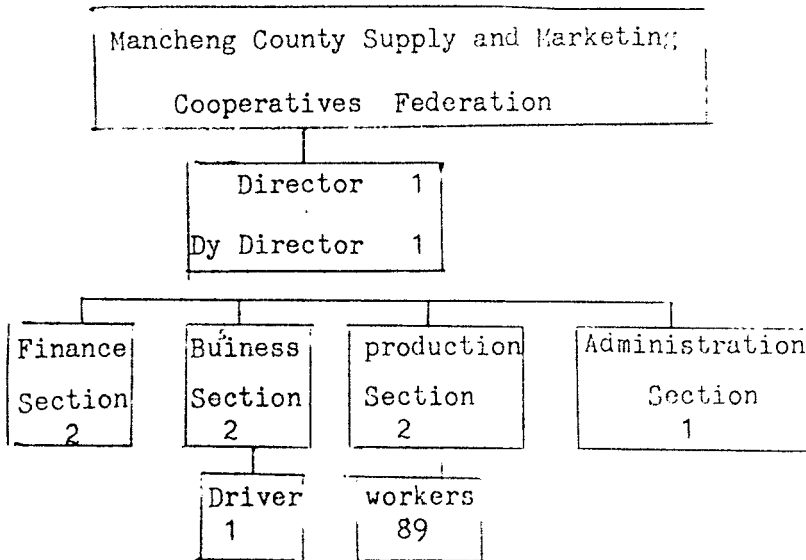
In order to increase the farmers' income, and reduce the risk, Mancheng County Supply and Marketing Cooperative Federation invested 80,0000 yuan and established a fruit processing factory in 1985. The factory's main task is processing strawberry, its processing capacity is 1000 tons/year. Because the fruit harvesting time is very short, and the factory has not enough cold storehouse, so last year it only processed 500 Tons. therefore, there is the factory, there is the material base to develop the processing capacity furtherly.

Table II --2

the Properties of the Factory

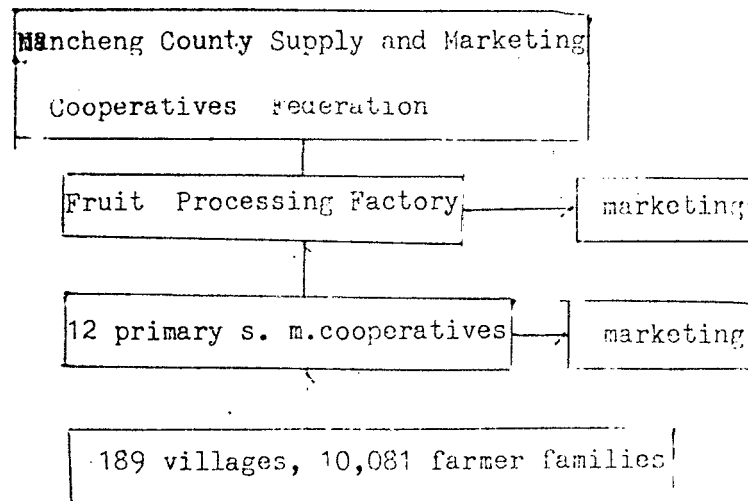
No.	Items	Amount	Capacity
1	land	1	12,000a
2	factory building	1	4500 m ²
3	office building	1	120 m ²
4	processing machine	1	1000 tons
5	truck	1	5 tons
6	laboratory equipment	1	
7	transtormer	1	100 kvA
8	generators	2	150 kwh
9	power distribution room	1	
10	water tower	1	30 tons/h
11	office equipment	1	

the Organization Structure of the Factory



the chart of cooperatives purchases

strawberry from the farmers



4. the Problems

The cooperative's main problem is that the farmers want cooperatives to purchase the strawberry with good price, but it is impossible. The reason is the cooperative is not able to buy strawberry with high price and sell them with low price. If the cooperatives were to do this, that means the cooperative will lose a large amount of money. So, it is necessary to improve this problem through greater quantity processing of the strawberry. The cooperative should therefore establish a strawberry processing project, and through processing, to increase the farmers' income, at the same time strengthen the cooperatives' activities.

CHAPTER III

the Business of the Project

1. Expect of the Project

- a. increasing the famers' income average 200 yuan per mu or 0.20 yuan per kg,
- b. increasing the cooperative's activities which are oriented to the raising Of the famers' income, at the same time, increasing the cooperative's income too,
- c. increasing production and improving the quality of product,
- d. increaeing export products and increasing the foreign currency income,
- e, saving production and marketing expenses and maintaining the stability of strawberry's price.

2. Location of the Project

the project is located only 1.5 km from the Wancheng town, at present, there is no strawberry processing factory in this county except the cooperative's fruit processing factory. Around the factory more than 100,000 farmer families planted 12,000 mu strawberry in the county, total output was 10,932 tons last year.

There is a good highway along the factory's gate, and it connected to the main highway and railway of Guang Zhou--- Beijing, therefore, the fresh strawberry as well as product can be transported easily.

3. Components of the Project

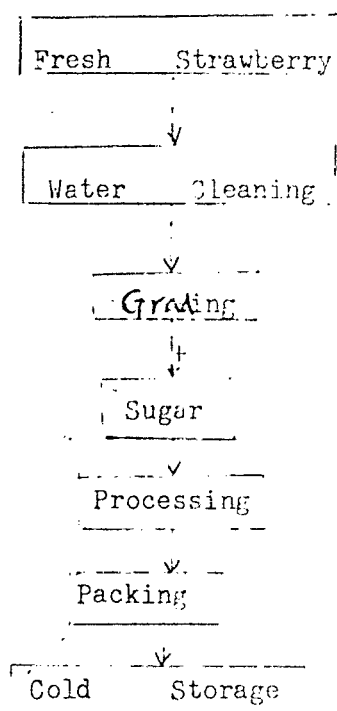
Processing strawberry time is 6 months per year, there is no enough works to do in the other 6 months. So, the cooperative was suggested to run a wine and cold drink workshops with a product capacity of 1 ton wine/day, 5 tons cold drink/day. If this is to be done, the 50 temporary workers can do another 6 months work for the factory. Like this, the factory would be stronger and stronger.

4. Processing

In fact, processing strawberry is not difficult. The factory purchase the fresh strawberry from the farmers and 12 primary supply and marketing cooperatives. the order of processing is as follow:

the first is to use water cleaning the strawberry,
second is grading them, then processing with sugar,
third is packing,
fourth is putting them in cold storehouse.

The Chart of Processing:



5. Marketing

The farmers receive payment from the factory immediately when the factory bought the fresh strawberry.

The fresh strawberry were divided into 3 classes according to quality. A class is purchased for 1.00 yuan per kg; B class is 0.80 yuan per kg; C class is 0.60 yuan per kg.

Sale prices were divided into 3 classes according to quality too. Product A for export to Japan is 3,000 yuan/Ton; product B for national sale is 2,000 yuan/Ton; and product C is 2,300 yuan/Ton.

Table III-1 Strawberry Production and Processing

Estimation of the Project

No.	year	area(mu)	output(ton)	amount of processing		
				total	new project	old project
1	1989	12,373	12,025	1,000	500	500
2	1990	12,744	13,227	1,200	700	500
3	1991	13,126	14,549	1,440	900	540
4	1992	13,519	16,003	1,730	1,100	630
5	1993	13,924	17,603	2,080	1,300	780
6	1994	14,341	19,363	2,500	1,500	1,000
7	1995	14,771	21,299	3,000	1,700	1,300
8	1996	15,215	23,429	3,600	2,000	1,600
9	1997	15,671	25,772	4,320	2,500	1,820
10	1998	16,141	28,349	5,000	3,000	2,000

6. Management of the Factory

a. The factory's capacity is 2,500 Tons per year, in which
the new project's capacity is 1,500 tons ,

b. the first year (1989) ~~purpose~~ the new project processes
500 tons ,

c. Number of operational work days is 305,

d. Work hours/shift=8 hours,

e. Working shift per day:

--raw materials =1 shift

production/processing

before 1994 = 1 shift

from 1995 to 1987 = 1 shift+ over time work

in 1998 = 2 shifts

--marketing = 1 shift

--finance = 1 shift

Table III-2

Strawberry Processing Capacity of the Project

No.	year	working day	average operation capacity	quantity for processing (ton)
1	1989	305	33%	500
2	1990	"	46%	700
3	1991	"	60%	900
4	1992	"	73%	1,100
5	1993	"	86%	1,300
6	1994	"	100%	1,500
7	1995	"	113%	1,700
8	1996	"	133%	2,000
9	1997	"	160%	2,500
10	1998	"	200%	3,000

CHAPTER IV

ORGANIZATION AND MANAGEMENT

1. System of Organization and Management

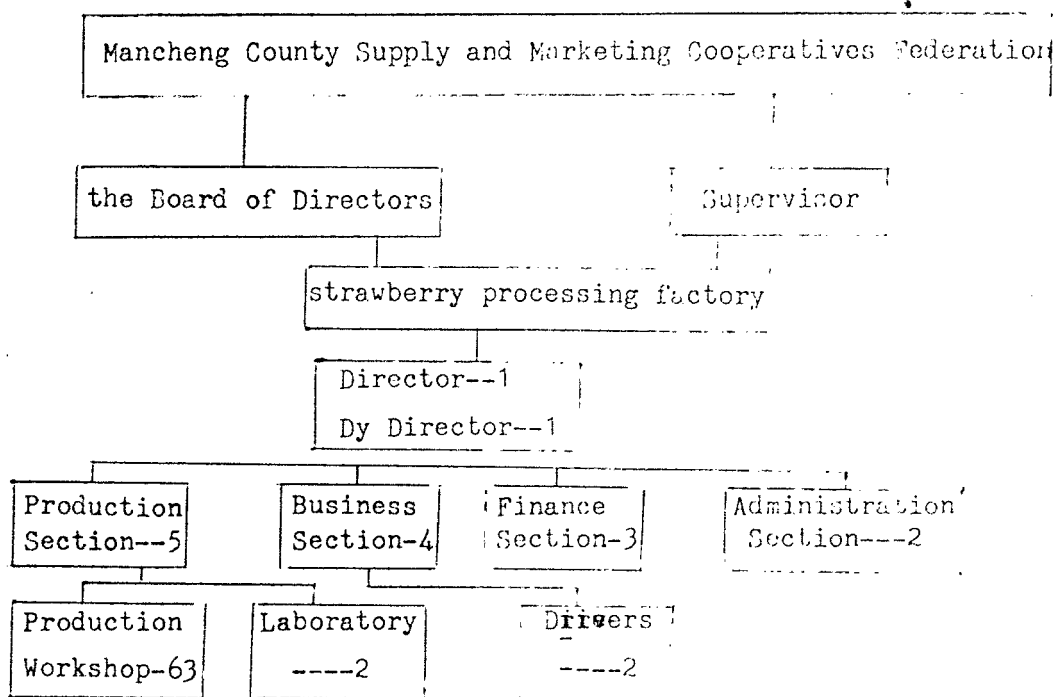
The project (strawberry processing factory) is initiated by the Board of the Director of Mancheng County Supply and Marketing Cooperatives Federation directly, and is supervised by ^a supervisor. The director of the project is carrying out the tasks given by the board of directors of MCVSMC to initiate the cooperative and increase the farmers income. The Director of the project is the executor of the strawberry processing and marketing activities.

2. Numbers of Personnel Required

--Director	--	1
--Deputy Director	--	1
--Clerks	--	14
--Fixed Workers	---	22
--Drivers	--	2
--Temporary Workers	--	50

Total -- -- -- -- -- 90

Table IV-1: the Project System of Organization and Management



1/ Function of Production Section:

operator, laboratory,
workshop, cold storage

2/ function of business section:

raw materials, warehouse,
marketing, transportation

3/ function of finance section :

cashier, bookkeeping

4/ funtion ofv administration :

administration, personnel

Table IV-- 2 : Workers' Wages Expenses (yuan)

Occupation	Worker	Wage/month/person	Wage month	Wage year
I staff wage				
1. Director	1	110	110	1320
2. Dy Director	1	105	105	1260
3. Production				
Chief	1	98	98	1176
4. Business				
Chief	1	98	98	1176
5. Finance				
Chief	1	98	98	1176
6. Administration				
Chief	1	98	98	1176
7. Production				
Staff	4	90	360	4320
8. Business				
Staff	3	90	270	3240
9. Finance				
Staff	2	90	180	2160
10. Driver	2	80	160	1920
11. Administration				
Staff	1	90	90	1080
12. Bonus(=5 month wage)				8335
Other welfare expense				4661
Total	18		1667	33,000
II. Factory Worker Wage				
1. Fixed Worker	22	75	1650	19800
2. Bonus (=5 monthes wage)				8250
3. Temporary				
worker	50	70	3500	21,000
(6 monthes working time per year)				
4. Bonus (=2.5 monthes wages)				8750
Total	72		5150	67,000
Annual workers' wage expenses=33,000+67,000=100,000				
(first year)				

According to the Chinese present conditions, the workers' average wages should increase 5% per year, the workers' wage expenses in the next 9 years in future are as follow:

1.	1989	-----	100,000
2.	1990	-----	105,000
3.	1991	-----	110,250
4.	1992	-----	115,762
5.	1993	-----	121,550
6.	1994	-----	127,628
7.	1995	-----	134,010
8.	1996	-----	140,710
9.	1997	-----	147,745
10,	1998	-----	155,132

CHAPTER V

CAPITAL REQUIREMENTS

1. the Conditions of Project Cost.

- (1) Us\$ 1=3.74 Yuan (January , 1989) ,
- (2) the prices depend on the end last year,
- (3) period of construction
 - buildings construction need 80 days,
 - machineries + installation + experiments need 70 days,
 - preparation of production needs 30 days,

2. Investment Cost of the Project

- a. land $2500 \text{ m}^2 \times 50 \text{ yuan} = 125,000 \text{ yuan}$
- b. buildings 1,100,000 yuan
- c. machinery and installation 960,000 yuan
- d. truck 30,000 yuan
- e. office equipment
- f. unforesee cost 100,000 yuan
- g. other expenses 35,000 yuan

(Design fee of the project is 20,000 yuan,

50 workers' training fee is 15,000 yuan)

3. Working Capital

The estimation of the working capital required is based

on :

- 1/ stock of raw materials - - - - - 2 days
- 2/ stock of finished product - - - - - 15 days
- 3/ personnel + direct labor cost - - - - - 30 days
- 4/ general administration cost - - - - - 30 days
- 5/ claims collection period - - - - - 1 day
- 6/ product processing - - - - - 1 day

A. RAW Materials

--strawberry 19 days x 900 yuan x 10 Tons
=171,000 yuan

--sugar 19 days x 2000 yuan x 0.67 Tons
= 25,460 yuan

B. Administration Cost

--a month =506,000 yuan

--production/month =26x10 =260 Tons

--cost/year=51625/260= 51,625 yuan

--cost/day =10x198=1980 yuan

Administration cost at voting period=19x1980=37,620 yuan

*a month administration cost(annual expenses of the project

-raw materials)/2 =(1519,500-900,000)/2

=51,625 yuan

C. Personnel Cost

--a month wage expenses= $100,000/12=8,333$ yuan

--production/month= $26 \times 10=260$ Tons

--cost/year= $8,333/260=32$ yuan

--cost/day= $10 \text{ Tons} \times 32=320$ yuan

Personnel cost at working period= $19 \times 320=6080$ yuan.

D. Indirect Materials Cost

40% of total production is no indirect material cost, because

Japan provides the product package materials.

60% of production need package materials, its cost

is 60,000 yuan.

The total required working capital= $171,000+25,000$

$+608+37,000+60,000=294,688$ yuan.

4. Expenses of the Project (not including wage)

(1) overheads:		
---	electricity fee	150,000
----	building establishment	110,000
(2) repairs and-	insurance	20,000
(2) repairs and	maintenance	11,200
(3) administration	expenses	10,000
(4) marketing expenses		
---	raw materials (in First year)	410,000
---	sale expenses	20,000
---	truck insurance	1,000

75. Total Cost Required of the Project

Item	Total Cost Req.	Break Down	
		lower portion	credit portion
1. Building			
land	125,000	125,000	
building	1,100,000		1,100,000
2. Machinery +			
installation	960,000		960,000
3. Training			
Fee	15,000	15,000	
4. Truck	30,000	30,000	
5. Office			
Equipment	10,000	10,000	
6. Initial			
Working			
Capital	294,688		294,688
	2,534,688	180,000	2,354,688

CHAPTER VI

FINANCIAL ANALYSIS

1. Depreciation Funds

Item	Purchasing Price/Tool's Age	Depreciation Funds/year
Building	1,100,000/20 years	55,000
Machinery	960,000/10 years	96,000
Truck	30,000/6 years	5,000
Office		
Equipment	10,000/10 years	1,000
		<hr/>
		157,000

Total depreciation funds is 157,000 yuan per year.

2. Bank Loan and Repayment

a. Long-term Loan

---loan period = 10 years

---grace period = 3 years

---interest/year = 8%

---repayment way: Interest is paid during the grace period,
and the capital loan is paid by installments of the
same amount during the loan period.

---total long-term loan = 2,100,000 yuan

---interest payment during grace period

=2,100,000 yuanx 8% = 168,000 yuan

Table VI-1 Long-Term Loan Repayment, Installment and Interest

year-end	loan balance	installment	interest 8%
1	2,100,000		168,000
2	2,100,000		168,000
3	2,100,000		168,000
4	2,100,000	300,000	168,000
5	1,800,000	300,000	144,000
6	1,500,000	300,000	120,000
7	1,200,000	300,000	96,000
8	900,000	300,000	72,000
9	600,000	300,000	48,000
10	300,000	300,000	24,000
			1,176,000

b. Short-term Loan

----- loan period = 1 year

----- rate of interest = 10%

----- repayment way: short-term loan's repayment is twice

 a year, the first is in June-end, second is in
the year-end.

----- total short-term loan = 254,688 yuan, and its expense in

the first year = $254,688 \times 10\% = 25,468.8$ yuan.

Table VI-2 Short-term Loan Repayment

month-end	loan balance	installment	interest
1	54,688		2212
2	254,688		2212
3	254,688		2212
4	254,688		2212
5	254,688		2212
6	254,688	127,344	2212
7	127,344		1061
8	127,344		1061
9	127,344		1061
10	127,344		1061
11	127,344		1061
12	127,344	127,344	1061
			19,638

3. Taxes

a. Income Taxes

The rate of income taxes is based on the taxes law of the People's Republic of China, as follows:

1	under 300 yuan	7%
2	300--600 yuan	10%
3	600--1,000yuan	20%
4	1,000-2,500yuan	30%
5	2,500-10,000yuan	35%
6	10,000-30,000yuan	40%
7	30,000-80,000yuan	50%
8	over 80,000 yuan	55%

b. Product Taxes

the product tax rate is 3% of total output.

c. Energy Source and Transport Taxes

To count this tax is difficult, the Director of the project tells me the factory should pay about 50,000 yuan generally per year.

d. Education tax

the rate is 1% of net profit after income taxes.

In China, the corporate ^{bodies} must pay many taxes,

the above-mentioned four taxes are main.

4. Capital Required

The whole capital of the project were constituted by three parts:

- (1) the long - term loan,
- (2) the short-term loan,
- (3) the cooperative's own capital.

a. Long-term Loan

The long-term loan is spent for building and machinery, and machinery installation. The total long-term loan is 2,100,000 yuan, the factory will payback by installment within 10 years, and with 8% rate of interest and 3 years of grace period. This capital come from the Agriculture Bank.

b. Short-term Loan

The total short-term loan is 254,000 yuan, is spent to fulfil the working-capital requirement in the first year. This capital come from the Agriculture Bank too. The rate of interest is 10%, and the factory will payback the loan with in two times, one is in the end of June, and the other at the end of the year.

c. Cooperative's Own Capital

Cooperative's own capital is 180,000 yuan, main as the expence for land(125,000), truck(30,000), Office equipment(10,000), and workers' training fee(15,000).

5. Production Expenses and Net Profit

(1) the Production Expenses in the First Year

a. Raw Materials Purchasing

- strawberry A=200tons x 1,000 yuan=200,000 yuan

- strawberry B=150tons x 800 yuan = 120,000 yuan

- strawberry C=150tons x 600 yuan = 90,000 yuan

$$\bar{P} = 200,000+120,000+90,000/200+150+150$$

$$=410,000/500= 820 \text{ yuan/Ton}=0.82 \text{ yuan/kg}$$

this means increasing the famers' income

0.12 yuan per kg.

- sugar =500 x 67 x 2 = 67,000 yuan

b. Staff/worker's Wage Expenses = 100,000 yuan

c. Depreciation Funas = 157,000 yuan

d. Factory Overhead:

-- repair + maintenance = 11,250 yuan

-- indirect materials = 90,000 yuan

-- electrcity = 150,000 yuan

e. Administration Expenses = 50,000 yuan

f. Insurance = 27,000 yuan

g. Sale Expenses = 20,000 yuan

h. Interest of Bank Loan

--long-term loan interest = 168,000 yuan

--short-term loan interest = 2212 yuan

all cost = 1,272,462 yuan

total production = 500 tons

all cash inflow in the first year = 200 tons × 3600 yuan +

150 tons × 2800 yuan + 150 tons × 2300 yuan = 1,485,000 yuan

net profit before taxes = 1,485,000 - 1,272,462 = 212,538 yuan

profit rate = 14.31%

According to the above counting way, we can get the following figures in 9 years:

(2) the Production Expenses in the Second Year

all cost = 1,448,262 yuan

total production = 700 tons

all cash inflow = 2,079,000 yuan

net profit before taxes = 2,079,000 - 1,448,262 = 630,738 yuan

profit rate = 30.34%

(3) the Production Expenses in Third Year

all cost = 1,644,312 yuan, total production = 900 tons

all cash inflow = 2,673,000 yuan,

net profit before taxes = 1,028,688 yuan

profit rate = 38.48%

(4) the Production Expenses in Fourth Year

all cost = 1,840,624 yuan

total production = 1,100 tons

all cash inflow=3,267,000 yuan

net profit before taxes = 1,426,376 yuan

profit rate = 43.66%

(5) the Production Expenses in Fiveth Year

all cost = 2,013,212 yuan

total production = 1,700 tons

all cash inflow = 3,871,000 yuan

net profit before taxes = 1,857,788 yuan

profit rate=47.86%

(6) the Production Expenses in Sixth Year

all cost = 2,186,090 yuan

total production = 1,500 tons

all cash inflow=4,455,000 yuan

net profit before taxes=2,268,910 yuan

profit rate=50.93%

(7) the Production Expenses in Seventh Year

all cost = 2,358,121 yuan

total production = 1,700 tons

all cash inflow = 5,049,000 yuan

net profit before taxes = 2,690,879 yuan

profit rate = 53.30%

(8) the Production Expenses in Eighth Year

all cost = 2,627,021 yuan

total production = 2,000 tons

all cash inflow = 5,940,000 yuan

net profit before taxes = 3,312,979 yuan

profit rate = 55.77%

(9) the Production Expenses in ninth Year

all cost = 3,087,056 yuan

total production = 2,500 tons

all cash inflow = 7,425,000 yuan

net profit before taxes = 4,337,944 yuan

profit rate = 58.42%

(10) the Production Expenses in Tenth Year

all cost = 3,547,443 yuan

total production = 3,000 tons

all cash inflow = 8,910,000 yuan

net profit before taxes = 5,362,557 yuan

profit rate = 60.18%

In 10 years, the total cost of the project is 22,024,603 yuan, the production is 15,200 tons, the cash inflow is 45,144,000 yuan, net profit before taxes is 23,119,397 yuan, average profit rate is 51.21%.

6. Pay-back Period

year	cash flow	covered investment	pay-back years
1	-37,468	-37,468	1 year
2	395,649	395,649	1 year
3	564,997	564,997	1 year
4	434,228	434,228	1 year
5	614,029	614,029	1 year
6	793,700	563,253	6.71 year
		2,531,600	

Pay-back period = 5.71 years = 6 years.

7. Break Even Point

$$\frac{\text{Fixed Cost}}{1 - \text{VC/ Sales Revenue}} = \frac{9,560,603}{1 - \frac{12,464,000}{45,144,000}} = 13,207,072 \text{ yuan}$$

$$13,207,072 / 2,970 = 4,446 \text{ Tons}(29\%)$$

Break Event Point of Each Product:

--product A:

$$= \frac{4,249,841}{1 - \frac{4,560,000}{16,416,000}} = 5,821,700 \text{ yuan}$$

$$= 1,617 \text{ Tons}(27\%)$$

--product B:

$$= \frac{2,959,380}{1 - \frac{3,648,000}{12,768,000}} = 4,144,789 \text{ yuan}$$

$$= 1,430 \text{ Tons}(32\%)$$

---product C:

$$= \frac{3,871,380}{1 - \frac{2,736,000}{10,488,000}} = 5,231,594 \text{ yuan}$$

$$= 2,274 \text{ Tons}(49\%)$$

8. Internal Rate of Return

Internal Rate of Return(IRR)=17.54%,

Present Value of the Project =2,823,594 yuan,

Investment Value of the Project=2,534,688 yuan,

Net Present Value=PV-IV=2,823,594-2,534,688

= 288,906 yuan.

The calculation of IRR is enclosed herewith(CHAPTER VI).

Table VI-1 INTERNAL RATE OF RETURN OF THE PROJECT

Years	(yuan: in thousands)									
	Investment Cost	Sale Revenue (cash inflow)	Cost (out-flow)	Earning bef. tax	Earning af. tax	Depreciation	Instalment (repayment)	Cash Flow	Discount Factor	Present Value
1	2,535	1,485	1,272	212	60	157	-254	-37	0.8475	-32
2	-	2,079	1,448	630	238	157	---	395	0.7182	284
3	-	2,673	1,644	1,028	407	157	---	564	0.6086	343
4	-	3,267	1,840	1,426	577	157	300	434	0.5158	223
5	-	3,861	2,013	1,847	757	157	300	614	0.4371	268
6	-	4,455	2,186	2,268	936	157	300	793	0.3704	293
7	-	5,049	2,358	2,690	1,154	157	300	1,011	0.3139	317
8	-	5,640	2,627	3,312	1,381	157	300	1,238	0.2660	329
9	-	7,425	3,087	4,337	1,873	157	300	1730	0.2255	390
10	-	8,910	3,547	5,362	2,255	157	300	2,112	0.1911	403

CHAPTER VII

CONCLUSION

It is obvious that the establishment of the strawberry processing project is to increase the farmers' income, and the target is to increase 0.20 yuan per kg or 200 yuan per mu on an average. I think to get such a target is not difficult, because at the first year, the factory will buy the fresh strawberry from the farmers, with average price 0.82 yuan per kg, it is 0.12 yuan higher than before. The cooperative's Chairman said to me, the cooperative will increase the fresh strawberry purchase price continually when it has a good progress. If increase 0.12-0.20 yuan per kg, in 10 years, the cooperative will increase the farmers' income 1,824,000-2,880,000 yuan.

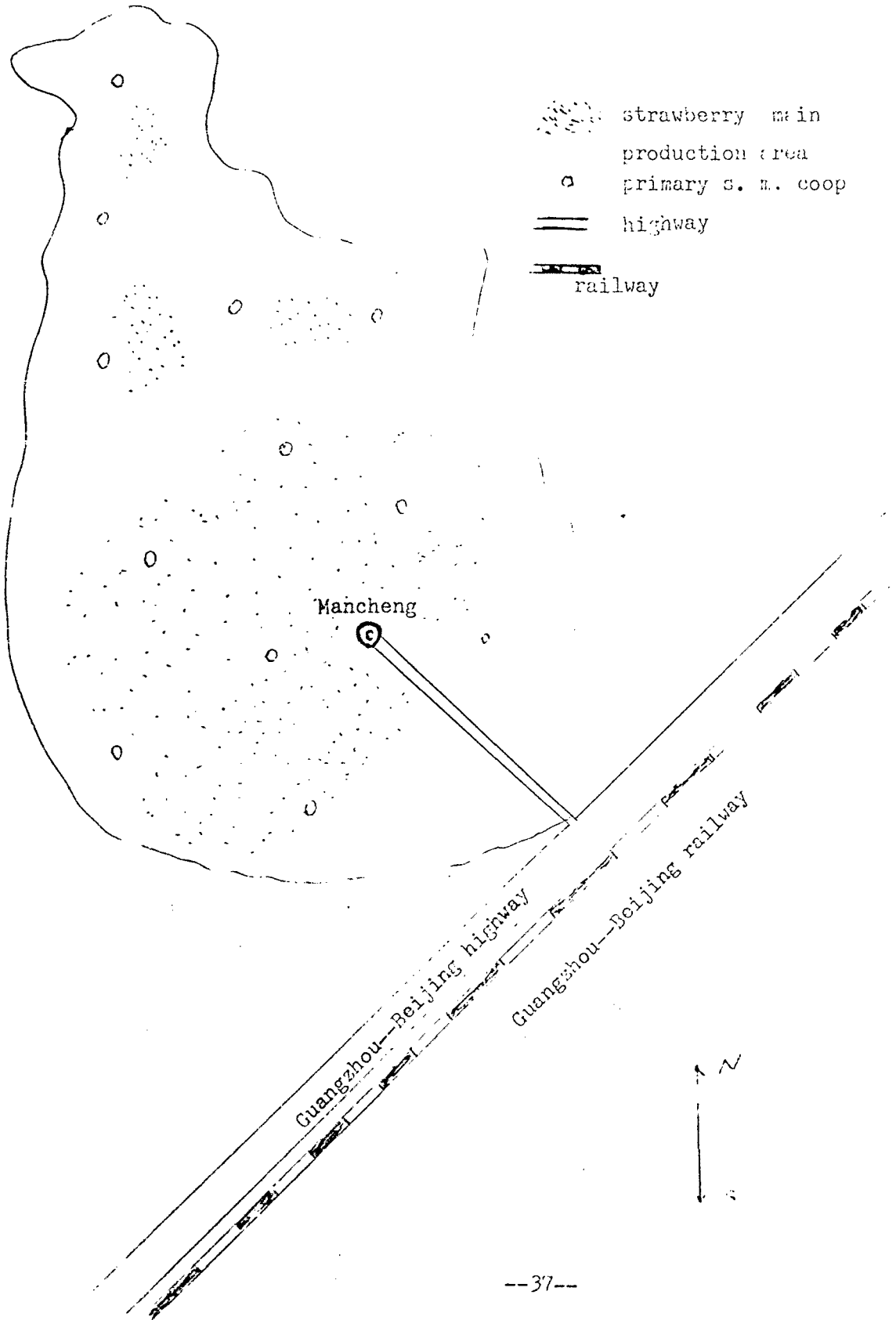
The project's internal rate of return (IRR) is 17.54%, it is higher than the bank interest rate, and the pay-back period is 5.71 years, 4.29 years shorter than the analyzed project period of 10 years. In 1994, the project will come in normal producing period, and the project like this one, at least can last 15 years. So, I am sure the project not only increase farmers' income, but also can strengthen the cooperative's economic and service ability.

VII--1 Increasing the Farmers' Income

No.	Year	Amount of process	Net Increase Income	
			120/Ton	200/Ton
1	1989	500	60,000	---
2	1990	700	84,000	---
3	1991	900	108,000	---
4	1992	1,100	132,000	220,000
5	1993	1,300	156,000	260,000
6	1994	1,500	180,000	300,000
7	1995	1,700	204,000	340,000
8	1996	2,000	240,000	400,000
9	1997	2,500	300,000	500,000
10	1998	3,000	360,000	600,000
Total		15,200	1,240,000	2,880,000

In 10 years, the cooperative will
 increase the farmer's income 1,240,000-2,880,000
 yuan directly.

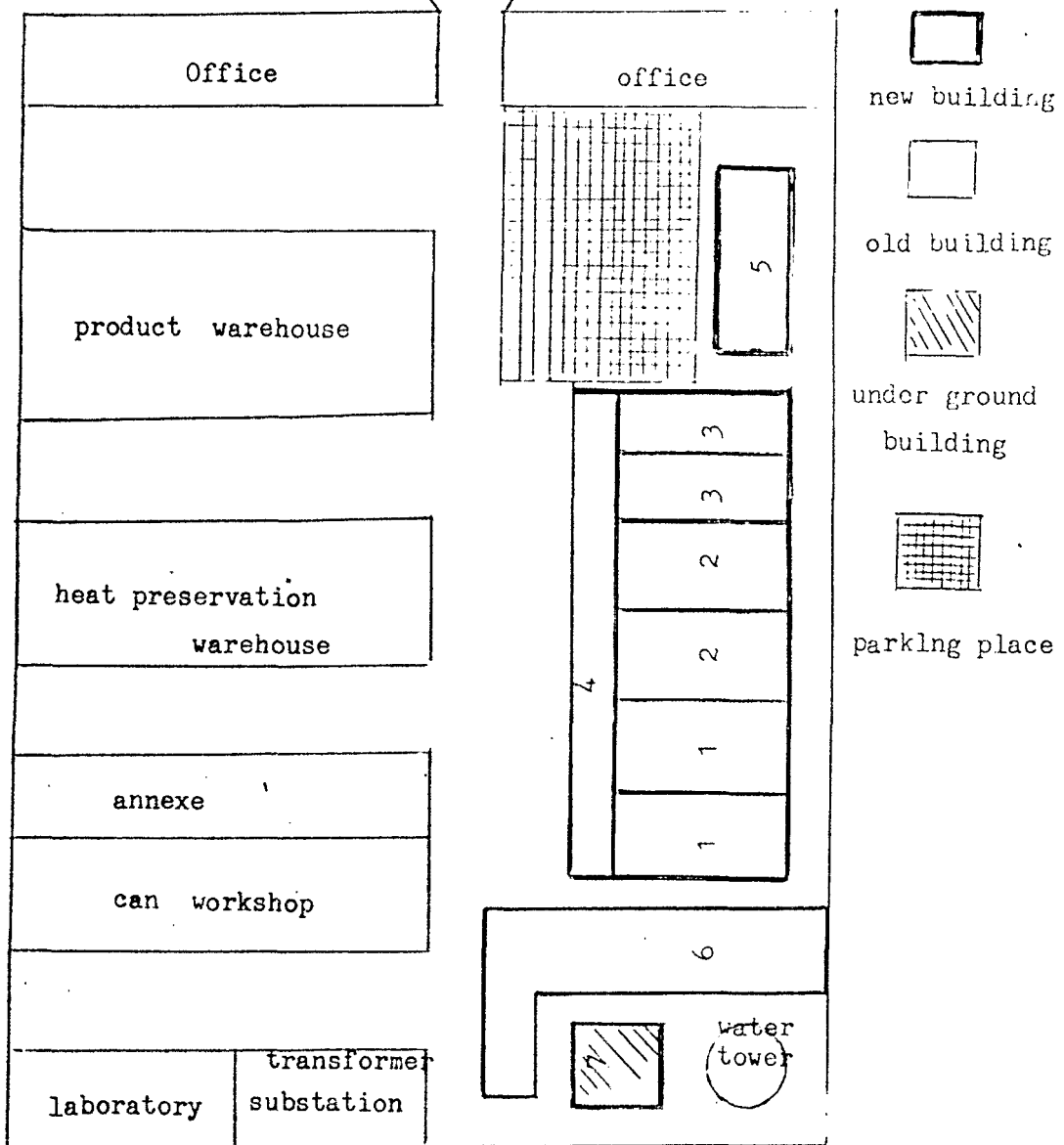
the Project Area Figure



The Plan Figure of the Strawberry Processing Project

new building show

- 1. cooling product warehouse
- 2. freezing product warehouse
- 3. freezing room
- 4. closed highway station
- 5. faster freezing room
- 6. machary room, water pumo, transformer substation
- 7. flowing powl



Mancheng S. M. Cooperatives Federation Basic Conditions:

----- 6 Comany,

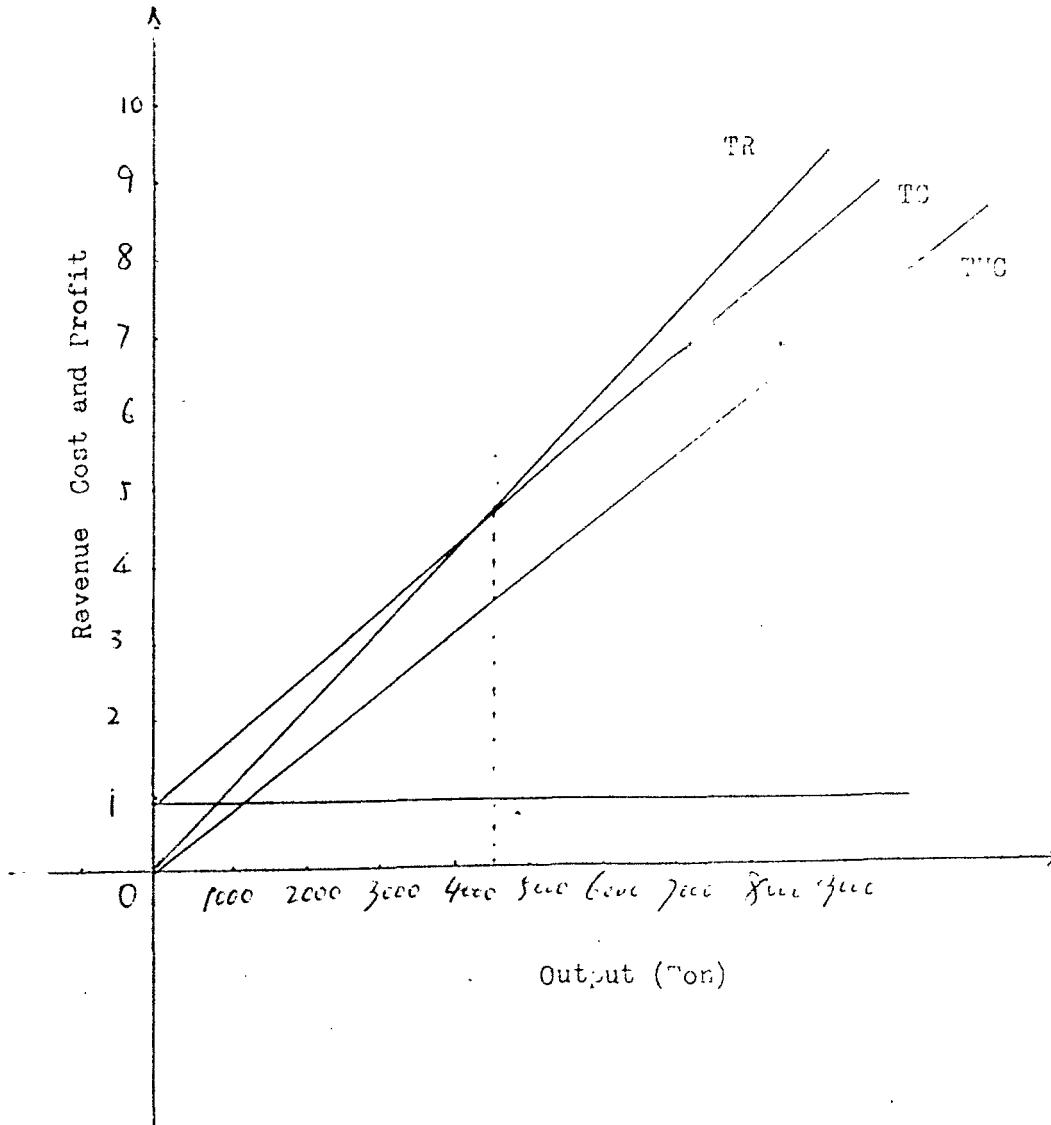
-----Share Capital	207,718 yuan,
-----Member Society	12,
-----Fixed Property	6,743,258 yuan,
-----Working Capital	3, 297,100 yuan,
-----Staff	437,

* * * * *

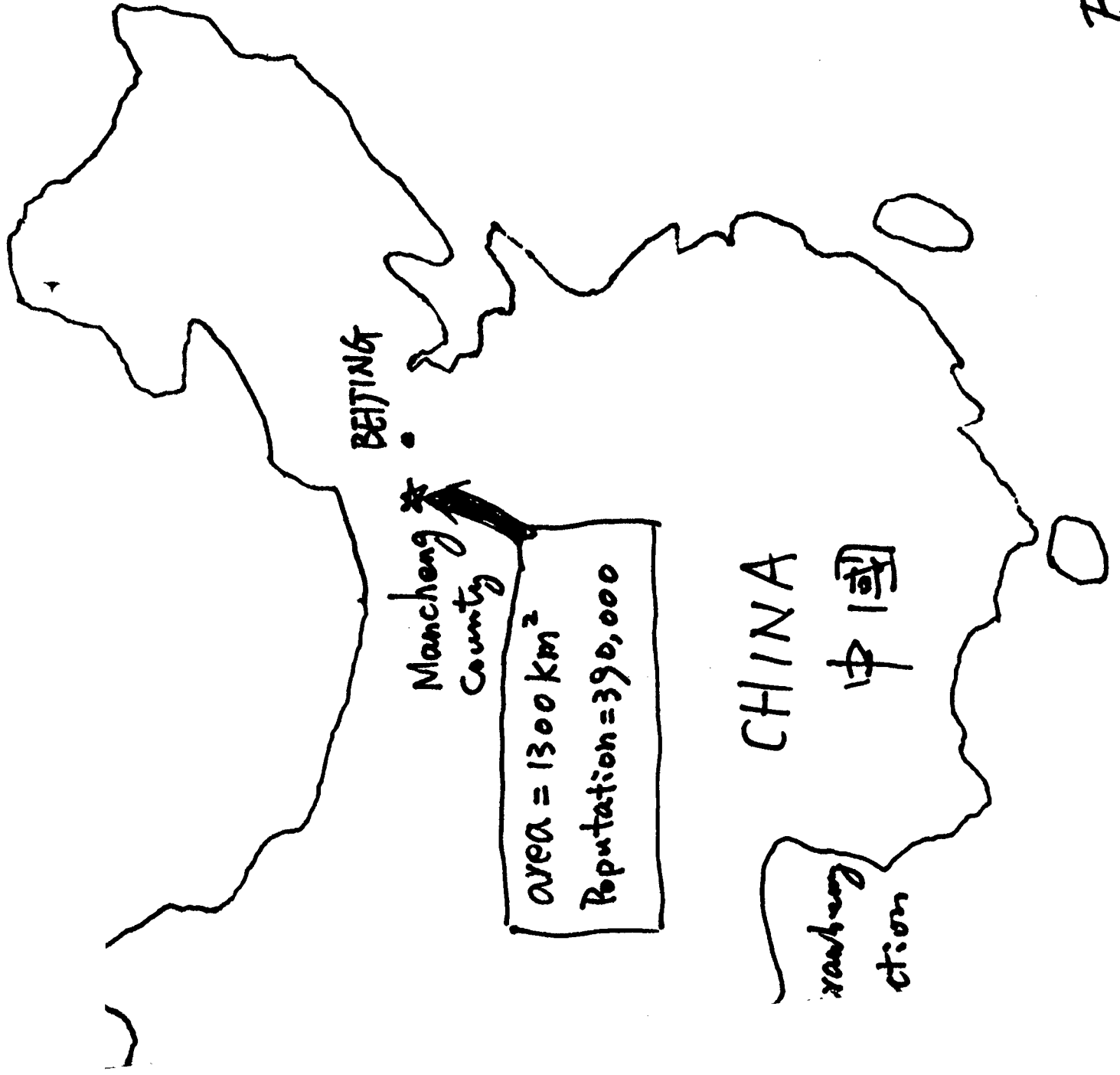
----- 12 premary S,!' Coop,

-----Farmer members	82,614,
-----Share capital	1,038,589 yuan,
-----Farmer Members	82,614,
-----Fixdd Property	8,342,997 yuan,
Working Capital	2,971,500 yuan,
Total Staff	579.

Linear Break-even Graph



I-Pr



BI MEI JIA

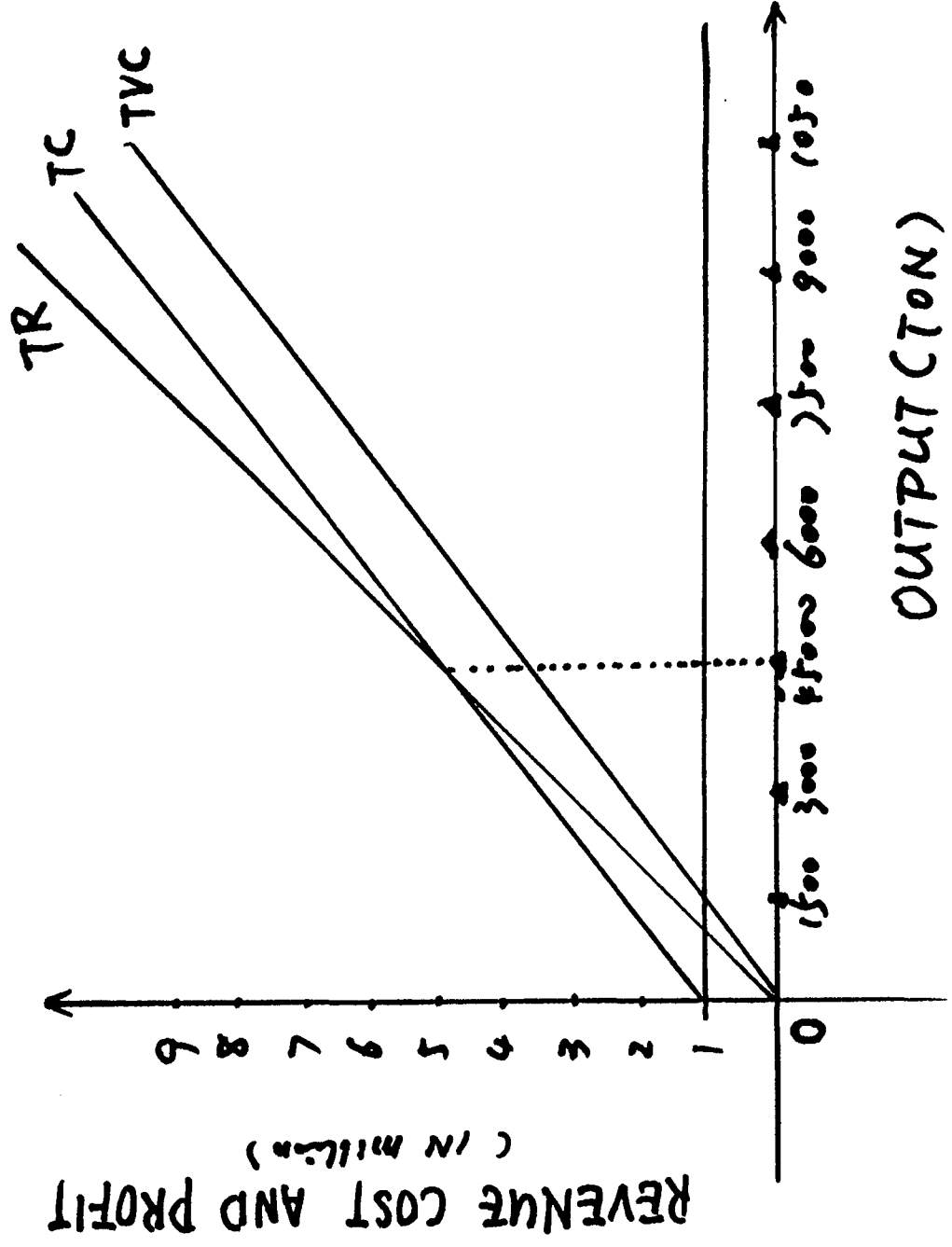
-1-

1. Total project cost = 2,534,688 yuan
7.11% from co-op, 92.89% from bank.
2. Price from the factory
Product A = 3600 yuan/Ton,
Product B = 2800 yuan/Ton,
Product C = 2300 yuan/Ton.
3. In 10 years. total production is 15,200 tons.
Sales revenue is 45,144,000 yuan,
total cost is 22,024,603 yuan.
Net income is 23,119,397 yuan before taxes.

*. 1 us\$ = 3.72 yuan

4. IRR = 17.54%, PAYBACK PERIOD IS 5.71 YEARS.

5. BREAK-EVEN POINT is 4446 TONS.



Linear Break-even Graph -3-

1. BACKGROUND:

- a. History 20 years.
- b. 100 Tons price capacity.
- c. 0.70 yuan per kg in local Market.
- d. 0.75 yuan per kg purchase by co-op.

2. Farmers like to produce Strawberry

{ One mu strawberry can income 1000 yuan.
 one mu wheat only income 500 yuan.

year	farmer families	strawberry area (mu)	output (Ton)
1984	4963	4201	9731
1985	5827	4998	4148
1986	7944	8173	7506
1987	9572	9980	9734
1988	10081	12000	10932

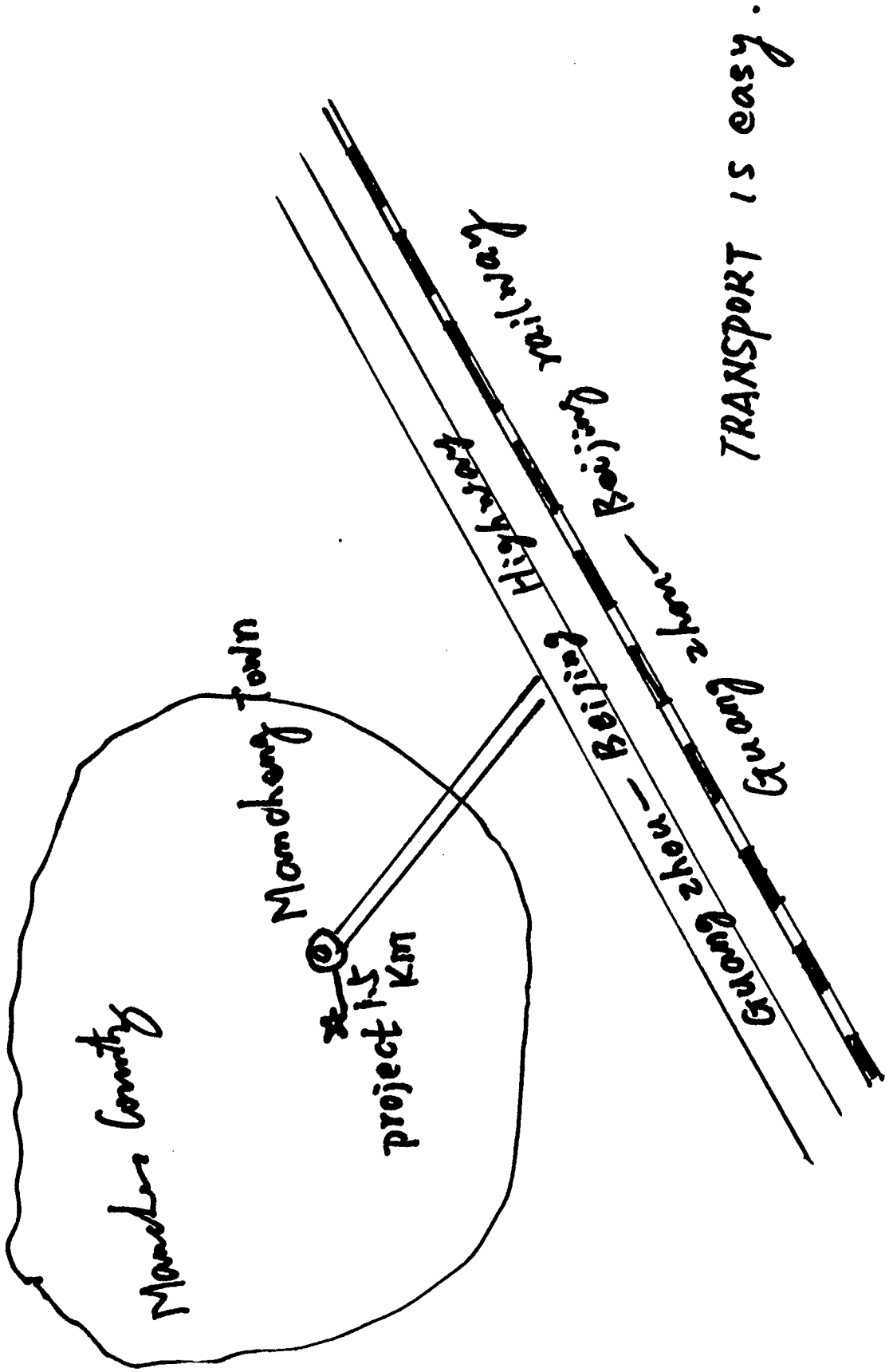
3. Co-op's fruit factory provisis
 - ① 1985, ② 800,000 yuan,
 - ③ capacity - 1000 Tons / year (last year, only processed 500 Tons)
 - ④ 99 staff and workers.
4. To increase ~~increase~~ farmers' income and strength the co-op's activities. Should be to establish a strawberry processing project.

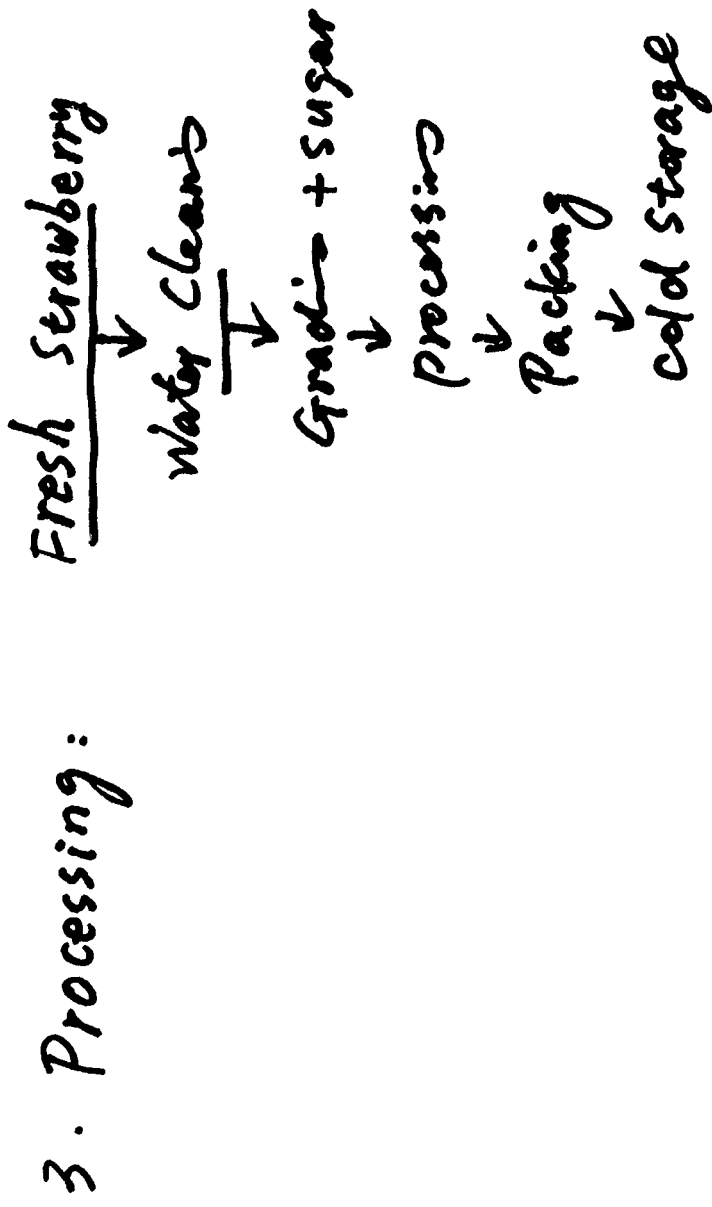
III - P₁

1. Objectives:

- a. Increase the farmers' income average 200 yuan per mu
OR 0.20 yuan per kg.
- b. Strengthen co-op's activities and increase co-op's income too.
- c. Increase production and improve the quality.
- d. Increase export and increase foreign currency income.
- e. Save production and marketing expenses.

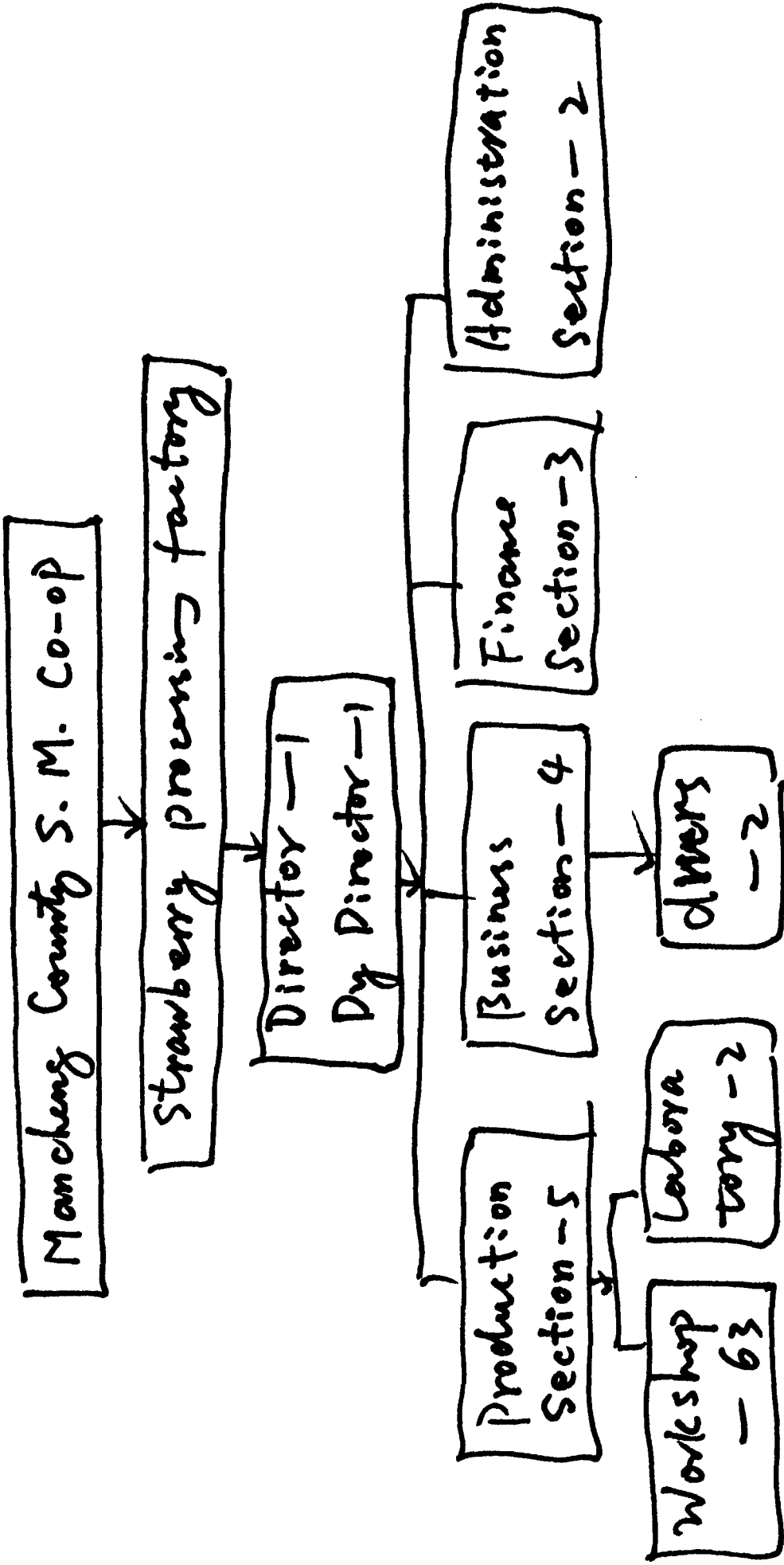
2. Location





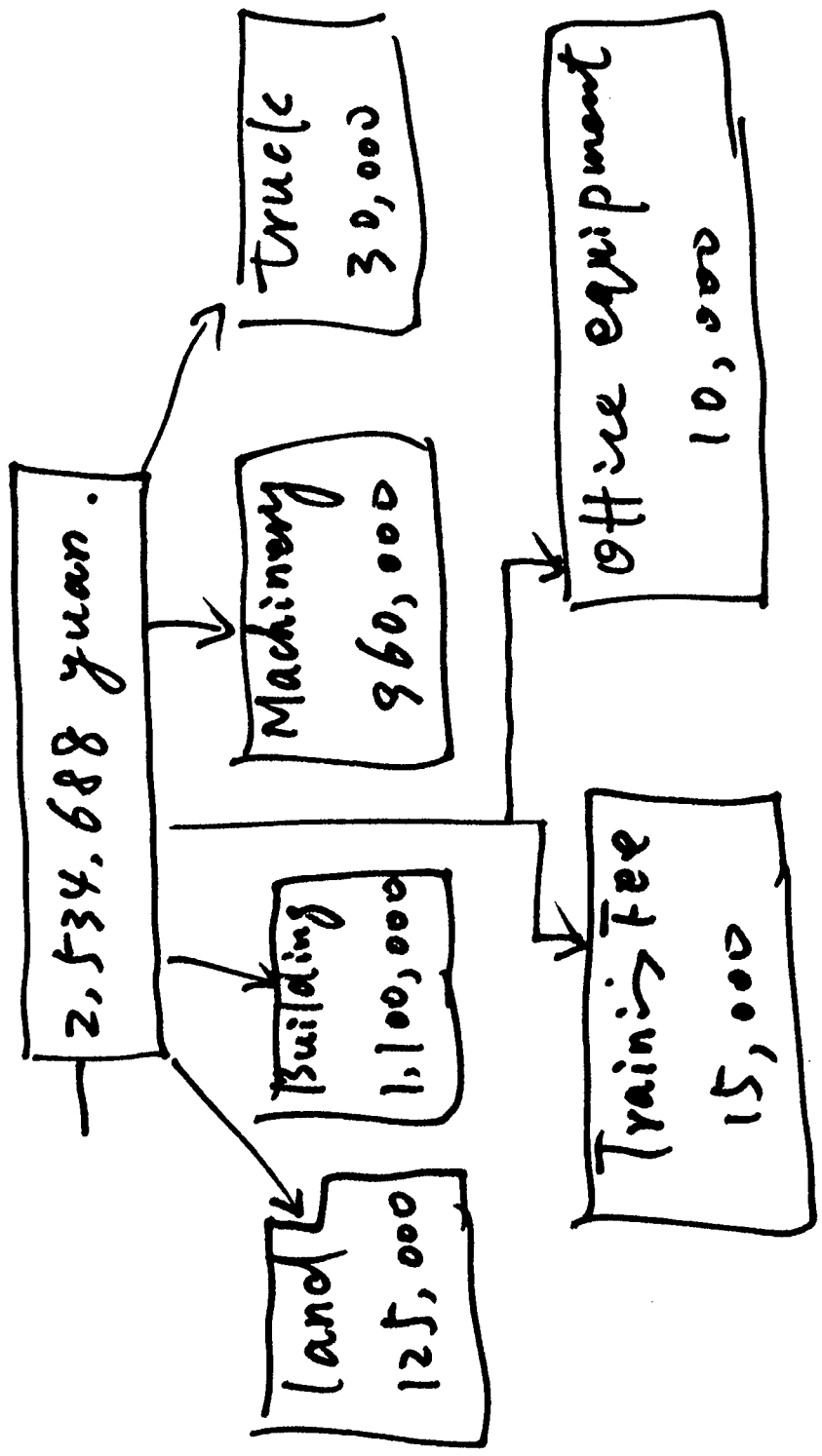
4. Capacity : 2500 Tons/year
1 shift/day : 8 hours
305 days / year

1. Organization and Management



V - P,

1. Cost Required



V - P₂

2. Capital Required

2,534,688 yuan:

from: Long-term Loan 2,100,000 yuan

Short-term Loan 254,688 yuan

Co-op own capital 180,000 yuan.

3. Break-even Point

$$\frac{FC}{1-VC/\text{Sales Revenue}} = \frac{9,560,603}{1 - \frac{12,464,000}{45,144,000}} = 13,207,072 \text{ yuan} = 4746 \text{ Tons}$$

Group H

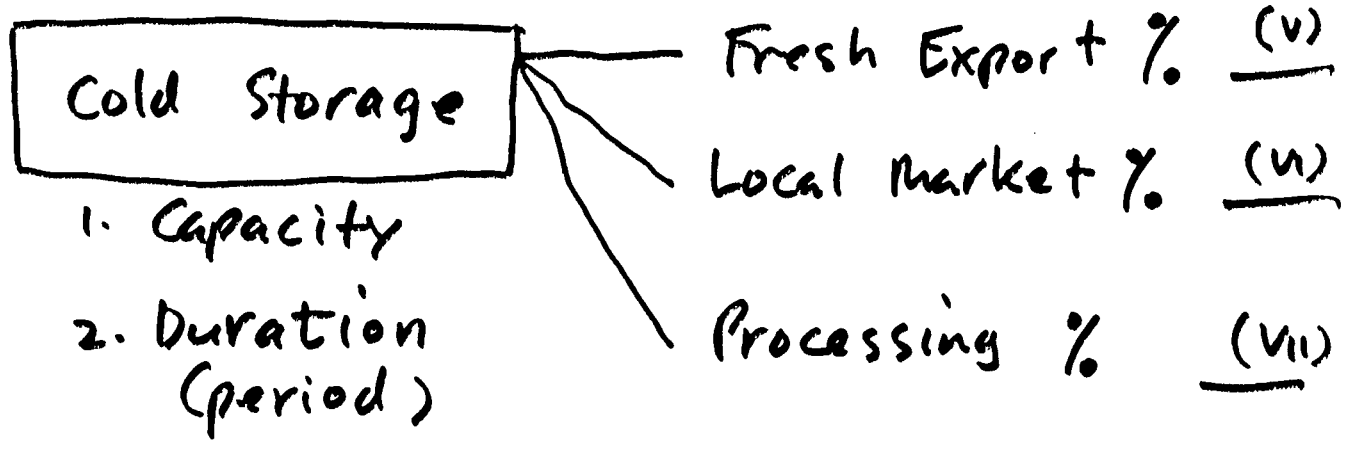
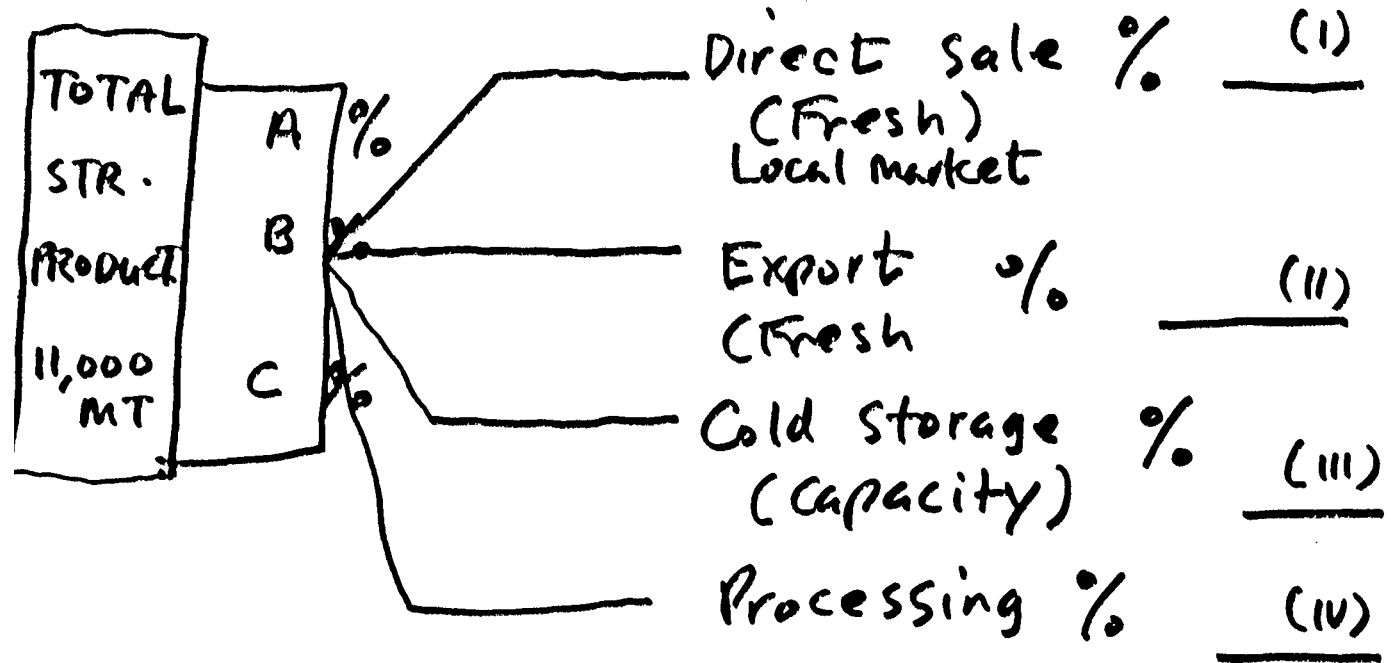
Project: Strawberry Processing Project.

Mr. Bi Meija, China.

1. It will better to include processing of other commodity such as apple / pears for the full utilization of the plant.
2. Should provide more detail plan for purchasing, marketing and processing activities.
3. To increase export volume; it is better to keep in view about the country's regulations such as health regulation and requirements.

4. Production / Consumption

1-1/2 months



FEB, 24.

Observations of Group B

Project: Strawberry processing project
(Prepared by Bi Meijia)

- Price of processed products (strawberry jam) should be established.
- Budget for technical guidance should be included in project cost.
- The collection scheme of raw material should be established from farmgate to processing plant. And the role of cooperative should be clearly defined.
- The marketing network and segment is not mentioned.
- Backward linkages are not considered in the project.
- Previous production data should be presented to justify the project capacity.

#2

- Benefit of farmers from the new project should be separately considered from the old processing plant.

STRAWBERRY PROCESSING PROJECT
IN MANCHENG COUNTY

1 ORGANIZATION

BUSINESS SECTION WITH 3 STAFF MEMBERS IS EXPECTED TO LOOK AFTER MANY ACTIVITIES. WE SUGGEST CREATION OF TWO SEPARATE SECTIONS 1 FOR PROCUREMENT OF RAW MATERIAL AND INVENTORY MANAGEMENT. THE OTHER SECTION MAY LOOK AFTER ORDER PROCESSING, LOGISTICS, SALES PROMOTION AND EXPORTS.

2. AN ADVERTISEMENT SECTION MAY BE CREATED TO UNDERTAKE CONSUMER RESEARCH, FREE SAMPLE DISTRIBUTION, (TASTE PACKET TO CONSUMERS), ORGANIZING DISPLAY AND ~~EXHIBITION~~ EXHIBITIONS IN ORDER TO INFLUENCE CONSUMER BEHAVIOR AND DEVELOP TASTE STRAWBERRY JAM.

3. THE WORKERS CANTEEN MAY BE CONTEXTED FOR INTRODUCING STRAWBERRY JAM WITH MEAL.

GROUP - C.

2. FINANCIAL ANALYSIS

1. SALVAGE VALUE MAY BE TAKEN IN TO ACCOUNT IN FINANCIAL ANALYSIS.
2. SENSITIVITY ANALYSIS MAY BE ATTEMPTED.
3. THE RISK COVERAGE IN CASE OF THE FAILURE OF THE PROJECT MAY BE IDENTIFY AND WORKER'S SHARE OF INVESTMENT MAY BE COVERED AGAINST RISK AND UNCERTAINTY.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989



Funded by the Government of Japan
and

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

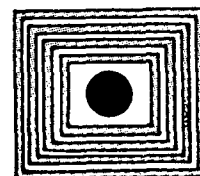
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



Third ICA Training Course for
Strengthening Management of
Agricultural Cooperatives in Asia
India, Thailand, Japan & China
October 24, 1988-May 7, 1989

Project: A Cold Storage For Farm Produces

Prepared By: Gao Jihai

Nationality: China

Funded by the Government of Japan
and

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

ACKNOWLEDGEMENTS

The third ICA training course for strengthening management of agricultural cooperatives in Asia from 24th, October, 1988 to 7th May, 1989 in India, Thailand, Japan and China has given me the opportunity to acquire more knowledge about various aspects of cooperative managements and also the techniques of planing and implementations of projects through cooperatives. I hereby express my sincere gratitude to ICA ROA for accepting me in this training programme.

I express my special thanks to Mr. M. V. Madan project director of ICA, professor V. R. Galkwad and professor G. S. Gupta, course coordinator, India Institute of Management.

I also take this opportunity to express my gratitude to All China Federation of Supply and Marketing Cooperatives for nominating me to the Training Course and for giving me all the support and encouragement in formulating the project proposal. To all those who had given me the necessary information and cooperation.

Gao Jihai

Participant from:

Shandong Federation of Supply and Marketing
Cooperatives

CONTENT

Chapter 1	Summary	3
Chapter 2	Background	6
2.1	Overall situation	6
2.2	Area of project	8
2.3	Problems faced by farmers	8
2.4	Need and justification for the project	10
Chapter 3	Project	14
3.1	Objectives	14
3.2	Area of operation	14
3.3	Project components	15
Chapter 4	Details of operations	18
Chapter 5	Organization and management	28
Chapter 6	Financial analysis	33
Chapter 7	Budget	38
Chapter 8	Recommendations	39

Appendixes

Chapter 1 SUMMARY

1. The proposed project is a storage for storing apples, eggs and garlic bolts with a total capacity of 2700 tons.

The project is proposed in Shandong's Zhucheng county, 250 kms southeast of Jinan. The county has a population of 970 thousands including 870 thousands farmers. It has 1.72 million mu cultivated farm land mainly producing wheat, maize, cotton groundnut, tobacco, vegetables and fruits. Farmers in this county are also feeding livestock like chicken, pig etc. Normally each family is feeding 7 to 8 pieces of chickens and 1 to 2 pieces of pigs. In west part of this county farmers are having apple trees, on the average each family has 10 to 12 apple trees with an annual output of 1.5 tons. In all the 12 districts of this county, farmers are seeding garlic, each family is having 0.5 mu garlic land with an output of 85 kgs per year.

As the demand is lower than the production in the harvesting season of apple (Sep. 5 to Sep 25), Egg (March 1 to April 10) and garlic bolt (May 10 to May 30) and the demand is higher than the production in other seasons. In fact there is no production of apple and garlic bolt during non-production seasons and very little production of eggs. So after the farm produces are collected in harvesting season they will be

stored till the non-production season and be sold at a higher price.

The proposed storage project requires a total investment of 1.68 million yuan RMB and needs 1.50 million yuan working capital per year. The investment will be raised from:

Fund from the county supply and marketing cooperative 360,000 yuan.

Loan from the Agricultural Bank of China
1,200,000 yuan.

Shares from grass-root cooperatives within the county 120,000 yuan.

After the storage come into operation, 1.50 million yuan working capital is needed, it will be the bank loan also.

Loan from the bank for the fixed assets will be paid from the second year as the first year is a construction period. All of the loan for the fixed assets is expected to be paid within the seventh year. Loan for the working capital can be paid within the same year.

The project will be fully controlled by the county supply and marketing cooperative and total staff and workers for the project are expected to be 32.

The project can get good profit, its annual income is expected to be 300,000 yuan, its break even

point is 514 ton and its internal rate of return will be 9.8%.

From the project, farmers in this county can get better farm guidance services and farm input supply from the county cooperative. What is more, farmers who are seeding garlic can get an extra income of 0.3 yuan per kg garlic bolts. Farmers who have apple trees can get an extra income of 0.2 yuan per kg of apples and farmers who are feeding chickens can get an extra income of 0.4 yuan per kg of eggs.

Chapter 2 BACKGROUND

2.1

China's land area covers approximately 9.6 million square kilometers, which is nearly one-fifth of the world's land, and which makes China the third largest country in the world.

Lying in the northern half of eastern hemisphere, China is situated in the eastern part of Asia, on the west coast of the Pacific Ocean. From north to south the territory of China extends 5,500 kms and from east to west 5,200 kms. As it's so large, the weather, crops and even customs are different from one place to another.

Shandong is one of China's 31 provinces. It's situated on the eastern coast of China, in the lower Yellow River valley, It's about 500 kms south of Beijing.

and 1,200 KMS north of Shanghai. The province has an area of 150 thousands square kilometers and a population of 80 million. It has a warm temperature monsoonal climate with hot and rainy summers and cold and dry winters. Shandong is the No. 1 province in China for the production of cotton, groundnut and fruits, and its total industrial and agricultural production runs the second in China.

Zhucheng county is situated in the east part of Shandong province, it's about 250 kms southeast Jinan and 120 kms west of Qingdao. It has a total population of 0.98 million including 0.87 million farmers and total cultivated land of 1.86 million mu. Main crops in this county are wheat, maize, cotton, fruits, tobacco and vegetables. Farmers are also feeding livestock like chicken, pig etc.

In this county almost all crops are having one harvest one year. wheat for example is harvested from May 25 to June 7 and apple from september 5 to september 20. While different vegetables are having different harvesting seasons, garlic is harvested around June 5.

At present some of farmers surplus produces like wheat, maize, cotton etc must be sold to the state-owned purchasing centres at a state fixed price in accordance with the chinese regulation. The state fixed price is

usually very low, so under normal conditions farmers do not make more profit from growing grains. Sometimes they even lose money, but as a traditional grain growing area the local farmers still grow a great amount of wheat, maize, cotton etc. In this area the profit-making produces are vegetables, fruits and livestock. Farmers can sell these things freely sometimes to the state owned centres sometimes to private traders, and the price is different from one place to another from time to time.

2.2 Area of Project

The proposed project will be situated in Zhucheng county. Some information about the county are listed below:

Population	0.98 million	
Farmers	0.87 million	
Cultivated land	1.86 million	
Vegetable land	0.20 million	
Output of		
Wheat	272,000 tons	
Maize	244,000 tons	
Cotton	10,000 tons	
Groundnut	26,000 tons	
Vegetables	374,000 tons	Fruit
	28,000 tons	

Tobacco	20,000 tons
Chicken	1,240,000 pieces
Eggs	17,000 tons
Net Income per farmer	594 yuan

.....
Source: County Statistics 1988

In this county wether is warm in spring and autum, temperatures are around 16-24 C. In summer it's very hot temperatures are usually between 25-36 C but in winter the temperatures are as low as -7 C in the night and 0-5 C in the day. Rains are mostly coming in summer and 3-5 times of snow are expected in winter. total rainfall in this county is 420-530 mm a year.

2.3 Problems Faced by Farmers

Farmers in this county are facing the following problems in their agricultural production:

A. No Market Information

Farmers do not know which farm produce will be needed more after the harvesting and which will be needed less. Nobody provides such information to them. As a matter of fact it's really very difficult to provide such information to the decetrated farmers. So which crop will be grown more is decided by farmers from their previous experence, mostly such experence is not suitable for the coming year.

B. Too High Production Costs

As farm inputs like chemical fertilizer and pesticide are in great shortage in China, their prices are automatically increasing dramatically. Although chemical fertilizer and pesticide are controlled by the state, farmers can not get as much as they want, and the electricity charge is also increasing in recent years, but the price for cotton maize and wheat is still the same as five years ago, so farmers production cost is very high.

C. Lack of Farm Guidance

The local farmers are still doing their farming in a traditional way with low productivity, low output and the result is lower income.

D. No Sufficient Value Adding Facilities

Farmers produces are mostly sold immediately after harvesting. No processing unit for grain because the state regulation doesn't allow any other organization or private to process grain except the state owned grain centres. There is no storage and processing facilities for vegetables. Though there are 3 fruits processing facilities, they do not accept good quality fruits for processing because of the higher price.

2.4. Need and Justification for the Project

A. Though farmers are growing grains they can not

process it, certain amount of grain will be seeds, certain amount will be consumed by the farmers themselves, the surplus must and only be sold to the state owned grain purchasing centres. This is a state regulation I can not select grain as my project.

B. I select a cold storage project, the storage will have a total capacity of 2,700 tons storing apples, eggs and garlic bolts.

C. The existing conditions do not help farmers in increasing their income for growing garlic. In this county, garlic is harvested once a year around June 5. While garlic bolts are harvested around May 25. At present the annual garlic bolts production in this county is more than 20 thousands tons, some of them will be consumed by farmers themselves and some will be sold immediately after harvesting. Even so there are still more than 5,000 tons of garlic bolts surplus as there is no storage and processing facilities in this county, the surplus garlic bolts have to be sold at a very low price and sometimes even be wasted. In winter however citizens are willing to pay a high price to buy garlic bolts but it is in great shortage. A cold storage for storing garlic bolts will be helpful both for increasing farmers' income and for citizens' consumption.

D. The existing conditions do not help farmers in increasing their income for feeding chickens. In this

county there is no chicken feeding farm, chickens are feeded by farmers, usually one family are feeding 6 to 8 pieces of chicken. Farmers can sell and/or consume chickens all around a year. But chicken eggs are different. Chickens usually lay eggs from March 5 to April 25, during this period, the market price of eggs is very low but in winter the egg price is very high because chicken do not lay eggs. At present there is no storage facility for egg storage in this county. farmers have to sell and/or consume eggs in the production season. The proposed storage will help farmers in increasing their income for feeding chickens.

E. The present conditions also do not help farmers in increasing their income in their apple production. Apples in this area is harvested around September 10. apples will be sold immediately after harvesting as no storage is available in this area. Some processing units do not pay a good price to buy good quality apples for processing. Normally apples are sold at a low price in the harvesting season. In winter especially during Chinese New Year Festival the apple price is 50 percent higher.

F. The proposed storage will be designed into 8 separated rooms each will have a actual capacity of 335 tons.

G. The proposed storage will also bring good profit

to the county supply and marketing cooperative and
provide employment opportunity for the cooperative
members.

3.1 Objectives

A. To increase farmers' income

Farmers who sell garlic bolts to the cooperative can get a price of 0.3 yuan/kg higher than the market price, and for eggs they can get 0.4 yuan/kg higher than the market price and 0.2 yuan/kg higher for their apple also.

B. Value-Adding

After certain period of storaging, the selling price of garlic bolts will be from 1.60 yuan/kg to 3.00 yuan/kg, and the apple price will increased from 1.20 yuan/kg to 1.50 yuan/kg and price for eggs will be 5.00 yuan/kg from 4.00 yuan/kg.

C. To help stabilizing the prices of the three commodities.

D. To provide good supply of these commodities to citizens.

E. To provide employment opportunity for all cooperative members.

3.2 Area of Operation The project will be located in the outskirts of Zhucheng city, the place is 2

meters from the county supply and marketing cooperative and only 30 meters from the main road.

The storage will occupy an area of 5,000 sm including 4,100 sm of construction.

Location of the storage see appendix 4.

3.3 Project components

The project consists of the following components.

A. Farm inputs are in great shortage in China, farmers can not get as much farm input as they want. Once the storage is implemented the county supply and marketing cooperative will give a preferential input supply to those farmers who will grow garlic and/or feed chickens and/or have apple trees.

B. Farm Guidance

The project area has sufficient farm extension services being provided by the county cooperative. It is therefore proposed the county supply and marketing cooperative should identify its effort to improve its farm guidance service. Integrated farming guidance group should be established to serve the farmers in their garlic growing, chicken feeding and/or apple harvesting etc.

C. Procurement

The storage has a capacity of 2,700 tons and actual capacity will be 2,640 tons.

All the procurments of garlic bolts, eggs and apples will be done by the 12 centres which have already been there and are owned by the county supply and marketing cooperative. As the three commodities are having different harvesting seasons, the procurments would be done seperately. The centres will send somebody with transportation tools to valliges to collect produces at the farmer gate level and pay them in cash immidiately. after being collected, these farm produces will be sent to the storage.

The county supply and marketing cooperative will pay a suport price to the farmers. Before seeding the cooperative shall inform the farmers at what price their commodities will be purchased after harvesting and once the actural market price is higher than the pre-fixed price, the county cooperative will pay them at the market price.

D. Storage

-The collected produces will be kept in the storage.

Before being storaged, apples must be graded and weighed, then be packaged in boxes usually 20 kgs per box and then be sent to the storage. While eggs are only needed to be checked if there is broken one and weighed then be put into specially made boxes for storaging. Garlic bolts must be graded and weighed and put into polythene bags before being sent into storage.

using ammonia as cold medium, the storage keeps a temperature at 0-5 C and relative humidity around 88%. under such conditions.

Garlic bolts can be stored from May 25 to March 1.

Eggs can be stored from March 20 to January 25.

Apples can be stored from September 10 to May 1.

E. Marketing

As China has the most population in the world, almost all the consuming goods are in shortage. After the harvesting season price of farm produces are increasing immediately. Buyers are going to the countryside to purchase what they want, there is no need for farmers to send their produces to cities for selling.

After being stored for a certain period, garlic bolts, apples and eggs can be sold at the gate of the storage.

... ..
... ..
... ..

... ..
... ..

... ..
... ..

... ..
... ..

... ..
... ..

... ..
... ..

... ..
... ..

... ..
... ..

... ..
... ..

... ..
... ..

Chapter 4 : DETAILS OF OPERATION

The storage operation chart will be like this:

Farmers' produces

|
Centres

|
Storage

|
Grading

|
Weighing

|
Packaging

|
Storaging

|
Marketing

4.1 The project will be implemented by Zhucheng Supply and Marketing Cooperative, the project will provide backward linkages such as supply of inputs, extension services etc and forward linkages like marketing of farm produces in winter etc.

4.2 The storage occupies an area of 4,100 sm which will be seperated into 8 rooms. With each room occupying an area of 450 sm, 390 sm will be available in each room

for storing commodities, inside the storage the height will be 6 metres high and within 5.6 metres the space can be used.

The storage needs a equipments room and a power distributing room.

In the power room, a 120 kw transformer is needed, the power supply should be 120 kw, 220 v, 50 hz 3 phases.

4.2. To construct the storage, following equipments and facilities are needed:

Air pipes

Cooling tower

Air

Oil seperator

Vertical cooling tower

Refergerator

Amonia compressor

Oil collector Air seperator

Amonia pump

Amonia valve

Power box

Power distributor

Water pump

Motor

Compressor

Amonia tank
Low pressure cilinder
Electric welder
Electric drill
Room door
Spare parts
Others

All of the above equipments and facilities can be easily bought in the province.

Power is available.

Amonia is needed 500 kgs per year. It can be purchased from the county chemical fertilizer plant which is only 4.5 kms from the proposed storage.

4.3 Construction

The County Supply and Marketing Cooperative shall make it as an anchor activity to finish the construction and installation of the equipments of the storage before March, 1990. pre-operative actions should be taken early especially the application to the Agriculture Bank of China for the loan. Recruitment of key personnel and their training should be finished before test run of the storage.

The construction frame work should be:

A. From April 1 to April 30

Purchasing of land

Application for the bank loan

Negotiation of the purchasing of equipments

construction materials

Negotiation with construction company for
civil construction

Negotiation with installation company for the
installation of the equipments

Availability of power supply

Come into use of road to the main road

B. From May 1 to November 30

Arrival of civil construction materials Civil
construction finished

Arrival of some equipments and machines

Finish of installation of some equipments and
machines

C. From december 1 to January 20

Finish of all the installation

D. January 21

Arrival of ammonia

E. January 22 to feb. 15

Pre-operation test

F. Feb 16

Operation

During construction period, recruitment of key
personnels and their training should be taken place and
be finished before pre operation test.

4.4 Procurement

The project will purchase from farmers fresh

chicken eggs around March 25, fresh garlic bolts around May 25 and apples round September 10, the 12 centres will do the purchasing, the locations of the 12 centres see appendix 5.

Farmers produces are purchased in the following two ways:

The first is that farmers send their produces to the centres, after being checked and weighed, the produces will be paid in cash immediately.

The second way, the most common way is that the centre send somebody with transportation tools to villages collecting farm produces at the farmer gate level and paying them immediately.

In harvesting seasons, prices for the three commodities in free market are hereby listed below:

For garlic bolts:	1.30 yuan/kg
eggs:	3.60 yuan/kg
apples:	1.00 yuan/kg

Prices for these produces may be lower than that if there is a good harvest.

After the storage is implemented the county cooperative will purchase these commodities at a higher price:

For garlic bolts:	1.60 yuan/kg
eggs:	4.00 yuan/kg
apples:	1.20 yuan/kg

This is a support price.

4.4 Transportation

Transportation in this county is easily available in various loading capacities. All of the 12 centres are having their own transportation trucks etc, they will be responsible for the transportation of the farm produces to the storage. The county supply and marketing cooperative will pay the transportation costs and be responsible for the losses during transportation. Losses from the collecting to the storage is approximately 7%.

Distances between the centres and the storage are seen in appendix 5.

4.5 Grading, weighing and packaging

Eggs can be sent to the storage without grading but must be put into specially-made boxes and weighed, usually these can be done before eggs are transported, while farmers are selling eggs they are requested to put eggs in the specially-made box after the eggs being checked and weighed, so no labour is required for this purpose when eggs arrived.

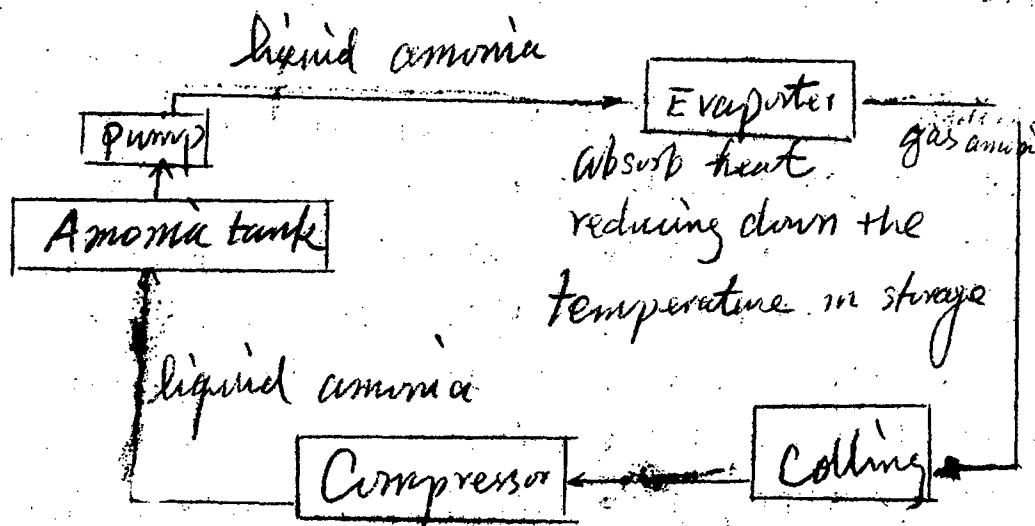
Apples need grading, weighing and packaging. There are several kinds of apples, different apples are having different prices and even the same kinds of apples, because of different sizes, different colours,

their grades are different, so grading of apples is a must. After weighing apples will be put into boxes usually 20 kgs per box and then be sent into the storage.

Garlic bolts also need grading weighing and packaging. garlic bolts will be put into polythene bags usually 5 kgs per bag.

4.6. Storing

The commodities will be stored in the lower-temperature storage. An illustrated storage chart is like this:



When ammonia passes through evaporator in the storage, it absorbs heat from the storage, reducing

down the temperature in the storage and it itself becomes vapour.

During storage period, temperature control is very important. As technical requirement, temperatures in the storage should be 0-5 C and relative humidity shall be around 88%. So the equipments operators must know the actual temperatures/RH in each rooms from time to time and regulate the operation of the equipments. In the equipments room, 24 working hours per day is a must, 3 shifts shall be arranged, and operators must be well trained and familiar with the process of these equipments.

During storage, frosts will be accumulated in the outside of the ammonia distributing pipes. defrosting is needed regularly, this will be done by the operators when required.

4.7 Marketing

All of the three commodities are in shortage after harvesting seasons. there is no need for the cooperative to promote the sale of these commodities. Buyers will come to the storage with their own transportation tools to purchase these produces.

Usually two months after apples were stored, that is around Nov.10, buyers will come and purchase apples at a price round 1.4 yuan/kg. then buyers come continuously and purchase apples at a price from 1.4 to

1.65 yuan/kg till the apples are sold out. When the last box of apples are sold, it is the end of April.

While the quantity of apples is decreasing in the storage in March and April, eggs are taken in and garlic bolts will be taken also at the last two weeks of May.

Eggs almost has the same situation for their marketing, their sales will be finished at the January, their average selling price will be 3 yuan/kg.

Garlic bolts will be stored in the last part of May. They will be sold beginning from the end of September till the end of March, its average selling price would be 3 yuan/kg.

Chapter 5 ORGANIZATION AND MANAGEMENT

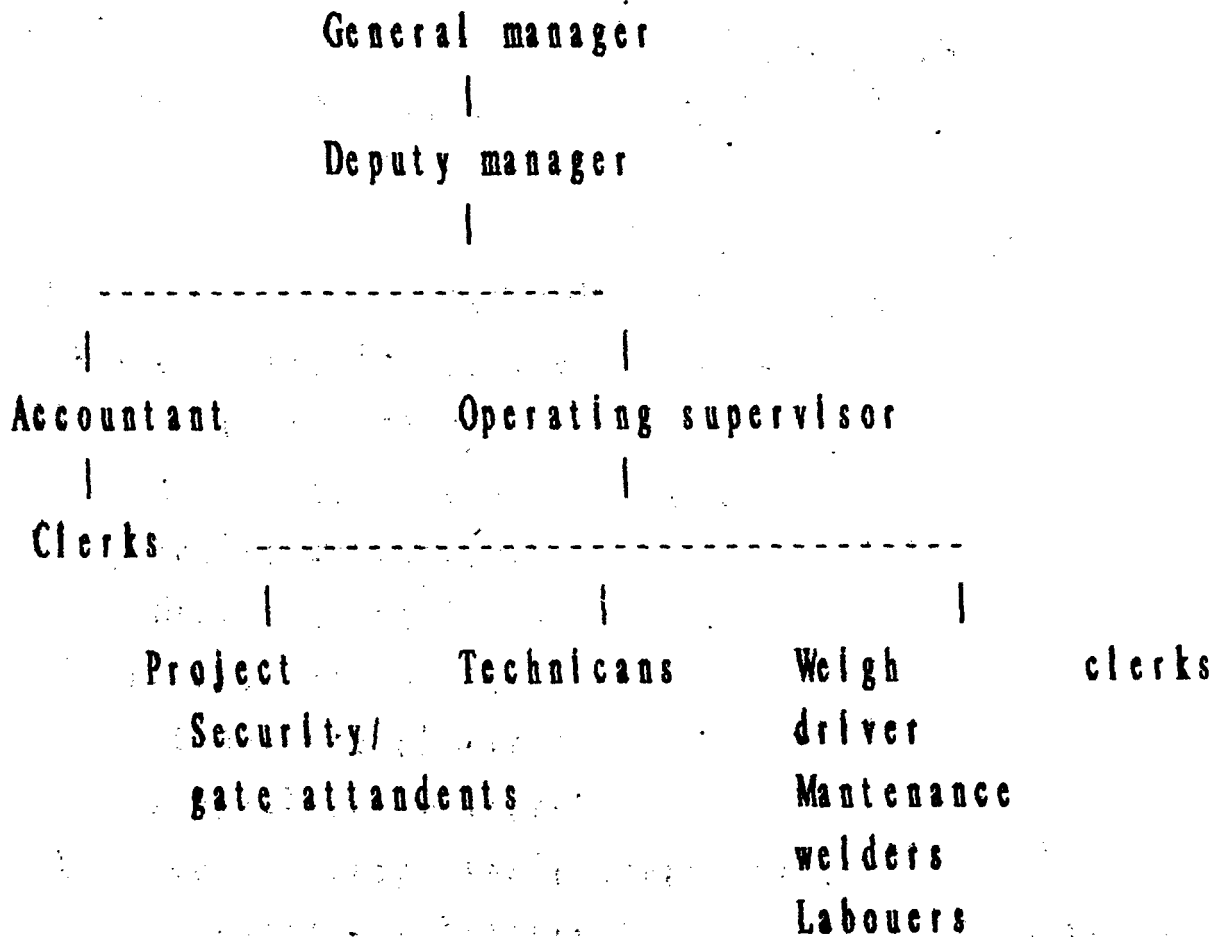
5.1 The overall management policies will be regulated by the managing committee which will be formed for the project. The committee will comprise of technicians who know well of the whole technology process of storage. The director of the committee will be nominated by the County Supply and Marketing Cooperative and he will be the general manager of the project.

The storage project will employ a total of 32 people in the position summarised below:

- A. Staff position (senior management)
 - 1 General manager
 - 1 Assistant general manager
 - 1 Senior accountant
 - 1 Operating supervisor
- B. Clerical and office
 - 2 Accounting clerks
 - 1 Project clerk/secretary
- C. Process storage shift operators
 - 3 Technicians/electrician
 - 3 Security/gate attendants
- D. Process plant ancillary personnel

- 1 weigh bridge operator
- 2 Maintenance fitters./welders
- 2 Tractor drivers
- 10 General labours
- 4 Truck/cars divers

The managing structure is shown below:



5.2 General manager

Report to: the county cooperative

Objective: To make optimum use of the storage.

maximizing earnings of the project.

Qualification: Skilled in supervision and management of a storage and familiar with the process of the storage.

Specific duties:

a. To organize and direct the daily operation and management work of the storage.

b. To be responsible for the preparation and submission to the county coop for approval:

An annual operation plan, operating budget

Financial budget

Manuals governing financial, accounting, remuneration, welfare of employees.

c. To prepare and distribute, with the assistance of the senior accountant to the county cooperative monthly as required:

Balance sheet

profit and loss statement

Cash statement

Cash flow statement

d. Consult with the deputy manager on matters pertaining to the daily operation and management of the project.

5.3 Deputy manager

Report to: the general manager

Objective: TO supervise and coordinate the relations of storing, operating of equipment, maintenance and safety etc.

Qualification: Qualified at basic cold storage principles, familiar with operations of storage, problem solving techniques and ability to work well together with others.

Specific duties:

Fully responsible for the marketing of the storaged produces.

5.4. Senior accountant

Report to: the general manager

Objective: to supervise all financial and accounting matters pertaining to the storage project.

Qualifications: skilled in all financial and accounting methods and procedures necessary for the storage operation.

Specific duties:

a. Annual stocktake--initiate and supervise the procedures associated with annual stocktake.

b. Account receivable--ensure a high standard of internal control is maintained over accounting receivable and promptly advises management should any delinquent occur

c. Loan payment and bank authority--maintains a through knowledge of loan arrangement, loan payment and

1911

Ques...

...

...

...

...

...

bank authorities.

d. Cash flow--regularly compares actual collections and payments with prepared cash flow when and as requested.

e. Banking/available funds--maintains daily a knowledge of bank balances. Acts as a signatory for the project cheques.

f. Insurance--attends to the necessary documentation concerning matters relating to insurances.

5.5 Operating supervisor

Report to: the general manager

Objective: to achieve storage operation standards and to strive for storage goals.

Qualification: ability to lead others. Specific duties:

a. To lead total operation shifts team comprising:

Electrician

Technicians

Security/gate attendants

Labourers

Drivers

b. To be responsible for the take-in of produces.

c. To abide by all the safety rules and be actively involved with safety programmes.

Chapter 6 FINANCIAL ANALYSIS

6.1 Cost Analysis

A. Fixed costs

	price	year costs	total
Labour			
4 management	190	2.280	9.120
6 clerk/techn	160	1.920	11.520
22 others	120	1.440	31.690
2% labour union			1.046
Insurance			
equipments	0.4%		1.760
buildings	0.1%		720
Depreciation			
buildings	20 years	(850.000)	42.500
equipments	10 years	(290.000)	29.000
vichels	5 years	(140.000)	28.000
Total			154.626

B. Viable cost

Electricity	120 kwh	190.000	190.000
Amonia	1.000 yuan/ton	500 kg	500
Water			200
Diesal			200
Maintenance			50.000
Transportation	0.18/t/km		10.000

Loss during transportation 7%	371.840
Packaging	20.000
Purchasing of farm produces	5.312.000
Travel	40.000
Telephone and post	10.000
Office suppliers	10.000
Staff training	10.000
Entertainment	20.000
Vilife expenses	10.000
Total	6.164.740

6.2 Break Even Quantity

The selling prices of garlic bolts, eggs and apples are respectively 3.00, 5.00 and 1.50 yuan/kg. their total quantities are respectively 320,720 and 1,600 tons. Their average selling price can be determined as:

$$P = (3.00 \times 320.000 + 5.00 \times 720.000 + 1.50 \times 1.600) / (320.000 + 720.000 + 1.600)$$

$$= 2.636 \text{ yuan/kg}$$

The average viable cost:

$$AVC = \text{Total Viable Cost} / \text{Total Quantity}$$

$$= 6.164.740 / 2.640.000 = 2.335$$

As total fixed cost has already been given, that is 154.626. so

$$BEQ = TFC / (P - AVC)$$

$$= 154.626 / (2.636 - 2.335)$$

-513,707 KGS

-514 TONS

6.3 Return of Investment

Return of investment 5 years period

Revenues:

Garlic bolts $3.00 \times 320,000 = 960,000$

Eggs $5.00 \times 720,000 = 3,600,000$

Apples $1.50 \times 1,600,000 = 2,400,000$

Total revenues 6,960,000

Continued to the last page

6.4 Loan pay-back schedule

year	intrest (15.5%)	loan+int	pay-back-	retained
1	186,000	1,386,000	300,000	1,086,000
2	168,330	1,254,330	300,000	954,330
3	147,920	1,102,250	300,000	802,250
4	124,350	926,600	300,000	626,600
5	97,120	723,700	300,000	423,700
6	65,670	489,370	300,000	189,370
7	29,350	218,700	218,700	0

6.5 Cash flow statement

See next page

6.6 Net present value and Internal Rate of Return
Interest on deposit is 0.72% per month, that is

Cash Flow Statement

end year	1	2	3	4	5	6	7	8	9
1. Cash inflow									
browsing	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
sales	6,960,000	6,960,000	6,960,000	6,960,000	6,960,000	6,960,000	6,960,000	6,960,000	6,960,000
2. Cash outflow									
assets	0	0	0	0	140,000	0	0	0	0
costs	6,319,366	6,319,366	6,319,366	6,319,366	6,319,366	6,319,366	6,319,366	6,319,366	6,319,366
interest	135,000	135,000	135,000	135,000	135,000	135,000	135,000	135,000	135,000
loan pay-back									
LT	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000
ST	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000
3. Net cash infl	205,634	205,634	205,634	205,634	65,634	205,634	296,634	515,634	515,634

8.64% per year. Assuming the discount factor is 9%, from the cash flow statement, the net present value of the project is:

NPV-1,707,891-1,680,000=27,891

Detail calculation of NPV see appendix 6

IRR-9.8% Cash flow statement

6.7 Sensitive analysis

A. Assuming the purchasing price of three commodities increase 5% without increase of their selling price.

Total revenues	6,960,000
Cost of commodities	5,577,600
Total costs	6,905,966
Profit	54,034
ROI	3.21%

B. Assuming electricity charge increases 10% without any other change.

Total revenues	6,960,000
Cost of electricity	209,000
Total costs	6,659,366
Profit	300,634
ROI	17.89%

C. Assuming both purchasing and selling prices of the produces increase 5% without any other change.

Total revenues	7,308,000
Cost of produces	5,577,600

Chapter 7 BUDGET

Total budget for the project is:

Land	190.000
Civil construction materials	450.000
Civil construction	250.000
Equipments and facilities	290.000
Installation of Equip/Facil	150.000
Vicles/cars	140.000
Road to the main road	30.000
Office supplies	7.000
Pre-operating cost	20.000
Contingency 10%	150.000
TOTAL.....	1.680.000

Chapter 8 RECOMMENDATION

8.1 The financial institute and government agencies should provide loan and other assistances as requested for the setting up of the storage project.

8.2 The County Supply and Marketing Cooperative should provide necessary services to the farmers in their farm production.

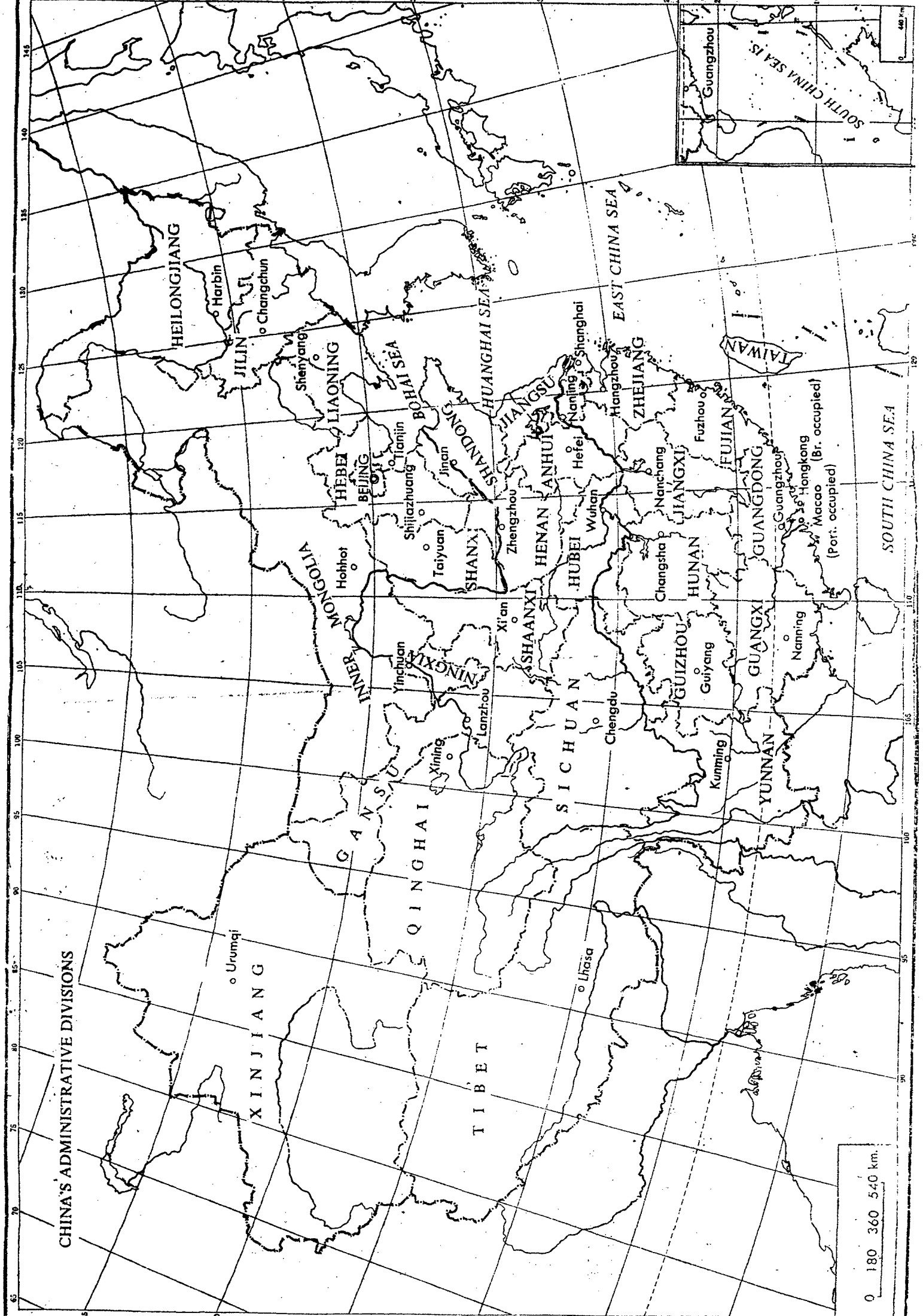
8.3 The County Supply and Marketing Cooperative should start working on the project before the beginning of april, 1989.

8.4 All the key personnels of the project must be trained before the pre-operating test run of the storage.

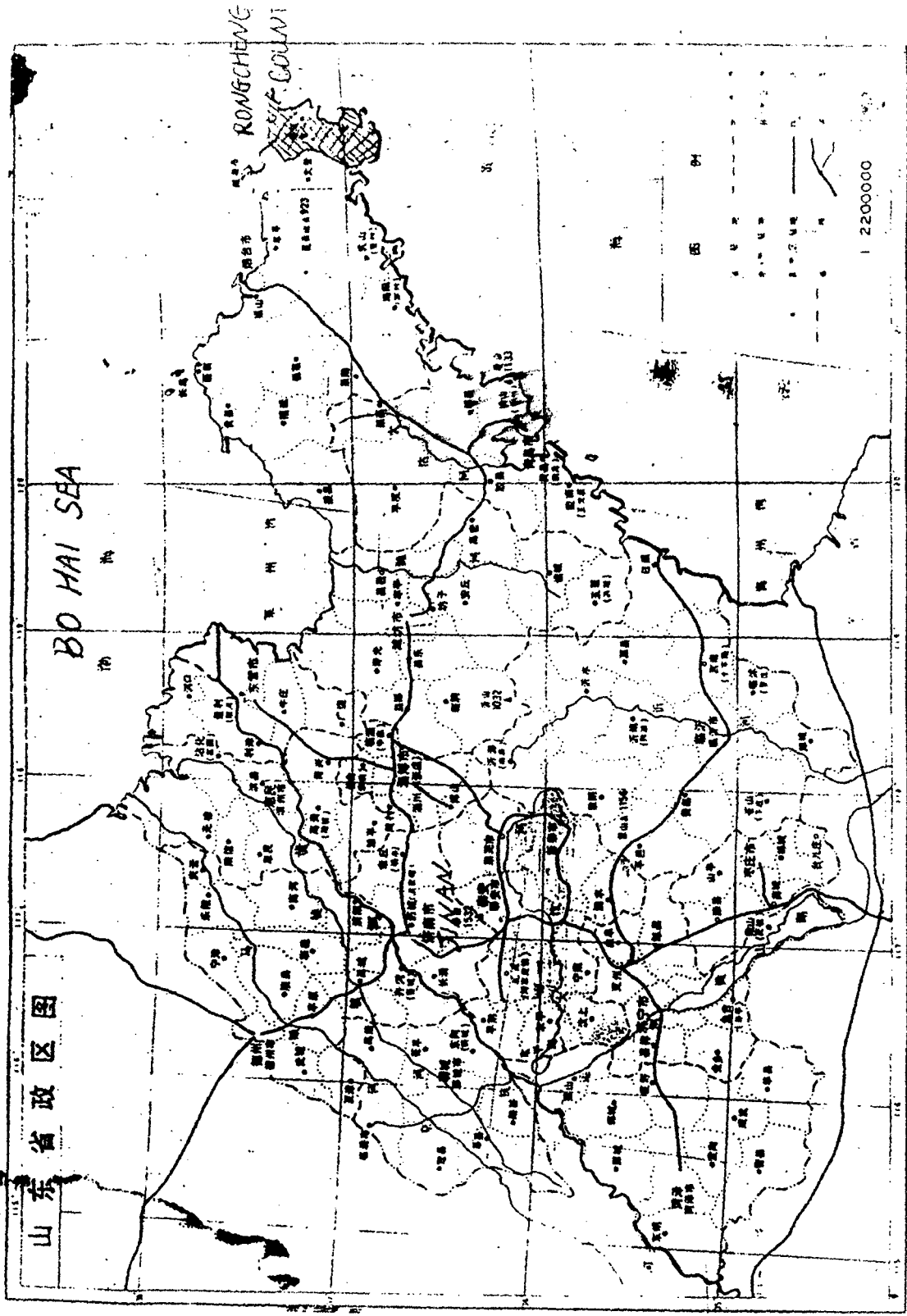
8.5 Civil construction and installation of equipments and facilities must be finished on time.

8.6 The county coop shall prepare a project implementation plan and time table.

CHINA'S ADMINISTRATIVE DIVISIONS



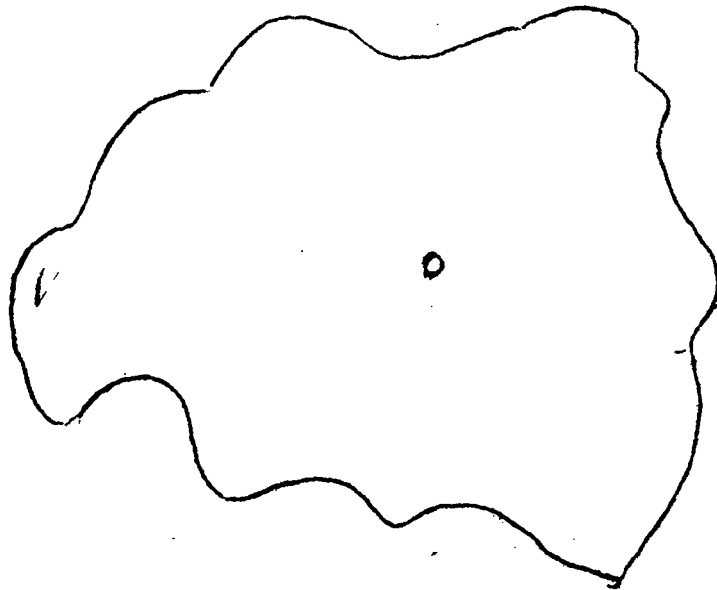
0 180 360 540 km.



*Location of Rongcheng County
in Shandong Province*

Appendix 3

A map of Zhu Cheng County



Balance Sheet

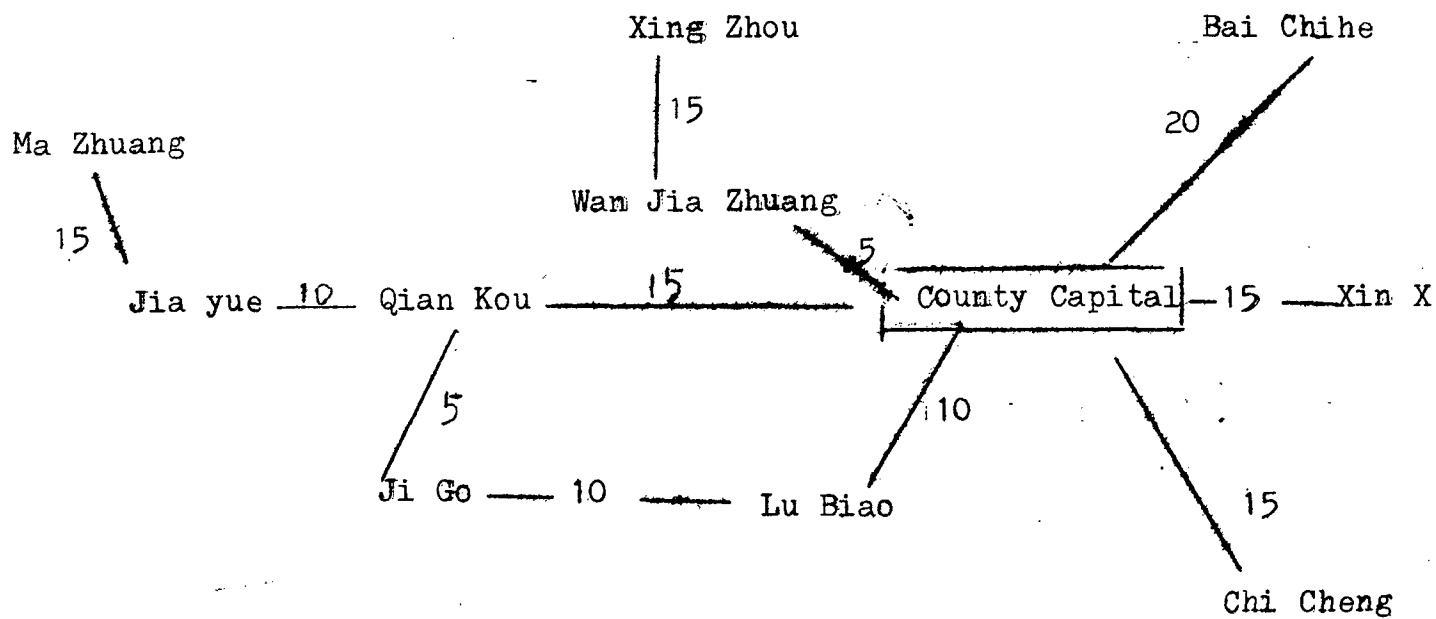
end year	0	1	2	3	4	5	6	7	8
Assets									
Cash	0	205,634	429,775	674,008	940,390	1,067,681	1,369,407	1,789,588	2,466,284
Receivable	0	0	0	0	0	0	0	0	0
Inventories	0	0	0	0	0	0	0	0	0
Total current	0	205,364	429,775	674,088	940,390	1,067,681	1,369,407	1,789,588	2,466,284
Fixed at cost	1,680,000	1,680,000	1,690,000	1,680,000	1,680,000	1,820,000	1,820,000	1,820,000	1,820,000
less depr		168,000	336,000	504,000	672,000	980,000	1,036,000	1,218,000	1,390,000
Net fixed	1,680,000	1,512,000	1,334,000	1,176,000	1,008,000	840,000	784,000	602,000	430,000
Total assets	1,680,000	1,717,634	1,773,775	1,850,000	1,948,390	1,907,681	2,153,407	2,391,588	2,896,284

Liabilities									
payble	0	0	0	0	0	0	0	0	0
ST financing	0	0	0	0	0	0	0	0	0
Total current	0	0	0	0	0	0	0	0	0
Loan	1,200,000	1,086,000	954,330	802,250	626,600	423,700	189,370	0	0
Total liability	1,200,000	1,086,000	954,330	802,250	626,600	423,700	189,370	0	0

Net Present Value

end year	0	1	2	3	4	5	6	7	8	9	10
NCI	-1,680,000	205,634	205,634	205,634	205,634	205,634	205,634	296,934	515,634	515,634	515,634
9% discount factor											
NPV	-1,680,000	188,649	173,082	158,791	145,671	42,634	122,620	162,423	258,797	237,398	217,80

NPV=27.891



An illustrated map of the locations and distances
(in KM) of, the 12 Bases within the county

Appendix 7

Net incomes of the local farmer in recent 5 years
(RMB yuan)

year	1983	1984	1985	1986	1987	1988
average net income (Per farmer)	203	294	340	403	507	594

Appendix 8

Vegetable production in recent 5 years

year	(mt)		(x1,000 MT)			
	1983	1984	1985	1986	1987	1988
production	97	1149	204	298	344	375

Appendix 9

Selling prices in recent 5 years

year	1983	1984	1985	1986	1987	1988
apple	0.38	0.40	0.85	0.90	0.90	0.96
egg	1.70	1.80	2.65	3.30	3.60	3.95
garlic bolt	0.30	0.30	0.60	0.84	0.98	1.25

Continued from P35

year	1	2	3	4	5
Revenues	6,960,000	6,960,000	6,960,000	6,960,000	6,960,000
Costs					
F+V cos	6,319,366	6,319,366	6,319,366	6,319,366	6,319,366
Interest					
L	186,000	168,330	147,920	124,350	97,120
S	135,000	135,000	135,000	135,000	135,000
Total cost	6,640,366	6,622,696	6,602,286	6,578,716	6,551,486
Profit	319,634	337,304	357,714	381,284	408,514
ROI	19.03%	20.08%	21.29%	22.69%	24.32%



GAO

APC

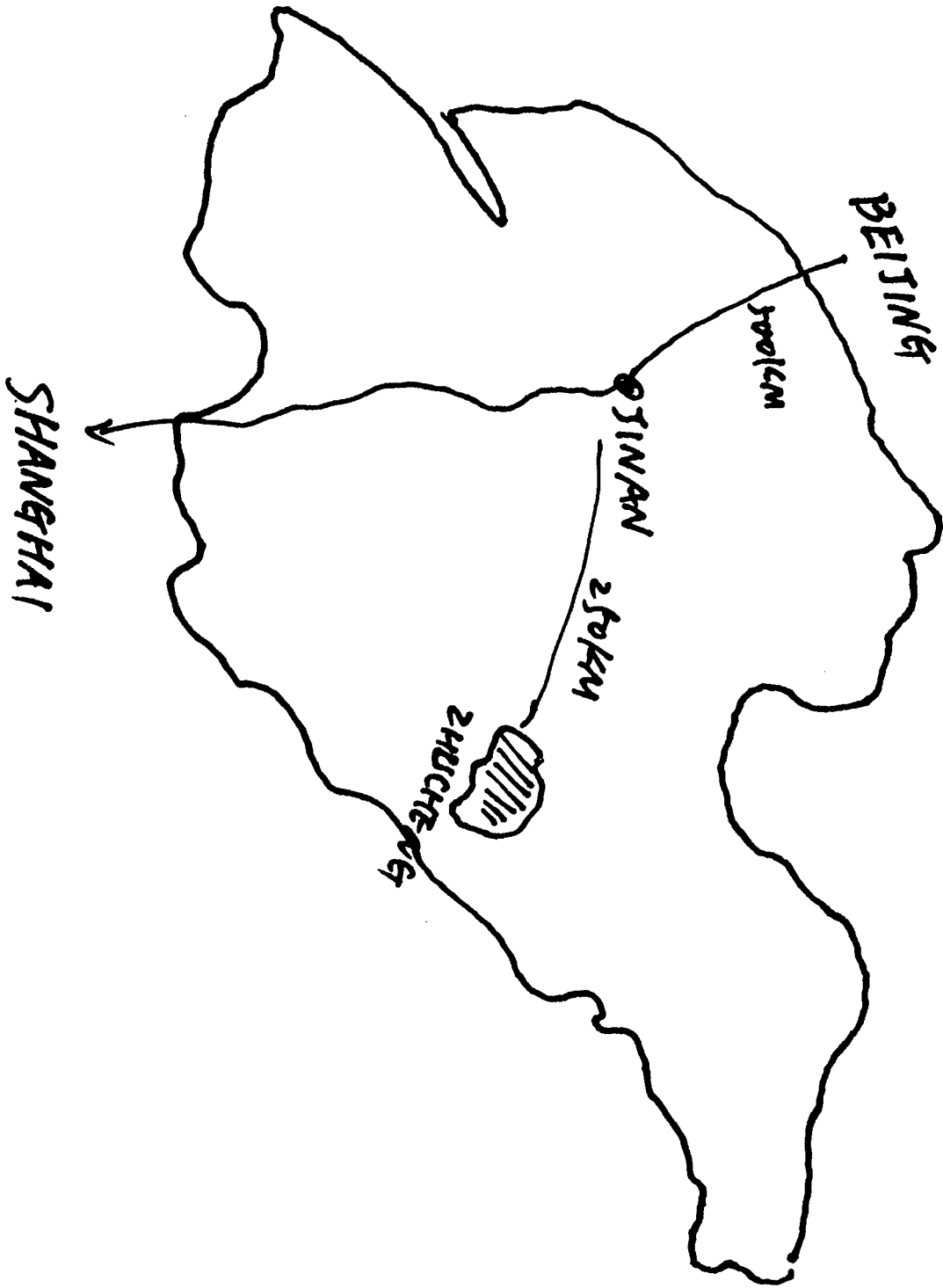
No.

Date



No.

Date



P1

ACKNOWLEDGEMENTS

1. SUMMARY.

A. IT IS A COLD STORAGE FOR STORAGING APPLES, EGGS AND GARLIC BOLTS.
CAPACITY: 2,700 TONS.

B. TOTAL INVESTMENT FOR THIS PROJECT IS 1.68 MILLION CHINESE YUAN. AND
3.72 YUAN = 1 USD

a. FUND COME FROM.

COUNTY SUPPLY AND MARKETING COOP.

360,000

b. FROM AGRICULTURAL BANK

1,200,000

c. SHARES FROM PREMARE COOPS

120,000

P₂.

C. TOTAL STAFF AND WORKERS FOR THE PROJECT ARE EXPECTED TO BE ~~36~~ 32.

D. IT'S BEQ = 514 TON

$$IRR = 9.8\%$$

$$NPV = 27,891$$

E. IT CAN INCREASE FARMERS INCOME.

APPLES: 20%

GARLIC BOLTS: 22%

EGGS: 11%

2. BACKGROUND

A. A LOCATION

B. ~~SAME~~ POPULATION AND LAND.

C. SOME INFORMATION

D. PROBLEMS FACED BY FARMERS

- 13
- b. TO HIGH PRODUCTION COSTS
 - c. LACK OF FARM GUIDANCE
 - d. NO SUFFICIENT VALUE ADDING FACILITIES
 - e. NEED AND JUSTIFICATION FOR THE PROJECT

3. PROJECT

3.1 OBJECTIVE

- A. TO INCREASE FARMERS INCOME
- B. VALUE-ADDING
- C. TO PROVIDE SUPPLY OF THESE COMMODITIES TO CITIZENS IN NO-HARVESTING SEASONS.
- D. TO PROVIDE EMPLOYMENT OPPORTUNITY FOR COOP MEMBERS

3.2. AREA OF OPERATION

3.3 COMPONENTS

- A. FARM INPUTS SUPPLY

Q4.

B. FARM GUIDANCE

C. PROCUREMENT

D. STORAGE

E. MARKETING

4. DETAILS OF OPERATION

FARMER'S PRODUCE



CENTRES



STORAGE SITE



GRADING



WEIGHING



PACKAGING



STORAGING



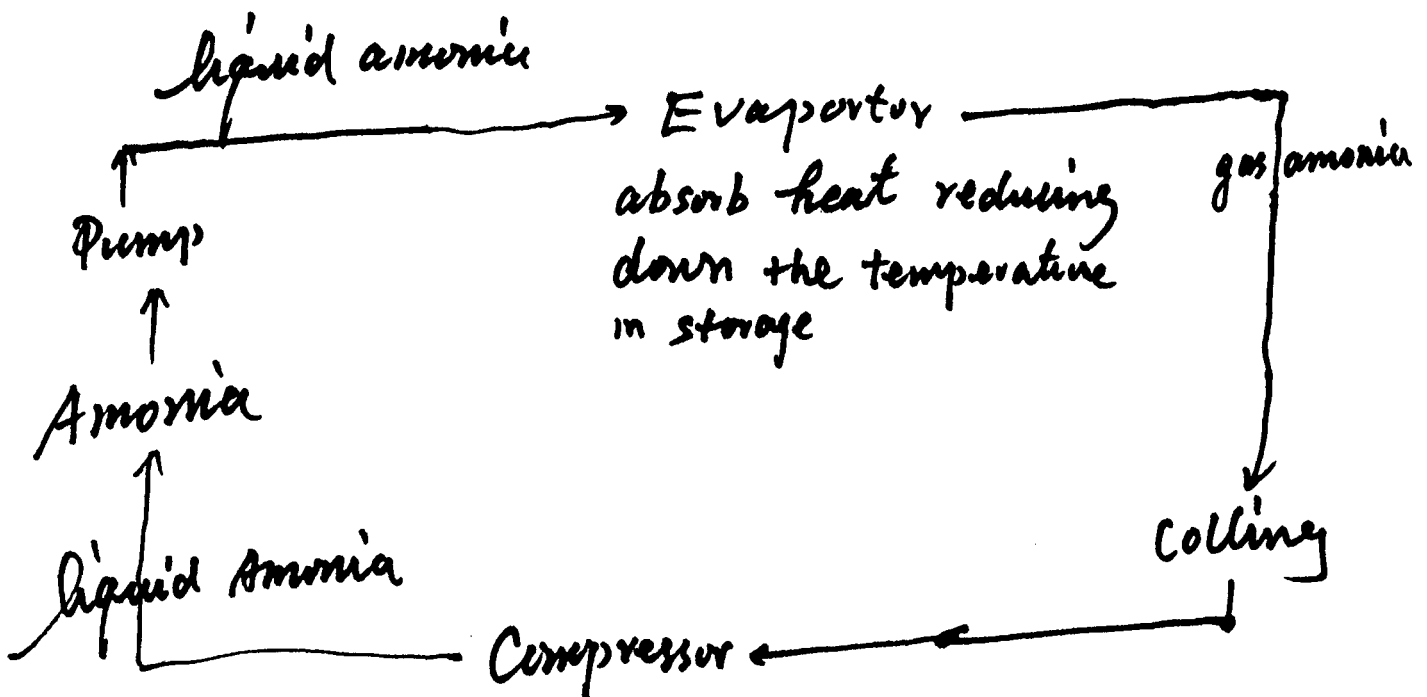
MARKETING

P5

4.1 I LISTED THE EQUIPMENTS AND FACILITIES WHICH ARE REQUIRED FOR THE IMPLEMENTATION OF THE PROJECT.

ALSO CONSTRUCTION FRAME WORK

4.2. STORAGING



76

5.

5.1

EMPLOYMENT POSITION WAS SUMMERISED
IN MY PAPER. TOTAL: 32

5.2 I ALSO GIVE QUALIFICATIONS, OBJECTIVES,
SPECIFIC DUTIES OF

a. THE G.M.

b. DGM

c. SENIOR ACCOUNTANT

d. OPERATING SUPERVISOR.

6 FINANCIAL ANALYSIS

6.1. FIXED COSTS: 152,626

VARIABLE COSTS: 6,164,740

BEQ = 514

6.2. RETURN OF INVESTMENT. (5 YRS.)

P7

6.3. Pay-back schedule.

INTEREST RATE 15.5% EACH YV.

300,000 WILL BE PAID EACH YV. AT THE
END OF 7th YV. ALL THE LOAN WILL BE
PAID.

6.4. CASH FLOW STATEMENT.

$$NPV = 27.891$$

$$IRR = 9.8\%$$

6.5. SENSITIVE ANALYSIS.

PURCHASING PRICE \nearrow 5%
ROI: 3.21%

ELECTRICITY \nearrow 10%
ROI: 17.87%

PURCHASING/SELLING PRICE \nearrow 5%
ROI: 23.93%

No.

Date

PS.

7. BUDEET: 1,680,000

GROUP 1. COLD STORAGE FOR FARM
23 FEB. 1989. PRODUCE. IN CHINA

PRODUCTION

1. DATAS OF PROJECTED PRODUCTIONS FOR PROJECT DURATION OF EACH CROP SHOULD BE PROVIDED
2. COLD STORAGE UTILIZATION PLANNING FOR EACH CROP BY MONTHWISE
3. PROJECTED DISPOSED FOR EACH CROP/STOCK IN THE COLD STORAGE
4. COLD STORAGE NOT UTILIZED DURING THE MONTHS OF DECEMBER - FEBRUARY. SHOULD MAKE USE THE STORAGE FOR OTHER CROPS
5. SHOULD DEVISE PLAN FOR THE DISPOSAL OF SURPLUS CROPS DURING PEAK SEASON.
6. SHOULD ALLOCATE SOME PERCENTAGE OF SPOILAGE/DETERIORATION DURING STORAGE.
7. SHOULD PROVIDE DETAIL OF GRADING STANDARD FOR EACH CROP SUCH AS APPLE, EGG AND GARLIC.

OBSERVATIONS OF GROUP D

Project - Cold Storage for Farmers'

Produces (prepared by GAO)

- Losses in the storage facilities must be provided for at an average of 5%.
- Break-even Point at each product should be determined.
- The Project must include processing and packaging of the products to suit consuming public.
- Organizational structure should be clearly defined with reference to different sections' activities and accountabilities.

— Backward integration such as technical extension, home guidance must be well defined to increase members' productivity

GROUP C

23 FEB. 89

A COLD STORAGE FOR FARM PRODUCE

GAO JIHAI : CHINA

1. ~~THE REPORT~~ VERY COMPREHENSIVE REPORT PREPARED UNDER THE BACK DROP OF COUNTRY SITUATION AND SOCIALIST ECONOMIC SYSTEM.
2. THE TECHNICAL DETAILS HAVE BEEN NICELY ELABORATED
3. THE PROJECT ^{WILL} HELP BOTH FARMERS AND CONSUMERS
4. THE BENEFIT TO THE FARMERS HOWEVER SHOULD BE QUANTIFIED FOR EACH COMMODITY NAMELY EGGS, APPLE AND GARLIC BOLTS IN TERM OF PERCENTAGE
5. NO FORWARD INTEGRATION ^{AS IF} BUT IS SELLER MARKET IT MAY NOT ^{BE} NECESSARY
6. IRR MAY BE CORRECTED TAKING INTO ACCOUNT CAPITAL COST AND BORROWING
7. SOME DETAILS REGARDING TO CAPACITY UTILIZATION MONTH BY MONTH REQUIRED.
8. STORAGE CHAMBERS SHOULD BE SEPARATE

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989



Funded by the Government of Japan
and

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

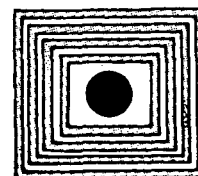
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



PROJECT TITLE: MANGO FRUIT PROCESSING
AND MARKETING.

COUNTRY: INDIA

PREPARED BY: G.GANGA RAO
GENERAL MANAGER,
DISTRICT COOP BANK
ELURU.

C O N T E N T S

<u>CONTENT</u>	<u>PAGE</u>
ACKNOWLEDGEMENT	
CHAPTER 01 <u>SUMMARY</u>	<u>01</u>
CHAPTER 02 <u>BACKGROUND</u>	
2.1 OVERALLSITUATION	03
2.2-AREA OF PROJECT	06
2.3-PROBLEMS FACED BY FARMERS	12
2.4-JUSTIFICATION FOR THE PROJECT	14
CHAPTER 03 <u>PROJECT</u>	
3.1-OBJECTIVES	17
3.2-AREA OF OPERATION	18
3.3-PROJECT COMPONENTS	27
CHAPTER 04 DETAILS OF OPERATION	25
CHAPTER 05 ORGANIZATION AND MANAGEMENT	34
CHAPTER 06 FINANCIAL ANALYSIS	47
CHAPTER 07 BUDGET	52
CHAPTER 08 RECOMMENDATIONS	53
APPENDICES - MAP ANNEXURES	

ACKNOWLEDGEMENT

The I.C.A. Training Course on "STRENGTHENING OF MANAGEMENT OF AGRICULTURAL COOPERATIVES IN ASIA" organised from 24th October 1988 to 7th May 1989 at New Delhi, Bangkok, Tokyo and Beijing has provided me with an opportunity to know various aspects regarding building up of the management of the cooperative, the techniques in formulation and implementation of projects in Cooperative Sector. The project on "MANGO FRUIT PROCESSING AND MARKETING" is prepared under this training programme.

I am grateful to Sri M.V. Madane, Project Director, I.C.A., New Delhi; Prof.V.R.Gaikwad, Prof.V.K. Gupta and Prof.G.S. Gupta of I.I.M., Ahmedabad who have guided me in all aspects in bringing out this project.

I take this opportunity to extend my gratitude to Sri D. Srinivasa Rao, President, A.P.State Cooperative Bank Ltd., Hyderabad, Sri V.S.Sampath, I.A.S., Managing Director, A.P.State

Cooperative Bank Ltd., Hyderabad; Sri M. Satyanarayana Murthy, B.A., President, The District Cooperative Central Bank Ltd., Eluru for nominating me to this training programme. It is my duty to extend my gratitude to Sri P. Raghunadha Rao, General Manager, The District Cooperative Central Bank Ltd., Eluru; Sri K. Yadagiri, B.A., District Cooperative Officer, Eluru and Sri G. Satyanarayana Rao, President, Large Sized Cooperative Society Ltd., Dwaraka Tirumala for extending me all the support and cooperation in formulating the project.

I am grateful to the Chief Planning Officer, District Planning Office, Eluru; Mandal Development Officers, Dwaraka Tirumala, Kamavarapukota, Wallajerla and Mango Growers in these areas, who have provided me valuable data and necessary information for the project formulation.

I am thankful to Sri P.S. Gangadhara Rao, Assistant Regional Officer, Andhra Pradesh State Cooperative Agricultural Development Bank Ltd.,

:: 3 ::

Eluru; Sri V. Bhanu Prasad, Mobile Guide, A.C.S.T.I., Hyderabad and Sri S.S. Satyanarayana, Manager, The District Cooperative Central Bank Ltd., Eluru for extending me necessary assistance in bringing out this report.

G. GANGA RAO

MANGO FRUIT PROCESSING & MARKETING IN DWARAKA
TIRUMALA OF ANDHRA PRADESH, INDIA.

CHAPTER - I.

S U M M A R Y.

- | | |
|--|---|
| 01. Title of the Project | Mango Fruit Processing and Marketing Plant. |
| 02. Area of operation | Dwaraka Tirumala, Kamavarapukota and Nallajerla Mandals in West Godavary District Andhra Pradesh, India |
| 03. Name and address of the implementing organisation. | Sri Venkateswara Large Sized Cooperative Society Ltd., Dwaraka Tirumala, West Godavary District, India. |
| 04. Target group and membership coverage | Farmers in the Mandals of D.Tirumala, Kamavarapukota and Nallajerla Mandals. Initial membership coverage 900 farmers. |
| 05. Total Capacity | 2 M.Tonnes per hour with an output of 50% Expected working days 90 per year.
Product: Mango Pulp of 1800 M.T. |
| 06. Capital investment | Total capital investment for land, buildings, machinery including pre-operative expenses Rs.36.86 lakhs. |

07. Source of Fund	Expected to raise equity of Rs.7.36 lakhs from members, pre-operative expenses of Rs.1.50 lakhs from the own resources and Rs.28.00 lakhs from NCDC as Block Capital loan.
08. Sources of funds for working capital requirement.	Expected to obtain Rs.30.00 lakhs from DCCBank, Eluru and mobilise deposits for the remaining amount.
09. Sources of raw material.	Locally through Project Command area.
0.10 Project period	10 years
0.11 Implementation period	12 months

C H A P T E R - II.
BACK GROUND

2.1 Horticulture resources accounted for an important place in the Indian Economy with a cultivated area of 3 million hectares of land. Mango is an important fruit crop grown largely in Andhra Pradesh. Out of the total area of land under cultivation in the Andhra Pradesh State, considerable land is under horticulture cultivation and there is much scope for increasing the area under horticulture cultivation. Fruits like Mango, Cashew, Orange, Lemon and Banana are grown as commercial crops in Andhra Pradesh.

2.2 Mangoes are grown traditionally in West Godavary district of Andhra Pradesh state. The growth of Mango orchards was massively increased in the recent past with the liberal finance provided by the National Bank for Agriculture and Rural Development. The finance provided for the Mango orchards in the recent past has gone upto Rs.158.80 lakhs covering an area of about 2320.00 hectares.

2.3 There is about 26000 hectares of Mango gardens in West Godavary District. Out of this area, 9303 hectares of mango gardens are situated in Dwaraka Tirumala, Kamavarapukota, Nallajerla Mandals which includes 3000 hectares of recently planted orchards. Taking into consideration, an average production of 3 Tonnes per hectare, the total estimated production will be around 19000 tonnes immediately and 9000 tonnes within a period of 5 years. The value of the crop according to the present market rate is about Rs.226.70 lakhs. The upland area with limited facilities of irrigation and red sandy soil is more suitable for raising the mango orchards. Growth of mango orchards has generated additional income to the farmers inspite of the occasional crop failures, thereby encouraging the farmers of the upland area of the district for opting for raising of mango orchards commercially to improve their economy. The area under cultivation of mango crop was almost doubled since 1985 and the farmers are taking more interest to improve the quality as well as the quantity of the fruit to suit the requirements of various marketing

centres in the country. In view of the above, the income generated through horticulture is much more higher than any other crop.

2.4 Dwaraka Tirumala is situated in the eastern part of the West Godavary District abutting Krishna, Khammam and East Godavary Districts of Andhra Pradesh. The command area taken for the proposed project is Dwaraka Tirumala, Kamavarapukota and Nallajerla Mandals with an area of about 301.40 Sq.Kilo Metres. The population in the area as per 1981 census is 1,34,576 residing in 42 revenue villages. Out of the total population of 134576 about 15522 accounted for 11.53% are directly engaged as agricultural labourers and another 10190 are labourers with a percentage of 7.57%. The density of populatioin is 187 per sq. kilo metre.

2.5 The area comprises of hills, undulated lands and vast plains. The soil in major part of the area is red sandy which attracts commercial crops

while a small portion in the river bed is alluvial. The percentage of cultivated area accounts for 54.1% of the total geographical area, 4.7% of the geographical area is covered by forests.

2.6 Atleast another 15 to 20% of the geographical area can also be brought under cultivation in near future. Major part of the irrigated area is fed by tanks, bore wells and lift irrigation. The percentage of small and marginal farmers in the area is considerably high. The average rain fall in the area is 1070.9 MM.

2.7. Area of the Project:-

It is proposed to instal the Project at Dwaraka Tirumala situated in Dwaraka Tirumala Mandal, West Godavary District of Andhra Pradesh taking into consideration of the following factors for location of the project:-

a) Nearness to raw material:-

Dwaraka Tirumala is the centre of the proposed command area of the project and all the villages in the command area are within a radius of 5 to 35 K.Ms. All the command area is in the habit of growing Mango gardens. The raw material is abundant for the proposed fruit processing factory.

b) Transport facilities:-

The villages around Dwaraka Tirumala are covered by motorable roads. The distance from Eluru Railway Station is 35 K.Ms. while it is 19 K.Ms. from Bhimadole Railway Station. As such, the cost of transportation will remain fairly low in proportion to the total cost. Since the Railway Stations are also nearer to the Project area it is easy to transport the finished product to the consumer point.

c) Nearness to market:-

At times, it requires to procure the raw material from the markets also for which there is a big mango market at Jangareddigudem within a distance of about 26 K.Ms., another Market at Eluru within a distance of about 35 K.Ms. With regard to market for disposal of finished product, it is proposed to market the finished product through NAFED till such time that the society could arrange the marketing contacts with potential exporters in the Gulf countries as well as the domestic consumers such as Juice Factories and Defence Departments etc. Thus, the markets for the purpose of raw material supplies are near to the area and there are no chances of damage or spoil of the raw material.

d) Availability of labour:-

There is abundant labour force in the area of operations of the project area. There are about 33850 agricultural labourers besides 10190 other labourers in the command area of the project. Since the working season of the project is a slack season for agricultural operations

there will not be any problem for the availability of labour. Moreover, the project will not require much skilled labour except a few in number. Thus the labour available locally can be utilised for the project especially female labour for the purpose of sorting and preparation.

e) Availability of fuel and power:-

The proposed area of the project is fully electrified and it is proposed to instal a Generator with a capacity of 50 K.V. as a standby to the supply of power by the State Electricity Department. The furnace oil required for the Boiler to produce heat for steam generation is also available without any difficulty. Therefore there is no problem for supply of fuel and power.

f) Availability of water:-

According to the reports of the Ground Water Department, there is abundant resources of under-ground water flow and it is proposed to take up the digging of a deep well bore for the project towards water supply.

:: 10 ::

g) Climatic conditions:-

The working of the project will not depend on specific climatic conditions and it is not necessary to think about the suitability of the climatic conditions.

h) Financial and other aids:-

With regard to financial needs for the project, it is proposed to issue Equity Capital from members and loan from N.C.D.C. for the Block capital. The District Cooperative Central Bank Ltd., Eluru is ready to finance the working capital requirements of the project. Since the society which is going to establish the project, Dwaraka Tirumala Large Sized Cooperative Society is a sound cooperative and as it is already engaged in mobilising rural savings, it can also improve its deposits position by the time the project launches.

2.8 Further, there is no similar processing factory in the surrounding area. The project will not face with the problem of competition. Further many of the farmers wish to have such a project so that they can get a better price for

.....11.

their crop. The local labour is also interested in establishment of the project since it can absorb atleast 200 unskilled labourers in the working of the project. At Dwaraka Tirumala, there is a branch of the Andhra Bank where services can be utilised for its banking purposes. It is easy for the society to acquire the land required for the project in the area.

2.9 Thus the project area satisfy all the requirements for localisation of the Fruit Processing Factory.

2.10 By establishing the project, it is possible to ameliorate the economic condition of the farmers in the area by ensuring reasonable price and income. On the other hand, the farmer will also have the advantage of securing all the required inputs and technical guidance to increase the productivity by the assistance provided by the society in the area.

2.11 By launching the proposed project, the farmers will be benefitted in the following ways:

- i) Increase the productivity;

ii) Savings on cost of inputs since the cooperative will supply inputs to him at reasonable rates.

iii) Since the project established by the cooperative is purchasing his production, remunerative rate can be ensured for the output besides savings in the transport cost.

2.12 Problems faced by the farmers:-

The farmers growing mango gardens are facing many problems right from the plantation of the gardens as enumerated below:-

i) Farmers are not sufficiently educated about the plant protection, disease control and organic practices. Though there is a horticulture department of the State Government, the technical guidance provided to the farmers is not adequate.

ii) The farmers were exploited by the private traders in the market in many ways.

2.13 One of the main exploitation is buying the crop at the flowering stage. Generally, most of the farmers unaware of the value of their product

and rates prevailing in different markets in the country which tends to bring less return to their product. Further, the buyer will not pay the entire amount at the time of purchase but pay in instalments and he will try to avoid making payment in full after harvest with a plea that he sustained loss.

2.14 Similarly, they are suffering with the malpractices made by the mediators and the commission agents in the mandies. When the farmer takes his produce to the market it will be put to auction and the fellow who conducts the auction will collude with the whole-saler and see that the farmer will not get a fair price. Further, he will charge exorbitant commission on the sale proceeds besides the market cess, charity and other charges. By this practice also, the farmers are not getting a fair price to their product.

2.15 Above all, the farmers have to bear the cost of transportation of his crop to the market.

2.16 Many of the farmers cannot afford to go for distant markets where the rate for his product may be high due to lack of market intelligence.

2.17 The mango fruits cannot be stored so as to get better price since they are perishable. So, they were forced for distress sale in the absence of a processing project of their own on cooperative principles to protect them from all set-backs enumerated above.

2.18 Justification for the project:-

Due to the availability of the mango fruits at present and due to the set-backs of the farmers, it is necessary to organise a processing plant on cooperative lines with the active participation and involvement of the farmers to ensure them a remunerative price and to save them from the exploitation of the private traders.

2) Since the processing itself is a value adding method, the major portion of the additional income can be passed on to the farmers who are the growers of those mangoes.

3) With the establishment of the the processing activity the labour in the area can be provided with employment opportunities to a considerable extent since it is agro-based and a labour oriented industry.

4) Since the project pays remunerative price to the farmers there is possibility for increasing the extent of the cultivation of mango orchards.

5) Since the cooperative is establishing the project, it can give guidance to the farmers at every level for increasing the productivity.

6) Establishment of processing unit will give scope for the establishment of subsidiary industries like packing, cartons, cans etc., which will provide additional employment indirectly.

7) Since it is an export-oriented industry the country can earn foreign exchange.

8) The additional income likely to be generated by the establishment of the factory

:: 16 ::

will improve the economic conditions of the farmers in the area which will improve the scope for savings.

9) Since the processing unit is proposed to be established in corporative sector the surplus earned in the form of profits may be utilised for the welfare of the members.

C H A P T E R - III. - p r o j e c t.

3.1 Objectives:-

The main objective of the project is to increase the productivity and income of the mango growers of Dwaraka Tirumala, Kamavarapukota and Nallajerla Mandals of West Godavary district. The objective will be achieved in the following manner:-

1) To improve the productivity through extension education on technical know-how, plant protection, disease control and supply of agricultural inputs at reasonable prices.

2) To establish a nursery for supply of qualitative plants to farmers.

3) To provide processing facilities for value addition.

4) To motivate the mango growers by giving incentives on their supplies as share-in-surplus.

5) To improve the national income and foreign exchange earnings.

6) To strengthen the horizontal integration by developing the linkage between sister cooperative institutions and farmers in the form of input supply, procurement and farm extension.

7) To have a close relationship among the farmers for their collective benefit.

8) To have backward integration such as supply of fertiliser, pesticide, agricultural implements, extension services, farm guidance and other needs of the farmers for cultivation of mango.

9) To conduct research on the usage of the waste material of the mango i.e., the seed and peel of the mango.

10) To diversify the processing activities to other fruit crops available in the district in a phased manner to maximise the returns on the investment on the project and to utilise the rated capacity of the plant.

AREA OF OPERATION

3.2 The project is proposed to be installed at Dwaraka Tirumala by the existing Larger Sized Cooperative Society. Dwaraka Tirumala is an important pilgrimage centre regularly visited by

1000 to 2500 pilgrims. The project's command area consists of 3 revenue mandals viz., Dwaraka Tirumala, Kamavarapukota, Nallajerla where abundant supply of mangoes is available. The project is proposed to cover the above 3 mandals as the area is quite suitable for raising mango gardens.

POSSIBILITIES OF GETTING BASIC FACILITIES FROM

THE AREA:

3.3 Land and Buildings:-

The project requires one hectare of land which can be acquired by the existing cooperative at reasonable price. There is no problem for construction of the building since the man-power required is available locally. The society has already constructed 3 godowns of 250 M.T. capacity and one godown with a capacity of 100 M.T. capacity for storage of agricultural inputs under the World Bank Aided Project. The society is also proposing a Diesel Bunk at its headquarters shortly.

3.4 Electricity:-

Three Phase electricity facilities are readily available. As an alternative, it is proposed to instal a 50 K.V. Generator also.

3.5 Water:-

Plenty of ground water is available in the area as per the water tables of the Ground Water Department.

3.6 Raw Material:-

Mango fruits are available sufficiently from the command area. Since, only a part of the total production is proposed to be utilised for the units any marginal fluctuations in the production is not adversely affect the functioning of the unit.

3.7 Transport:-

The command area is linked with motorable roads and the raw material can be transported with minimum cost.

3.8 Labour:-

Unskilled labour to the extent required can be secured locally without any difficulty. Few skilled persons required can also be secured through Employment Exchange.

PROJECT COMPONENTS:-

3.9 Processing:-

The project includes a fruit processing unit which can process 2 tonnes of quantity per

hour. Working hours per day is expected to be 20 hours and processing target per day is 40 tonnes of mangoes. The expected working days of the unit in an year are 90 with a processing target of 3600 tonnes of mangoes. As such, it is proposed to purchase 3600 tonnes of mangoes per year and the expected recovery of the mango pulp is 50% of the raw material i.e., 1800 tonnes.

3.10 Plant and Location:-

The location of the processing plant would be at the headquarters of the society which is centrally located in the raw material producing areas and connected by motorable.

3.11 Farm guidance:-

In order to supplement the existing farm guidance provided by the Government Agencies, it is proposed to have a separate farm guidance cell comprising of one Horticulture Extension Officer and 3 Extension workers in the society who can guide the farmers in adopting better agricultural practices and increase the productivity of mango orchards, improve the system of irrigation, encourage interculture in plantation between 1 to 6 years. For the lean season, it is proposed to conduct training to the farmers in their respective villages and arrange visits to demonstration plots.

3.12 It is also proposed that the society will provide plants to mango growers at a reasonable cost by establishing a nursery by the processing unit for which an amount of Rs.50,000/- is provided per year. At present, the plants are being supplied at Kadiyam and Nuzuvidu Nurseries whose quality is not ensured which are at a distance ranging 70 to 100 K.Ms. Since the unit is likely to pay an amount of Rs.1,600/- per tonne as against Rs.1,000/- to Rs.1,200/- they are getting at present, the growers will be benefitted by an additional income of Rs.400 to Rs.600 per tonne. In turn, the society will make arrangements for establishing market both within and outside the country such as gulf countries where there is greater demand by giving due publicity.

3.13 Processing Potential:-

The cost of the project would be as follows:-

<u>Item</u>	<u>Cost.</u>
Land & Civil works	14.45
Plant & Machinery	16.20
Furniture & fixtures	1.00
Spares	0.50
Provision for price escalation.	3.21

	35.36

3.17 The pre-operative expenses for obtaining licences, preparation of plans, estimates, civil works supervision charges, taxes etc. are estimated at Rs.1.50 lakhs and this amount also will be recouped within a period of 10 years.

SETTING UP OF THE BY-PRODUCT INDUSTRY AND
DIVERSIFICATION.

3.18 The society after establishing itself in processing of mango pulp and its marketing will study the feasibility for establishment of processing plants for utilising the left over capacity by diversifying its activities such as manufacture of zams, soft drinks etc. There is every possibility for preparing zam and soft drinks by the proposed project, taking into consideration, the market demand from the 4th year of the installation.

CHAPTER- IV.

DETAILS OF PROJECT IMPLEMENTATION.

4.1 Processing activities:-

The society shall submit project report to the State Government, N.C.D.C. and the District Cooperative Central Bank to get the project sanctioned immediately. The civil works, installation of plant and machinery shall be completed by March 1990. In the meanwhile, it has to take agreements with the farmers for supply of raw material as well as with the NAFED for marketing of its finished product with a view to ensure uninterrupted supply of raw material and assured market for its finished product. Recruitment of the key personnel has to be completed by the time of completion of the unit. A time schedule of the project implementation is given in Annexure.

4.2 Preliminary expenses:-

Though the society is already in existence and running on sound lines with an average profit of Rs.50,000/- per year, a provision of Rs.1.50 lakhs has been made in the project cost towards pre-operative expenses. The society is already having a trained Chief Executive to manage the affairs of the society. The preparation and

submission of the project report is easy for the society as the Chief Executive can make necessary arrangements for that purpose.

4.3 Capacity utilisation:-

The processing plant will be utilised in the production of mango pulp. The capacity of the plant will be 2 tonnes per hour with an average utilisation of 40 tonnes per day in 3 shifts and the total working days per year will be 90 days. Thus the total capacity for year is 3600 M.Tonnes. The capacity utilisation in the operation period is worked out to 83.5%. The life of the plant is 15 years.

4.4 Process:-

The fruit pulp is extracted from the fully matured ripened fruits. The process of the pulp in the plant is divided into various operations are broadly given hereunder:-

- Fruits receiving, weighing,
- Ripening of the fruits matured,
- Sorting the fruits ripened and sending for processing,
- Washing the mangoes,
- Cutting the mangoes and supply to
conveyor,

- Pulp extraction,
- Pulp sterilisation
 - Can reforming.
 - Flanging
 - Bottom seal
- Can filling
- Sterilisation of cans
- Cooling the cans
- Storage.

4.5 Receiving of fruits and weighing:-

The Horticulture Officer and the workers in his control will regularly visit the villages in their charge in the command area and advise the farmers to pick the mangoes and supply them to the plant as per the agreement obtained from them or he will give a permit for picking of the mangoes and supply to the factory. For this, the Horticulture Specialist must get himself satisfied about the maturity of the mangoes before issue of that permit.

4.6 The farmers will pick the mangoes and supply them to the factory by the transport arrangement available. Immediately after receipt of the mangoes, the quantity along with the transport vehicle will be weighed at the gate of the plant wherein the Weigh Bridge is installed.

After supply of the mangoes in the return, the empty transport vehicle will be weighed again and the net weight supplied by the farmer will be arrived and a acknowledgement in token of the receipt of the mangoes will be handed over to him. The farmers will receive the payments after surrendering the supply acknowledgements.

4.7 Ripening of the matured mangoes:

The mangoes supplied by the farmers will be kept in the ripening shed where 50 workers will work for ripening of the matured mangoes. The workers in the ripening sheds will regularly sort the mangoes, find out the mangoes ripened and supply them to the processing plant. In these sheds only, the workers will take care for rejection among the mangoes. Ripening of the mangoes will be done by covering them with grass generally and the matured mangoes will be ripened in 2 to 4 days. For finding out the ripened fruits they will be sorted out regularly i.e., every day.

4.8 Washing of the Ripened Fruits:-

The ripened fruits received in the plant will be placed in the washing tanks. Here the washing tanks will be constructed in the plant itself. The workers in the plant will wash the fruits with the fruit washers. During the course of washing, the fruits inspection will be made and the spoiled and damaged fruits, if any, will be rejected. Then the blanching of the fruits will be done and the quality fruits will be sent to the cutting tables.

4.9 Cutting the Fruits:-

When the fruits are received by the workers at the cutting table, they once again inspect the fruits and score the mangoes with the knives and they will trim the mangoes for conveying them to the elevator. At the time of scoring and trimming also, the spoiled and damaged fruits, if any, will be rejected.

4.10 Pulping:-

The mangoes scored at the cutting table will be handed over to the elevator. The elevator will take mangoes to the pulper which will make the pulp. In the pulping machine only, the peel, stones, seed and other material will be rejected and they will be sent outside

through a separate channel. There will be two pulping machines in the plant. One pulping machine will extract coarse pulp and send it to another pulping machine which will extract fine pulp. Then the fine pulp will be stored in a stainless steel storage tank from where it will go to the pasturiser for pasteurising.

4.11 Sterilisation of the Pulp:-

The fine pulp kept in the storage tank will be sent to the pasteurising machine where the fine pulp will be sterilised at 90 F.H. through the steam generated from the Boiler. Then the sterilised pulp will be sent to the insulated pulp tank. The sterilisation of the pulp is made to remove the moisture content.

4.12 Can Reforming:-

The empty cans will be supplied in the folding stage along with two lids for each can. So the can reforming will be made by the can reforming machine. Then the shape of the can will be moulded in rounded shape.

4.13 Flanging:-

Flanging of the cans will be made by the flanging machine so that the two lids of the can be sealed after flanging. Flanging is nothing but making the tin or the can suitable for sealing.

4.14 Bottom Seal:-

After flanging the can, the bottom of the can will be sealed with the help of the sealing machine. At this stage, the cans will be cleaned carefully since they have to be filled with the pulp.

4.15 Washing and Sterilising:-

After the bottom seal of the cans they will be sterilised with the steam generated by the Boiler; once they will be washed and then they will be sterilised.

4.16 Can Filling:-

The sterilised cans will be sent to the automatic can filler where they will be filled with the pulp and immediately after filling of the pulp the can will be sealed. Since the cans were filled immediately after sterilisation there will be heat with them.

4.17 Cooling:-

The sealed cans will be cooled in the cooling tanks by placing them in iron crates. The iron crates will place them in a cool tank which is provided in the plant itself. After cooling, the filled in cans will be removed from it.

4.18 Storing:-

The cooled cans will be stored in the godown provided for storing. The cans have to be stored carefully in an order according to the date of manufacture.

4.19 Sales Realisation:

Since it is proposed to arrange marketing of the finished product through the NAFED for an assured market for the present, it is assumed there will be a time gap of 30 days between the date of despatch of the finished product and the actual realisation of the sale proceeds. As such, the working capital required for the plant is estimated for one month's cycle.

4.20 Depreciation:-

Keeping in view the accounting principles, the depreciation on land and building has been

made at 10% and also 10% in respect of plant, machinery, furniture and fittings. The depreciation proposed is also admissible according to the Income Tax Act. It is proposed to depreciate the assets in the straight line method so that the plant and machinery's value can be made nil during the project period.

4.21 Period of the project:-

Life of the plant has been estimated as 10 years though the actual life will be much more according to the enquiries. Thus, the period of project is fixed for 10 years.

CHAPTER- V.

5.1 Organisatiion & Management:-

The Project will be implemented by the Dwaraka Tirumala Large Sized Cooperative Society which is established under the statute of Government of Andhra Pradesh.

5.2 The objectives of the society are enumerated below:-

1. To issue loans to its members for Short Term, Medium Term and Long Term purposes,
2. To procure agricultural inputs required for the members and supply them,
3. To encourage thrift among members. To raise funds from members, non-members and other institutions and deploy them for the utilisation of members,
4. To distribute consumer goods to the members and non-members,
5. To own godowns or rented godowns for storage of the members produce,
6. To collect, grade, transport and sell the produce of members as agent to the District Cooperative Marketing Society or the Government,

7. To introduce banking habits in the rural area and conduct banking business approved by the financing bank,

8. To sanction loans to non agriculturists and rural artisans to improve their economy,

9. To establish cottage and small scale industries and to finance for such industries,

10. To purchase improved agricultural implements, oil engines, pump sets, tractors and hire them to the members,

11. To own processing units and hire them to help the members for increasing their productivity,

12. To collect the produce of the members received on non-farm sector, dairy, pisciculture and small scale industries and sell them through other cooperative institutions,

13. To establish branches in the area of operations of the society with the prior permission of the Registrar,

14. To take up the activities conducive to achieve the objects of the society and to improve the economy of the members.

5.3 As seen from the objectives of the society, according to its registered bylaws, the establishment of mango processing plant is within the purview of the bylaw provisions. By establishing the proposed project, the society will have an important task of providing backward, forward and horizontal linkages to the farmers in the following manner:

5.4 Backward linkages:-

The main aim of the society is to save the farmers from the exploitation of the private traders by minimising the farmers risks and increasing the productivity by giving the services like regular supply of agricultural inputs and farm guidance to the farmers at reasonable cost as well as imparting training to the farmers.

5.5 Forward linkages:-

The main aim of the society is to add value to the produce of the farmers through taking up the activities of post-harvest marketing, transport, processing, packing and distribution of the processed finished goods with the help of other cooperative viz. NAFED.

5.6 Horizontal linkages:-

The main aim of the society in this aspect is to develop self-reliant farmers organisation for which the society is taking timely decisions, controlling the quality processing the produce and make the farmers sharing the profit and achieving the overall development of the society and its member-farmers. At present, the society is running on sound lines with a working capital of Rs.1,09,09,048/-. The average profit of the society is around Rs.50,000/- per year from the last 5 years. The total membership of the society is 2501 as on date, with a paid up share capital of Rs.6,56,603/-. The society is managed by a veteran cooperator as its president who is taking keen interest in all respects in the affairs of the society. He is a dynamic man who can improve the society to such a stage and the proposed project can also be prospered under his able leadership.

5.7 The overall management policies will be regulated by the Managing Committee. The present Managing Committee consisting of 12 members was an elected committee. The members of the managing committee are regular in attending the meetings and sharing interest in the development of the society with devoted involvement.

5.8 Sufficient staff were already recruited by the society to its present needs and it is running smoothly. The society has to recruit fresh staff for the proposed project and allot them suitable work for successful running of the unit. The relationship among the employees and the management are cordial. The project will require the following staff for its operation and other allied activities:

Production Plant Manager	1
Chemist/Food Technologists	3 Of one Asst. Production Manager & one is an Assistant Marketing Manager.
Boiler Attender	1
Mechanic	1
Horticulture Officer	1 Attenders 2
Horticulture workers	3 Security guards 3

The project also require the services of 3 more Secretarial staff during the working season besides labour force.

5.9 The policy decisions on the operation of the project will be taken by the Managing Committee of the society while the Plant Manager who is the Chief Executive of the plant will be vested with the day-to-day management for successful running of the unit. The Plant Manager will coordinate all the departments of the plant and will have overall control over the other departments. The Assistant Production Manager will be kept incharge of the plant. He will look after the running of the plant regularly without any interruption.

5.10 The Assistant Marketing Manager will watch the market of the raw material and arrange for supply of necessary raw material to the plant with the assistance of the Horticulture extension officer and horticulture extension workers. He will have control over the horticulture extension staff in the working days of the factory. Further, he will look after the despatch of the finished product to the NAFED at regular intervals and see that the sale proceeds

are received in time. For this purpose, he will take the assistance of the accounts department. He will also look after regular payments to the farmers towards the raw material supply. He will also keep watch on the similar products of their competitors in the market.

5.11 Food Technologist & Chemist:-

He will be under the control of the Plant Manager and he should see that quality is maintained for the pulp the unit manufactured. He has to take the specifications of the finished product from the Marketing Manager and process the pulp according to the specifications given. He should hand over the sealed tins to the Store Keeper when he is relieved from his duty.

5.12 Accounts Department:-

This department will be headed by an Accountant assisted by 2 office assistants of whom one will be kept at the weigh bridge for weighing the raw material received. The accounts department should assist the Assistant Marketing Manager in settling the accounts of raw material suppliers and in getting the invoice amounts from the consumers of the finished product. This department should also maintain regular accounts for the purchases,

sales, inwards and outwards of the plant. All the accounts will be prepared by this section.

5.13 Horticulture Division:-

The horticulture division will give the farm guidance to the farmers in the off-season about the inputs they have to use for increasing the production. They have to render all extension education to the mango growers in respect of irrigation, diseases control etc. They must arrange farmers group meetings and teach them the improved methods of mango cultivation. In the season, they have to visit the fields of the farmers and arrange for supply of matured fruit to the plant. They are also responsible for increasing the area under cultivation, production of mango gardens for which a scheme of supply of mango plants is envisaged in the project. The sole purpose of the intensive approach is to provide backward linkage to farmers for increasing their productivity. They must keep close liason with Assistant Marketing Manager and the Assistant Production Manager for procurement of members produce in maintaining the time schedule for

harvesting and keeping the processing plant running for the period expected. The horticulture department has to conduct training classes to the farmers and impart training on the latest cultivation methods with saving in cost to ensure productivity. This department is also responsible for the maintenance of the nursery of mango plants. The department itself has to maintain the supply of qualitative mango plants to the farmers.

5.14 The Boiler Attendant is incharge of the boiler and its maintenance. He should see that the boiler generates the necessary steam and he must have close contact with the Assistant Production Manager.

5.15 The security staff will take precautions in the respect of the security of the plant and the attenders will assist the office staff as well as the staff working in the plant.

B E N E F I T S :-

5.16 By undertaking the processing activity, the interest of the mango growers is keenly taken care of by rescuing them from the exploitation of the private traders with all

their malpractices. From the beginning itself, it is proposed to pay a reasonable price of Rs.1,600/- per tonne to the farmers which is above 50% of the present rate. So this is an important economic benefit to the farmer members.

5.17 Further, though it may not be possible to pay bonus on the supply of raw material in the initial years it may also be possible to pay bonus to the farmers who supply raw materials (i.e., share in the profit) after liquidating the debt raised by the plant to a considerable extent.

5.18 Since the purchase price is huge, farmers generally try to grow qualitative fruits by taking all sorts of care in plant protection from the flowering stage of the orchards.

5.19 Thus by establishing the processing unit, objective to increase production of mango fruits, to process and preserve them will be fulfilled.

5.20 By locating the project in an upland area, there will be a direct contribution to the entrepreneurial and industrial development.

5.21 The farmers who supply their raw material will minimise their transport cost also since the present project is very near to their production area rather than the distant markets at Eluru or Vijayawada.

5.22 Since provision has been made by the society for horticulture extension staff there will be a regular watch on the upkeep and maintenance of the existing mango gardens.

5.23 As the present object is processing a considerable quantity of the production at a reasonable price, it is possible to control the market and the members will receive a competitive price from the private traders also.

5.24 As a result of the establishment of the processing unit in the area, there is direct employment to the surplus labour during the working days of the unit i.e., for a period of 90 days. It is estimated that at least 150 to 200 seasonal workers with a combination of males and females is required during the working days for ripening, cutting and sorting of the

mangoes. So, there is possibility for the employment potentiality for the unemployed workers.

5.25 The permanent staff requirement in various departments i.e., technical and non-technical is estimated at 18 to 20. Thus, there is possibility for employing 20 persons in the above departments.

5.26 A good mango pulp supply will be assured to the consumers since the proposed project will maintain a standard quality in manufacturing.

5.27 Introduction of the processing plant by the local cooperative institution will facilitate better marketing alternative to the fruit growers and promote the spirit of cooperation in the area.

5.28 Additional plantation of mango gardens will be taken up as the project is a motivation to the farmers in getting assured minimum price in any periods.

5.29 The project will create a direct employment to the transporters also as the mangoes are to be transported from the place of production to the plant.

5.30 On the whole, the project will contribute to the improvement of the command area and give rise to the living standards of the farmers, workers besides helping to improve the national income as well as to secure scarce foreign exchange.

C H A P T E R - VI.

Financial Analysis.

6.1 It is assumed that the plants life is 10 years though it may work upto 15 years with some latest modifications and repairs. Procurement price of the ripened mangoes is estimated at Rs.1,600/- per M.Tonne. As against the total operating capacity of 2160 hours it is estimated that the plant will work for 1800 hours in an year keeping in view the breakdown to the machinery, lunch break and tea breaks to the staff. Thus, the plant utilisation worked out to 83.5%. Since the plant installed is 2 M.T. per hour capacity, about 3600 MTs of mangoes are required for the utilisation of the plant. The minimum recovery of the pulp is estimated at 50%. Thus, the total production of the pulp in an year is estimated at 1800 M.T. The price prevailing in the market is taken as the minimum price for its sales.

6.2 The investment cost of the project is estimated at Rs.36.86 lakhs while the operating costs are estimated at Rs.149.96 lakhs withan increase of 5% every year. Salvage value of the

land and buildings was assumed as nil at the end of the project while the salvage value of the plant and machinery, furniture and fittings is assumed at zero. The working capital requirement is partly met from out of the own resources of the society besides the working capital loan from the District Cooperative Central Bank to which it is affiliated for one operating cycle of one month. For the processed product mango pulp, the market channel for the present will be NAFED at 10% commission on sale in the initial period. The society can also conduct its sales directly without entirely depending upon the NAFED by conducting Market Survey.

6.3 The present inflationary trend if continued, will have impact on the costs as well as benefits. The repayment of the Block Capital Loan is scheduled in 5 years in annual equated instalments.

6.4 On the above assumptions and as per the profit and loss statement, it is assumed that the break even will be attained at the production 437 M.Tonnes with working days of 22 in an year with decreasing trend every year.

The pay back period is worked out to 2 years while it is proposed to repay the Block Capital loan in 5 years with a view to provide statutory reserves, declaring dividend on shares and also to increase its share in the Working Capital needs.

6.5 The net present value is worked out to Rs. 162.85 lakhs at 15% discount factor and the internal rate of return is worked out to 47.65%. The benefit cost ratio is worked out 1.18:1.

6.6 Sensitivity Analysis:-

Sensitivity analysis has also been taken assuming that there will be a 5% decrease in the sale price which reveals that the N.P.V. is 109.04 lakhs while the B.C.R. is 1.1:1 and the I.R.R. is constant. Presuming that there will be 10% increase in the operating cost, the N.P.V. was worked out to Rs. 74.78 lakhs while the B.C.R. is worked out to 1.07:1 and there is no change in the I.R.R. Another assumption of 5% fall in sales price and 10% increase of the operational costs reveals the N.P.V. as Rs. 20.97 lakhs while the B.C.R. worked out to 1.02:1. The I.R.R. at this assumption also worked out to 47.65%.

6.7 Economic Analysis:-

It may not be possible to measure the economic benefit in terms of money since the cost of the project is low and the command area of the project is extended only to a limited area. However, the project will give the following benefits to the farming community.

1. It will give raise to the production of qualitative mangoes which give a higher benefit than they are enjoying at present.

2. Since the society is maintaining a horticulture department and nursery, the yield per hectare can also be increased with the guidance of the technical staff and with the planning of the seed obtained from the society.

3. The mortality rate of the mango trees between 1st and 4th year can also be minimised as there is a continuous extension service from the horticulture department of the society. As a result of which, the productivity of mangoes can also be increased.

4. Establishment of project by the cooperative institution will automatically increase the price of the mangoes because of the pressure in the market and the monopoly of the

::51::

Private traders will be reduced to a larger extent as a result of which the farmer can get an increased price.

5. Because of the productivity, lease value and value of the land will be increased.

6. Additional employment opportunities will generate in the project as well as in the agricultural sector.

CHAPTER - VII.

BUDGET.

The budget for the 1st year of installation of the factory is given. The surpluses generated from the factory will be transferred to the society accounts every year.

<u>Receipts.</u>		<u>Payments.</u>	
Equity from members	7.36	Investment costs.	36.86
Loan from N.C.D.C.	28.00	Operational expenses	149.96
Seed capital from existing society	1.50	Loan instalment.	7.87
Revenue from sales	180.00	Tax 4000 + 40%	12.05
		Surplus to be carried as per the provisions of the Act by transferring to main society a/cs.	10.12
	-----		-----
	216.86		216-86
	-----		-----

1. The Block Capital loan will be repaid in 5 years in equated instalments.

2. Equity of the members will be raised after amendment of the bylaws suitably since the share value is proposed to be increased particularly.

CHAPTER - VIII.

RECOMMENDATIONS.

1. Taking into consideration, the growth of mango orchards in the project's command area, it is necessary to establish the processing plant at this centre, so that the farmers will be assured of a reasonable price for their product.

2. Strengthening the cooperative will make it possible to have an alternative for marketing of the produce of the farmer and save them from the exploitation of the private traders. So the N.C.D.C. should come forward and assist the project financially by providing the Block Capital Loan and technically for installation of the plant in the scheduled time.

3. The State Agriculture Department should give necessary assistance and guidance to the Horticulture Extension Staff of the society so as to enable them to enrich the farmers to adopt latest techniques in the growth of the mango gardens.

4. The management of the society should make all necessary arrangements in a phased manner so as to enable it to instal and commission the processing unit in time.

5. The processing unit should increase its production by processing more raw material so that the capital of the plant can be increased.

6. The District Cooperative Central Bank Ltd., Eluru should come forward to provide necessary working capital requirement to the processing unit.

7. The society with the help of the State Government should make tie up arrangements for the product with institutions like NAFED, Private Drink Manufacturers and Defence Services etc.

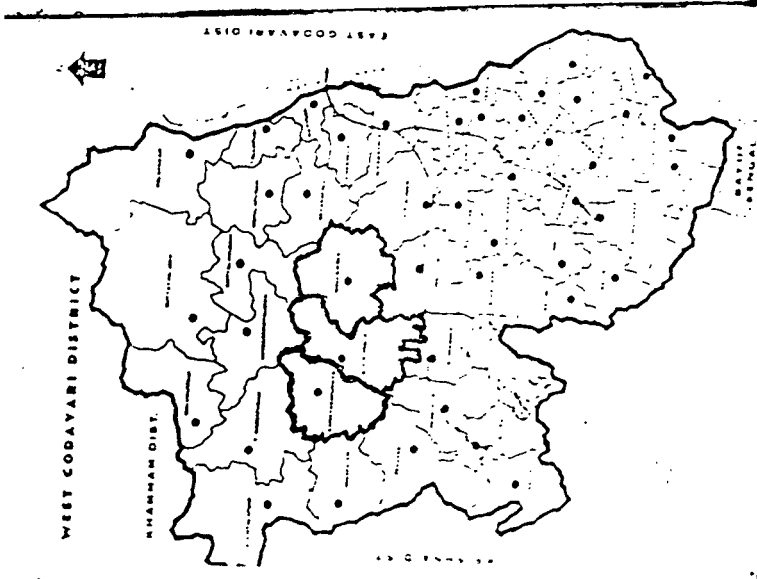
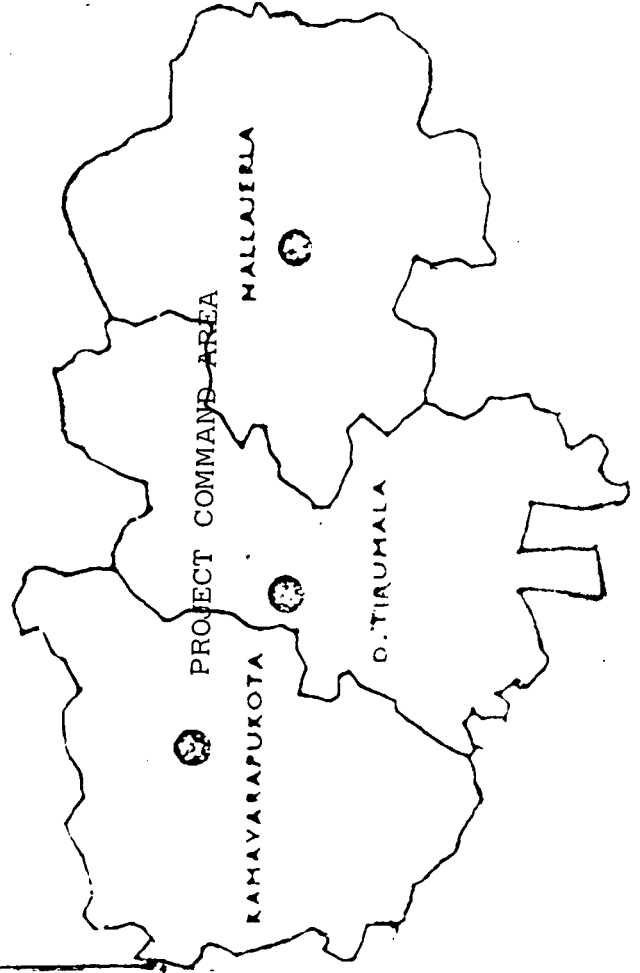
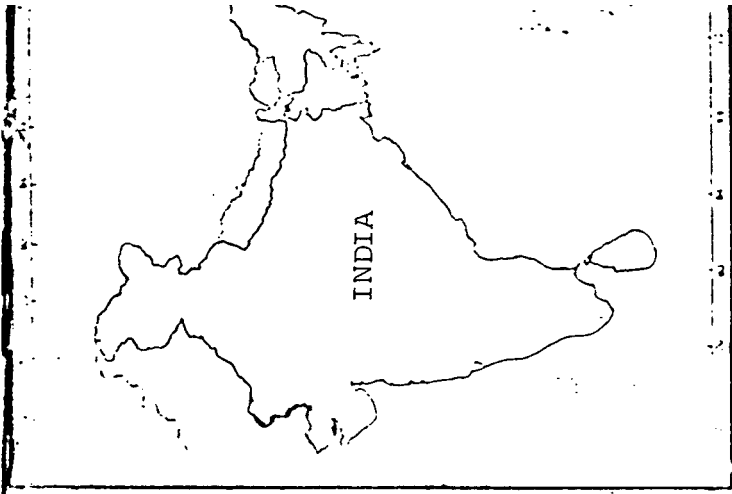
8. The State Government should help the society in obtaining the required licences for the processing unit.

9. The society should arrange for conducting necessary training to the farmers in developed techniques of horticulture cultivation.

10. The society should diversify its activities in all respects and the agricultural inputs required by the farmers should be supplied through it.

11. The society should purchase the agricultural implements such as sprayers, dusters etc. and hire them to the farmers at reasonable rent.

12. The financing Bank and the Cooperative Department should give all necessary guidance to the society as and when required.



ANNESURE: I.

RAIN FALL DURING 1975 TO 1988 IN THE COMMAND
AREA OF THE PROJECT:

S.No.	Year	Rainfall in MMS
1.	1975	945.5
2.	1976	1460.5
3.	1977	1481.1
4.	1978	854.1
5.	1979	1314.0
6.	1980	788.7
7.	1981	1097.5
8.	1982	1045.7
9.	1983	938.8
10.	1984	1344.9
11.	1985	815.4
12.	1986	1112.0
13.	1987	973.2
14.	1988	820.6

Source: District Planning office, Eluru.

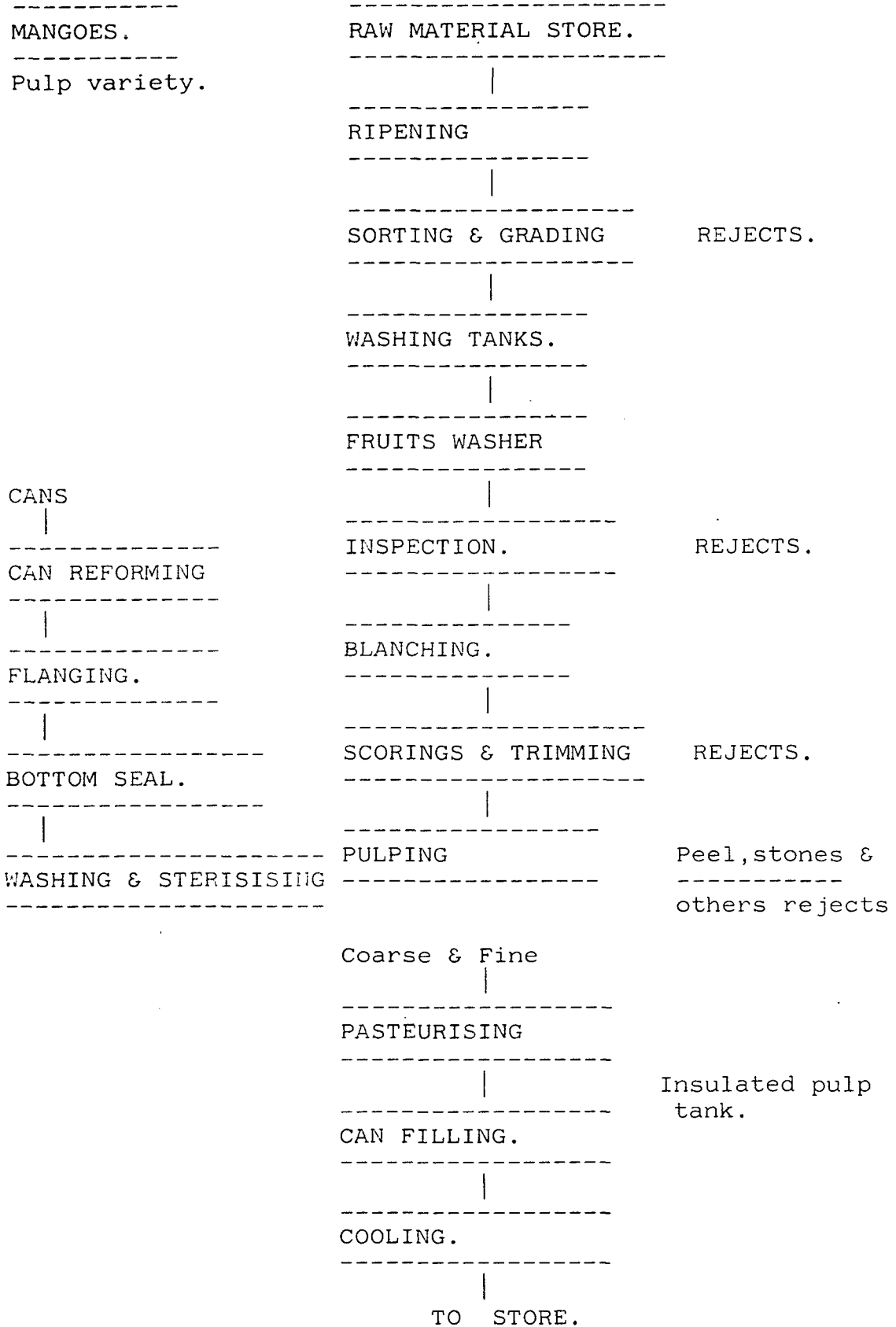
ANNEXURE: 2.

AREA UNDER FRUIT CROP CULTIVATION IN WEST GODAVARI DISTRICT & THE COMMAND AREA.

Name of the Crop	District	Area in hectors.			Total of the command Area	% of the District Total
		D.Tirumala mandal	K.kota mandal	Nallajerla mandal		
Mango	25772	4204	2047	3057	9308	36.1%
ORGANGE	1611	95	109	--	204	12.66%
LEMON	3202	577	568	128	1273	29.72%
BANANA	4283	112	28	--	140	3.27%
CASHEW	24976	2360	1578	2746	6684	26.76%
	59844	7348	4330	5931	17604	29.42%

Source: District planning office, Eluru, Mandal development offices Dwarakatirumala, Kamavarapukota & Nallajerla.

CANNING OF MANGO PULP - FLOW CHART.



Pre-operative expenses:

1. Salaries.	0.50
2. Registration charges.	0.30
3. Legal charges.	0.10
4. T.A.	0.30
5. Telephone, postage & stationery	0.15
6. Miscellaneous expenses.	0.15

	1.50

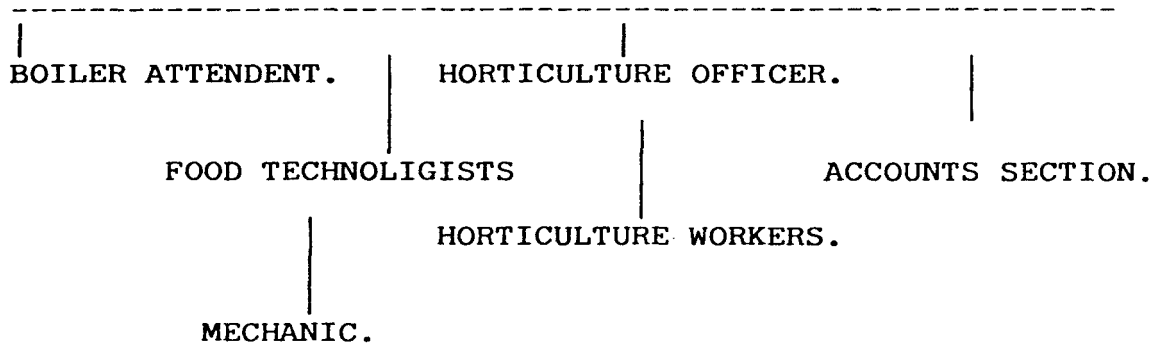
ORGANISATION CHART.

GENEAL BODY

BOARD OF DIRECTORS.

SECRETARY (CHIEF EXECUTIVE)

PLANT MANAGER



STATEMENT SHOWING THE ESTABLISHMENT COST (PERMANENT).

S.No.	Designation.	No.of posts.		Annual pay
1.	Plant Manager.	1	1x2500x12	30,000
2.	chemists/Food Technologists.	3	3x1500x12	54,000
3.	Boiler Attendant	1	1x1000x12	12,000
4.	Mechanic.	1	1x1000x12	12,000
5.	Security guards.	3	3x500x12	18,000
6.	Attenders.	2	2x500x12	12,000
7.	Horticulture officers.	1	1x1500x12	18,000
8.	Horticulture workers.	3	3x1000x12	36,000

				1,92,000

Seasonal staff and workers:

1.	Clerks.	3(4 months.3x1000x4	12,000
2.	Unskilled workers in the plant @Rs.15/-per day for 50 workers per shift in the plant.	50x15x3x90	2,02,500
3.	Unskilled workers in the ripening shed @Rs.15/- per day for 50 works in the sheds in day time only.	50x15x90	67,500

			2,82,000

DETAILS OF THE PROJECT.CAPITAL ITEMS:1.Land and Buildings:-

A) Land (locally available) Cost of one hectare land at Rs.2,00,000 land required 1 hectare.		2,00,000
B) Cost of plant shed. 50'0"x100'0"x16'0"@Rs.100/- per sq.feet (Ac.sheets roof)		5,00,000
C) Cost of storage Godowns Nos.2 2500 Sq.ft.25'0"x100'0"x16'0" Ac sheets at Rs.100 per sq.feet.		5,00,000
D) Cost of construction of office cum Laboratory building. 10'0"x10'0"x10'0" @Rs.100/-per sq.feet.		1,00,000
E) Cost of construction of 2 ripening sheds(Tatched roof).		1,00,000
F) 6" Bore well with 7.5 H.P.Motor.		45,000

		14,45,000

	Total:	-----

2.Furniture & Fixtures:-

Office Tables 3 x2 x5	4nos.	
Chairs	15nos.	50,000
Other fixtures	10nos.	

3.Electrical fittings & fixtures.

Fans	10nos.	
Lights	20nos.	50,000
Wires		

4.Plant & Machinery:-

A)Washing Tanks	2nos.	
10 x10 x3.6"	15,000	15,000
B) Preparation Tables		
Wooden table with covering		
Steel cap on top.	4nos.10,000	10,000

::2::

C) Elevator -Electric Motor. 3.H.P.Belt driven.	60,000	60,000
D)Pulpers:		
A) Coarse Jumbo Jet Pulper with 3H.P.Electric motor Belt driven capacity of 2Tonne/hour of Raw material consumption.	60,000	
B) Fine pulper Jumbo Jet with 3H.P.Electric motor belt Driven capacity of 2 Tonne/ hour of Raw material consum- ption.	60,000	1,20,000
5.Stainless steel storage Tank 250 Litres capacity.	1no.	25,000
6.Pasturiser 250 Litres capacity fitted with 1 H.P Motor belt driven	1no.	2,10,000
7.Automatic Pulp filler	1no.	2,50,000
8.Empty can sterilizer	1no.	50,000
9.Coveyar	1no.	35,000
10.Seaming equipment.	3nos.	1,20,000
11.Embossing Machine	1no.	20,000
12.Sterilisation tank.	1no.	40,000
13.Boiler 300Kg./hour steam output 7 Kg/cm. consuming 14 Litres of furnace oil.		2,50,000
14.Trays	50nos.	5,000
15.Cooling tanks with Iron crates and pulley.		60,000
16.Spares		50,000
17.Weigh Bridge 30 Tonnes capacity		2,00,000
18.Generator 50 K.V.		1,50,000

		32,15,000
Provisions for price Escalation (Contingencies) at 10%		3,21,500

Total project Cost:		35,36,500

	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year
1. Depreciation of land & building @ 10%.	1.44	1.44	1.44	1.44	1.44	1.45	1.45	1.45	1.45	1.45
2. Depreciation on plant, machinery & furniture and fittings @ 10%	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77
3. Interest on Block capital loan @ 12 1/2%	3.50	2.96	2.34	1.65	0.87					
4. Farm extension services - supply of plants.	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
5. Salaries of permanent staff with an increase of 10% per annum.	1.92	2.11	2.32	2.55	2.80	3.08	3.39	3.73	4.10	4.51
6. Miscellaneous expenditure.	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
	9.61	9.26	8.85	8.39	7.86	7.28	7.59	7.93	8.30	8.71

VARIABLE COSTS.

1. Variable cost of raw material @ 1600 per MT 3000 MT with an average raise of 5% p.a.	57.60	60.48	63.48	66.50	69.82	73.31	76.98	80.93	84.87	89.11
2. Utilities:- Furnace oil 14K.Gs per hour for season, with an assumed raise of 5% per annum.	1.15									
Electricity charges..	0.45	1.68	1.76	1.85	1.94	2.04	2.14	2.25	2.36	2.48
3. Salaries of seasonal staff:- Plant- 50 labourers @ 15% per day for 3 shifts.	2.02									
For repairing sheds - 50 workmen @ 15/- per day.	0.68									
Staff of office for 4 months (Assumed raise 5% per annum)	0.12	2.82	2.96	3.10	3.25	3.41	3.58	3.76	3.95	4.15
4. Chemicals & sugar @ 1.5% raw material value (5% increase per annum).	0.86	0.91	0.96	1.00	1.05	1.10	1.16	1.22	1.28	1.34
5. Annual overheads. (maintenance & repairs)	0.50	0.50	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.25
6. Packing material:- Tins 5.25Kgs. @ 12/- 3,43,000 Tins.	41.16									
Cartons @ 10/- for 85,750 cartons. (5% increase per annum)	8.58									
7. Transport cost Rs. 400/- per Mt. (5% increase per annum)	49.74	5223	54.84	57.58	60.46	63.48	66.65	69.98	73.47	77.14
	7.20	7.56	7.94	8.34	8.76	9.20	9.66	10.14	10.65	11.18
8. Interest on working capital required for one cycle on Rs. 30.00 Lakhs @ 16.5% from D.C.C.B and for remaining at 12%.	2.03	2.11	2.19	2.28	2.37	2.05	2.16	2.26	2.38	2.50
9. Marketing, selling & advertisement costs. (5% increase per annum)	18.00	18.90	19.85	20.84	21.88	22.97	24.12	25.32	26.59	27.92
Total:	140.35	147.33	154.62	162.39	170.44	178.73	187.63	196.95	206.75	217.28

STATEMENT OF PROFIT AND LOSS OF THE PROJECT.

	(Rupees in lakhs).									
	Ist year	IInd year	IIIRD year	IVth year	Vth year	VIIth year	VIIIth year	IXth year	Xth year	
1. Total Revenue: Expected production of 1800M.T. @Rs. 10,000/- per M.T. with 5% increase per annum.	180.00	189.00	198.45	208.37	218.79	229.73	241.22	253.28	265.94	279.24
2. Total costs: -a) Fixed costs b) Variable costs.	9.61 140.35	9.26 147.33	8.85 154.62	8.39 162.39	7.86 170.44	7.28 178.73	7.59 187.63	7.93 196.95	8.30 206.75	8.71 217.28
3.a) Surplus	149.96	156.59	163.47	170.72	178.30	186.01	195.12	204.88	215.05	225.99
b) Contribution.	30.04	32.41	34.98	37.59	40.49	43.72	46.00	48.40	50.89	53.25
c) Contribution per one M.T.	39.65	41.67	43.83	45.91	48.21	51.00	53.59	56.33	59.19	61.96
d) Break even point for production (MT).	2203	2315	2435	2551	2678	2833	2977	3129	3288	3442
e) No. of days required for reaching break even point.	437	400	364	329	294	257	255	254	252	253
f) Return on investment	22	20	19	17	15	13	13	13	13	13
g) Expected profit before tax	20.03%	20.70%	21.36%	22.01%	22.71%	23.50%	23.58%	23.69%	23.67%	23.54%
h) Provision for tax @ 40%	30.04	32.41	34.98	37.59	40.49	43.72	46.00	48.40	50.89	53.25
i) Expected net profit after taxation	12.05	13.00	13.99	15.08	16.24	17.53	18.45	19.40	20.40	21.32
	17.99	19.41	20.99	22.51	24.25	26.19	27.55	29.00	30.49	31.93

DISCOUNTED CASH FLOW STATEMENT.

	Ist year	IIInd year	IIIrd year	IVth year	Vth year	VIIth year	VIIIth year	IXth year	Xth year
Investment cost	36.86	-	-	-	-	-	-	-	-
Operational cost	149.96	156.59	163.47	170.72	178.30	186.01	195.22	204.88	215.05
Total:	186.82	156.59	163.47	170.72	178.30	186.01	195.22	204.88	215.05
Discount factor@ 15%	0.870	0.756	0.658	0.572	0.497	0.432	0.376	0.327	0.284
	162.53	118.38	107.54	97.68	88.62	80.36	73.39	67.00	61.07
BENEFITS:	180.00	189.00	198.45	208.37	218.79	229.73	241.22	253.28	265.94
Discount factor@ 15%	0.870	0.756	0.658	0.572	0.497	0.432	0.376	0.327	0.284
	156.60	142.88	130.58	119.19	108.74	99.24	90.70	82.82	75.53

N.P.V. = present worth of benefits at a discount factor - present worth of costs at the same discount factor.
 = 1075.25/912.41 = 1.18.
 B.C.Ratio = 1.18 : 1.00

Net surplus:	17.99	19.41	20.99	22.51	24.25	26.19	27.55	29.00	30.49
Discount factor@45%	0.690	0.476	0.328	0.226	0.156	0.108	0.074	0.051	0.035
Net present worth	12.41	9.24	6.87	5.09	3.78	2.83	2.04	1.48	1.06
Discount factor@50%	0.667	0.444	0.296	0.198	0.132	0.088	0.059	0.039	0.026
Net present worth	12.00	8.62	6.20	4.46	3.2	2.30	1.63	1.13	0.79

I.R.R. = Lower discount factor + Difference in both discount factors: $\frac{N.P.W. \text{ of L.D.F.}}{\text{Total N.P.W. of both discounts factors.}}$

$I.R.R. = 45 + 5 \left[\frac{45.56}{86.43} \right] = 50 \times 0.527 = 26.64 = 45 + 26.64 = 71.64\%$
 $I.R.R. = 47.64\%$

SENSITIVITY ANALYSIS:

Assuming Decrease of 5% sale Price:

	1	2	3	4	5	6	7	8	9	10	(years)
COSTS											
IC	36.86										
OC	149.96	156.59	163.47	170.72	178.30	186.01	195.22	204.88	215.05	225.33	
Total.	186.82	156.59	163.47	170.72	178.30	186.01	195.22	204.88	215.05	225.33	
DF at 15%	0.870	0.756	0.658	0.572	0.497	0.432	0.376	0.327	0.284	0.247	
N.P.W.	162.53	118.38	107.54	97.68	88.62	80.36	73.39	67.00	61.07	55.83	912.41
BENEFITS											
DF at 15%	0.870	0.756	0.658	0.572	0.497	0.432	0.376	0.327	0.284	0.247	
	148.77	135.73	124.05	113.22	103.30	94.27	86.16	78.68	71.74	65.52	1021.44
NPW: = 1021.44 - 912.40											
= 109.04											

B.C.Ratio = $\frac{1021.44}{912.41} = 1.11$

Net surplus:	12.58	13.74	15.02	16.26	17.69	19.30	20.34	21.40	22.52	23.51	
DF at 45%	0.690	0.476	0.328	0.226	0.156	0.108	0.074	0.051	0.035	0.024	
	8.68	6.54	4.93	3.67	2.76	2.08	1.51	1.09	0.79	0.56	32.61
DF at 50%	0.667	0.444	0.296	0.198	0.132	0.088	0.059	0.039	0.026	0.017	
	8.39	6.10	4.45	3.21	2.33	1.70	1.20	0.83	0.59	0.40	29.02

$IRR = 45 + 5 \times \frac{32.61}{61.63} = 45 + 5 \times 0.529 = 45 + 2.64$

$IRR = 47.64\%$

SENSITIVITY ANALYSIS - II.

Assuming increase to the extent of 10% in the operational costs

	Ist year	IIrd year	IVth year	Vth year	VIth year	VIIth year	VIIIth year	IXth year	xth year
I Cost	36.86								
COSTS	140.95	179.82	187.88	196.13	204.61	214.71	225.37	236.54	248.63
Total	201.81	179.82	187.88	196.13	204.61	214.71	225.37	236.54	248.63
DF at 15%	0.870	0.658	0.572	0.497	0.432	0.376	0.327	0.284	0.247
N P W of COSTS	175.57	118.32	107.47	97.48	88.59	80.73	73.70	67.18	61.41
BENEFITS	180.00	198.45	208.37	218.79	229.73	241.22	253.28	265.94	279.24
DF at 15%	0.870	0.658	0.572	0.497	0.432	0.376	0.327	0.284	0.247
N P W of benefits	156.60	142.88	119.19	108.74	99.24	90.70	82.82	75.53	68.97
N P V	1075.25-1000.47 = 74.78								
							B C Ratio	1075.25/1000.47 = 1.07 = 1.07:1	

NET SURPLUS	8.99	10.01	11.14	12.25	13.56	15.03	16.71	17.60	18.33
DF at 45%	0.690	0.476	0.328	0.226	0.156	0.108	0.074	0.051	0.035
N P W	6.20	4.76	3.65	2.77	2.11	1.62	1.17	0.85	0.62
DF at 50%	0.667	0.444	0.296	0.198	0.132	0.088	0.059	0.039	0.026
N.P.W.	6.00	4.44	3.30	2.43	1.79	1.32	0.94	0.65	0.46

$$I.R.R = 4.5 + 5 \times \frac{24.79}{45.83} = 4.5 + 5 \times 0.527 = 4.5 + 2.64 = 7.14\%$$

SENSITIVITY ANALYSIS:

Assuming 5% fall in sale price and 10% increase in operational costs.

	1	2	3	4	5	6	7	8	9	10
I.C.	36.86									
O.C.	164.95	172.25	179.82	187.88	196.13	204.61	214.71	225.37	236.54	248.63
Total:	201.81	172.25	179.82	187.88	196.13	204.61	214.71	225.37	236.54	248.63
DF at 15%	0.870	0.756	0.658	0.572	0.497	0.432	0.376	0.327	0.284	0.247
N.P.W. of costs.	175.57	130.22	118.32	107.47	97.48	88.39	80.73	73.70	67.18	61.41
Benefits.	171.00	179.55	188.53	197.95	207.85	218.24	229.16	240.62	252.64	265.28
DF at 15%	0.870	0.756	0.658	0.572	0.497	0.432	0.376	0.327	0.284	0.247
NPW of Benefits.	148.77	135.73	124.05	113.22	103.30	94.27	86.16	78.68	71.74	65.52
N.P.W = 1021.44 - 1000.47 = 20.97										
B.C Ratio = 1021.44/1000.47 = 1.02										

1.02:1.00

Net Surplus:	3.59	4.34	5.19	6.00	6.99	8.14	8.63	9.11	9.62	9.95
DF of 45%	0.690	0.476	0.328	0.226	0.156	0.108	0.074	0.051	0.035	0.024
	2.47	2.06	1.70	1.36	1.09	0.88	0.64	0.46	0.34	0.23
DF at 50%	0.667	0.444	0.296	0.198	0.132	0.088	0.059	0.039	0.026	0.017
	2.39	1.93	1.54	1.19	0.92	0.72	0.51	0.35	0.25	0.16

$IRR = 45 + 5 \times \frac{11.23}{21.19} = 45 + 5 \times 0.529 = 45 + 2.64 = 47.64\%$

REPAYMENT SCHEDULE.

Principal borrowed - Rs.28,00,000

Period - 5 Years.

Rate of interest - $12\frac{1}{2}\%$

Equated instalment - Rs.7,86,400/-

Year	Interest	Principal	Outstanding
			28,00,000
1st	3,50,000	4,36,400	23,63,600
2nd	2,95,450	4,90,950	18,72,650
3rd	2,34,075	5,52,325	13,20,325
4th	1,65,040	6,21,360	6,98,965
5th	87,365	6,98,965	-Nil-

PAY BACK PERIOD.

$$\text{P.B.} = \frac{\text{I}}{\text{EC}} \quad \text{Pay Back Period} = \frac{\text{Net investment outlay}}{\text{Amount cash inflow or cost savomgs.}}$$

(Rs. in lakhs).

Average Annual earnings	-	41.77
Less 10% depreciation in I.C	- -	3.68

		38.09
Less 4000+40% Income tax	-	16.75

		21.34
Add Depreciation	-	3.68

Annuyal cash Inflow	-	25.02

$$\text{P.B.} = \frac{36.86}{25.02} = 1.47 \text{ i.e., 2 Years}$$

Though the Pay back period is worked out to 2 years according to the financial analysis, it is proposed to repay the Block Capital loan in 5 equal instalments since the society has to provide the necessary reserves as per the provisions of the Act and deploy the funds generated to the working captial needs to a reasonable extent.

SCHEDULE FOR IMPLEMENTING THE PROGRAMME.

Work description.	Starting.	Duration.
1.Approval of the project by the committee of the management.	June,89	1 month
2.Approval of the General Body and R.C.S	Aug.89	2 months.
3.Trials and negotiations for land and building power supply.	Sept.89	1 month
4.Apply for financial accomodation to NCDC share capital contribution to state Govt.	Sept.89	1 month
5.Calling for tenders for construction and supply of machinery	Oct.89	2 months
6.Selecting and purchase of building machinery.	Nov.89	2 months
7.Construction of building installation of machinery power supply and provision for water. Technical commission from.	Dec.89 to April 90	4 months
8.Recruitment of staff.	Jany.90	1 month.
9.Propaganda among the farmers.	Feby.to March 90	2months.
10.Product processing of the factory.	May,90	
11.Marketing of the pulp.	May,90	

The duration for implementation of the project is one Year.

MANGO FRUIT PROCESSING AND MARKETING

C. GANGA RAO
INDIA

BACKGROUND

AREA UNDER MANGO CULT. 9303 ha.
(IN PROJECT'S COMMAND AREA)

- LIMITED IRRIGATION FACILITY
- MANGO TO BRING-IN ADDL. INCOME
- LOW-YIELD.
- LOW-MARKET PRICES
- EXPLOITATION BY PRIVATE TRADE
- DISTANT MARKETS.
- LACK OF MKT. INT.
- HIGH COMMISSION BY MIDDLE-MAN
- LACK OF PROCESSING FACILITY
- PARISHABILITY VERY HIGH.

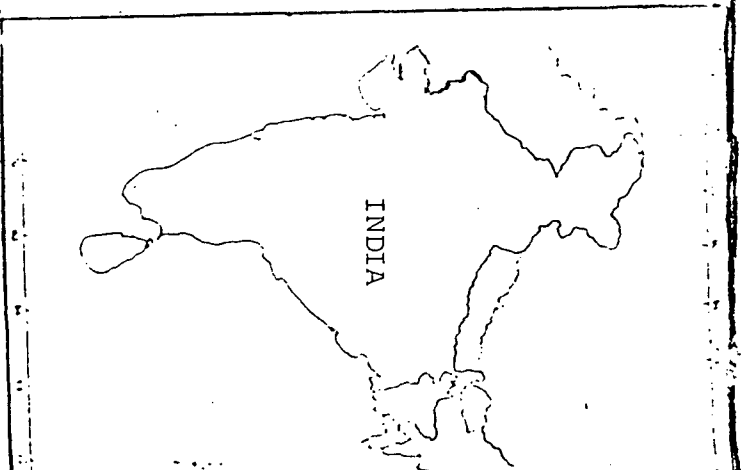
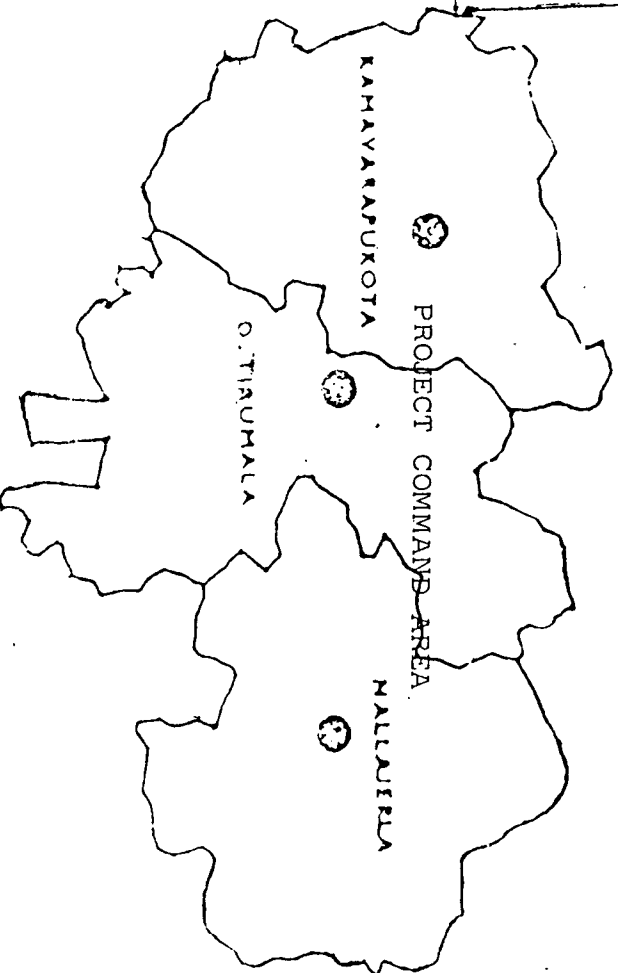
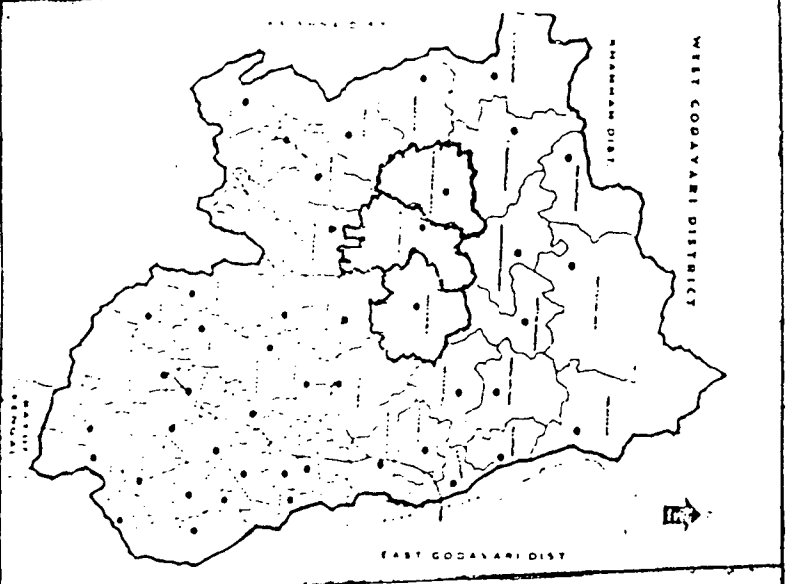
FEASIBILITY OF PROJECT

- AVAILABILITY OF RAW MAT.
- TRANSPORT FACILITY
- AVAILABILITY OF LABOUR
- " " FUEL/POWER
- " " FINANCE
- LESS COMPETITION

OBJECTIVE

- TO INCREASE PRODUCTIVITY
- " FARMER'S INCOME
- TO FETCH REMUNERATIVE PRICE
- EXTENSION SERVICES AND FARM GUIDANCE
- TO PROVIDE PROCESSING FACILITY
- TO MAINTAIN NURSERY TO SUPPLY PLANTS.

COMMAND AREA OF THE PROJECT



THE PROJECT

AREA
(COVERAGE) : THREE SUBDISTRICTS OF
W. GODAVARI, AP STATE (INDIA)

ORGANIZATION : SRI-VENKATESHWARA LARGE
SIZE COOP SOCIETY, DE-TIRUMALA

ACTIVITY : MANGO FRUIT PROCESSING
AND MARKETING

PLANT CAPACITY : 2 MT/hr.

No. of Working
Days : 90 days/yr.

Expected Finished
Product : 1800 MT MANGO PULP/yr.

CAPITAL REQ. : 3.86 m.

Working Capital : 4.0 m. (Recycled for
3 Times/yr)

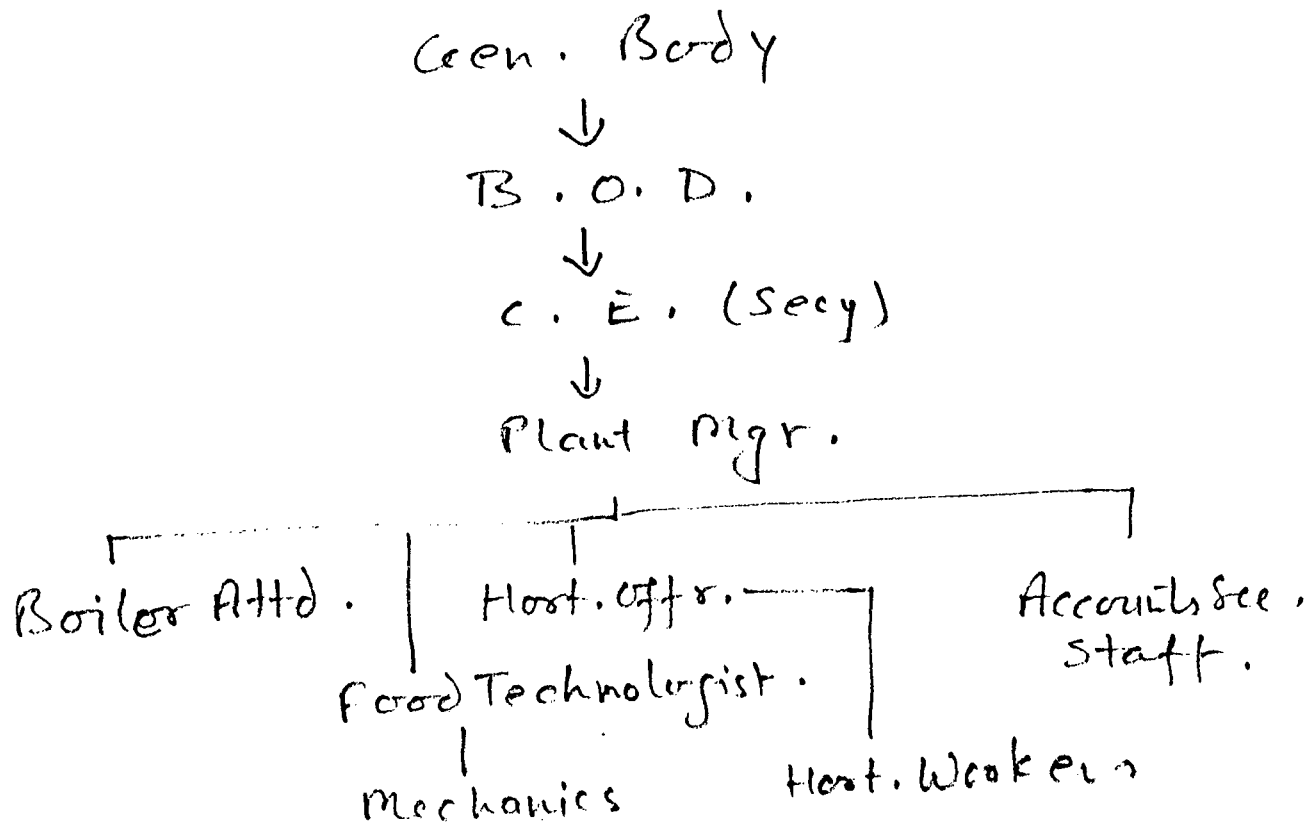
SOURCES OF FUNDS:

Equity : 0.75 m
Own Funds : 0.15 m
Loans : 2.80 m (NCDC)

Disposal of
Finished Product (I) EXPORTS TO GULF COUNTRIES
(II) DOMESTIC JUICE FACT.
(III) NAFED.

ORGANIZATION AND MGMT.

1 - Di-TRIMALA LARGE SIZE COOP. SOCIETY



2. Backward Linkages

- Inputs,
- Agricultural Implements & Farm Guidance
- Training to the members.

3. Forward linkages

- Add Value to the Produce
- Processing
- Packing
- Marketing of the processed finished goods

4. Horizontal Linkages

- To develop self Reliant Farm. Org.
- Timely Decisions
- Quality Control & Production

FINANCIAL - ANALYSIS

1. Capital Cost.	3.68 m.
2. Working Capital	4.00 (Recycled thrice in a year)
3. Sales Revenue	18.00 m.
4. Variable Cost	14.35 m.
5. Total Cost	14.996 m.
6. Contribution (Total)	3.965 m.
(PMT)	2203 Rs.
7. BEP (Q)	437 MT
8. No of days for BEP	<u>22</u> (Production days)
9. ROI	20.03%
10. Net Profit (After Tax)	1.799 m.
11. IRR	

Hr. Rate	LOWER Disc. Rate	+	Diff in Both Disc. Rate.	$\left\{ \frac{\text{Net Surplus at Lower Disc. Factor}}{\text{Net Surplus on both the Disc. factor}} \right\}$
(50)	(45)	-	(5)	

$$= 45 + 5 \left(\frac{45 \cdot 56}{86 \cdot 43} \right)$$

$$= 45 + 5 (0.527)$$

$$= 45 + 2.64$$

.....

12. Pay-Back Period

$$= \frac{\text{Project Investment Cost (C)}}{\text{Net Cash Inflow Coverage (R)}}$$
$$\frac{C}{R} = \frac{36.86}{25.02} = 1.47 \text{ yr.}$$
$$= 2 \text{ Years}$$

13. NPV

Present worth of Benefit at a Discount Rate

Present Worth of Cost at the Same Discount Rate

$$= 1075.25$$

$$= 912.40$$

$$= 16.285 \text{ m.}$$

14. B.C. Ratio

Present Worth of Benefits at a Discount Rate of 15%

Present Worth of Cost at a Discount Rate.

$$= \frac{1075.25}{912.40} = 1.18$$

$$= 1.18 : 1$$

15. ROI

	<u>Rs Million</u>
a. Fixed Cost of the Project	0.961
b. Variable Cost.	14.035
c. Total Cost	<u>14.996</u>
d. Total Revenue	18.000
e. Surplus (d-c)	3.004

$$ROI = \frac{\text{Surplus}}{\text{Investment}} \times 100 = \frac{30.04}{149.96} \times 100 = 20.03\%$$

16. SENSITIVITY ANALYSIS

(a) Assume Decrease in Sales Price by 5%.

$$NPV = 1021.44 - 912.40 = 109.04$$

$$BCR = 1.11$$

$$IRR = 47.64\%$$

(b) Assuming 10% Increase in Operational Cost

$$NPV = 74.78$$

$$BCR = 1.07 : 1$$

$$IRR = 47.64\%$$

(c) Assuming 5% Fall in Sales Price and 10% Increase in Operational Cost.

$$NPV = 20.997 \text{ m}$$

$$BCR = 1.02$$

$$IRR = 47.60$$

BENEFIT TO FARMERS

- 1- TO RESCUE FROM THE EXPLOITATION OF PRIVATE TRADE
- 2- To give higher returns on produce by 20% to 50% over and above the present Rate.
3. To encourage plantation of Mango in Upland Areas where irrigation facilities are limited.
4. Extension Services and farm guidance for better productivity.
5. ASSURED MARKET FOR PRODUCE OF THE FARMERS.
6. Employment Generation for skilled and unskilled workers of Rural-Area.

1. PLANT CAPACITY.

RAW MATERIAL AVAILABILITY = 28,000 MT

PLANT CAPACITY = 2 MT/hr.

= 3600 MT (12%)

WHAT BASIS THE PLANT CAPACITY IS CHOSEN.

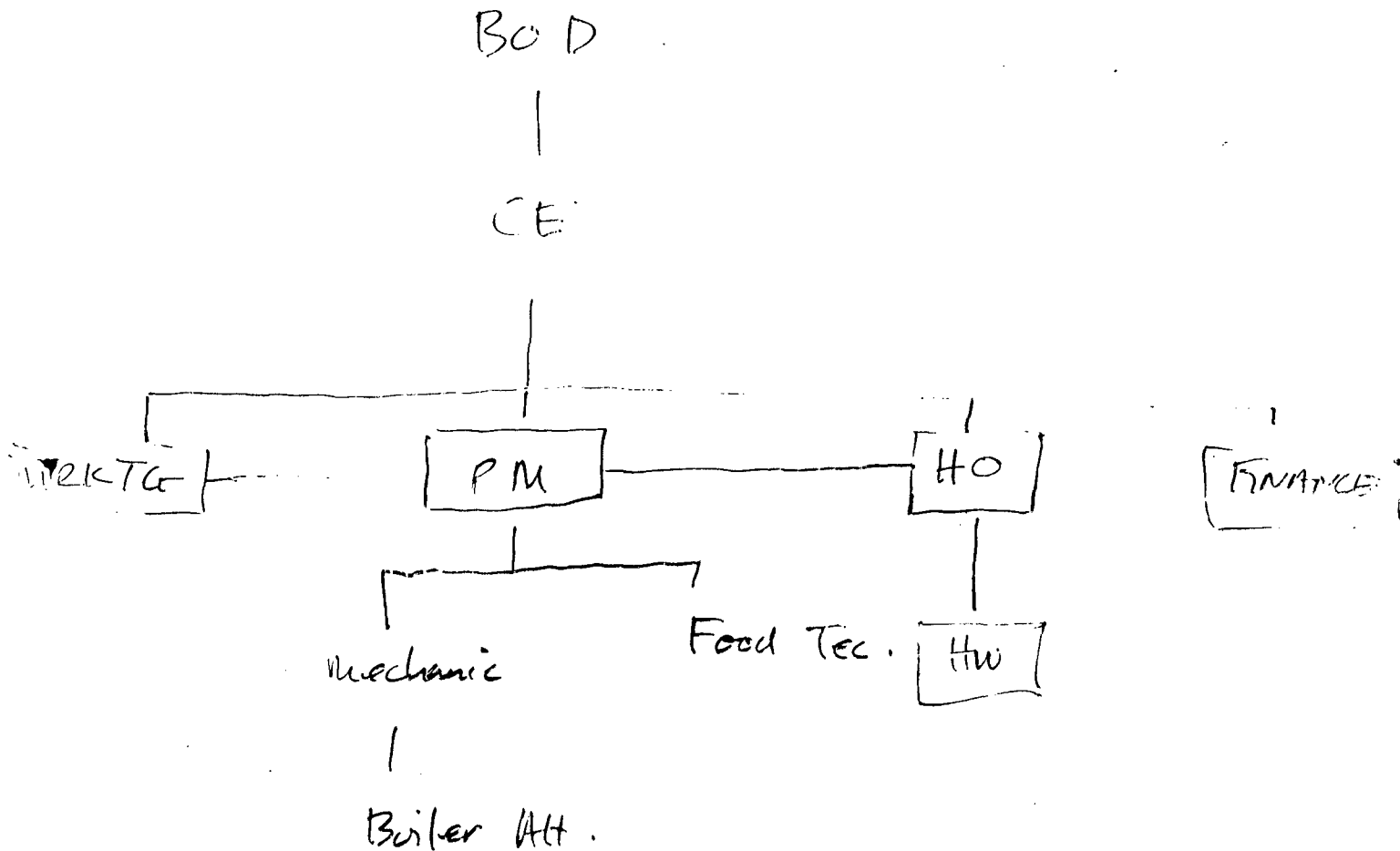
WHY NOT 7 MT/HR.

RAW MATERIAL

CENSUS OF VARIETY OF MANGEE

THE COMMAND AREA - EARLY ESTIMATED PRODUCTION FOR THE DURATION OF PROJECT

3. ORGANIZATION



4. FINANCIAL ANALYSIS

REVENUE FIGURES → MUST BE
TAKEN FROM INCOME STATEMENT
(NOT FROM) NETT C/FLOW.



Cost must not include cycled
operational cost.

Observations of Group B

- Higher percentage of the profit should be returned to members.
- Price fixation for raw material has to be fixed comparing with market intelligency.
- Purchasing centers for raw material should be installed.
- Organization and management of cooperative is workable.
- Technical requirements were provided.

MANGO FRUIT PROCESSING AND MARKETING.

BY. G. GAJGA RAO.

REPORT BY GROUP C

NO. I ELEMENT OF COSTS FOR DIFFERENT ACTIVITIES.

- WELL DEFINED.

NOTE ORGANIZATION DESIGN

- DESIGNED PROPERLY EXCEPT
DEFINING FARMER GROUPS. FOR
COLLECTION OF MANGO & EXTENSION/
EDUCATION.

NOTE TECHNOLOGICAL ISSUES.

- A) IDEAL CAPACITY OF THE PLANT
FOR ABOUT 270 DAYS. COULD BE
UTILIZED FOR PROCESSING OTHER
FRUITS & VEGETABLES GROWN
IN THE AREA.
- B) THE LATEST TECHNOLOGY IN FOOD
PROCESSING & PACKAGING MAY BE
ADOPTED.

- (C) THE TECHNOLOGY SUITABLE FOR EXPORT ORIENTED PROCESSING MAY BE ADOPTED.
- (D) THE PROJECT SHOULD TAKE INTO ACCOUNT STORAGE OF PULP FOR A SUITABLE DURATION IN COLD STORAGE'S. IN ORDER TO GET MAXIMISED RETURNS.

IV) CRITICAL ASPECTS

HAS BEEN WELL TAKEN INTO CONSIDERATION.

LIMITAGES WELL DEFINED.

V) MARKETING.

A) PROJECT STIPULATES ONLY BULK MARKETING TO JUICE MANUFACTURERS. BETTER IT WILL BE, AND MORE PROFITABLE TO MARKET IN SMALL PACKS AS PER SPECIFICATIONS OF MARKETING ORGANIZATIONS.

B) THE EXPORT ORIENTATION OF MARKETING TO GULF COUNTRIES HAS NOT BEEN PROPERLY EXAMINED.

9) SUITABLE IMPLICATIONS REGARDING EXPORT MARKETING MAY BE INCORPORATED IN THE PROJECT. IN ORDER TO TAKE BENEFIT OF GOVT, SUBSIDY.

BENEFIT TO
VI - FARMERS.

A) PAYMENT OF 2ND PRICE/PATRONAGE REBATE TO THE FARMERS MAY ALSO BE INCORPORATED IN THE PROJECT

B) SOME PRICE FLUCTUATION FUND MAY BE CREATED TO ABSORB INCIDENCE OF PRICE CRASH. DUE TO UN-EXPECTED SITUATIONS IN PRODUCTION CYCLE.

*
VII

ONION MARKETING

OF

LASALGAON

P. K. PANDEY
INDIA.

BACK-GROUND

1. VEGETABLE
FLAVORING AGENT

2. 30. m - MT PRODUCTION
10 m. MT in NASIK-POONE

3. LASALGAON BICE MARKET

LOW PRICES PMT 300 - 3000

LONG WAITING 2 - 12 day

EXPLOITATION 5% to 15%

4. EXPLOITATION OF CONSUMERS

37 - - - 7100 5000

5. PARISHABILITY -

LOW SHELF LIFE

6. - CULTIVER

- CUTTING
OF TOPS

- HANDLING

- CULTURAL PRACTICES - curing

- AREATION

UNION MARKETING (INDIA)

THE PROJECT

1. COVERAGE : 35 Villages
15000 FARM HOUSEHOLDS
2. ORGANIZATION
- AADF → VEFCO → NAFFED

3. PROJECT COMPONENTS

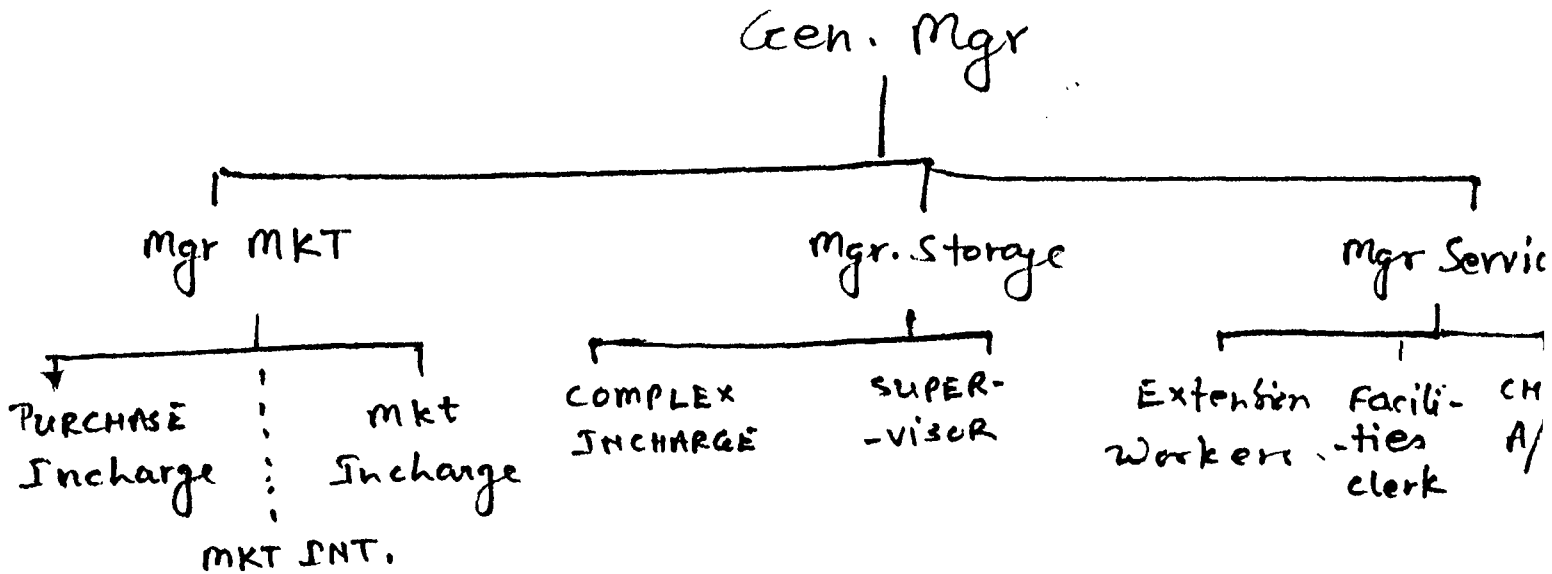
- INPUT SUPPLY - EXTENSION
- PROCUREMENT OF STOCKS
- STORAGE
- MARKETING
- TRANSPORTATION
- DISPOSAL OF STOCKS
 - COOPERATIVES
 - TRADE
- PATRONAGE REBATE

4. HIGHER INCOME TO FARMERS

$$\begin{array}{l} \text{FINAL} \\ \text{PRICE PAID} = f \left\{ (FP) + C(H) + C(S) + C(T) + C(M) \right. \\ \left. \begin{array}{cccccc} & & \downarrow & \downarrow & \downarrow & \downarrow \\ +25 & & 5\% & 10\% & 5\% & 5\% \\ & & & \text{to} & & \text{to} \end{array} \right. \end{array}$$

ORGANIZATION

1- VEFCO



2- AADF

REGIONAL OFFICE

- RADIO

- T.V.

EXTENSION WORKERS

- 12 Per Workers - Demonstration Plots

- Dissemination of Inf.

INPUT SUPPLY

- Seed

- Plant Protection

3- NAFED

CONSUMER DISTRIBUTION

EXPORT MARKETING

FINANCIAL ANALYSIS

	<u>Rs</u>	
1. <u>CAPITAL COST</u>	600,000	LAND
	9,880,000	STRUCTURE
	1,000,000	Equipments
	<u>11,480,000</u>	
	(say Rs 11.5 m)	

2. WORKING CAPITAL

(OPERATIONAL LEVEL 10,000 MT)

RAW MATERIAL	6,000,000
MKT fee	1,35,000
Grading/Wt.	600,000
Packing	500,000
DRIAGE/ROTTAGE @ 15%	10,10,300
Adm. Costs	600,000
INTEREST ON WORKING CAPITAL @ 17% for 6 months	614,975

FINANCIAL ANALYSIS

1. CAPITAL COST	:	11.5 m.
2. Working Capital	:	7.25 m.
3. Adm. Cost.		6.00 m.
4. Interest on Work. Cap.		6.15 m
5. Total Revenue Delhi		22.5 m
		Lasalgaon 20.0 m.

6. CONTRIBUTION PMT

DELHI	941.8
LASALGAON	<u>1170.48</u>

8. FIXED EXPENSES

(Adm Cost + Int. W.C. + CRF + Sal.V.)

31,10,308.00

BEP DELHI	<u>3303</u> MT
LASALGAON	<u>2657</u> MT

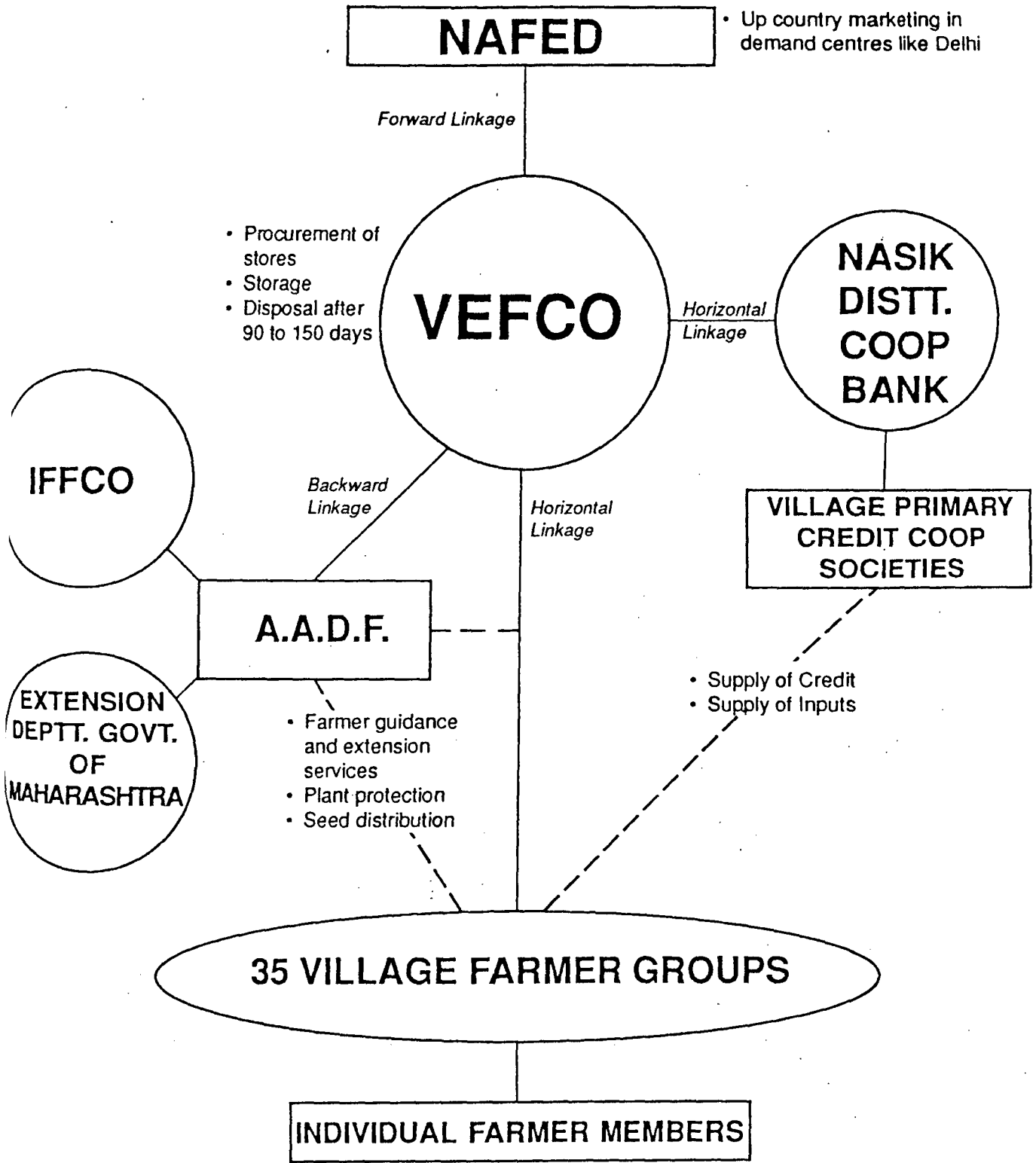
9. Pay Back Period

4 years

			<u>DELHI</u>		<u>DELHI</u>	<u>LASALGAON</u>
10. NPV	<u>D</u>	at 12%	35,612,000		25,948,000	
		20%	18,881,000		13,155,000	
11. B.C.R		12%	<u>3.570</u>		<u>2.873</u>	
		20%	<u>2.810</u>		<u>2.261</u>	
12. IRR			<u>68.9%</u>		<u>54.1%</u>	

BENEFIT TO FARMERS

<u>INPUT</u>	<u>OUT PUT</u>
1. EXTENSION DEMONSTRATION PLOT IMPROVED SEED	PRODUCTIVITY QUALITY 10%.
2. MKT Fee PROCUREMENT FACILITY	TIME/COST SAVING 5%.
3. HANDLING MECH. DEVICES	LESS SPOILAGE ROTTAGE 5-10%.
4. MODEL STORAGE	DRYAGE/ROTTAGE LESS 10%.
5. MARKET INT. FORWARD LINKAGE	BETTER PRIC. Elimination of middle man 5% - 10%.
6. PAYMENT OF SECOND PRICE	20% to 25
7. CREATION OF PRICE FLUCTUATION ^A FUND	SECURITY MIN. ASSURED FIRST PRICE



GROUP A. ZOTED. 1787.

ONION MARKETING OF LASALGAON PRODUCTION

1. THE ESTIMATED PRODUCTION SHOULD BE GIVEN FOR PROJECT DURATION

2.



PROCUREMENT

1. IT IS ALSO MUST BE KEPT IN VIEW OF COMPETITION BY THE PRIVATE TRADERS AT THE MANDY LEVEL

FINANCIAL

1. CALCULATE OF BEG

INTEREST ON TERM LOAN SHOULD BE INCLUDED IN VC AND NOT IN FIXED COST.

Observations of Group B

Project : Onion Marketing of Lasalgaon
(Prepared by Pramod Kumar)

- The project defined extension services well but there is no provision for finance to meet such expenditures.
- IRR AND Payback Period should be rechecked.
- Cash flow and other financial data should be presented for easy understanding.
- Since the product is highly perishable and the prices are highly fluctuated, the sensitivity analysis should be done.
- Staffs should be ^{encouraged} ~~insured~~ to admit more active members for maximum utilization of the proposed project.
- Committee of members should be also constituted to fix the purchase price.

GROUP C

1

25 FEB. 89 ONION MARKETING
OF
LASALGAON

PRAMOD KUMAR
INDIA

1. ORGANIZATION

A. VERY GOOD, FOUR VACANTS POSTS SHOULD BE FILLED UP FOR AN EFFECTIVE MANAGER CONTROL. EXPENDITURE OR ACCOUNTANCE OF SALARY INCREASE SHOULD BE TAKEN INTO ACCOUNT.

B.

2. PROJECT

A. THE COMPONENT OF THE PROJECT VERY WELL EXPLAIN.

3. ALL INTEGRATION ARE VERY WELL.

4. FINANCIAL

A. INTEREST RATE FOR WORKING CAPITAL IS VERY HIGH

B. SENSITIVITY SHOULD BE DONE AS THE PRICE OF THE PRODUCT IS HIGHLY SENSITIVE. THE SPOILAGE PERCENTAGE SHOULD ALSO BE CALCULATED BY SENSITIVITY ANALYSIS.

5. VERY WELL OF REPORT

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

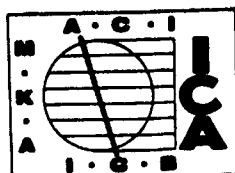
October 24, 1988—May 7, 1989



**Funded by the Government of Japan
and**

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

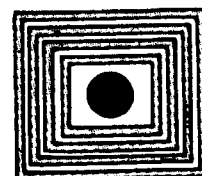
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

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

**Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India**



ACKNOWLEDGEMENT

The Second ICA/JAPAN Course for Strengthening Management of Agricultural Cooperatives in Asia (October 24, 1988 - May 7, 1989) was a very good opportunity in understanding the concept of integrated cooperative and the management thereof and the ways of increasing the farmers' income as well as the agricultural situations and the management problems in South-east Asian countries.

The Kimchi Processing Mill Project of the Cheong San Primary Agricultural Cooperative was prepared under this course-programme.

For giving me this valuable opportunity, I express my deep acknowledgement to the management and Chonnam Provincial Training Institute of NACF, and to the staff members of ICA RO in New Delhi and the professors of I.I.M in Amedabad.

I also express my deep gratitude to Mr. Jee Young Yun, NACF's Processing Division Chief and Mr. Sung Ku Suh, Manager of Cheong San Primary Agricultural cooperative (PAC) advice and cooperation for this project preparation, and mostly to Mr. M.V.Madane who helped me complete this project in my country, Korea.

And I convey deep thanks to Mr. Sang Hoon Kang, Kimchi Production Management Division Chief of Jin Mee Foods Co, Ltd. located in Kwang-Ju City for the valuable commentations on the technical and managerial aspect for this preparation.

I also add that the Case-Study of the success of the Marketing Business of Cheong San PAC prepared by Professor Hwan Kyu Lee of the Junior College of NACF provided me with a lot of information in preparing this Project.

February in 1989

Hyang Kyu Lee

CONTENTS

	Page No.
Acknowledgement	
Chapter I Summary	1
Chapter II Background	3
2.1 Overall Situation	
2.2 Area of Project	
2.3 Problems faced by Farmers	
2.4 Need and Justification for Project	
Chapter III Project	11
3.1 Objectives	
3.2 Area of Operation	
3.3 Project Components	
Chapter IV Details of Operations	13
Chapter V Organization and Management	20
Chapter VI Financial Analysis	22
Chapter VII Budget	26
Chapter VIII Recommendations	27
Appendices :	
Map	
Tables	
Diagrams	
Details about calculations	

Chapter I Summary

- 1.1 This Project deals with the Kimchi Processing Mill to be constructed by the Cheong San PAC, 43Km north east of Seoul.
- 1.2 Various kinds of vegetables are grown in this area, and around 80 - 90% of such products as green pepper, cucumber, eggplant, pumpkin, groundnut and etc. are sold through the marketing channel of Cheong San PAC.
- 1.3 However, due to the problems of storability, relatively high risk in handling and short man-power of the Cooperative, most of radish and chinese cabbage are sold to the brokers on the field at the low prices which considerably reduces the growing farmers' income.
- 1.4 Realizing such problems, the Cheong San PAC is considering carefully to launch a new project of Kimchi processing Mill for the purpose of increasing farmers' farm and non-farm income and at the same time to provide farmers with more services.
- 1.5 Because the vegetable processing industry become new government supporting industry and NACF decided to expand and start processing business and the gradual increase of the demand of plant made Kimchi, Kimchi processing business is judged to have optimistic long-term prospect.
- 1.6 This Project-Mill, with expected processing/production capacity of 12 M/T, requires about 676,48 million Won to be constructed.
- 1.7 The Project life is assumed to be 9 years. One year will be required in construction and operation will be started from the second year with the estimated yearly working ratio of 50%.
- 1.8 The Government will provide 68.5 million Won as subsidy and 53 mil. Won at 8% of low interest rate. The NACF will provide 300 mil. Won for 3 years at no-interest. The balance are supplied by the loan from NACF.
- 1.9 BCR of the Project is 2.03 with IRR 29.65%, NPV 700 million Won and payback period 4.49 years.

1.10 For smooth construction and operation of the Project Plant, Cheong San PAC will organize a Project Unit Consisted of 15 staff members including one manager, under the policy guide lines of the existing board of management of the cooperative.

1.11 The profit incured from this project will be used for the medical care, living improvement and scholarship fund for member farmers as a means of strengthening service of function of the Cooperative, and this project will play a role of incentive in inducing the participation of member farmers in Cheong San PAC businesses.

Chapter II Back Ground

2.0 Background

2.0.1 Kimchi and Koreans

Kimchi is a very important side dish for Koreans, and it is made mainly of radish and Chinese cabbage mixed with powder of red pepper, garlic, scallion, ginger, etc. The Fermented Kimchi is consumed daily by a Korean 50-100gr in summer and 150-200 gr in winter.

2.0.2 Kimchi Industry in Korea

- 1) Kimchi processing is a labor consuming work and at present there are about 200 processing plants but out of them about 100 plants are in enterprise scale. Of the 100 plants about 50% are located around Seoul area, within 200 Km of radius.
- 2) Plant processed Kimchi is marked in two ways: one is for domestic consumption and the other is for export purpose.
- 3) Plant processed Kimchi is divided into 3 types: Chinese cabbage Kimchi(70%), radish Kimchi(20%) and others(10%).

<Production and Export of Plant Processed Kimchi>

Classification		'84	'85	'86	'87	June '88
Production (600 M/T)		43	45	45	46	50
Export	Quantity (M/T)	11,436	7,069	3,879	4,634	2,525
	Amount ('000\$)	11,770	7,527	4,901	8,532	5,076

2.0.3 Demand Prospect of Kimchi

- 1) Future demand on Kimchi is prospected to increase remarkably due to the increasing trend of company dining room, military feeding, young couple families and apartment house living.

2) And the export of Kimchi is also expected to show gradual increase.

2.0.4 Fostering of Kimchi Industry by the Government

1) In Korea, the stable supply and demand as well as the price of vegetables are very significant not only for the income enhancement of farmers but for the national economy.

2) Specifically the prices of vegetables are unstable for the reasons of the changes in climatic conditions, planted area and the quantity of production. (Appendix 1)

To tackle such problems, the Government is endeavoring to bring up Kimchi processing industry specifically having focus in overseas market.

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 Kimchi industry.

<Government's Support on Existing Plant>

(in mil. Won)

Classification	'87	'88	Condition		
			Intrest Rate	Term	Loan Ratio
Purchase of Raw Material	500	1,500	10%	1 year	70%
Facility Improvement	1,200	1,000	10%	8 years including 3 years of grace period.	170%

2.1 Overall Situation

2.1.1 Location

The project area is located around 43Km north-east of Seoul, and 15Km south from demarcation line with North Korea. The area is well irrigated and roads and traffic conditions are excellent.

2.1.2 Population

The area accomodation a total of 2,012 households with a population of 8,132.

The farm households are 607, around 30.2% of the total.

2.1.3 Land

1)The area is mountainous one with a total area of 4,538 ha; arable land of 769ha (paddy land 248ha, upland 521ha) and forest land of 3,029ha (66.7%).

2)Farming area per farm household is 0.9ha (nat'l average ; 1.2ha).

<Composition of arable land by landholdings>

Less than 0.5ha	0.5-1.0ha	1.1-1.5ha	1.5-2.0ha	Over 2.0ha	Total
12%	3	29	17	9	100%

2.1.4 Cropping Pattern and Climate

1)Annual average temperature : 8°C

(Lowest: -28.3°C, Highest: 37.5°C)

2)Annual precipitation: 1296.5mm

(Non-frost days: 45days)

3)Paddy is cropped once a year and upland products are cropped once or twice a year. (Appendix. 2)

2.1.5 Major Production

The major products of the area are paddy from lowland, and cucumber, eggplant, groundnut,pepper, mus room from upland and some livestock products.

year	Food Crops(M/T)					Livestock(heads)			Vegetable (M/T)
	Rice	Barley and Wheat	Mis. Grams	Beans	Potatoes	Korean Cattle	Milk Cattle	Swine	
'86	803	-	172	16.5	10.7	627	456	5,391	5,441
'87	967		144	17.6	8.9	381	494	7,051	5,213
'88	1072		74	23.8	14.1	276	503	6,913	5,112

2.1.6 Marketing System

1)About 80-90% of the major products of the area excluding paddy, raddish, cabbage are marketed through cooperative marketing channel, and the cooperative is striving to increase the prices

received by farmers through marketing information development.
(Appendix 3)

2) Products are marketed mostly to Seoul and Incheon metropolitan cities.

<Marketing Percentage by Market Channel>

Market Channel	NACF Marketing Center (Seoul)	Legal Whole Sale Market (Inchon)	Military Supply	Mass Consumer (Seoul)	Livestock Cooperative Marketing Center	Woo Sung Live stock Slaughtering Center
%	23.7%	17.1%	18.1%	22.3%	8.7%	8.6%
Major Products	Fruits and Vegetables		Pepper	Salted Cucumber Groundnuts	Cattle	

1) Farm Guidance

Form guidance of PAC is provided for the production of cucumber and pepper through 7 Joint production and marketing groups established in 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.

2) Selection of Market and Planned Marketing

Two-three weeks prior to estimated marketing time, staff of the PAC 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.

3) To enhance the quality of commodity, the PAC provides funds and packaging materials which enables the propaganda effect of the products peculiar to the Cheong-San PAC ('88: 11 mil Won)

4) Transportation

To lower the transportation cost, PAC trucks and other private trucks contracted with PAC are utilized at lower truckage.

Item	Trans Unit	Priorate Trans	Contracted Trans	Cost Saved
Cucumber	100 ea	150 Won	140 Won	20 Won
Sweet melon	100 ea	450	350	100

2.1.7 Processing

In the area there are one rice mill and two vegetable salting mill. One vegetable salting mill is operated by the PAC.

<Cucumber Salting by the PAC> (As the end of 1988)

Classification	Qty (Kg)	Price Sold ('000 Won)	Processing Cost ('000 Won)	Price Received ('000 Won)	Processing Profit	
					Per farm household	Per M/T
Raw Material(A)	287,650	18,984		18,984		
Processed Product(B)	193,000	53,075	12,214	40,861		
(B-A)		34,091	12,214	21,877	287	76

2.1.8 General Situation of Cheong San PAC

- 1) Member farmers : 540 member farmers, 90% of the total 607 farmers.
- 2) Business activities: Cheong San PAC carries out various activities such as banking, farm inputs supply, marketing, and extension services for the provision of extended services for member farmers. (Refer B/S, P/L in appendix 4)

(mil. Won)

Activities	'87	'88	Remarks
Depostis	1,342	2,045	Fertilizer, Agro-chemicals etc. including feed stuff.
Loans	1,938	2,724	
Farm Inputs Supply	167	144	
Daily Necessities	397	519	
Marketing	1,340	1,354	

PAC. Insurance	1,131	1,634	
Total	6,313	7,420	

3) Organization

The PAC has twenty personnel, and as decision making organizations General meeting, Board of Directors and Auditor, and as grass-root organizations 12 farming groups, womens' clubs, youngsters' meeting and 7 joint production and marketing groups as well as 2 machinery joint-use groups.

4) Member Participation

Member farmers have strong trust in cooperative businesses and actively participate in the cooperative movement, and thereby the activities are gradually and continuously increasing. The PAC performs profit-returning services such as scholarship payment of the children of member farmers (1,550 thousand Won in 1988), loan for schoolings and free medical examination and etc.

2.2 Area of Project

The Project Area Covers one Myeon and 7 Ri in Cheong San PAC as described in the map in appendix 5.

2.3 Problems faced by farmers

2.3.1 Present Marketing

- 1) Most of the farmers in area sell their products through cooperative marketing channel. Over 80% of the farmers market their whole marketable surplus of cucumber, eggplant, pepper, groundnuts, pumpkins through cooperative marketing channel. This trends are 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 livestock products and none of the raddish and Chinese cabbage are marketed through cooperative channel.

2.3.2 Reasons for low Marketing Share

- 1) In case of livestock products, due to the judgement of the raisers that sale to the middleman is more advantageous, the marketing volume by PAC is comparatively low and in case of rice as the price in the producing area is often higher than the market price, the marketing volume dealt by PAC is small and rice marketing by PAC is inactive.
- 2) In case of raddish and cabbage, due to the low storability, price fluctuation, high handling risks and much workload of personnel of PAC, the marketing volume is low.

2.3.3 Hidden Losses and Desire of Farmers

- 1) Under such conditions, around 95% of the farmers who grow raddish and Chinese cabbage sell their products as planted in the field to the middle-merchants which causes around 30/kg of hidden losses to growing farmers.
- 2) The reasons for this kind of phenomenon are the uncertain prospect for prices, not-handling of marketing service of this kind by PAC, the difficulties in making decision of selling time and market place and labour shortage in harvest season.
- 3) To solve these problems, farmers want PAC to handle these products. And with the strengthened activities of PAC on exploitation of mass consumer, timely provision of marketing information and extension service, the farmers will expand the planting area and production quantity.

2.4 Need and Justification for Project

2.4.1 Accomodation of Farmers' Desire

The construction of Kimchi Processing Mill which use raddish and Chinese cabbage as major raw material would accomodate farmers' desire for PAC to handle raddish and Chinese cabbage in PAC's marketing business, and would protect farmers from possible losses caused by trickery middle merchants' transaction.

2.4.2 Prospecting Industry and Government's Support.

- 1) Kimchi processing in plant shows growing trends due to the changes

of living environments, food patterns and decreasing home-made Kimchi consumption.

2)Vegetable processing industry is government's supporting industry for the stabilization of the prices of vegetable products and at the same time a business which NACF plans to launch and expand for more services for member farmers.

2.4.3 Situation Change

1)About 20years ago one of the special cooperative (Inchon horticulture) processed the Kimchi and exported it to the Government for the soldiers in Vietnam, but finally the Kimchi export resulted in failure due to small quantity of demand.

2)Nowadays the situation for the consumption of Kimchi product have been changed greatly for us optimistic prospect in the demand of Kimchi.

Chapter III. Project of Kimchi Mill

3.1 Objectives

The major objectives of this Project lie in the income enhancement of and service expansion for the member farmers of the Cheong San PAC. The detailed objectives are as follow.

- 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 increase through the safe and guaranteed marketing place and reduction of marketing costs, and provision of non-farm income making opportunities by utilizing idle labors.
- 3.1.3 Return of profits to member farmers earned through the operation of new business.
- 3.1.4 Prior preparation and accumulation of processing skills for the anticipated supply of Kimchi for military consumption.

3.2 Area of Operation

The Project will be operated in the area of Cheong San PAC and raw material will be recured in and from adjacent areas.

3.3 Project Components

3.3.1 Mill Construction

- 1)The mill, with the daily capacity of processing of Kimchi and salted vegetables, will require one year in construction for the cost of around 676,48 million Won.
- 2)Construction site will be determined in the Project Area in the consideration of transportation and the collection of raw material.

3.3.2 Procurement of Raw Material

- 1)Around 80-90% of the total raw material will be procured in the area and the remains will be from neighbouring area.
- 2)And other sub-material will be procured through NACF's marketing center and from other PACs.

3.3.3. Processing

- 1) As Kimchi processing is comparatively simple, with the basic equipment and facilities specifically high skilled techniques are not necessary for the processing.
- 2) In addition, Cheong San PAC is in pretty advantageous situation in securing skilled personnel for the existing personnel experienced in current vegetable salting business.

3.3.4 Marketing

- 1) The products will be sold through the sales agent which will be set up in Seoul, Incheon cities and Gyeonggi Provinces and through the NACF's supermarkets, PACs' chainstores, department-stores and markets in the consuming area.
- 2) Direct marketing to the NACF's staff training centers, Agriculture-related institution, hospitals, industrial sites, and in long-term export through NACF's export business.
- 3) Transportation will be made by PAC's vehicle and chilled truck to be bought.

3.3.5 Extension Service

- 1) PAC 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 profit and other services such as scholarship, medical service, etc.

Chapter IV. Details of Operation

4.1 Capacity of Mill

The Mill will produce 10 M/T of Kimchi and 2 M/T of salted vegetable for 8 hour operation a day. Yearly production will be 3,600 M/T for 300 day work.

4.2 Location

The Mill will be constructed around 4Km away from PAC's main office where transportation and collection of raw material are in good condition.

4.3 Main Product

- 1) Main products are the kinds of Kimchis and salted vegetables with the composition ratio of 83% and 17%.
- 2) In Kimchis, Chinese cabbage Kimchi will be the main item and in compliance with the preference of consumers raw and fermented will also be produced.
- 3) Salted vegetable will be made mainly of radish.

4.4 Processing

Appendix 6 shows the processing procedures. The taste of Kimchi differs according to the main and side materials. The products will be made in compliance with the regulations of military supply and Korean standards.

4.4.1 Prior Treatment of Material

After being carried in the mill, the main material of radish and Chinese cabbage will be trimmed neatly and cut to the specification, and the side material of garlic, ginger, etc. will be mashed and the red dried pepper will be grinded to powder.

4.4.2 Pickling of Main Material

The most important procedure in processing for the attractive taste is salting, which is generally soaked in salted water of 10-12% salt-density for 7-10 hours.

When Chinese cabbage is pickled, the weight of raw Chinese cabbage decreases to around 65-70% of the raw material status.

4.4.3 Cleansing and Dehydration

Pickled Chinese cabbage will be cleansed in clean flowing-water

and naturally dehydrated at the temperature of less than 18°C. The shorter the time of dehydration, the more freshness the cabbage keeps.

4.4.4 Making Side Materials

Side materials are mixed up during the main materials are prepared.

4.4.5 Mixing Side Materials

The mixed side materials are manually stuffed between the leaves of picked whole chinese cabbage, but mixed up by machines in case of cut-cabbage.

<Material Mixture of Cabbage Kimchi>

Classification	Whole Cabbage	Cut-Cabbage	Remarks
Chinese Cabbage	60-70%	81-37%	S.M.: Scallion, Garlic, Pepper-
Raddish	29- 2%	-	Powder, Ginger
Side Material	12-28%	19-13%	Salted Shrimp or fish

4.4.6 Fermentation and Storing

The mixed products are fermented at an appropriate temperature and for a proper duration of time. The packed products can be preserved for 3-4 months at generally -2°C - 0°C temperature condition.

4.4.7 Packing

As Kimchi is a kind of foods which are continuing fermentation, the transportation should be performed in the temperative of less than 10°C. The packing will be made in the form of bulk, p.p. film, bottle and can.

4.5 Machinery and Equipments

As the main materials of Kimchi are soft tissue vegetables, the processing procedure is mostly conducted manually rather than mechanically.

The machinery and equipments are rather simple.

Item		Unit	Project Scale	Remarks
Capacity/day		M/T	12	
Building Site/Land		Pyeong	1,500	1m ² =0.325 Pyeong
Building(Office)		"	100	
Mill	Mill	"	186	
	Warehouse for Raw Material & Products	"	64	
	Pickling Tank	"	55	
	Total	"	250	
Macninary	Kimchi Processing	Unit	19	Cutter, Stripper,
	Side Material Processing	"	10	Mixer, Packaging Machine, Grinder,
	Pickling	"	14	Washer, Conveyer,
	Total	"	43	Work Desk, Scale
Cooling Equipment		EA	1	
Chilled Vehicle/Transportation		"	3	

4.6 Investment Plan

4.6.1 Capital Cost of the Project

The capital cost of the project is estimated as below on the basis of the price as of the 1988.

Item		Cost ('000 Won)	Life	Remarks
Land		52,500		1,500pyeong x @35
Mill and Building		340,000	40yrs	Building 80,000 other 60,000 Mill 200,000
Machinery and Equipment		178,450	8yrs	Appendix 7
Chill Car		30,00	5yrs	@10,000 x 3
Cost of Layout		17,825		548,450 x 3.25%
Sub Total		618,775		
pre-operative Expendi- ture	Salary	7,200		600 x 2person x 6month
	Interest	17,095		
		(3,150)		Land 52,500 x 12% x $\frac{1}{2}$
		(1,069)		Layout 17,825 x 12% x $\frac{1}{2}$
		(10,200)		Building 340,000 x 12% x $\frac{1}{4}$
		(2,676)		Maching 178,450 x 12% x $\frac{1}{8}$
Admini- strative cost	1,200		200 x 6month	
Sub total		25,495		
Contignecy		32,213		5%
Total		676,483		

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 Kimchi mill.

(thousand won)

Item	Amount	Bais	Remarks
- Raw materials	76,570	$1020\text{ton} \times 685 \times \frac{40}{365}$	40 days
- Finished goods (Inventory)	17,941	$1020\text{ton} \times 1284 \times \frac{5}{365}$	5 days
- Receivable	143,526	$1020 \times 1284 \times \frac{40}{365}$	40 days
- Packing	16,767	$1020 \times 150 \times \frac{40}{365}$	40 days
- Working expenses	38,165	$1020 \times 449 \times \frac{1}{12}$	1 month
Total	292,969		

4.6.3 Fund Resources

- Government's Subsidy : 68.5 mil. Won
- Borrowing from Gov't : 53 mil. Won at borrowing rate of 8% per annum with the repayment period of 10 years including 3 years of grace period.
- NACF Mutual Credit : 300 mil. Won at no interest for 3 years.
- Balance of shortage for investment will be filled up by the loan from NACF.

4.7 Production of Kimchi

Operating Classification	1	2	3	4	5	6-8
Kimchis	850	1,200	1,200	1,300	1,300	1,500
Salted Vegetable	170	200	250	300	300	300
Total	1,020	1,400	1,450	1,600	1,600	1,800
Working Ratio	28.3%	38.9%	40.3%	44.4%	44.4%	50%

4.8 Procurement of Raw material

Most the materials of Kimchi are produced throughout the yer, but garlic, ginger and pepper are produced in a specific season. Such seasonal products will be purchased according to the yearly production plan of Kimchi. Most of materials will be procured in the area but the shortage will be from other areas. (Appendix 8)

4.9 Marketing

4.9.1 Price of Output

The selling price of Kimchi is supposed to be 1,800 Won per kg and 2,000 Won for salted vegetables.

These prices are based on the current market prices.

Market	Price
- Department Sote	₩2,300/kg
- Open Market	₩2,000/kg
- Export	₩1,500/500g

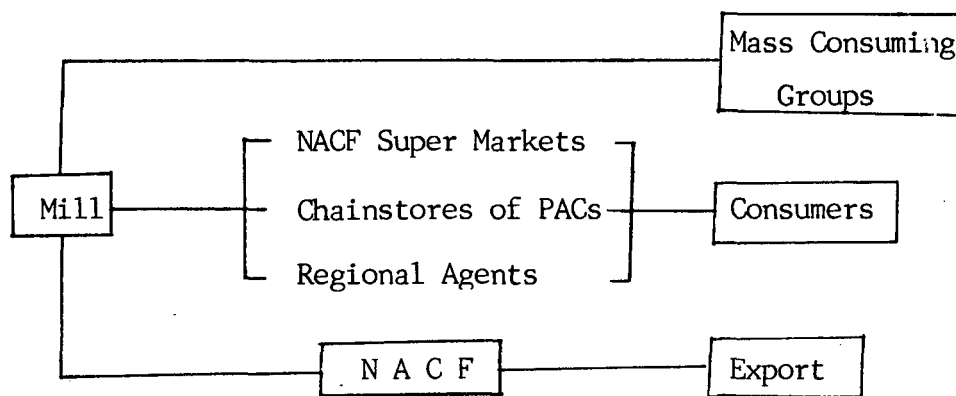
4.9.2 Packing

Packing will be made in the form of bulk packing of 15kg, 500g or 1kg p.p. film packing with the PAC's brand.

Currently export-product is packed in bottle and can, while for domestic marketing packed in plastic bulk and vinyl.

4.9.3 Marketing Channel

marketing channel will be 15 NACF supermarkets in Seoul and Incheon area, 100 chainstores of NACF and PACs, and 8 regional sales agents.



4.9.4 Transportation

Transportation will be made by 3 chill cars which are to be newly procured and 2 trucks of 4.5 M/T and 1 M/T.

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 apartmenthouse areas, and free taste corner will be opened in the agents' shop.

4.10 Construction Schedule (Appendix 9)

Construction of the Mill will require 1 year and steps will be land purchase, material collection, construction layout, building construction, machinery setting up and test operation.

4.11 Project Implementation

The Project will be implemented by Cheong San PAC under the support and guidance of NACF and Government.

Chapter V. Originization and Management

5.1 Overall Management policy

The Mill will be operated by Cheong San PAC, and management policy will be determined in the General Assembly or Board of Directors of the PAC.

A manager will be appointed for the operation of the Mill and close cooperation will be made between the staff members of the Mill and PAC.

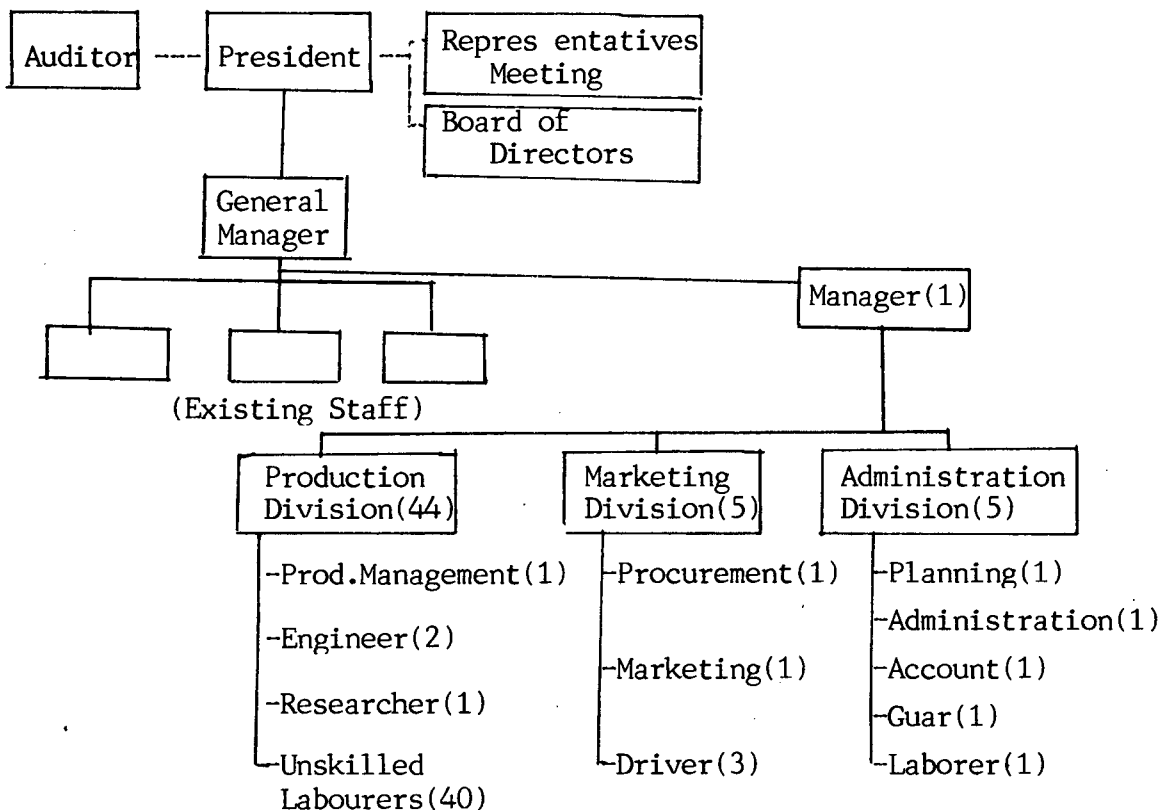
5.2 Management and originization

A separate organization will be set up for mill operation and the manager will be directed by the President or General Manager of the PAC. Summarized management activities are:

- Procurement of Raw Material
- Kimchi Production
- Marketing
- Planning and Accounting
- Administration and General Management

5.3 Organization Chart

The organization chart of Kimchi processing Mill is as follows.



- 5.4 Task of Each Division
- 5.4.1 Manager
 - General responsibility on Mill operation under the direction and/or policy from the President and General Manager of PAC.
- 5.4.2 Production Division
 - Production planning
 - Production
 - Machinery Maintenance
 - Workers Control
 - Supervision
 - Quality Superivision
 - Working Environment Control
- 5.4.3 Marketing Division
 - Raw Material Procurement
 - Products Marketing
 - Transportation
 - Inventory Control
 - Search of Consumer(Market Development)
- 5.4.4 Administration Division
 - Administration
 - Accounting
 - Planning and Cordination
 - Management Analysis
 - Advertisement

Chapter VI. Financial Analysis

6.1 Assumption in Financial Analysis

Financial analysis has been set forth under main assumption under.

6.1.1 Project life is 9 years, including the construction period of 1 year.

And the life of building, machinery, truck is 40 years, 8 years, and 5 years respectively.

6.1.2 Investments are completed one phase, and the amount of ₩676,483 thousand should be used for the establishing mill by the end of the first year.

6.1.3 The operating cost is, constant cost of the first year and the variable cost is changing according to the quantity of the production.

6.1.4 The selling prices in Market are supposed to be at ₩1,800/kg in Kimchi, ₩2,000/kg in Pickles, and the price is constant during the project life.

6.1.5 Depreciation cost will be as follows.

<Depreciation cost>

(thousand Won)

Item	cost	life	Amount
Building	351,689	40	7,914
Machinery	184,586	8	20,766
Chill Car	30,000	5	5,400
Total	566,275		34,080

* Salvage value of each Item is 10% of the cost.

6.1.6 Production and over head cost is based on the data of surveyed existing mill.

6.1.7 Tax

There is Value Added Tax in vegetable processing and PAC should bear the cooperative tax at the rate of 10% of the income.

6.2 Capital cost and Requirement of working Capital.

6.2.1 Capital Cost

A Total capital cost will be ₩676,483 thousand and will be spent during the first year of Project.

6.2.2 Requirement of working Capital

The working capital over the operating years will be as follows. It's calculated by the increase in production.

operating year	1	2	3	4	5	6 - 8
Amount	292,969	402,702	417,196	459,640	459,640	517,613

6.3 Production Cost

Production cost per M/T, in case of 283% of capacity utilization, will be as follows.

<Production Cost>

(thousand Won/Ton)

Item		Amount	Remark
Raw Material		370	
Sub-Raw Material		315	
Packing		150	
Wages		129	appendix
Power and Water		14	
Repair and Maintenance		8	566,275 x 1.5%
Transportation		40	
Insurance		7	566,275x1.26%
Tax		61	Production cost x 5%
Others		35	Over head cost and General Administrative expenditure
Depreciation		33	
Sub - Total		1,162	
Administrative expenditure	Salary	122	Appendix
	Selling Expenses	449	Advertisement and research 64 Commision and returned goods
Sub - Total		571	
Total		1,733	

- 6.4. Calculation of the Net Cash Flow is as the appendix 11.
- 6.5. Analysis of Financial Situation
- 6.5.1 NPV at the end of the project life comes 700,095 thou. won at 11% discount rate.
- 6.5.2 The payback period of the project will be 4.49 years(Appendix 12).
- 6.5.3 The benefit cost ratio (BCR) at 11% comes to 2.03 (appendix 12).
- 6.5.4 Internal Rate of Returns (IRR) after tax will stand at 29.65 % (appendix 13).
- 6.5.5 Break Even Quantity of production in 2nd year will be 920 M/T (appendix 14).
- 6.6. Sensitive Analysis
When 10% Reduction in selling price is assumed BCR will be 1.67 at 11% and IRR 23.4%
- 6.7. Financial Viability
On the above financial analysis.
We can say that the project is financially viable.
The IRR of project is considerably high and the service life of Kimchi mill is expected to extend to 11 years.
- 6.8. Benefit and Returns for Farmers
- 6.8.1 For the operation of Kimchi Processing, the Cheong San PAC will procure the main material on contract-growing basis. The procurement prices will be determined on adumbrated prices (average price of the previous year x wholesale price increase rate), however in case that the auction prices of the NACF Marketing Center are higher than the procurement prices, the farmers will be compensated for the differences.
So the farmers will, at least be compensated for the costs of transportation, handling and the margins to be returned to middlemen.
The following shows the estimated direct returns to farmers, calculated on the basis of the prices of Oct. - Dec., 1987.

Won/kg

Item	Price in Production Area	Transportation Charges	Other Expenses	Margin		Price in NACF, Marketing Center
				Margin (Middlemen)	Commission (NACF)	
Cabbage	70	16	8	16	6	117
Raddish	61	16	8	19	6	110

Income enhancement effet.

- Cabbage : $W38 \times 3,490(M/T) = W132,620$ thou.
- Raddish : $W41 \times 2,395(M/T) = W 98,195$ thou.

6.8.2 Indirect Returns to Farmers.

- Farming Technical Guidance, Information
- Sutficient Production Fund (Preshipment)
- Supply of Farm Inputs.
- Dividend on Coop. Utilization
- Shcolarship (Schooling free)

Chapter VII. Budget

The budget for first 5 operating year has been given below.

(thousand Won)

Item	operating year					
	1	2	3	4	5	
1.Sales	1,870,000	2,560,000	2,660,000	2,940,000	2,940,000	
2.Pro- duction cost	FC	252,960	252,960	252,960	252,960	252,950
	VC	1,514,700	2,082,043	2,156,975	2,376,419	2,376,419
	Total	1,767,660	2,335,003	2,409,935	2,629,379	2,629,379
3.EBIT	102,340	224,997	250,065	310,671	310,671	
4.In- terest	Term Loan	32,288	32,288	32,288	54,528	43,768
	Working Capital	32,226	44,297	45,891	50,506	45,060
	Total	64,514	76,585	78,179	105,034	88,828
5.EBT(3-4)	37,826	148,412	171,886	205,637	221,843	
6.TAX(5x10%)	3,782	14,841	17,188	20,563	22,184	
7.EAT	34,044	133,571	154,698	185,074	199,659	
8.Repavment			100,000	150,000	150,000	
9.Cumulative surplus	34,044	133,571	188,269	223,343	273,002	

- 1.The intest rate is 11% excluding the Government loan.
- 2.The repavment of 3rd year will be 100 mil, but 15mil from 4th to 7th, and the remains will be repaid in the last year.

Chapter VIII Recommendation

- 8.1 To Cheong San PAC
 - 8.1.1 Severe marketing competition will be faced. To avoid such competition, Cheong San PAC must develop new consumer group in addition to strengthened advertising activities.
 - 8.1.2 Due to low storability, Kimchi must be handled in high condition of hygiene. For this, new research must be carried out and cold-chain marketing system must be established.

- 8.2 To NACF
 - 8.2.1 NACF should finance and support PACs to launch vegetable processing business to expand services to member farmers.
 - 8.2.2 NACF should provide PACs with finance and technical guidance and cooperate with PAC for the success of the Project, in developing new consumers groups and advertisement.

- 8.3 To Government
 - 8.3.1 Government should have keen interest for the development of Kimchi processing industry, especially should supervise and guide the companies to produce Kimchi of fresh and hygiene.
 - 8.3.2 Government should support NACF, which have national organizational network, in starting vegetable processing business in light of the effect that NACF's business is basically for the benefit of farmers' income enhancement.

APPENDICES

1. The trend of major vegetable price
- 2-1 Climate of project area
- 2-2 Cropping pattern of project area
3. Marketing performance of Cheong San PAC
- 4-1 B/S of Cheong San PAC
- 4-2 P/L of Cheong San PAC
- 5 Map of project area
- 6 Procurement of Kimchi processing
- 7 Item of machinery
- 8 Major raw material procurement and capacity utilization
- 9 Construction schedule
- 10 Salaries and wages
- 11 Net cash in flow
- 12 Net present value
- 13 Internal rate of return
- 14 Break even analysis
- 15 Interest on capital cost and working capital

(Appendix 1)

The trend of major vegetable price

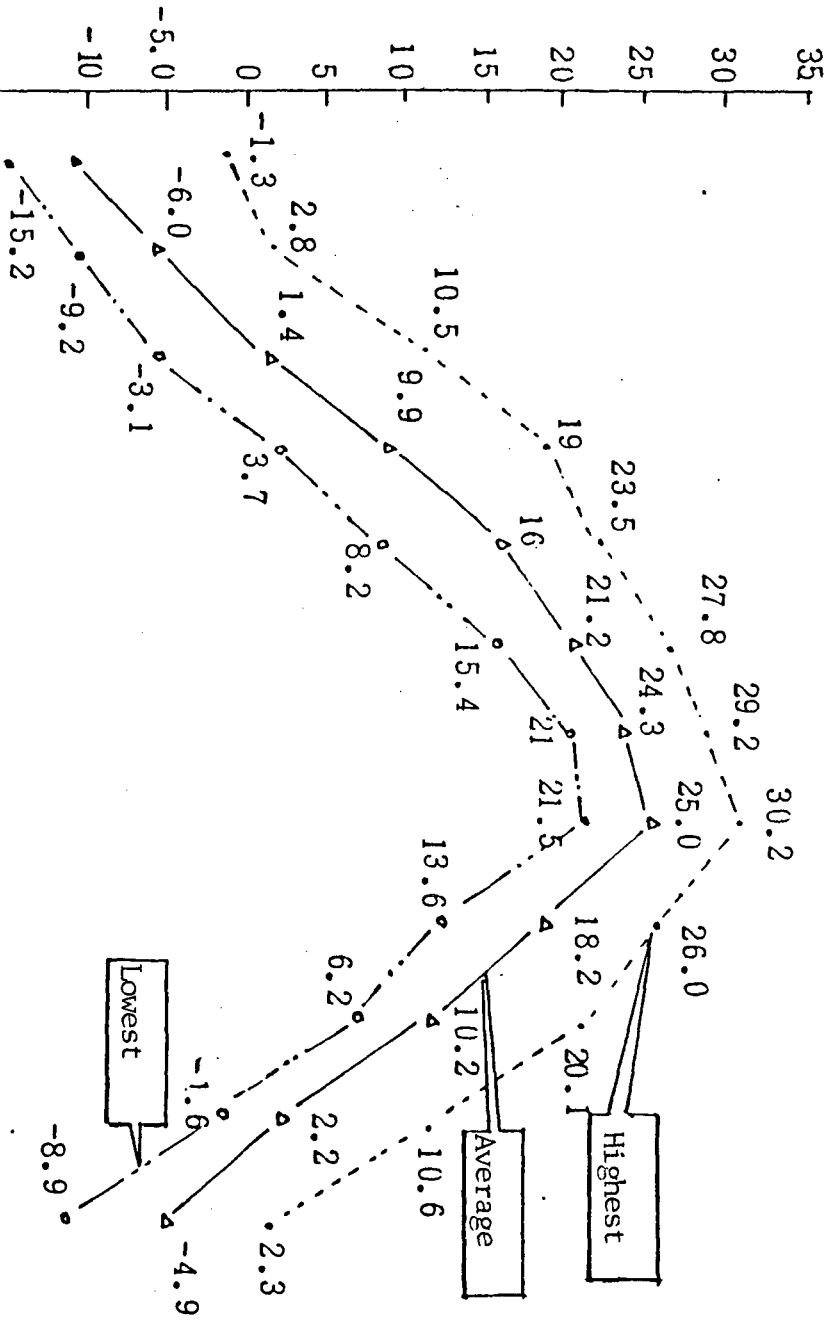
(NACF Marketing Center)

production: thousand M/T
(price : Won/kg)

Item		'83	'84	'85	'86	'87	
Radish	Production	1,568.4	1,738.2	1,586.4	1,705.2	1,536.5	
	Price	High Quality	100	121	112	107	104
		Medium Quality	69	84	80	79	87
Chinese Cabbage	Production	2,993.1	3,359.5	2,790.1	3,408.9	2,434	
	Price	H.Q	172	170	130	120	136
		M.Q	126	111	95	89	116
Garlic	Production	220	200	256	369.8	400.8	
	Price	H.Q	1,988	2,550	4,148	1,525	1,011
		M.Q	1,646	2,168	3,731	1,304	803
Red Pepper	Production	194.2	116.9	165.3	197.8	137.9	
	Price	H.Q	1,269	1,863	3,475	2,222	1,904
		M.Q	1,028	1,656	3,216	1,973	1,665

Climate of Project Area

(Aeendix 2-1)



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	75.2	342.2	322.1	212.8	43.3	55.2	19.6	1,296.5
Sunshining hours	149.2	144.3	108.7	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

Month Crops	1	2	3	4	5	6	7	8	9	10	11	12
Rice (Paddy)				o	x	→	→	→	→			
Groundnut					•	→	→	→	→			
Pepper or Eggplant			o	x	→	→	→	→	→			
Cucumber Radish Pumpkin + Cabbage			o	x	→	→	→	→	→			
								o	x	→		
								o	x	→		
Water melon Radish Sweet melon + Cabbage				o	x	→	→	→	→			
			o	x	→	→	→	→	→			
Oyster mushroom	→	→	→	→						→	→	

Legend :

- * o : Seeding
- * : Nussery Growing
- * x : Planting
- * : Growing Period

(Appendix 3)

Marketing Performance of Choeng San PAC

(As of the end of 1988)

Item	Produced Quantity	Home Consumption Quantity	Marketable Quantity	Quantity Handled by PAC	Market Share
Paddy	1,072M/T	589M/T	483M/T	3M/T	0.6%
Ground nut	214	17	197	164	83
Pepper	396	99	297	219	74
Cucumber	1,574	157	1,417	1,346	95
Melon	234	23	211	172	81
Egg plant	628	37	591	556	94
Pumpkin	3	0.4	2.6	2	77
Water melon	21	2.1	18.9	11.3	59
Oyster mashroom	62	3	59	59	100
Radish	180	45	135	-	
Chinese Cabbage	1,830	274	1,556	-	

(Appendix 4-1)

B/S of Cheong San PAC

(million won)

Assets	'87	'88	Liabilities & Capital Funds	'87	'88
Credit & Banking	3,545	2,651	Liabilities	4,028	3,310
Cash	68	97	Credit & Banking	284	359
Due From NACF	313	195	Deposits	2,046	1,342
Mutual Credit Loans	2,086	1,357	Borrowed Money	1,501	1,438
Loans	892	831	Others	197	171
Others	185	171	Cooperative Insurance	102	83
Cooperative Insurance	94	79	Non-Banking Business	182	276
Non-Banking Business	688	876	Pur Chosing	61	73
Purchasing	247	214	Marketing	62	20
Marketing	186	389	Proprite Funds	51	42
NACF Capital	13	13	Others	8	41
Fixed Assets	225	213	Capital Funds	299	296
Other Assets	17	47	Capital	74	74
			Reseves & Surplus	214	206
			Undivided profit	11	16
Total	4,327	3,606	Total	4,327	3,606

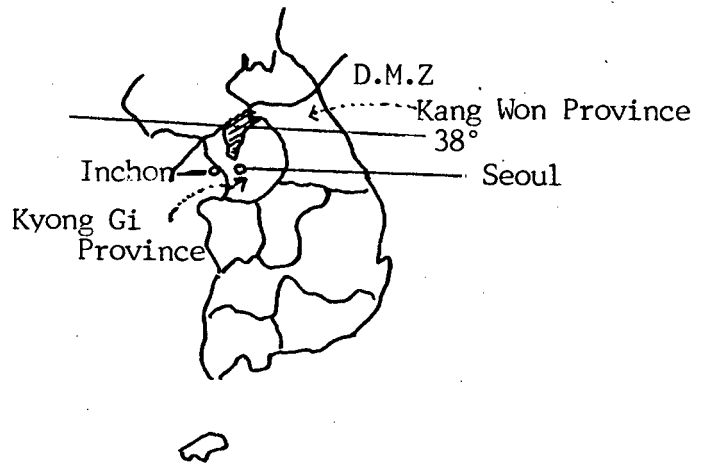
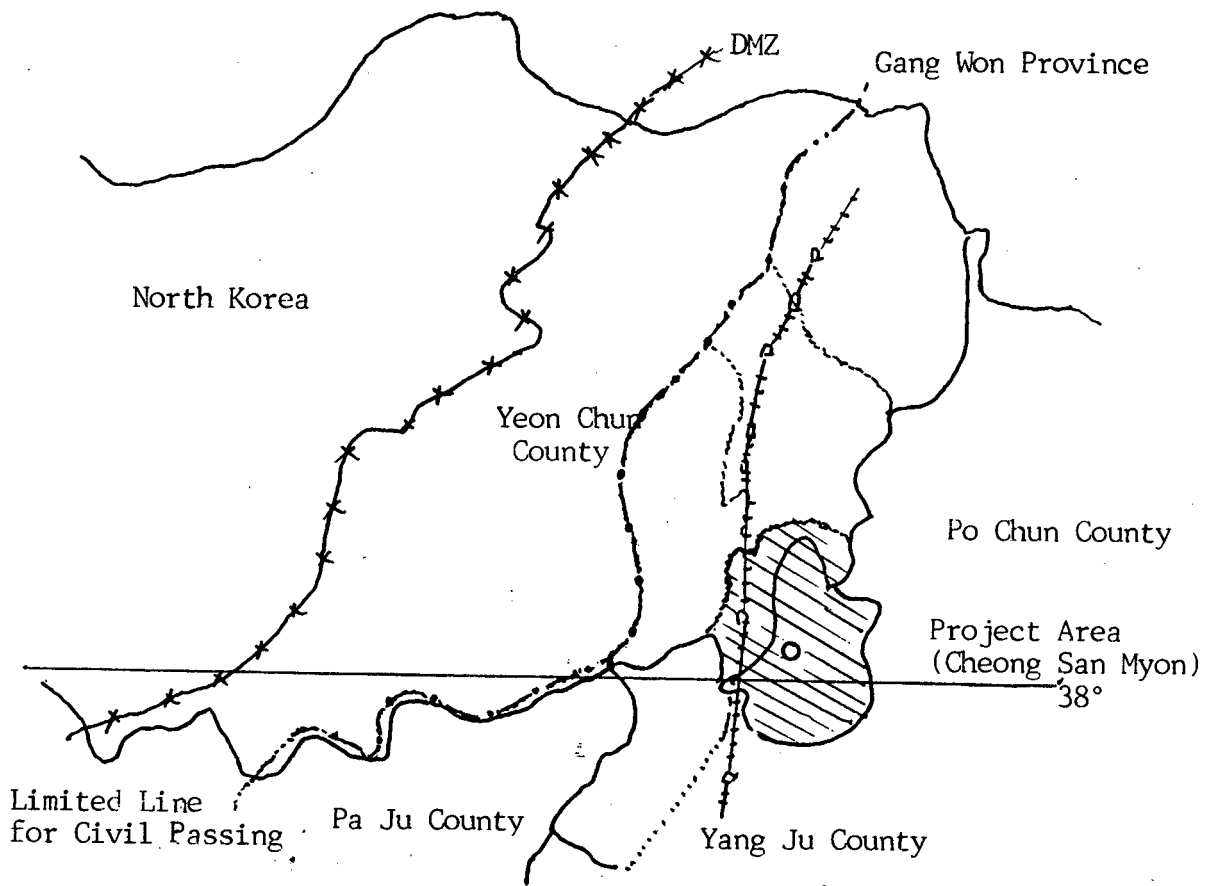
P/L of Cheong San PAC

(Appendix 4-2)

(million won)

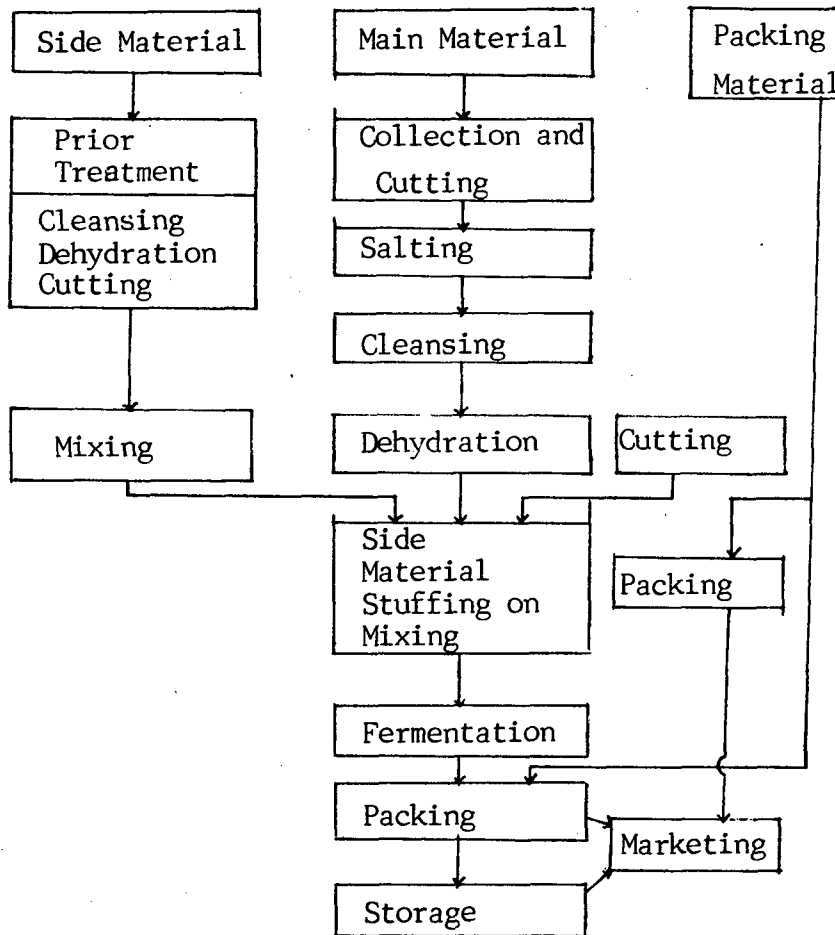
Item	1987	1988
Income	861	1,357
Credit & Banking	251	424
Interest on Loans	230	334
Other Interest	21	90
Cooperative Insurance	20	25
Non-Banking Business	597	908
Purchasing	496	680
Marketing	82	217
Others	12	11
Expenses	723	1,127
Credit & Banking	175	256
Interest on deposit	106	155
Interest on Borrowing	63	95
Others	6	6
Cooperative Insurance	10	14
Non-Banking Business	538	857
Purchasing	463	649
Marketing	64	196
Others	11	12
General & Administration expenses	120	218
Profit Before Tax	18	12
Propit After Tax	16	11

Map of Project Area



(Appendix 6)

Procesure of Kimchi Processing



Item of Machinery

Item	EA	Amount	Reamrk
Washer	5	9,050	root, drum, pepper
Cutter	5	11,150	shredding, radish, cabbage
Tank	26	12,500	washing, dehydration, desalting, portable work, salted fish, garlic
Cutter plate	2	1,040	
Desk	14	6,590	washing, moval work, packing, Kimchi working
Mixer	1	1,200	
Presser	1	9,600	
Pulverizer	2	1,000	pepper, salted fish
Roller	4	2,250	pepper
Striper	1	950	garlic
Oven	1	1,050	
Sterilizer	1	28,000	
Cooler	1	25,500	
Packing	3	14,500	
Box- wraper	1	1,200	
Scale	5	2,120	
L-type Carrier	5	1,800	
Tax		12,950	
Total		142,450	

All the Machine is local products.

Major Raw Material Procurement and Capacity Utilization

(In case of 50% Capacity Utilization)

(Appendix8)

Item	Quantity Required	Price	1	2	3	4	5	6	7	8	9	10	11	12
Chinese Cabbage(M/T)	3,490	125	250	220	115	100	370	130	115	260	290	510	550	580
Raddish (M/T)	2,395	96	165	150	90	105	75	130	90	210	240	380	400	390
Total	5,885		395	360	205	205	445	260	205	470	530	890	950	970
Kimchi Production(")			120	109	63	62	136	79	63	143	161	271	289	295
Working Ratio(%)			40	36	21	21	45	27	21	44	53	90	96	99

cf) 1. The working day is 25 day per month.

2. Quantity Required Cabbage : $Production \times 68\% \div 0.35 \times 1.2$
 { Raddish : $[(Production \times 20\% \div 0.3$
 + (Salted Reddish $\div 0.3)] \times 1.2$

Construction Schedule

(Appendix 9)

Item	Schedule											
	1	2	3	4	5	6	7	8	9	10	11	12
Land Purchase	←→											
Data Collection		←→										
Layout of Mill			←→									
Building Construction and Public Work				←→								
Machinery Installation								←→				
Electric Work									←→			
Other Equipment										←→		
Test-run											←→	

(Appendix 10)

Salaries and Wages

Item	Position	No.of Staff	Amount ('000 Won)	Basis
Salary	Manager	1	12,000	1,000x12monthx1
	Administ- rative Staff	6	57,600	800 x 12 x 6
	Expert	1	9,500	800 x 12 x 1
	Driver	3	21,600	600 x 12 x 3
	Engineer	2	14,400	600 x 12 x 2
	Watch man	1	4,800	400 x 12 x 1
	Work man	1	4,800	400 x 12 x 1
	Sub-Total		15	124,800
Wages	Daily hired Worker	40	132,000	11 x 300day x 4.0
	Total	55	256,800	

Net Cash Inflow (N.C.I.)

(Appendix 11)

Item	0	1	2	3	4	5	6	7	8	
¹ Capital Cost	676,483									
² Sales		1,870,000	2,560,000	2,660,000	2,940,000	2,940,000	3,300,000	3,300,000	3,300,000	
³ Expenditure	VC	1,514,700	2,082,043	2,156,975	2,376,419	2,376,419	2,676,148	2,676,148	2,676,148	
		FC ex- cluding Dep.	218,880	218,880	218,880	218,880	218,880	218,880	218,880	218,880
		Dep.	34,080	34,080	34,080	34,080	34,080	28,680	28,680	28,680
Total		1,767,660	2,335,003	2,409,935	2,629,379	2,629,379	2,923,708	2,923,708	2,923,708	
⁴ EBIT(2-3)		102,340	224,997	250,065	310,671	310,671	376,292	376,292	376,292	
⁵ Interest		64,514	76,585	78,179	105,034	88,824	78,945	62,686	46,395	
⁶ Tax(4-5)x10 %		3,782	14,841	17,188	20,563	22,184	29,734	31,360	32,989	
⁷ EAT(4-5-6)		34,044	133,571	154,698	185,074	199,659	267,613	282,247	296,908	
⁸ Add Back Dep.		34,080	34,080	34,080	34,080	34,080	28,680	28,680	28,680	
⁹ Interest on Term Loan		32,288	32,288	32,288	32,288	43,768	33,008	22,248	11,456	
¹⁰ Salvage Value									309,835	
¹¹ Net Cash Flow	686,483	100,412	199,939	221,066	273,682	277,507	329,301	333,175	646,879	

(Appendix 12)

Net Present Value

(at 11% of discount rate)

(thousand won)

	0	1	2	3	4	5	6	7	8
NCI	-676,483	100,412	199,939	221,066	273,682	277,507	329,301	333,175	646,879
DVIF		.90090	.81162	.73119	.65873	.59345	.53464	.48166	.43393
NPV	-676,483	90,461	162,274	161,641	180,282	164,686	176,057	160,477	280,700

$$NVP = \sum_{t=1}^T \frac{Rt}{(1+i)^t} - C = 1,376,578 - 676,483 = 700,095$$

PAY BACK YEAR

1. Capital Cost : 676,483
2. Sum up of NPV. to the 4th year : 594,658
3. Pay Back year : $4 + \frac{81,825}{164,686} = 4,49$ year

BENEFIT COST RATIO

$$B. C. R = \frac{\sum_{t=1}^T \frac{Rt}{(1+i)^t}}{C} = \frac{1,376,578}{676,483} = 2,03$$

Internal Rate of Return (IRR)

Year	NCI	D/R(29.5%)	NVP	D/R(30%)	N.P.V
0	-676,483				
1	100,412	0.77220	77,538	0.76923	77,239
2	199,939	.59629	119,221	59172	118,307
3	221,066	.46046	101,792	45517	100,622
4	273,682	.35 557	97,313	35013	95,824
5	277,507	.27 457	76,195	26933	74,740
6	329,301	.21 202	69,818	20718	68,224
7	33,175	.16 372	54,547	15937	53,098
8	646,879	.12 643	81,784	12259	79,300
Total			678,208		667,354

Internal Rate of Return

$$= 49.5\% + \frac{678,208 - 676,483}{678,208 - 667,354} (0.5\%) = 29.65\%$$

(Appendix 14)

Break Even Analysis (2nd year)

(thousand won)

Item	Amount	Calculation
T.R	2,560,000	(1200ton x 1,800) + (200ton x 2,000)
TFC	285,248	Production Cost 252,960 Interest on Term loan 32,288
TVC	2,126,340	Production Cost 2,082,043 Interest on Capital loan 44,297
AVC	1,518	TVC/Q(1,400 ton)
Price	1,828	TR/Q(1,400 ton)

$$\text{BEQ} = \frac{\text{TFC}}{\text{P}-\text{AVC}} = 920 \text{ M/T}$$

Interest on Capital Cost

(Appendix 15)

(thousand won)

Item	1	2	3	4	5	6	7	8	
Total	676,483	676,483	676,483	676,483	676,483	676,483	676,483	676,483	
Subsidy	68,500	68,500	68,500	68,500	68,500	68,500	68,500	68,500	
NACF Mutual fund	300,000	300,000	300,000	-	-	-	-	-	
Outstanding Balance	307,983	307,983	307,983	607,983	607,983	607,983	607,983	607,983	
Loan	Govt. (8%)	53,000	53,000	53,000	45,000	37,000	29,000	21,000	14,000
	NACF. (11%)	254,983	254,983	254,983	462,983	370,983	278,983	186,983	93,983
	Repayment	-	-	-	100,000	200,000	300,000	400,000	500,000
Interest	32,288	32,288	32,288	54,528	43,768	33,008	22,248	11,456	

Interest on Working Capital

Item	1	2	3	4	5	6	7	8
Total	292,969	402,702	417,196	459,640	459,640	517,613	517,613	517,613
Repayment					50,000	100,000	150,000	200,000
Outstanding Balance	292,969	402,702	417,196	459,640	409,640	417,613	367,613	317,613
Interest	32,226	44,297	45,891	50,506	45,060	45,937	40,437	34,937

Kimchi Processing Mill in CheongSan P.A.C

No. 1

Date of 2.

Hyang Kyu Lee
Korea.

Back Ground.

I. Kimchi in Korea

- 1.1 Kimchi and Koreans.
 - Most important side dish at every mill
(daily consumption of Kimchi is 100 ~ 200g/winter, 60 ~ 100g/summer)
- 1.2 procedure of Kimchi processing : Appendix
- 1.3 Kimchi industry
 - prospective small and medium industry supported by Gov't
- 1.4 Demand prospect of Kimchi
 - prospected to increase remarkably without stopping

II Overall situation

- 2.1 Location : Map.
- 2.2 population : 8,132 (2.0/2. household)
- 2.3 Land : 4,530 ha (paddy land 2,400 ha, upland 1,700 ha, forest 3,000 ha)
- 2.4 Cropping pattern and climate (Appendix 2)
- 2.5 General situation of P.A.C.
 - (1) membership : 670 (90% out of 607 farm household)
 - (2) Activities : carrying out various Activities, out of them marketing and processing is prominent (100% turnover share)
 - (3) Grass-roots level organization : 17 joint production and marketing groups

III problems faced by farmers.

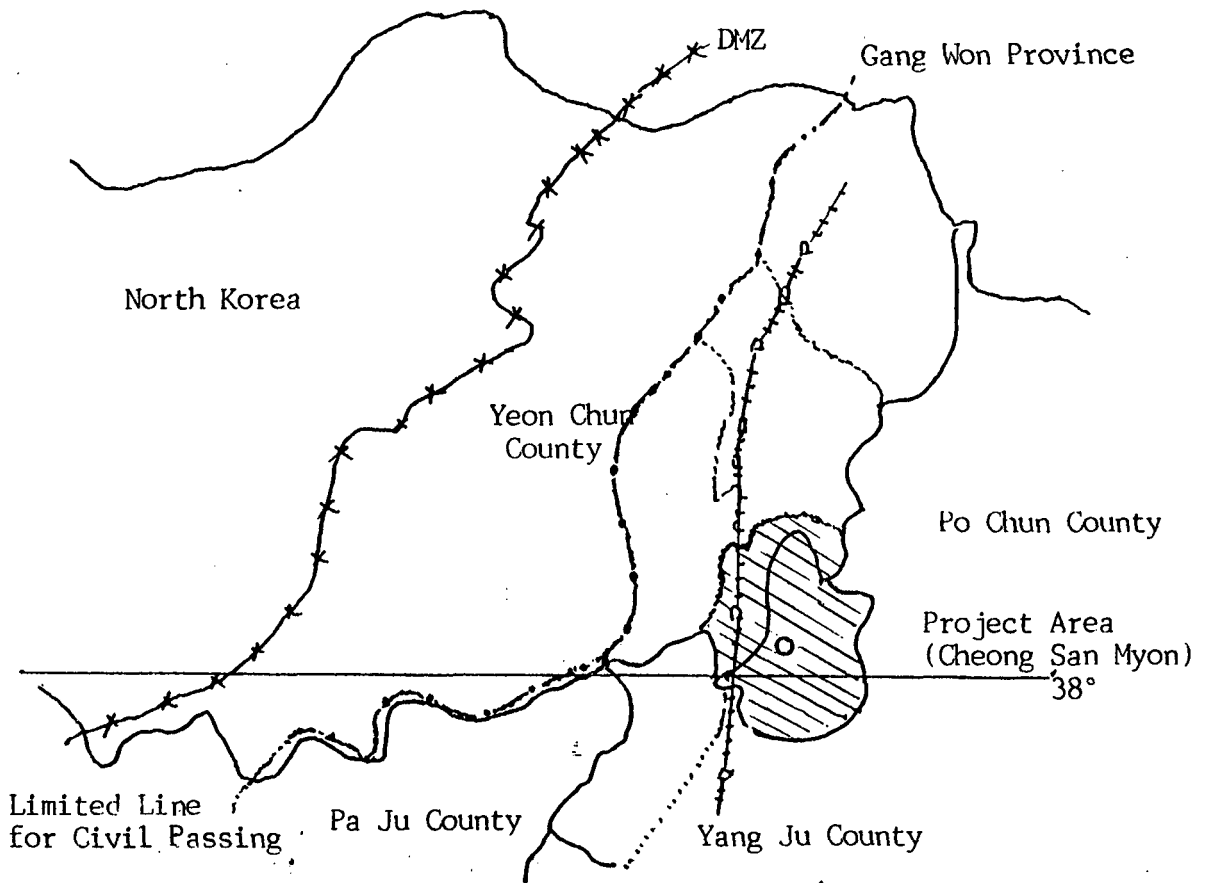
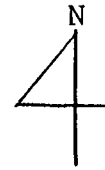
- 3.1 most of the vegetable growers (pro%) are selling their product to the middle men before harvesting in spite of getting loss at 30 / kg.
- 3.2. They want P.A.C. to handle the vegetable (radish and Chinese Cabbage) and express their desire to expand the area and production if the marketing problem is solved.

IV. Need and Justification for the project

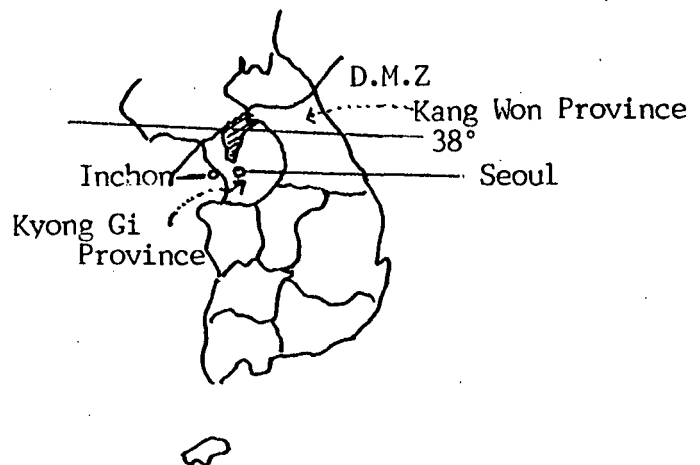
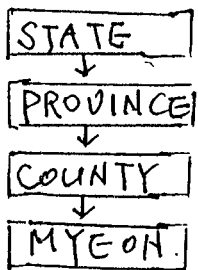
- 4.1 Accomodation of Farmer's Desire
- 4.2 Prospecting Industry and Gov't support
- 4.3. Situation Change in Demand.
- 4.4 Income enhancement of farmers and service expansion.

no 3
 Hyang Kyu Cee
 Korea

Map of Project Area



Administrative structure.



Hyang Kyu
Korea

Project Introduction

- I. Project life : 9 years (including 1 year of construction)
- II Capacity of Mill. : 10^{MT} of kimchi and 2^{MT} of salted vegetable daily by 8 hours work.

III. Investment and Fund resources

3.1 Investment

Thousand won

Land	:	52500	
Machinery. Equipment	:	178.450	All is domestic made.
Mill and Building	:	340.000	
Chill car	:	30.000	
Layout Cost	:	17.825	
pre operation cost	:	25.495	1 U.S. \$ = 680 won.
Contingency	:	32.213	
TOTAL		676.483	

3.2 Fund resources

Government	:	68.500	
Borrowing from Govt	:	53.000	(8% interest)
NACTH	:	200.000	(for 2 year. no interest)
NACTI.	:	Blance	(at 11% interest).

3.3 Working capital

operating year	1	2	3	4 - 6	6 - 9
Amount	272.868	402702	471.186	459640	517.613

IV Procurement of raw-material

4.1 Around 80-90% is supplied in the area and there remains are from neighbouring Area and NACTH marketing center.

4.2 production is controlled by contract and planned production

V. Production plan.

5.1 Quantity

	1	2	3	4	5	6-8	
Kimchi	850 ^{14/7}	1200	1200	1300	1500	1500	1.000 won/kg
Salted veg.	170	200	250	300	300	300	2.000/kg
Working ratio	28.3%	30.9	40.3	44.4	50.0		

5.2 Production Cost.

production variable	1,100	
Cost Fixed	62	power, Repair and Maintenance, Insurance
Admini - Variable	388	
strative Fixed	186	salary and Advertisement
	1,733	

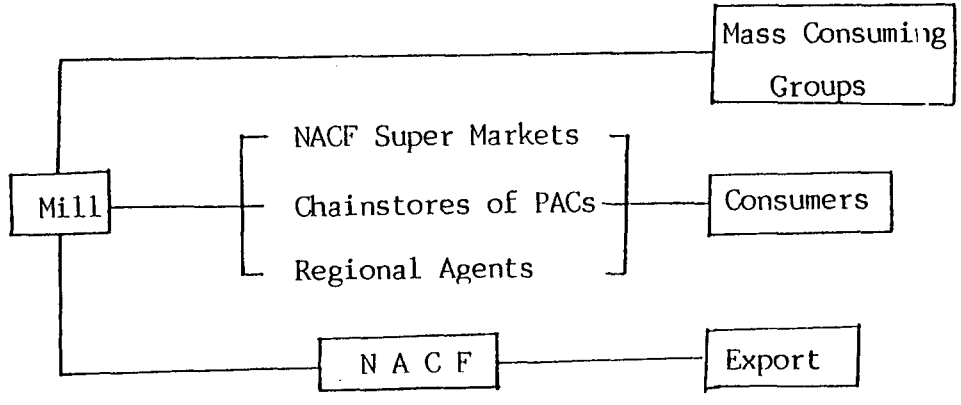
5.3 Packing

- Bulk packing : 15kg, P.P film : 500gr. or 1kg
- use the own brand mark "Cheong San PAC Kimchi."

VI Marketing

6.1 marketing channel

- 15 NACF. super market, 100 chain store of NACF and PAC
- 8 Regional sales agent.

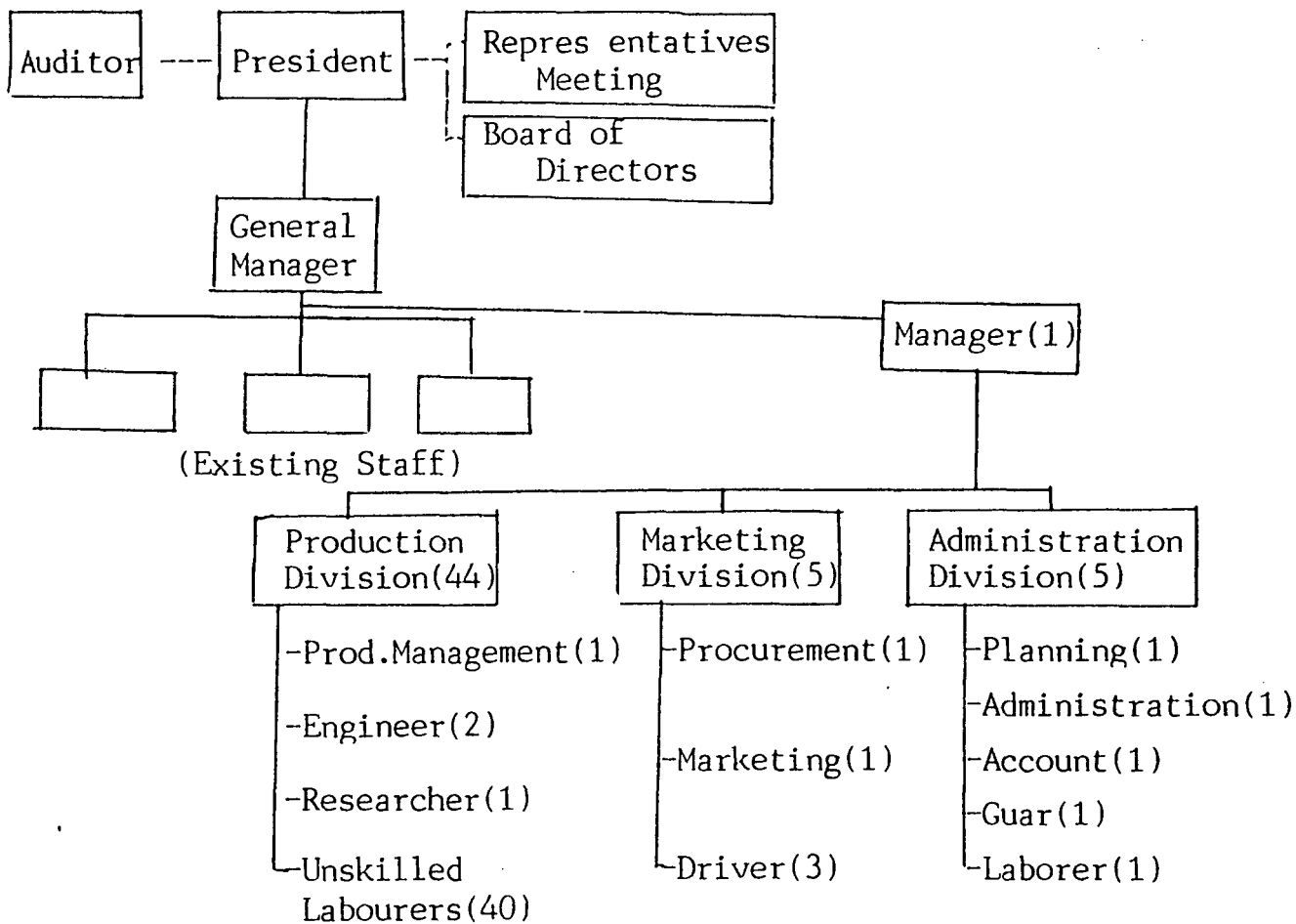


6.2 Advertisement

- Commercial advertisement through mass media such as TV, pap
- Sales advertisement will be concentrated on the families and women

Organization and Management

I Organization



II Task of Each Division.

2.1 Manager

- General responsibility on Mill operation under the direction and/or policy from the President and General Manager of PAC.

2.2 Production Division

- Production planning
- Production
- Machinery Maintenance
- Workers Control
- Supervision
- Quality Superivision
- Working Environment Control

2.3 Marketing Division

- Raw Material Procurement
- Products Marketing
- Transportation

2.4 Administration Division

- Administration
- Accounting
- Planning and Cordination
- Management Analysis
- Advertisement

Benefit of Project

I. Direct Benefit to the farmers

- 1.1 Getting safe and guaranteed price by contract-production
 - o Adumbrated price

$$= (\text{Average price of the previous year} \times \text{wholesale price increase rate})$$
 - o Compensation price = (Auction price - Adumbrated price)
- 1.2 Being compensated at least the transportation charge and the margin to be returned to middlemen.

< Estimated direct returns, on the basis of price Oct - Dec. 1997 >

Item	Price in Production Area	Transportation Charges	Other Expenses	Margin		Price in NACF, Marketing Center
				Margin (Middlemen)	Commission (NACF)	
Cabbage	70	16	8	16	6	117
Raddish	61	16	8	19	6	110

Income enhancement effet.

- Cabbage : $W38 \times 3,490(M/T) = W132,620$ thou.
- Raddish : $W41 \times 2,395(M/T) = W 98,195$ thou.

II. Indirect Benefit.

- 2.1. Provision of scientific Technical farming guidance
- 2.2 Intensive financial support
- 2.3 supply of Farm Inputs
- 2.4 Get the opportunities to use idle labours
- 2.5 Dividend on coop. Utilization
- 2.6 Scholarship (schooling fee) and Free medical care

Financial Analysis

Nyanskyia Lee
Korea

I major assumption

- 1.1 Project year is 9 years
- 1.2 All the cost is calculated as of the first year. Cost in constant
- 1.3 The selling price is ₦1,800/kg in Kenchi and ₦2,000/kg in salted vegetables
- 1.4 Depreciation cost

Item	Cost	Life	Amount
Building	251.689	40	7.914
Machinery	184.886	8	20.766
Chill car	30.000	5	5.400
Total	466.575		34.080
- 1.5 Salvage value of each item is 10% of the cost
- 1.6 production and over head cost is based on the data surveyed from existing mill.
- 1.7 The income tax is incurred at 10% of Income.

II. Analysis of the

- 2.1 N.C.I : appendix 11.
- 2.2 N.p.V at the end of the project year : 700 million won
- 2.3 payback year is 6.49 years (appendix 12)
- 2.4 B.C.R at 11% comes to 2.03 (appendix 12)
- 2.5 I.R.R after tax will stand at 4.65%
- 2.6 Break even quantity in 2nd year is 8004/7
- 2.7 sensitive analysis
 - in case of 10% reduction in selling price
 - B.C.R. is 1.67, IRR at 11% is 23.4%
- 2.8 Financial viability
 - financially absolutely viable.

Group ~~B~~A 24th Feb. NO1

Project Title: Kimchi Processing Mill
in Cheong San PAC
by. Hyang Kyu Lee

1. Production should provide the data of the estimated production of each vegetable for the project duration.
2. More detail information ~~about~~ about the product, such as taste, and nutrients value.
3. In kimchi development of demand to consumers is very important.
So it needs more detail schedule.

4. In promotion and marketing of the ^{new} products; sometimes it is more effective to be handled by well-established sales agent especially for export.
5. The budget allocation for advertisement and research, commission and returned goods is 30% — too high. We recommend 15%. It is better to separate research, advertisement and commission separately.
6. In calculating BEQ; it should be done by separate products — kimchi and salted vegetable.
7. The cost of land; should be included in the calculation of salvage value.
8. Provision of 5% increase in ~~the~~ salaries and wages ~~per~~ ^{every} year.

Observations of Group B

Project: Kimchi Processing Mill
in Cheong San PAC

(Prepared by Hyang kyu Lee)

- Value of Land (52,500 Won) should be included in the salvage value at 8th year for the purpose of computing financial analysis.
- The processing plant is near the demilitary zone. Therefore it is suggested that kimchi product should also be exported to north Korea.
- Provision of price fluctuation should be set aside to soften the effect of low price during surplus period.
- Budget for technical extension should be set aside.
- Marketing through sales agents is preferable.

GROUP - C -

KIMCHI PROCESSING MILL IN CHEONG SAN P.A.C.

1. ORGANIZATION

THERE SHOULD BE ADVERTISEMENT MANAGER TO LOOK-AFTER SALES PROMOTION, ADVERTISEMENT THROUGH RADIO, TV AND OTHER MASS MEDIA, TO ORGANIZE FREE SAMPLE DISTRIBUTION TO APARTMENT AND FOR ORGANIZING POINT OF PURCHASE MATERIAL.

2. TECHNOLOGICAL ISSUES.

VERY WELL DEFINED, BUT THE DEGREE AND EXTENT AUTOMATION MAY BE INTRODUCED IN ORDER TO SAVE LABOUR COST AND TO MAINTAIN HYGINE.

3. FINANCIAL ANALYSIS.

MORE RELIANCE FOR FUNDING THE PROJECT HAS BEEN PLACED ON GOVT SUBSIDY AND INTEREST FREE LOAN FROM N.A.C.F. IN CASE ANY OF THIS SUPPORT ARE NOT AVAILABLE, THEN WHAT IS THE ALTERNATIVE ARRANGEMENT, THAT TO BE CONSIDERED. THE FINANCIAL ANALYSIS MAY ALSO BE WORKED OUT ON THE BASIS OF COMMERCIAL RATE OF INTEREST IN SENSITIVITY ANALYSIS.

THE PROVISION OF PRICE STABILISATION FUND MAY BE MADE TO ABSORB INCIDENCE

PREVALENT IN VEGETABLE CROPS.

4. BENEFITS

- A. WE ARE NOT SURE OF THE FULL BENEFITS TO THE FARMERS OF THE COMMAND AREA AS MOST OF THE RAW MATERIAL FOR 8 MONTHS IN AN YEAR COMES FROM UPLAND AREAS AND GREEN HOUSES. MORE OVER THE PLANT ~~COULD~~ UTILIZED ITS FULL CAPACITY ONLY WHEN IT PURCHASES RAW MATERIAL FROM OUTSIDE OF THE COMMAND AREA.
- B. PLANT UTILIZATION MAY BE MAXIMIZED, IN ORDER TO ENSURE ~~PROFIT~~ PROFITABILITY OF THE PLANT, BECAUSE OF THE PRESENT SITUATION IT IS LIKELY TO PRODUCE LESS, FINISHED PRODUCT (KIMCHI) DUE TO LESS AVAILABILITY OF RAW MATERIAL AND RESULTANTLY IT WILL BRING/GENERATE LESS REVENUE.

Third ICA Training Course for Strengthening Management of Agricultural Cooperatives in Asia

INDIA, THAILAND, JAPAN & CHINA

October 24, 1988—May 7, 1989

Funded by the Government of Japan

and

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

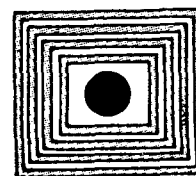
ICA Management Training Project for Agricultural Cooperatives in Asia



INTERNATIONAL COOPERATIVE ALLIANCE

Headquarters :
Route des Morillons 15,
CH 1218, Le Grand Seconnex,
Geneva, Switzerland.

Regional Office for Asia
43, Friends' Colony, (East)
New Delhi-110065.
India



CONTENTS

	Page
Acknowledgement	3
Chapter I. Summary	4
Chapter II. Background	6
Chapter III. Dairy Plant in Jeonbuk Province	12
Chapter IV. Details of Operations	15
Chapter V. Organization and Management	18
Chapter VI. Financial Analysis	21
Chapter VII. Budget	24
Chapter VIII. Recommendations	25
Appendixes	27

ACKNOWLEDGEMENTS

I am very pleased to attend the ICA training course for strengthening management of agricultural cooperatives.

And I hope that this attendance would contribute to the individual development and also the development of organization.

In order to increase the income of farmers, the project for dairy plant is prepared.

I would like to express my gratitude to Mr. M.V. Madane, project director, other staffs of ICA and professors of IIMA.

Also I am grateful for the staff of NLCF who gave me the opportunity to participate in this course.

Seoul, Feb. 1988

Byung-Ho Jeong

Chapter I. Summary

1. The project is to establish the dairy plant of 60 tons of milk collecting capacity per day in Jeonbuk province.
2. The recent demand of milk and milk products are inclined to increase rapidly, which makes NLCF establish the dairy plant.
3. The project will be implemented by NLCF. So NLCF headquarters will regulate all management to establish the plant. And NLCF headquarters can get support of Jeonbuk provincial office about preparation and supervision of construction of the plant.
4. Organization of the plant consists of 4 divisions such as marketing, production, administration and extension division.
5. The construction of dairy plant needs 2 years and 2,600 million Won of capital investment. And the project will be financed by NLCF.
6. By 10 operating years, NPV is 1,339 million Won and IRR is calculated as 18% while the current annual interest rate is 11%.
7. The demand of raw milk by this plant will induce the farmers to raise more dairy cattles and if the milk production in the region meets all demand of raw milk in the plant, the benefit of dairy farmers will be income increase of 2.8 million Won per household a year.

8. At present, the dairy farmers are marketing the raw milk to the private companies mostly. So they want to supply it to the cooperative and to receive better services. Accordingly the dairy plant in this project will be able to satisfy the farmers' desire in the region.
9. The manufactured products will be sold through cooperative, marketing agency, chain store, market and hospital.

Chapter II. Background

2.1 Overall Situation

1. General Situation of Dairy Market

In Korea, the consumers for dairy products are inclined to purchase the products on the basis of quality and they are seeking for diversified dairy products.

The consumption of dairy products is related to the population in the region, purchasing power, quality, market trend and dietary habit of people.

Now the consumption of liquid milk and milk products is 32 kg in milk which is under the level of developed countries.

But total consumption is increasing 10-15 percent annually.

The market share of liquid milk and yogurt is over 70 percent. These products are being marketed rapidly.

2. Number of Dairy cattle and Households Raising Dairy Cattle

Table 1. (Unit: 1,000 Head, households)

	1981	1982	1983	1984	1985	1986	1987
Dairy cattle	194	228	275	334	390	437	463
Households	18	23	30	38	44	43	38
Average (head)	10.7	10.1	9.3	8.9	8.9	10.2	12.2

Source: NLCF, Quarterly Review

3. Production Trend of Milk

The milk production of 1980 was 452,327 M/T and in 1987, the milk of 1,413,126 M/T was produced. Therefore the increase of milk production has been 137,257 M/T per annum.

Table 2. Milk Production

								(Unit: 1,000 M/T)
1980	1981	1982	1983	1984	1985	1986	1987	
452	513	576	712	841	1,006	1,154	1,413	

Source: MAFF, Dairy Statistics

Also the city milk produced in 1986 is 884,000 M/T, which is 76.6 per cent. And the processed milk in same year was 270,000 M/T which is 23.4 per cent. Nowadays the production of city milk is increasing gradually.

Table 3. Milk Processing Situation

						(Unit: M/T)
Year	Milk Collecting	City Milk	%	Processed Milk	%	
1980	452,327	258,587	57.2	193,740	42.8	
1983	712,205	496,528	69.7	215,677	30.3	
1986	1,154,460	884,479	76.6	269,981	23.4	

Source: MAFF, Dairy Statistics

2.2 Area of Project

Area of the project is Jeonbuk province, southern area of Korea. And it covers the area of 8,052 km² in which population is 2.2 million.

Also the number of households in Jeonbuk area is 490,000. And Jeonbuk province consists of 13 counties.

1. Area of Jurisdiction

There are 13 livestock cooperatives.

2. Acreage and Arable land

Jeonbuk province covers 8.1 percent of total acreage.

Table 4. Cultivated Land (1987)

Area of cultivated land (ha)			Cultivated land per household		
Total	Paddy field	Dried field	Total	Paddy field	Dried field
243,108	183,897	59,211	121.4	91.8	29.6

Source: EPB, Korea Statistical Yearbook

3. Population and Households in 1987

Farm population in the area is 850,000 persons which consists of 10.9% in the nationwide farm population.

4. Dairy Situation in Jeonbuk Province

Table 5. Raising No. of Cattle and Household per size

	Total	Head 1-9	10-29	30-49	Over 50
No. of cattle	21,736	7,206	10,115	2,604	1,811
Household	2,047	1,323	629	72	23

Source: NLCF, Quarterly Review

In respect of raising number of dairy cattle and raising households, Jeonbuk province belongs to medium level of nation.

As the end of 1987, the number of dairy cattle is 21,736 head and the number of households is 2,047. So the average number of dairy cattle is 10 head per household.

2.3 Problems faced by Farmers

1. One of problems in demand and supply of milk is unbalance of demand and supply according to the season.

Therefore in the dairy farm, the farmers have difficulties to operate the fund and manage the stock.

Now the dairy farmers are marketing the raw milk to the private companies mostly. So they want to supply it to the cooperative and to receive better services

2. As the end of 1988, there are 161 livestock cooperatives in Korea which are consisted of 144 local cooperatives and 17 specialized cooperatives such as dairy cooperatives.

8 dairy cooperatives can not accommodate the dairy farmers' needs. Therefore the farmers expect further stronger role of cooperatives.

2.4 Needs and Justification for the project

1. NLCF will establish the dairy plant in Jeonbuk Province whose capacity is 60 M/T of milk collecting per day.

So the farmers will be able to expand the supply of milk and to increase their income.

2. The average income of farm household is 6,535,000 Won in 1987. And the agricultural income is 4,016,000 Won which is 61.5 percent of total income.

As the dairy plant of NLCF is constructed, it is expected that the income increase of agriculture and the expansion of employment would be effected.

3. Farm Households by Type in Jeonbuk

(in 1987)

	Number of farm households			
	Total	Full time	Class 1 part time	Class 2 part time
Jeonbuk	200,315	168,848	13,056	18,411
Nation	1,871,455	1,464,726	159,582	247,147

Note: 1) Class 1 part time

The household whose agricultural income is more than 50% of total annual income.

2) Class 2 part time

The household whose agricultural income is less than 50% of total annual income.

Source: NACF, Agricultural Cooperative Yearbook.

4. Forecast of Demand on milk and milk products

	Raw milk (1,000 M/T)	Infant powder (M/T)	Butter(M/T)	Cheese(M/T)
1990	1,457	22,358	4,929	804
1993	1,917	24,875	7,186	1,432
1996	2,507	27,575	9,890	2,583
1999	3,260	30,467	11,693	4,437

Source: Korea Rural Economics Institute

The Korea Rural Economics Institute, specialized research institute of agriculture, forecasted the demand of milk and milk products as above. That forecast is based on the increase of national income. NLCF will cope actively, and as a result, contribute to income increase of farmers.

Chapter III. Dairy Plant in Jeonbuk Province

3.1 Objective

As Korean national income has greatly increased due to successful economic development, the recent demand of milk and milk products are inclined to increase rapidly.

And such an increasing demand of milk products makes it inevitable to establish the dairy plant to be invested by NLCF.

The objectives of establishment of dairy plant are as following:

- To achieve the price stabilization by balancing the supply and demand of milk and milk products.
- To protect the dairy farmers by processing all the raw milk produced by those who are members of livestock cooperatives.
- To increase the cooperative's activities to support farmers.

3.2 Area of Operation

The project is located in Kimje which is one county out of 13 counties in Jeonbuk province. There is expressway near to project area.

So it is convenient to collect raw milk and to market milk and milk products to consumer area. Therefore the benefit of location is selected for consideration of milk supplying and selling which consumes milk products.

Also in that area, the plant is well arranged with convenient uses of all energy facilities such as electricity and water.

3.3 Project Components

1. Procurement and Processing

In the region, the dairy plant will purchase the raw milk and process it. Also the plant sets up the plan to enhance the quality of milk products and induces the dairy farmers to produce the quality milk. The raw milk for collection is transported by tank lorry.

This plant is going to process raw milk of 60 M/T per 8 hours per day. In case the seasonal fluctuation of milk production and marketing, abnormal situation and orders exceeding production capacity are occurred, the plant will operate over the normal operating time. And the plant will produce the city milk and cheese.

2. Marketing

The marketing of milk and milk products are effected through the organization channel of cooperative and marketing agencies. Utilizing the cooperative channel in marketing the mixed feed is very useful. And it is expected that the utilization of cooperative channel in marketing dairy products is useful too.

But NLCF will emphasize the set-up of marketing agencies for milk and milk products.

Also the advertisement is effected on the basis of image of livestock cooperative.

That is NLCF will publicize the role of cooperative in agriculture and NLCF will advertise they produce the dairy products for the promotion of marketing.

And the manufactured products are sold through cooperative, marketing agency, chain store, super market and hospital.

The activities of marketing promotion are advertisement in the newspaper and publication, product exhibition and personnel marketing.

3. Extension

The purpose of extension is to guide the dairy farmers to produce the quality milk. Of course, in order to produce and market the good quality products, NLCF need the raw milk of good quality.

NLCF will make efforts not only to increase of marketing for the farmers' income but to induce the farmers to get more income continuously out of live-stock raising by proper guidance to the farmers.

The contents of extension is to advise for the management of dairy cattle and to inform the farmers of supplying feed. Also NLCF will maintain the relations with farmers for quality of milk.

Chapter IV. Details of Project

4.1 Capacity of Dairy Plant

The capacity of dairy plant will be 60 tons of collecting raw milk per day, and the plant will produce the city milk and cheese.

4.2 Manufacture Process

The manufacture process of this project is divided into a milk reception, city milk, cheese.

The process of storing raw milk supplied from dairy farmer in the raw milk storage tank of dairy plant is milk reception line. That process of milk reception line covers transporting raw milk collected from dairy farmers to dairy plant by tank lorry, purifying raw milk by filter, eliminating air, freezing raw milk and storing it in a raw milk storage tank.

As the raw milk stored is supplied into all products lines of plant and used as the raw material of product.

That manufacture process of sterilizing raw milk stored in a raw milk storage tank in U.H.T sterilizing method - sterilizing raw milk under 132°C - 135°C during 1-2 second - after passing homogeneity process for preventing solid matters from being settled, of packing and completing product is used for manufacture of city milk.

The latest automatic machinery to be used in each manufacture process of this project can make product process effective.

4.3 Quality and Standard of Products

The quality standard of products to be produced from this project is based on the Quality Inspection standard stipulated in the Livestock Products Sanitary Treatment Law.

The quality standard stipulates the number of bacteria, colon bacillus, non-fat solid material and milk fat acidity for city milk.

4.4 Marketing of Milk Products

All of milk products produced from the project is for a domestic marketing. The export to a foreign country is not under contemplation. The whole area of Korea is under the object of marketing.

The manufactured products are marketed through agency, cooperative, chain store, super market and hospital.

4.5 Schedule of Construction of Dairy Plant

It will take approximately 24 months to build the dairy plant.

1. Purchase of land
2. Working out the detail plan about layout of the plant and machinery
3. Construction
4. Installation of machinery
5. Test run
6. Starting production

4.6 Investment

The investment amount required for this project can be divided into purchasing cost of land, construction and civil works, machinery and erection of machinery, etc.

And NLCF will finance the investment fully.

(in million Won)		
Item	Cost	Remarks
Expense of beginning project	200	
Land	600	
Building	1,000	
Machinery	800	
Total	2,600	

Chapter V. Organization and Management

5.1 Management Policy

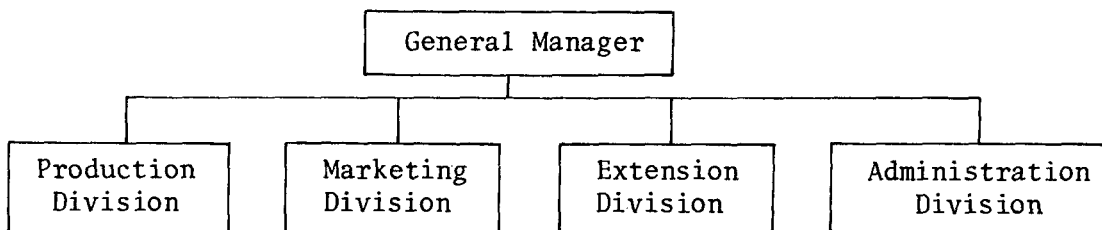
The project will be implemented by NLCF. Therefore NLCF headquarters will regulate all management. And Jeonbuk provincial office of NLCF can assist the preparation of construction of this plant.

5.2 Contents of Management

- 1) Administration and general management
- 2) Accounting
- 3) Procurement of raw material
- 4) Marketing
- 5) Extension
- 6) Maintenance of machinery

5.3 General manager responsible for all management in the plant. But the guideline for management will be directed by NLCF headquarters. And NLCF headquarters will audit the management of the plant periodically.

5.4 Organization Chart



5.5 Tasks of Division

1. Production Division

The work of production division is to purchase the raw milk and manufacture the products. Therefore they make efforts to raise the productivity by utilizing raw milk and packing material.

And in order to accommodate the consumer's desire, they research the development of new product and the improvement of current product.

2. Marketing Division

The work of marketing division is to achieve the target of marketing according to the plan by occupying proper market.

They take charge of marketing promotion such as the advertisement in order to maintain and increase the marketing.

Also they see the market trend and reflect it to the improvement of existing products and to the development of new products.

3. Extension Division

The personnels of extension division advise the dairy farmers to raise dairy cattle properly and guide the farmers to supply the feed. Other work is to assist the improvement of milk quality which the farmers produce.

4. Administration Division

This division is in charge of improvement in work ability of staff. And they pay the salary of employees, manage the welfare facilities.

They plan to rationalize the function of work and make out the financial statements.

Another task is to assist other divisions for administrative affairs in order to achieve the whole target of plant.

Chapter VI. Financial Analysis

6.1 Purpose of Financial Analysis

The investment project is defined as a certain activity executed within specified period from starting point to an ending for the purpose of accomplishing certain object.

Financial analysis is to examine to what an extent a main investor in the project will realize profit and whether it will be worth investing or not by analysing profit and expenditure.

6.2 Basic Assumptions

Basic assumptions employed in the financial analysis are as follows:

1. Project period is 10 years, including 2 years construction.
2. Depreciation is as below.

(in million Won)

Item	Cost	Service life (years)	Depreciation per year
Building	1,000	40	23
Machinery	800	15	48
Total	1,800		71

* Salvage value is 10% of cost.

3. Price of raw material, selling price of milk and milk product are used as assumptions.
4. Income tax is 10 percent.

6.3 Capital Cost of Project

The total capital of 2,600 million Won will be invested as follows.

(in million Won)			
Year	1	2	Total
Capital cost	1,920	680	2,600

6.4 Working Capital

	Amount	Remarks
Raw material	580	30 days
Labor cost	52	
Total	632	

6.5 NPV

On the basis of 11% discount rate, NPV is calculated as follows.

(in million Won)					
Year	1	2	3	4	5
Net Cash Flow	-1,920	-680	-192	1,053	1,053
PVIF	1	0.9009	0.8116	0.7312	0.6587
NPV	-1,920	-613	-156	770	694
Year	6	7	8	9	10
Net Cash Flow	1,053	1,053	1,053	1,053	1,053
PVIF	0.5935	0.5346	0.4817	0.4339	0.3909
NPV	625	563	507	457	412

$$* \text{NPV} = \sum_{i=1}^{10} \text{NPV}_i = 1,339 \text{ million Won}$$

6.6 IRR

IRR in the project is calculated as 18%.

* This rate is higher than current interest rate of 11%.

6.7 Break-Even Point

Break-Even point is calculated as follows.

1. Liquid milk

$$\begin{aligned} \text{B.E.Q} &= \frac{\text{Fixed cost}}{\text{P-AVC}} \\ &= \frac{1,820 \text{ mil.} + 49.7 \text{ mil.} + 442.4 \text{ mil.} + 226.1 \text{ mil.}}{130 - 114} \\ &= \frac{2,538.2 \text{ mil.}}{16} = 158,637,500 \text{ (pieces)} \end{aligned}$$

* Year of B.E.P: 3.1 years

2. Cheese

$$\begin{aligned} \text{B.E.Q} &= \frac{\text{Fixed cost}}{\text{P-AVC}} \\ &= \frac{780 \text{ mil.} + 21.3 \text{ mil.} + 189.6 \text{ mil.} + 96.9 \text{ mil.}}{700 - 614} \\ &= \frac{1,087.8 \text{ mil.}}{86} = 12,648,837 \text{ (pieces)} \end{aligned}$$

* Year of B.E.P: 3.1 years

6.8 Sensitivity Analysis

If we assume that the reduction of sales revenue is 3%, IRR is calculated as 12%.

Chapter VII. Budget

The budget for the beginning five operating years is as below.

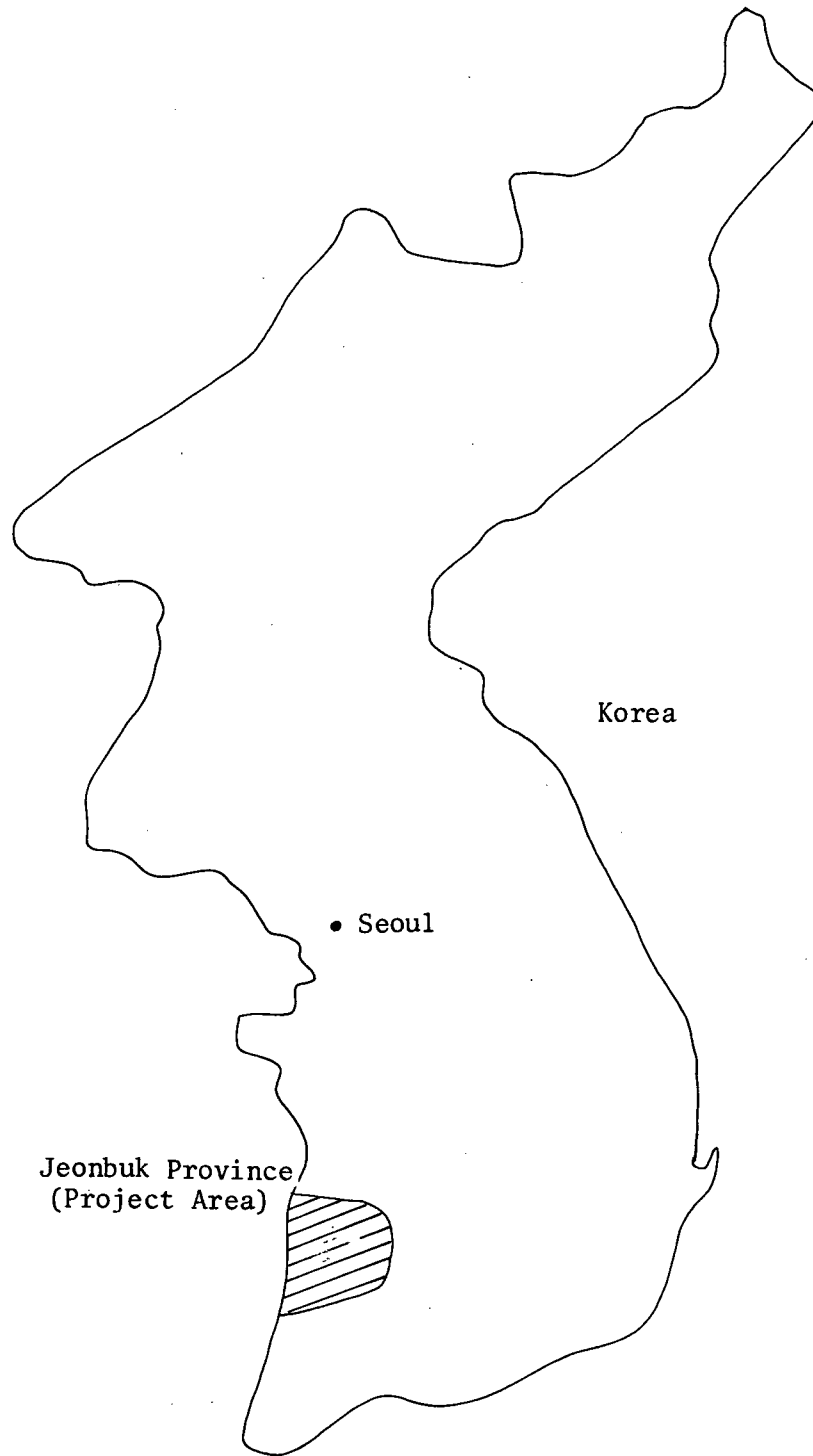
(Unit: in million Won)

Item	Operating Year				
	1	2	3	4	5
1. Revenue	-	-	5,656	11,311	11,311
2. Expense	1,920	872	5,246	10,220	10,220
- Depreciation	71	71	71	71	71
- Interest	-	192	260	323	323
3. Operating income	-	-	410	1,091	1,091
4. Tax	-	-	41	109	109
5. Net income	-	-	369	982	982

Chapter VIII. Recommendation

1. The direct effect of project is the creation of value added by the production of milk products.
2. Also the indirect effect of project is the strengthening the foundation of development of dairy industry.
3. The government's economy development policy has made a great contribution to the rapid growth of dairy industry in Korea and the performance of this project will promote the production increase of milk products.
4. The production increase of milk products, enhancing the dairy farmers' desire for production, will expand the base of dairy industry.
5. Increase of dairy farmers' income can be realized. The production increase of milk in farm households will contribute to the rise of dairy farmers' income.
6. On the basis of 11% discount rate, NPV is calculated as 1,339 million Won and IRR in the project is calculated as 18%. Therefore it is feasible for NLCF to invest the fund to establish the plant.
7. In this project, NLCF can get profit 3 years after the establishment of dairy plant as they calculate the Break-Even Point.
8. In addition to economic feasibility, NLCF is requested to construct the dairy plant to increase the role of cooperative in the agricultural area.

1. Project Area



2. Financial Revenue Rate of Project

(in million Won)

Item	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
A. Cash inflow											
Sales revenue			5,656	11,311	11,311	11,311	11,311	11,311	11,311	11,311	11,311
Total			5,656	11,311	11,311	11,311	11,311	11,311	11,311	11,311	11,311
B. Cash outflow											
1. Investment											
1) Purchase of land	600										
2) Building	660	340									
3) Machinery	530	270									
4) Others	130	70									
2. Operating expenses											
1) Labor			4,915	9,826	9,826	9,826	9,826	9,826	9,826	9,826	
2) Materials			375	749	749	749	749	749	749	749	
3) Utilities			3,908	7,815	7,815	7,815	7,815	7,815	7,815	7,815	
4) Repair & maintenance			86	171	171	171	171	171	171	171	
5) Administrative expenses			11	21	21	21	21	21	21	21	
6) Transportation			321	642	642	642	642	642	642	642	
3. Working funds			214	428	428	428	428	428	428	428	
4. Interest		192	260	323	323	323	323	323	323	323	
5. Tax			41	109	109	109	109	109	109	109	
Total	1,920	872	5,848	10,258	10,258	10,258	10,258	10,258	10,258	10,258	10,258
C. Inflow and outflow in net cash											
	-1,920	-680	-192	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053
D. PVIF											
	1	0.9009	0.8116	0.7312	0.6587	0.5935	0.5346	0.4817	0.4339	0.3909	
E. NPV											
	-1,920	-613	-156	770	694	625	563	507	457	412	

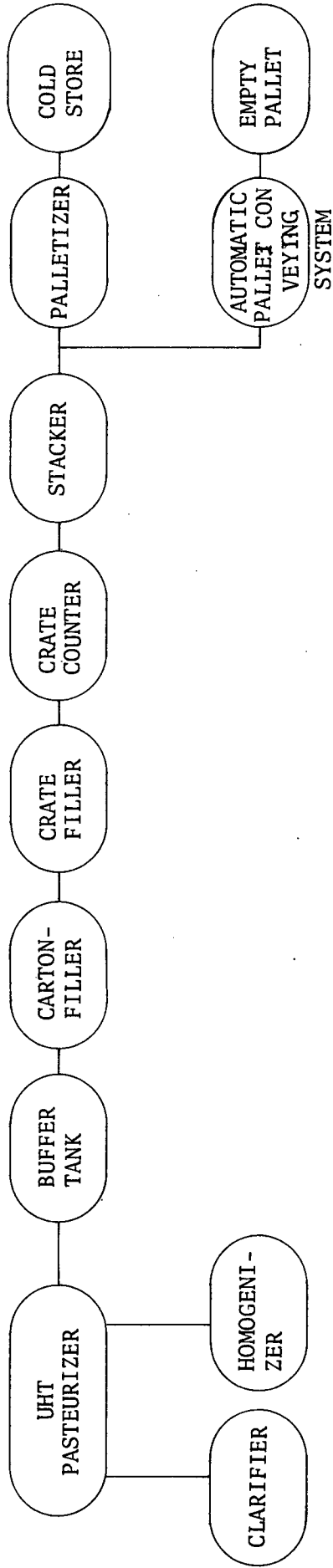
3. Utilization of Raw Milk in Project

	Raw milk (kg/day)	Manufacture of products (kg/day)	Expenses for raw milk (based on 322 Won/kg)		Unit	Marketing products			
			per day	per 300 days		per day Pieces	per day Amount (Won)	per 300 days Pieces	per 300 days Amount (Won)
City Milk (70%)	42,000	40,320	13,524,000	4,057,200,000	200cc 130 Won	201,600	28,224,000	60,480,000	7,862,400,000
Cheese (30%)	18,000	1,642	5,796,000	1,738,800,000	100g 700 Won	16,420	11,494,000	4,926,000	3,448,200,000
Total	60,000		19,320,000	5,796,000,000			39,718,000		11,310,600,000

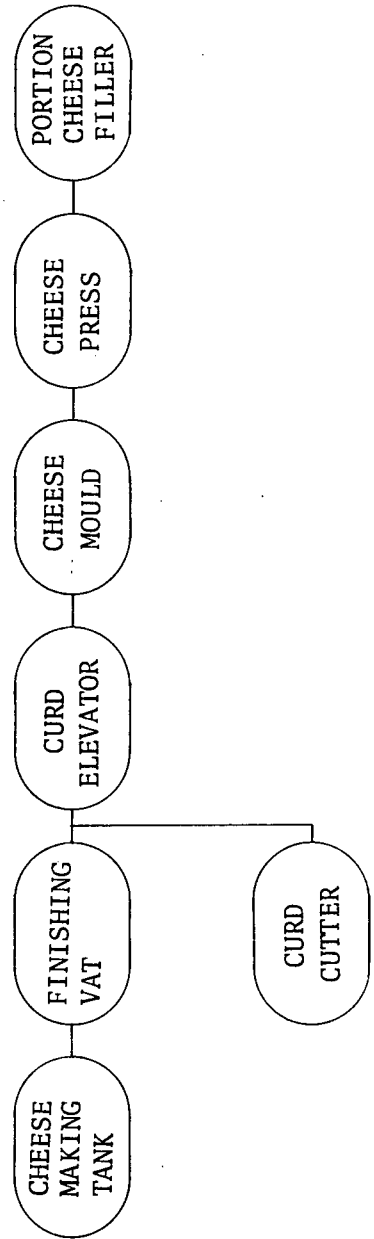
* Operation of plant
 1st year: 50%
 since 2nd year: 100%

4. Flow Chart of Milk and Cheese

CITY MILK LINE

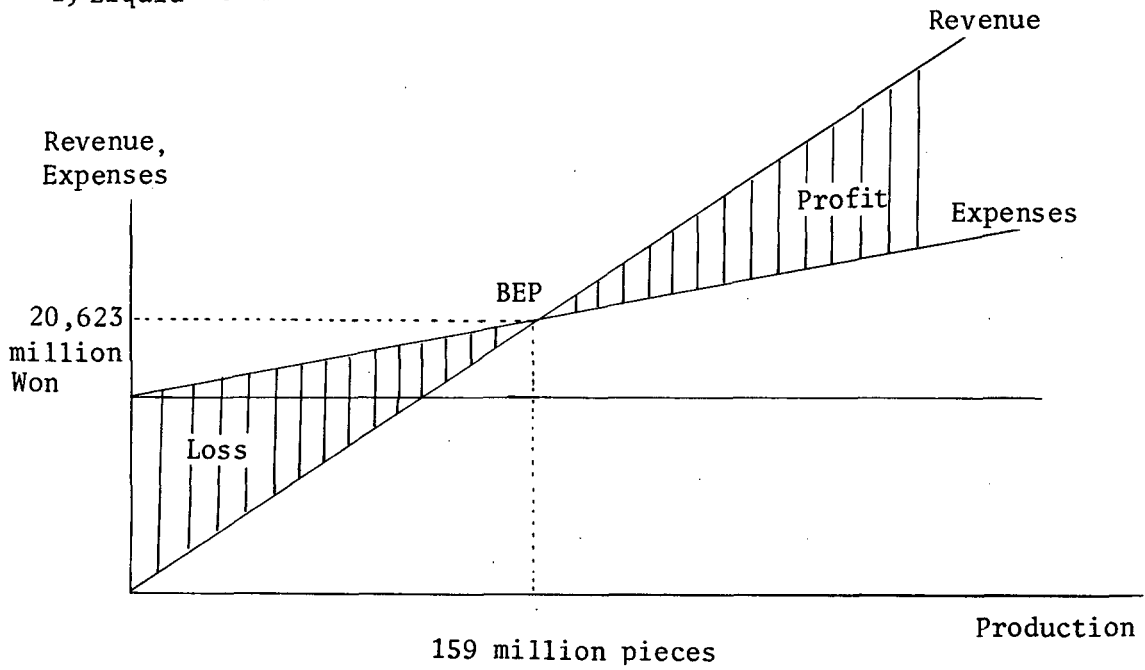


CHEESE LINE

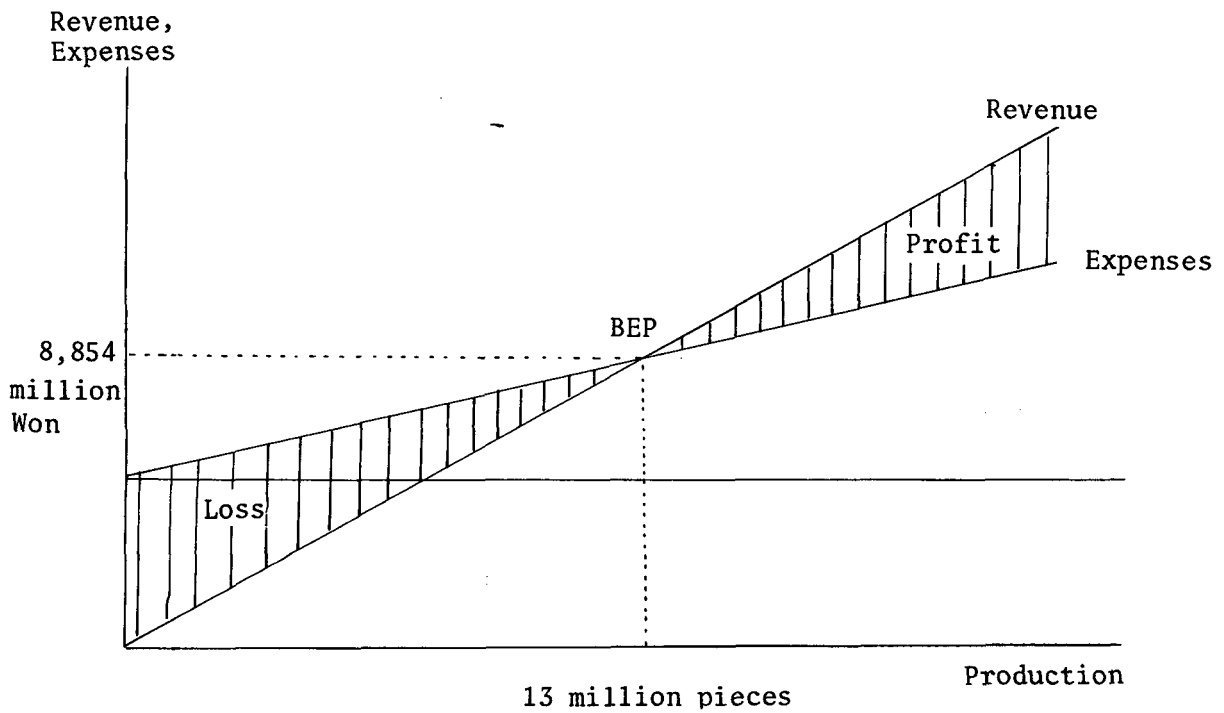


5. Break-Even Point

1) Liquid Milk



2) Cheese



6. Utilisation of Land

(Unit : 1,000 ha)

	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	9,912	2,144	21.6	1,325	819	6,531	65.9	1,237	12.5
1986	9,914	2,141	21.6	1,329	812	6,524	65.8	1,249	12.6
1987	9,917	2,143	21.6	1,352	792	6,516	65.7	1,258	12.7

Source : MAFF, Agriculture, Forest and Fishery Statistics

7. Population of Agriculture and Fishery

(Unit : 1,000 persons)

	Total	Population of agri.			Population of fishery		
		Population	%	Per household	Popula- tion	%	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	979	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	39,929	9,475	23.7	4.74	739	1.9	5.02
1984	40,513	9,015	22.3	4.57	716	1.8	4.87
1985	41,055	8,521	20.8	4.42	689	1.7	4.75
1986	41,569	8,180	19.7	4.29	662	1.6	4.60
1987	42,082	7,771	18.5	4.15	635	1.5	4.50

Source : MAFF, Agriculture, Forest and Fishery Statistics

8. Farm Households per Cultivated Land

(Unit : 1,000 households)

	Total farm households	Households except cultivation	Households							Sub -total
			below 0.1ha	0.1 -0.5	0.5 -1.0	1.0 -1.5	1.5 -2.0	2.0 -3.0	over 3.0	
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

Source : MAFF, Agriculture, Forest and Fishery Statistics

9. Income of farm Household

(Unit : 1,000 Won)

	Income of 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	28.5

Source : MAFF, Agriculture, Forest and Fishery Statistics

10. Number of Livestock and Households

(Unix : 1,000 Head, Households)

	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

Source : MAFF, Agriculture, Forest and Fishery Statistics

11. Raising Trend of Dairy Cattle

	Number of households raising	Number of dairy cattle			Average No. per household
		Total	Female	Male	
1971	3,270	30,009	25,481	4,528	9.2
1972	3,788	36,128	30,295	5,833	9.5
1973	5,488	52,424	43,039	9,385	9.6
1974	7,378	73,195	59,203	13,992	9.9
1975	9,415	85,542	71,130	14,412	9.1
1976	10,174	89,688	82,753	6,935	8.8
1977	13,933	109,243	104,684	4,559	7.8
1978	16,387	135,803	129,980	5,823	8.3
1979	17,170	163,299	156,422	6,877	9.5
1980	17,666	179,841	172,883	6,958	10.2
1981	18,229	194,205	186,558	7,647	10.7
1982	22,536	228,248	221,888	6,360	10.1
1983	29,537	274,783	267,506	7,277	9.3
1984	37,646	334,352	326,592	7,760	8.9
1985	43,760	390,135	390,135	-	8.9
1986	42,728	437,333	437,333	-	10.2
1987	38,131	463,330	463,330	-	12.2

Note : Since 1985, the number of male dairy cattle is included to number of beet cattle.

Source : MAFF, Agriculture , Forest and Fishery Statistics

12. Demand and Supply of Milk

(Unit : M/T)

	Supply			Total	Consumption	Stock
	Carry-over	Production	Import			
1975	5,474	160,338	-	165,812	162,435	3,377
1976	3,377	197,334	-	200,711	198,892	1,819
1977	1,819	260,574	-	262,393	254,245	8,148
1978	8,148	320,867	-	329,015	325,867	3,148
1979	3,148	380,730	12,500	396,378	374,410	21,968
1980	21,968	452,327	-	474,295	411,809	62,486
1981	62,486	512,875	-	575,361	557,722	17,639
1982	17,639	576,236	13,500	607,375	592,720	14,655
1983	14,655	712,206	10,200	737,061	728,575	8,486
1984	8,486	840,543	23,850	872,879	833,504	39,375
1985	39,375	1,005,811	1,914	1,047,100	990,549	56,551
1986	56,551	1,154,460	-	1,211,011	1,162,400	48,611
1987	62,046	1,413,126	-	1,475,172	1,424,765	50,407

Note : Since 1987, The method of statistic research is changed, so the carry-over of 1987 is occurred as difference.

Source : MAFF, Dairy Statistics

13. Utilisation of Raw Milk

(Unit : M/T)

	Milk collection	For liquid	milk %	For processing	%
1971	62,064	27,100	43.7	34,964	56.3
1972	77,115	38,935	50.5	38,180	49.5
1973	101,819	55,671	54.7	46,168	45.3
1974	124,745	73,913	59.3	50,832	40.7
1975	160,338	116,813	72.8	43,525	27.2
1976	197,334	131,919	66.9	65,415	33.1
1977	260,574	162,177	62.2	98,397	37.8
1978	320,867	201,681	62.9	119,186	37.1
1979	380,730	228,827	60.1	151,903	39.9
1980	452,327	258,587	57.2	193,740	42.8
1981	512,875	341,336	66.6	171,539	33.4
1982	576,236	400,593	69.5	175,643	30.5
1983	712,205	496,528	69.7	215,677	30.3
1984	840,543	588,396	70.0	252,147	30.0
1985	1,005,811	714,370	71.0	291,441	29.0
1986	1,154,460	884,479	76.6	269,981	23.4
1987	1,413,126	1,065,189	75.4	347,937	24.6

Source : MAFF, Dairy Statistics

14. Import of Non-Fat Milk Powder

	For demand & supply			For manufacture			For feed		
	Quantity (M/T)	Price (\$/MT)	Amount (\$1,000)	Quantity (M/T)	Price (\$/MT)	Amount (\$1,000)	Quantity (M/T)	Price (\$/MT)	Amount (\$1,000)
1977	-	-	-	61.5	498	30.6	100	358	35.8
1978	-	-	-	144.5	618	89.3	300	474	142.1
1979	1,000	610	610	120	733	88	402	597	239.8
1980	-	-	-	208	1,036	215.4	179	825	147.6
1981	-	-	-	387.5	1,227	475.5	300	1,119	335.6
1982	-	-	-	155	1,052	163	2,032.5	1,007	2,046
1983	500	824	412	410	895	367	2,551	818	2,086
1984	300	820	246	310	789	242	3,523	729	2,567
1985	-	-	-	155	832	129	2,277	729	1,659
1986	-	-	-	297	795	236	-	-	-
1987	-	-	-	603	1,012	610	-	-	-

Source : MAFF, Dairy Statistics

15. Supply of Milk for School

	Number of School	Number of students (10,000 persons)	Total amount of feeding (M/T)	Increasing trend (%)	Supplying rate of school (%)	Supplying rate of students (%)
1980	1,426 (6,470)	- (567.0)	15,065	337.6	22.04	7.94
1981	2,548 (6,517)	116.3 (558.7)	38,951	158.6	39.10	20.80
1982	1,910 (6,501)	103.9 (546.5)	34,794	-10.7	29.40	19.00
1983	2,358 (6,500)	152.1 (525.7)	50,932	46.4	36.30	28.90
1984	2,407 (6,528)	203 (504.1)	58,074	14.0	36.90	34.40
1985	- (6,519)	267 (485.7)	75,005	29.2	-	54.97
1986	2,513 (6,535)	316 (479.8)	119,091	54.8	38.45	65.86

Note: Brackets mean the total number of elementary schools and students
Source: Seoul Dairy Cooperative, Monthly

16. Milk Production and Consumption

	Milking cow (head)	Milk production (M/T)	Self Consumption (M/T)	Not passed quality (M/T)	Supply of milk (M/T)	Consumption	
						per person (gram)	Total (M/T)
1971	14,202	65,307	2,523	721	62,064	1,891	62,184
1972	17,745	79,852	1,955	782	77,115	2,383	79,852
1973	22,976	104,082	1,734	529	101,819	3,052	104,082
1974	30,016	126,901	1,777	379	124,745	3,658	126,901
1975	32,312	162,926	1,908	680	160,338	4,604	162,435
1976	39,560	199,556	1,451	771	197,334	5,548	198,892
1977	50,759	263,559	1,503	1,482	260,574	6,982	254,246
1978	59,809	324,328	1,274	2,187	320,867	8,815	325,867
1979	70,557	384,714	1,600	2,384	380,730	9,975	374,410
1980	84,114	457,580	1,866	3,387	452,327	10,802	411,809
1981	93,950	517,657	1,928	2,854	512,875	14,403	557,722
1982	103,282	580,124	1,740	2,148	576,236	15,070	592,720
1983	125,435	716,384	1,785	2,420	712,206	18,237	728,575
1984	147,407	844,299	1,234	2,522	840,543	20,541	833,504
1985	179,532	1,011,114	949	4,354	1,005,811	23,290	959,742
1986	204,206	1,159,358	913	3,985	1,154,460	27,805	1,155,830
1987	245,071	1,418,198	-	5,072	1,413,126	33,857	1,424,765

Source: MAFF, Dairy Statistics

17. Cow's Milk Production, Selected Countries

(Unit : 1,000 M/T)

	1984	1985	1986	1987	1988 Prelim
Canada	8,096	7,891	7,925	7,986	8,150
Mexico	7,410	6,920	8,000	8,971	9,320
United States	61,439	64,930	65,354	64,620	65,900
Argentina	5,533	5,909	6,296	6,582	6,450
Brazil	10,800	10,700	11,600	13,300	13,200
Denmark	5,234	5,099	5,111	4,860	4,715
France	27,595	26,830	23,074	27,146	26,060
Germany, Fed	26,151	25,674	26,350	24,436	23,600
Italy	10,176	10,227	10,278	10,487	10,400
Netherland	12,782	12,550	12,695	11,672	11,230
Spain	6,240	6,300	5,971	5,941	5,976
United kingdom	16,550	16,340	16,218	15,360	14,590
Japan	17,100	19,000	19,500	21,200	22,500
China (mainland)	2,186	2,499	2,860	3,301	3,800
Japan	7,138	7,378	7,457	7,335	7,450
Korea	841	1,006	1,154	1,338	1,670
Australia	6,087	6,265	6,205	6,367	6,300
New Zealand	7,617	7,876	8,226	7,285	7,850

Source : USDA, World Dairy Situation

18. Per Capita Cow's Milk Fluid Consumption

(In kg)

	1984	1985	1986	1987	1988 Prelim
Canada	106.4	105.9	107.7	108.2	109.1
Mexico	62.6	54.3	58.0	60.0	56.2
United States	110.1	108.2	108.1	107.5	106.8
Argentina	53.4	53.1	53.7	53.7	53.8
Brazil	46.2	45.1	46.1	54.4	50.9
Denmark	129.0	127.0	125.4	123.6	124.8
France	78.5	83.0	90.0	87.9	87.2
Germany, Fed	58.0	58.4	54.2	55.0	56.3
Italy	78.4	82.3	79.3	77.0	76.9
Netherland	136.4	137.4	134.4	133.7	132.9
Spain	95.9	95.3	94.7	95.1	94.8
United Kingdom	128.2	128.2	127.0	123.7	123.4
India	35.9	38.6	37.0	33.7	35.5
China (mainland)	1.6	1.9	2.1	2.6	2.9
Japan	36.0	35.6	35.6	37.0	37.4
Korea	20.5	23.3	27.8	31.9	39.8
Australia	104.3	107.9	105.7	106.4	106.5
New Zealand	154.4	152.0	149.3	141.6	144.8

Source : USDA, World Dairy Situation



Project Title: Dairy Plant in Jeonbuk Province

No. _____
Date _____

Byung-Ho Jeong

I. Background

1. Overall Situation

1) General Situation of Dairy Market

- In Korea, the consumers for dairy products are inclined to purchase the products on the basis of quality and they are seeking for diversified dairy products.
- Now the consumption of liquid milk and milk products is 32 kg in milk, which is under the level of developed countries.
- But the total consumption is increasing 10-15 percent annually.

2) Production Trend of Milk

- The milk production of 1980 was 452,329 MT and in 1987, the milk of 1,413,126 MT was produced.
- Therefore the increase of milk production has been 137,257 MT per annum.

2. Area of Project

- Area of the project is Jeonbuk province, southern area of Korea. And it covers the area of 8,052 km² in which population is 2.2 million.
- Also the number of households in Jeonbuk area is

3. Problems Faced by Farmers

⇒ One of the problems in demand and supply of milk is unbalance of demand and supply according to the season.

- Now the dairy farmers are marketing the raw milk to the private companies mostly. So they want to supply it to the cooperative and to receive better services.

4. Needs for the Project

- NLCF will establish the dairy plant in Jeonbuk province whose capacity is 66MT of milk collecting per day

- So the farmers will be able to expand the supply of milk and to increase their income.

II. Dairy Plant in Jeonbuk Province

1. Objectives

- To achieve the price stabilization by balancing the supply and demand of milk and milk products

- To protect the dairy farmers by processing all the raw milk produced by those
the no ... have of Direct ... natives

2. Area of Operation

- The project is located in Kimje which is one county out of 13 counties in Jeonbuk province. There is expressway near to project area.

3. Capacity of Dairy Plant

- The capacity of dairy plant will be 60 tons of collecting raw milk per day and the plant will produce the city milk and cheese.

4. Investment

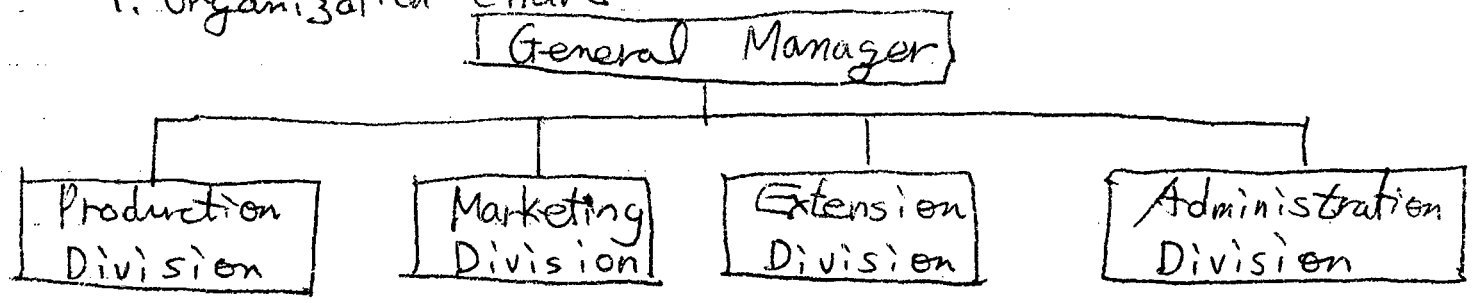
- The investment amount can be divided into purchasing cost of land, construction and civil works, machinery and erection of machinery and NHCF will finance the investment fully.

(In million Won)

Item	Cost
Expense of beginning project	200
Land	600
Building	1,000
Machinery	800
Total	2,600

III. Organization and Management

1. Organization Chart



2. Tasks of Division

1) Production Division

- Purchasing the raw milk and manufacturing the products.

2) Marketing Division

- Achieving the target of marketing according to the plan by occupying proper market
- Seeing the market trend and reflect it to the improvement of existing products and to the development of new products

3) Extension Division

- Advising the dairy farmers to raise dairy cattle properly and guide the farmers to supply the feed.

4) Administration Division

- ... improvement in work abilities

IV. Financial Analysis

1. Basic Assumptions

* - Project period is 10 years including 2 year construction

- Depreciation is as below

(In million Won)			
Item	Cost	Service life (Years)	Depreciation per year
Building	1,000	40	23
Machinery	800	15	48
Total	1,800		71

* Salvage value is 10% of cost

- Income tax is 10 percent

2. NPV

(in million Won)					
Year	1	2	3	4	5
Net Cash Flow	-1,920	-680	-192	1,053	1,053
PVIF	1	0.9009	0.8116	0.7312	0.6587
NPV	-1,920	-613	-156	770	694
Year	6	7	8	9	10
Net Cash Flow	1,053	1,053	1,053	1,053	1,053
PVIF	0.5935	0.5346	0.4817	0.4339	0.3909
NPV	625	563	507	457	412

* $NPV = \sum_{i=1}^{10} NPV_i = 1,339$ million Won

3. IRR in the project is calculated as 18%.
* This rate is higher than current

4 8. Break-Even Point

1) Liquid milk

$$\begin{aligned} \text{BEQ} &= \frac{\text{Fixed cost}}{p - \text{AVC}} \\ &= \frac{1,820 \text{ mil} + 49.7 \text{ mil} + 442.4 \text{ mil} + 226.1 \text{ mil}}{130 - 114} \\ &= \frac{2,538.2 \text{ mil}}{16} = 158,637,500 \text{ (pieces)} \\ \text{Year of BEP} &= 3.1 \text{ years} \end{aligned}$$

2) Cheese

$$\begin{aligned} \text{BEQ} &= \frac{\text{Fixed cost}}{p - \text{AVC}} \\ &= \frac{1780 \text{ mil} + 21.3 \text{ mil} + 189.6 \text{ mil} + 96.9 \text{ mil}}{1700 - 614} \\ &= \frac{1087.8 \text{ mil}}{86} = 12,648,837 \text{ (pieces)} \\ \text{Year of BEP} &= 3.1 \text{ years} \end{aligned}$$

V. Benefit of Farmers

- The direct effect of project is the creation of value added by production of milk products.
- Also the indirect effect of project is the strengthening the foundation of development of dairy industry,

- The production increase of milk products, enhancing the dairy farmers' desire for production, will expand the base of dairy industry.
- Increase of dairy farmers' income can be realized. The production increase of milk in farm households will contribute to the rise of dairy farmers' income.

22 FEB 1984 (GKOU P.A.) DAIRY PLANT IN JEONBUK
PROVINCE IN KOREA.

PRODUCTION OF RAW MILK

Projected.

1. Quantity of raw milk available to determine the capacity of the plant

Procurement

1. Establish collection centres at PAE level
2. Transportation facilities to the processing centre
3. Quality control at collection centre to determine the fat content
4. Price determination

Backward linkages

1. Detail cost of activities such as veterinary services, feed and artificial Insemination.

Processing

1. Details cost of production / units of milk to produce
① cheese
② consumer milk.

22 FEB. 1989 (GROUP. A.) DAIRY PLANT IN
JEONBUK PROVINCE IN ~~NORSA~~

2

MARKETING

1. Details of marketing channels and market segmentation.
2. Brand name of the products.

Observations of Group B

- Financial and accounting division should be added.
- Extension services such as veterinary services should also be specified in the project.
- One union may also be considered under organization.
- Contribution of each product should be established.
- Data on cattle of milk production should also be collected on month basis.
- Direct benefit of this project to the farmers must be worked out.

GROUP - C.

22/2/89. DAIRY PLANT IN JEONBUK PROVINCE.

1. CAPACITY AND LOCATION.

A. IT SHOULD BE PROPERLY ANALYSED IN TERMS OF YIELD PER COW.

B. THE BY-PRODUCT PROCESSING IN TERMS OF BUTTER AND SKIMMED MILK SHOULD BE DISCUSSED.

2. ORGANIZATION

A. IT IS BETTER IF THE PROVINCIAL COUNCIL OF JEONBUK PROVINCE MANAGES THE DAIRY PLANT WITH THE HELP OF N.L.C.F.

3.A. THIS STRATEGY TO OUTDO PRIVATE TRADE IN MILK COLLECTION HAS NOT BEEN WORKED OUT. AS THE PRIVATE TRADE IS WELL ENTRANCHED IT WILL BE DIFFICULT FOR THE CO-OPERATIVES TO GET THE MILK WITHOUT EXTRA INCENTIVE TO FARMERS.

B. NO BACKWARD LINKAGE FOR IMPROVING THE PRODUCTIVITY.

2.

GROUP C.

4. AREAS OF VARIATIONS FOR COLLECTION OF MILK SHOULD BE INDICATED, AS REGARDS THE QUANTITY PLANN^{ED} TO BE PRODUCED TWO TIMES A DAY (MORNING AND EVENING).

5. WHICH CONTRIBUTION FOR BOTTLING MILK AND CHEESE AND BUTTER ~~#~~ SHOULD BE PROPERLY DEFINED.

6. SIZE AND FORM OF PACKAGING SHOULD BE WELL DEFINED.

7. SECOND PAYMENT TO MILK PRODUCERS MAY BE DEVISED IN ORDER TO GAIN MEMBERS LOYALTY.

8. THE UNIT OF BEP SHOULD BE IN UNIT OF MEASUREMENT AND NOT PIECES.

Project Title: Dairy Plant in Jeonbuk Province

No. _____
Date _____

Byung-Ho Jeong

Background

Overall Situation

1) General Situation of Dairy Market

- In Korea, the consumers for dairy products are inclined to purchase the products on the basis of quality and they are seeking for diversified dairy products.
- Now the consumption of liquid milk and milk products is 32 kg in milk, which is under the level of developed countries.
- But the total consumption is increasing 10-15 percent annually.

2) Production Trend of Milk

- The milk production of 1980 was 452,327 MT and in 1987, the milk of 1,413,126 MT was produced.
- Therefore the increase of milk production has been 137,257 MT per annum.

Area of Project

- Area of the project is Jeonbuk province, southern area of Korea. And it covers the area of 8,052 km² in which population is 2.2 million.
- Also the number of households in Jeonbuk area is

B. Problems Faced by Farmers

One of problems in demand and supply of milk is unbalance of demand and supply according to the season.

- Now the dairy farmers are marketing the raw milk to the private companies mostly. So they want to supply it to the cooperative and to receive better services.

F. Needs for the Project

- NKCF will establish the dairy plant in Jeonbuk province whose capacity is 60MT of milk collecting per day

- So the farmers will be able to expand the supply of milk and to increase their income.

Dairy Plant in Jeonbuk Province

1. Objectives

- To achieve the price stabilization by balancing the supply and demand of milk and milk products

- To protect the dairy farmers by processing all the raw milk produced by those who are members of livestock cooperatives

Area of Operation

- The project is located in Kimje which is one county out of 13 counties in Jeonbuk province. There is expressway near to project area.

3. Capacity of Dairy Plant

- The capacity of dairy plant will be 60 tons of collecting raw milk per day and the plant will produce the city milk and cheese

4. Investment

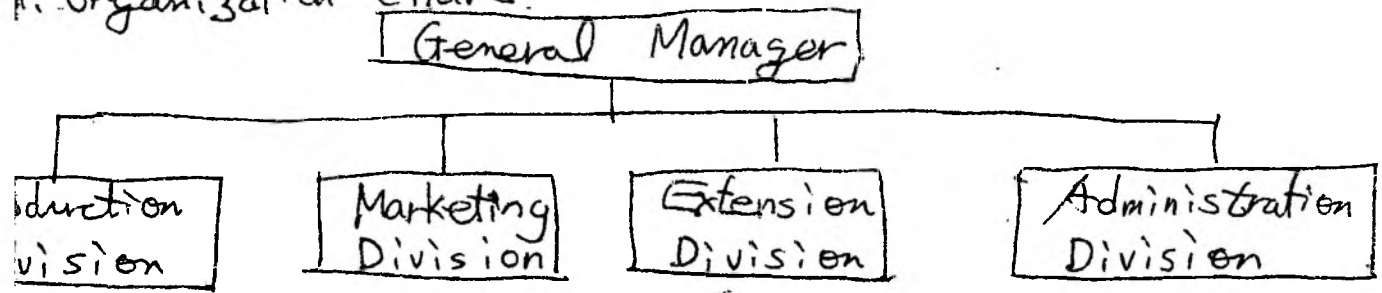
- The investment amount can be divided into purchasing cost of land, construction and civil works, machinery and erection of machinery and NKCF will finance the investment fully.

(In million Won)

Item	Cost
Expense of beginning project	200
Land	600
Building	1,000
Machinery	800
Total	2,600

Organization and Management

1. Organization Chart



2. Tasks of Division

1) Production Division

- purchasing the raw milk and manufacturing the products

2) Marketing Division

- Achieving the target of marketing according to the plan by occupying proper market
- Seeing the market trend and reflect it to the improvement of existing products and to the development of new products

3) Extension Division

- Advising the dairy farmers to raise dairy cattle properly and guide the farmers to supply the feed.

4) Administration Division

- In charge of improvement in work abilities.

2. Financial Analysis

Basic Assumptions

* - Project period is 10 years including 2 year construction

- Depreciation is as below

(In million Won)			
Item	Cost	Service life (Years)	Depreciation per year
Building	1,000	40	25
Machinery	800	15	48
Total	1,800		71

* Salvage value is 10% of cost

- Income tax is 10 percent

NPV

(in million Won)					
Year	1	2	3	4	5
Net Cash Flow	-1,920	-680	-192	1,053	1,053
PVIF	1	0.9009	0.8116	0.7312	0.6587
NPV	-1,920	-613	-156	770	694
Year	6	7	8	9	10
Net Cash Flow	1,053	1,053	1,053	1,053	1,053
PVIF	0.5935	0.5346	0.4817	0.4339	0.3909
NPV	625	563	507	457	412

$$* NPV = \sum_{i=1}^{10} NPV_i = 1,339 \text{ million Won}$$

IRR in the project is calculated as 18%.

* This rate is higher than current interest rate of 11%

V. Break-Even Point

1) Liquid milk

$$BEQ = \frac{\text{Fixed cost}}{P - AVC}$$

$$= \frac{1,820 \text{ mil} + 49.7 \text{ mil} + 442.4 \text{ mil} + 226.1 \text{ mil}}{130 - 114}$$

$$= \frac{2,538.2 \text{ mil}}{16} = 158,637,500 \text{ (pieces)}$$

* Year of BEP = 3.1 years

2) Cheese

$$BEQ = \frac{\text{Fixed cost}}{P - AVC}$$

$$= \frac{1780 \text{ mil} + 21.3 \text{ mil} + 189.6 \text{ mil} + 96.9 \text{ mil}}{1700 - 614}$$

$$= \frac{1087.8 \text{ mil}}{86} = ~~12,4~~ 12,648,837 \text{ (pieces)}$$

* Year of BEP = 3.1 years

IV. Benefit of Farmers

- The direct effect of project is the creation of value added by production of milk products.
- Also the indirect effect of project is the strengthening the foundation of development of dairy industry,

- The production increase of milk products, enhancing the dairy farmers' desire for production, will expand the base of dairy industry.
- Increase of dairy farmers' income can be realized. The production increase of milk in farm households will contribute to the rise of dairy farmers' income.

PRODUCTION OF RAW MILK

Projected.

1. Quantity of raw milk available to determine the capacity of the plant

Procurement

1. Establish collection centres at PAE level
2. Transportation facilities to the processing centre
3. Quality control at collection centre to determine the fat content
4. Price determination

Backward linkages

1. Detail cost of activities such as veterinary services, feed and artificial Insemination.

Processing

1. Details cost of production / units of milk to produce
① cheese
② consumer milk.

22 FEB. 1989 (GROUP. A.) DAIRY PLANT IN
JEONBUK PROVINCE IN ~~KOREA~~

2

MARKETING

1. Details of marketing channels and market segmentation.
2. Brand name of the products.