

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

INDIA, THAILAND AND JAPAN

NOV. 26, 2002 to APR. 18, 2003

Title of the Project: **Investment & Development of
Concentrated Feed Processing Factory**

Prepared by : Ni Jing
Country : China
Date : Jan.12, 2003

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CHAPTER 1

1.1 INTRODUCTION

China feed industry is a new and rapidly-developing industry which began in mid-1980's. Although started very late, it developed very fast. Although the total production of feed is only several hundred thousands tons in 1978, it reached at 74.29 million tons in 2000, i.e., it increases by 9%-11% per year. Through reform and development for nearly 20 years, China becomes the second biggest country for the production of feed in the world. China's feed industry has now developed itself into a complete feed industry system which includes feed material industry, feed processing industry, feed additive industry, feed machine industry and service supporting system and it is becoming an important industry in China's economic life. It is anticipated that China's feed production will exceed one billion tons.

However, compared with that of the developed countries, China's feed industry has not played its deserved role and has a long way to go to meet the demand of livestock industry. Up to now, feed production is less than half of the need of livestock and aquiculture. China is facing the challenge of several non-reverse factors in agriculture development within twenty years. The first is the increasing of population by 10 million per year. The second factor is the decreasing of cultivated area. The third is the demand of improving people's living standards is non-reverse. China has set up its target for building a well-off society in all-round way. It's the basic to improve people's living standards, which in turn needs more supply of meat, egg, milk and aquatic products. As the folk says 'if you want to eat meat, milk and egg, they must be changed from grain'. More grain is needed to develop livestock industry. In order to resolve the problems above, China must increase the utilization efficiency of grains. It's imperative to develop feed industry. It is impossible to improve people's living standard and realize the target of building a well-off society in the future without

the modernization of feed industry in China. At present, livestock product accounts for 30% of the farm product value in China. But in many developed countries such as Germany, America, British, and Dutch, the figure is more than 60% of the total output value of agriculture in 1970's. To catch up with the livestock industry level, China has a long way to go.

Table 1: The increase rate of the livestock product(one year)

Year	grain	Meat	Egg	Milk
1978-1993(In crease rate per year during 15 years)	3.32%)	23.3%	30.8%	32.1%
2001/1989(Increase rate only 2001 vs. 1989)	11%	139%	225%	157%

As the table above shows, the increase rate of grains is far more slowly than the increase of that of meat, egg and milk. Among these factors, feed industry holds the most important position.

1.2 INTRODUCTION OF CHINESE SUPPLY AND MARKETING COOPERATIVES (Chinese SMCS)

Chinese SMCs consist of the All-China Federation Supply and Marketing Cooperative (ACFSMC), provincial (municipal, autonomous regional) federations, county federations and primary societies. There exists vertical economic integration among the SMCs at all levels. The SMCs follow the principle that upper-level federations serve their member federations and federations at all levels serve grass-roots societies. The Chinese SMCs are cooperative economic organizations with farmers as the main body. Through years of development, they have formed a service network covering the whole country, connecting nearly all the rural areas and cities, boasting a strong economic strength and playing a very important role in serving China's agriculture, rural development and farmers in their life and production. Now, the SMCs have a membership of about 8.85 million farm households, nearly 70% of the total across the country. The main business include: Farming Guidance, Supply and Business, Service Industry, Retail Business Processing and

Manufacturing, Storage and Transportation, Science and Technology, Education, Waste Material Recycling Activities, and International Cooperation.

1.3 INTRODUCTION OF ALL-CHINA FEDERATION SUPPLY AND MARKETING COOPERATIVES (ACFSMC)

ACFSMC is the apex organization of the Supply and Marketing (SMC) of the whole country. It has 16 subordinate enterprises, 8 science and research institutes and 7 institutions and 13 national level specialized associations . In 2001, its enterprises achieved sales of RMB 23.36 billion Yuan, of which 614 million U.S dollars are from import and export.

1.OBJECTIVES OF ACFSMC

Its functions and tasks are to do research on strategies and planning for the development of SMCs in China and guide their development and reform; to organize , coordinate and manage the major means of agricultural production, farm produce and sideline products with the authorization of the government; to safeguard the legitimate rights and interests of the SMCs at all levels; to coordinate the relations between the cooperatives and other concerned authorities; to guide the business activities of the SMCs and promote the flow of goods between the cities and the countryside; to publicize and carry out the principles and policies on rural economy formulated by the Party Central Committee and the State Council and to participate in various activities of the International Cooperative Alliance on behalf of cooperatives in China.

The ACFSMC has played an important role in encouraging farmers to participate in the market, promoting the industrialized management of agriculture, providing services to farmers and agricultural production. It constitutes a vital link between the government and farmers.

2. ORGANIZATIONAL STRUCTURE ACTIVITIES

The ACFSMC has established its board of directors and board of supervisors and institute the system under which the president of the board assumes responsibilities. The members of the board of directors and the board of supervisors are elected at the representative meetings. When the National Representative Conference of the SMCs is not in session, the Board of Directors is an executive body. The Board of Supervisors is the supervisory organ of the ACFSMC and is responsible to the National Representative Conference of the SMC. The Board of Directors is the owner and manager of the collective assets of the enterprises and institutions directly under the ACFSMC. The Board of Directors, on behalf of the ACFSMC, has the rights to appoint or dismiss from their posts leading cadres of the enterprises and institutions directly under the ACFSMC, examine and approve the major business activities and investment projects of enterprises, supervise and check the business management of enterprises and benefits from the collective assets.

CHAPTER 2

2.1 AGRICULTURAL BACKGROUND OF PROJECT AREA

The project is located in Huairou county, suburb of Beijing and to the northeast of Beijing. To the north of it is the Mountains of Yan Shan , and to the south of it is the North China Plain. Huairou is a beautiful satellite town. It has a forest coverage percentage of 69.7%, an abundant water resource, a total area of 2128.7 square kilometers, with a population of 309 thousands.

The thoughts of developing suburb high-quality agriculture has been decided for Huairou, which means to develop the agriculture for refining, processing, sightseeing, and foreign-currency earning. The big counties are Chestnut, gen-seng, cold water fish, corn etc.. The planting land is 2.01 million

square of Chestnut, 3000 square of Gen-seng, 235 square of cold water fish breeding which is the largest base of cold water fish breeding in China. The planting land of corn is 30 thousand square which is also the national planting base of corn.

Huairou Government Investment Promotion Bureau and Investment Service Center were established in June, 2001. It is called “a green path for investors”.

Transportation: Huairou is 50 kilometers from the city of Beijing, 30 kilometers from the Capital Airport, and 170 kilometers from the harbor of Tianjin. Eleven main highways, such as No.101 Highway and No.111 Highway, consist a transportation network with a total mileage of 1,335 kilometers. There are three railways going across the town and four dual-purpose group transportation terminals for both passenger transport and freight, connecting with the stations and harbors through out China, with an annual throughput of 120 million.

Power Supply: There are five 110 thousand volt transformer substations constructed in Huairou. The capacity of power supply reaches 160 thousand kilowatts. Double-circuited power supply is applied in the area of the town .

Water supply: Microcomputer automatic management is implemented in the waterworks. The daily supply capacity is 60 thousand tons.

Drainage: The sewage farm of the town process 15 thousand of sewage every day. The second phase of the farm is now under construction, and the programmed capacity of daily sewage processing is 80 thousand tons.

*Gas supply :*In the town there is a large-scale gashouse, and pipelines are used in the transportation of gas.

Average temperature: 11-13 degree

Average rainfall: 450-850mm

Non-frost period: 200-270days

Climate: temperate season climate

2.2 PRODUCT AND AREA OF THE PROJECT

The area of the project is primarily in the Northeast & North of China, where the soybean and corn are the staple crops. The project is to build a feed mill in this area to produce a kind of concentrated feed –that is our project product. The concentrated feed is mainly consisted of three parts of ingredients: feed additive premix, mineral premix (including minerals, Di-calcium phosphate and salt) and protein ingredients (such as soybean meal, cottonseed meal and fish meal). It is a kind of semi-finished product which accounts for 20%-30% of complete feed. It contains most of the nutrients required by the animal (see table 2). When the farmers or the farm purchased the concentrated feed, what they need do is just to mix a proper proportion of the product (normally 30%) with the energy ingredient (i.e., corn, wheat bran), which is available or easily obtained. The kind of mixture above is equivalent to the complete feed, which can be directly fed to the animals.

Since the energy ingredient, such as corn, accounts for a large proportion of the complete feed, the capacity of processing corn-excluded concentrated feed will require correspondingly only 30% of that of complete feed which includes 70% corn, saving largely the investments in several aspects such as machine and equipment, storage expenses, operating capital and the transportation expenses. Therefore, the peasant and the farm can benefit from the purchase of the corn-excluded concentrated feed and are willing to use this kind of cost-efficient product.

With the entry WTO of China, the export of corn decreases, and the import amount of that grows. The trend that supply of corn exceeds the need of it becomes more and more obvious. How to made full utilization of the corn in the area is a great challenge, especially in the Northeast and North China, where staple corn accounts for more than 60% of the corn production of whole China.

At present, the domestic consumption of corn mainly concentrates on three aspects: as the ingredient of feed, consumed in industry and as the food.

Statistics shows that about 70% of the corn is consumed in feed industry. Therefore, it's undoubtedly a good choice to make full use of the staple corn by producing concentrated feed.

Nowadays, pork production in North China accounts for 21.6% of that of China. Dairy industry mainly concentrated in Northeast and North China. Beef production in Northeast and Inner Mongolia accounts for 20% of the amount of China. The proportion of mutton product in this area is 25% of the total amount in China. The market to produce and sell the concentrated feed in the above area is getting more and more mature.

2.3 THE TECHNICAL SUPPORT OF THE PROJECT

China's feed industry is developing very well. In the project area, there are many famous universities and research institutes, such as China Agricultural University and China Agricultural Academic Institute. The updated information for feed formulation is available from so many professors and animal nutritionists, which helps to make the project product more competitive.

It is also not difficult to employ good technicians and nutritionists. And the processing equipment is purchased from Jiangsu Muyang Group in China, the famous feed machine manufacturer, who also provides 'Turn-key' project.

Chapter 3

3.1 GOVERNMENT POLICY

1. As the 16th Report of CCPCC put forward: to build modern agriculture, to develop the rural economy and to increase the income of farmers are the major tasks of building a well-off society in all-round way.

2. The policies to develop the enterprise of processing farm produce
- i. To increase the investment by government and give the financial support.
 - ii. To carry out the tax support policy. Enterprises of processing farm

produce

are free of tariff and the value-added tax on the imported equipment and technology.

iii. The income tax will be free within 3-5 years for some large-scaled enterprises of processing farm produce, such as livestock husbandry, feed industry.

3. With the entry to WTO, China will input capital and increase investment on agriculture.

4. ACFSMC formally becomes the member of China national agriculture comprehensive developing co-meeting. This means that it turns into the main carrier to push the industrialization of agriculture.

5. Free value-added taxes policy for feed processing industry by government.

6. "Harvest Plan" of government, is carried out by China feed industry association. This plan focus on encouraging the feed enterprises to transform the traditional industries with high-technology and equipment by providing them the capital partly.

7. Special fund is set up for those specialized cooperatives and enterprises of processing farm produce product processing industry who are favorable for the development rural , farmer and agriculture .

8. Financial Rewarding Policy by Huairou government.

i. Rewarding fund for business development: the enterprise, whose total amount of annual value-added taxes, operation taxes, and income taxes is above 300 thousand RMB , will get the reward as much as 10% of its value-added taxes,20% of its operation taxes, and 50% of its income taxes if its annual taxes exceeds that of the year before ,or 8% of its value-added taxes,20% of its operation taxes, and 45% of its income taxes if not.

ii. Enterprise Structure Adjust fund: an enterprise could apply for this fund if its annual amount of value-added taxes, operation taxes, and income taxes exceed 10 million RMB and is carrying out technical reforming or new project with investments more than 5 million RMB.

3.2 THE PROBLEMS CONFRONTED BY THE FARMER

Farmers' income increases very slowly. This becomes a focus in present economic life. Farmer lived by planting industry. It is difficult to sell their farm product and the price of their produce is so low that the planting-oriented farmer to increase their income.

Farmers sell their product separately. Lack of the information on market, newly-developed industry, lack of technology and capital and lack of the ability to promoting their farm products make it difficult for farmers to take advantage of the demand of the market.

In addition, there is a deficiency of such a kind of enterprise and cooperative organizations as lead the farmers into the processing, marketing and selling of their product.

3.3 THE FUTURE OF THE PROJECT

As stated in the chapter above, the feed production only meets less than half of the demand of the livestock husbandry. This means that there is a great market potential for the development of feed industry in China. Since the livestock husbandry in Northeast and North China is developing more rapidly, the project of processing concentrated feed is in the right area.

On the other hand, there a number of breed-raising cooperatives has developed in Northeast and north of China during these years. They have no their own feed processing enterprises and have to purchase the feed from some

none-cooperative joint venture or private-owned feed company. It inevitably increases the cost. Up to now, there has not even a nationwide large-scaled feed processing enterprises under the ACFSMC system. The establishment of the project will fill up the vacancy.

Nowadays, China government has chosen Supply and Marketing Cooperatives(SMC) as the main carrier forces to push the industrialization of agriculture. As the middle linkage, feed processing enterprises can both push forward the developing of livestock husbandry and pull the development of planting industry. What's more, the establishment of the project can take advantage of the existing network resources of SMC to sell its product and service. With all the advantages above, the project is believed to become a dragonhead enterprise in the SMC system.

CHAPTER 4

4.1 OBJECTIVES OF THE PROJECT

1. To increase farmer's income

It is an important path to increase farmer's income and improve minor-stat of agriculture by developing feed processing factory. It is possible for farmer to increase productivity by promoting livestock husbandry industry developing and providing opportunity of employment for farmer. As the statistics for the year 2000 indicates, this factory will increase profit for livestock husbandry industry to 23 million by 36 million of output per year.

2. To develop area economic

Because feed industry is a mid-circle between planting industry and livestock industry ,it is easy to realize agriculture industrialization . It will promote the development of the livestock industry, food industry, transportation, packaging industry act. It is far beyond feed industry, livestock industry and rural economic, it will become a big industry system.

3. To improve people's life standards

The project will improve people living standards by supplying sufficient meat, eggs, and milk to consumer in the urban and rural area. It aims at promoting stock raising developing and supply quantity and quality meat by processing high quality and security feed.

4. To push the reform of ACFSMC from government organization to farmer organization, enhancing the vigor of service for

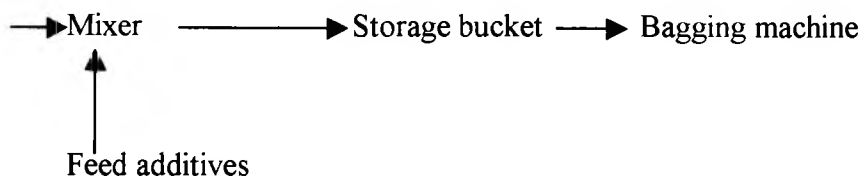
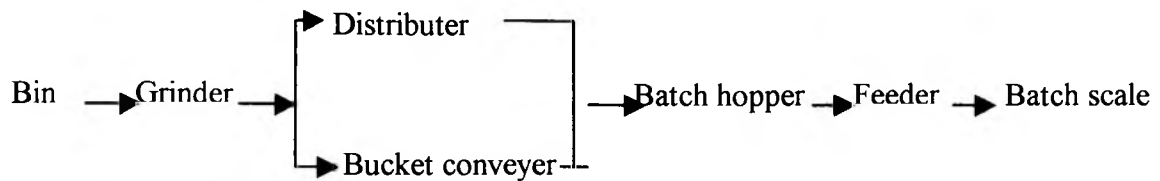
ACFSMC is a service organization for farmer. Historically, it is a government organization. At present, it faced the problem of reforming from government organization to farmer organization. The project focus on connecting with livestock with specialized cooperatives, promoting cooperative to turn into a farmer's own organization.

4.2 AREA OF OPERATION

The project would cover the entire area of northeast and north China .The Northeast area includes 3 provinces (Liaoning, Jiling & Heilongjiang province), and the North China includes 6 provinces (Beijing, Tianjing, Inner Mongolia, Hebei provinceand Shanxi province). The corn production in these area accounts for more than 60% of the production in whole China.

4.3 PRODUCTION PROCEDURE

Illustration 1: The Procedure for feed processing



4.4 THE RAW MATERIAL OF CONCENTRATED FEED

Table 2: Sources and prices of raw material

Raw material	Unit price(Yuan/kg)	Supplier
Soybean Meal	2.2	Beijing Nan Yuan oil factory
Di-Calcium Phosphate	1.3	Sichuan Honghe Chemical factory
Lysine	22	Beijing Zhongmu Co., Ltd
Methionine	25	Beijing Zhongmu Co., Ltd
Vitamine premix	76	Beijing Zhongmu Co., Ltd
Mineral Premix	4	China National Feedstuff Company
Salt	1.5	Beijing Salt industry Co., Ltd
Carbonate	0.1	Beijing Huairou Stone Company
Fish meal(Peru)	4.6	Beijing Zhongmu Co., Ltd
Soy oil	4.6	Beijing Nanyuan oil factory
Promoter	9	Tianjin Xinxing feed additive factory
Cotton seed meal	1.25	Beijing Nanyuan oil factory

4.5 PRODUCTION STANDARD

The concentrated feed standard is as follows:

1. General appearance: consistent color.
2. Moisture: $\leq 12\%$.
3. Processing quality standard:

Particle size: pass through test sift of mesh 8 and the remains on test sift of mesh 16 is no more than 10%.

Mixing deviation: $\leq 10\%$.

4. Nutrients/Typical analysis value

Table 3: Product Standard for Concentrated Feed

Product Nutrients	Product Standard			
	Layer	Broiler	Piglet	Pig grower
CP(%)	30	40-45	35	25-30
CF(%)	8	7-9	7	12-15
Ash(%)	38	20	16	14
Ca(%)	10-12.7	2.7-4	2-2.5	1.5-2.4
P(%)	1.3-2.3	1.7-2.7	1.3-1.8	0.8-1.5
Salt(%)	0.83-1.33	0.83-1.33	0.83-1.33	0.83-1.33
Met(%)	0.7	0.8-0.9		

CHAPTER 5

5.1 THE DEMAND OF FEED MARKET

Table 4: Demand of Meat ,Egg,Milk Market

(Unit:10000tons)

Year	Meat	Milk	Egg	Remarks
1989	2628	719	435	
1990	2857	475	795	
1996	4595.4	735.8	1965.2	
1997	5268.8	681.1	1897.1	
1998	5723.8	745.4	2021.3	
1999	5949.0	806.9	2134.7	
2000	6124.6	919.1	2243.3	
2001	6334	2337	2335.6	
2005	6859.5	3137	2740	Estimated
2010	8120	4000	3300	Estimated

Table 5: Demand of Feed market

(Unit:RMB Yuan)

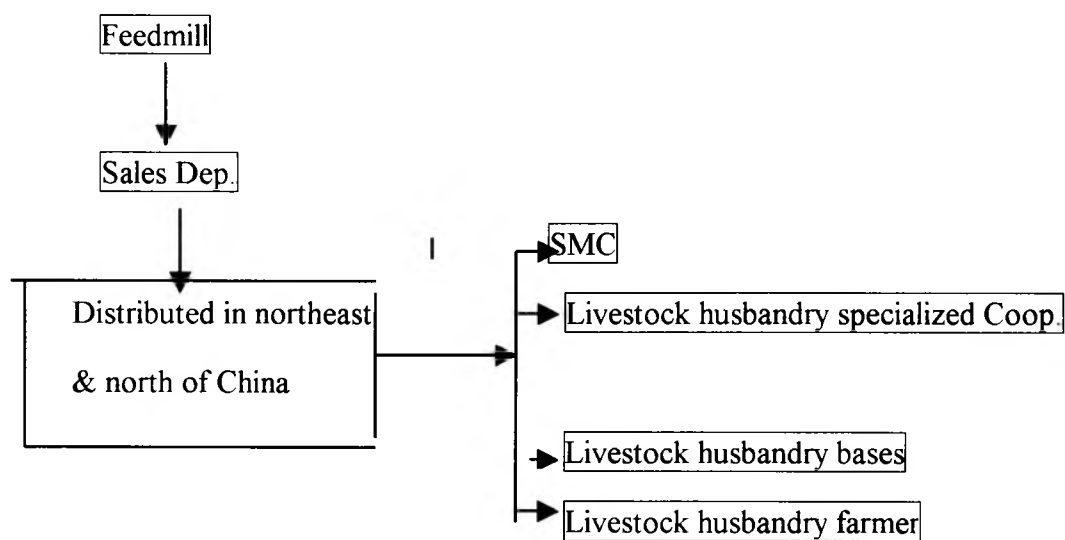
	1999	2000
Total output of feed	71.6 million tons	74.29 million tons
Total growth rate	8.6%	3.7%
Output of concentrated feed	10 million tons	13 million tons
Growth rate of concentrated feed	12.7%	30%

**the growth of feed per year is 10% from 1990 to 2000. The total output of feed will be over 10 billions tons in 2005-2010.

As the table shows: the demand of meat, eggs and milk increases year by year. It will bring about more demand for feed. Stock raising will become a motivation for China feed industry developing constantly. The market of concentrated feed has great potential.

5.2 MARKETING PLAN

Illustration 3: Sales Distribution



Through modern management and agriculture industrialization, and a service network coving the whole operating area of the Chinese SMC, the project will become a lucrative business enterprise.

CHAPTER 6

PROMOTE THE AGRICULTURE DEVELOPMENT

Increased feed processing capability will affect the development of livestock husbandry industry as well as promote breed raising. Through the industrialization of agriculture ,the agriculture economic strength will be raise. Meanwhile, this project will be played a very important role in smoothing the

adjustment of agriculture structure .

The project will offer the following service:

1. Project will connect with livestock husbandry specialized cooperatives to develop 'Contract Agriculture'. Sign the sales contract with livestock husbandry bases or breed specialty farmer. livestock husbandry bases or breed specialty farmer can sign the purchase contract with the farmer who plant corn .

2. Providing technical guidance, training of how to mix energy feed and breed animals.

3. Providing a series of services for livestock husbandry bases and farmer who plant corn.

CHAPTER 7

OBJECTIVE OF THE PROJECT

The project aims at producing 36 thousand tons of concentrated feed per year. Profit will be obtained about 4,179,450 RMB Yuan.

PRICING

Pricing basically depends on the cost of product, sales trends, and the price of stock product. In China, feed price mainly depends on the price of livestock product such as meat , egg. Because the cost of feed accounts for more than 70% of that of livestock product , the price of feed will be affected by the price of livestock product correspondingly. For example, a decrease of export of meat to Europe Union resulted the dropping down of meat price last year .So the price of feed also dropped down. Pricing is also affected by the price of and the supply of the raw materials.

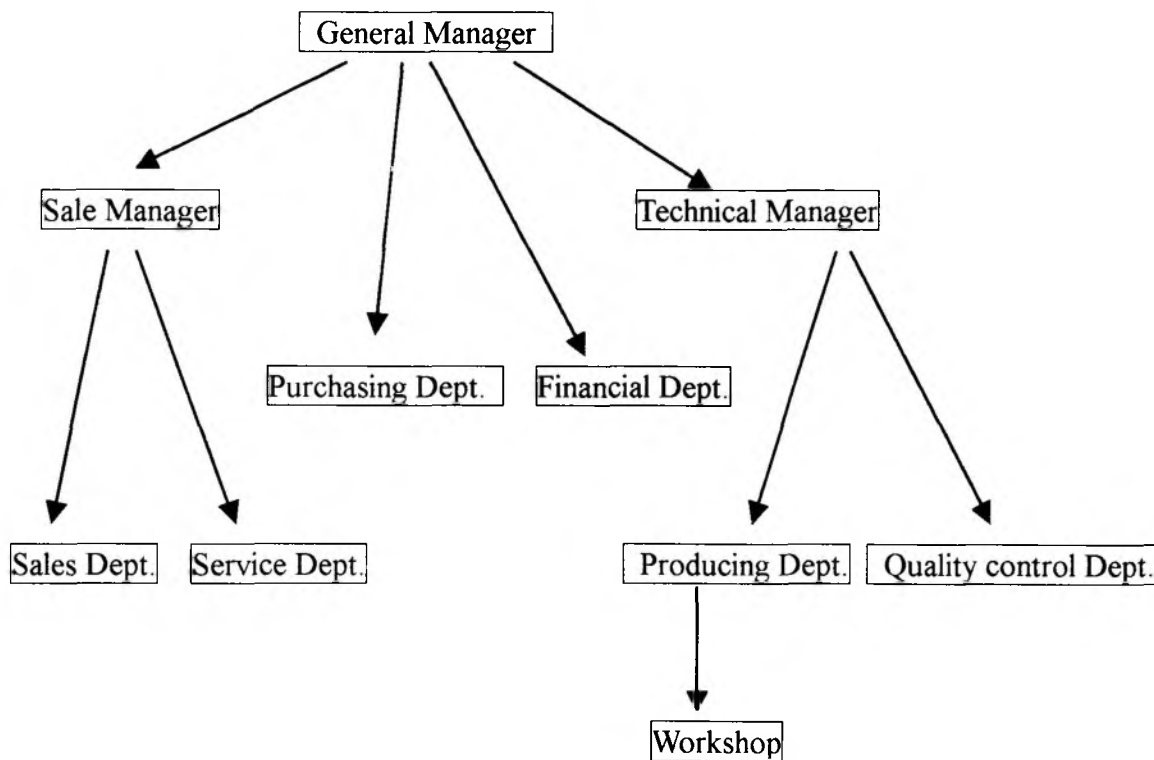
CHAPTER 8

8.1 ORGANIZATION STRUCTURE

1. There are 25 staffs for the project, including 14 management staffs, 6 salesmen, 5 workers .

2. The table of the organization structure

Illustration2: The structural organization of the project management



8.2 MANAGEMENT OF THE PROJECT

1. The general manager(GM) of the project is appointed by the board of ACFSMC. GM is in charge of the whole work affairs in the feed factory and is responsible for reporting the work to Office of Subordinate Enterprise per year.

2. The department managers, such as sales manager and technical manager and so on, are recommended by general manager from the candidates. Other workers and staffs are employed by factory or recommended by the managers.

3. The management and operating of the project are under the Company's Law in China.

8.3 FINANCIAL ANALYSIS

Financial analysis are based on a period of 5 years and the assumptions are as follows:

1. Fixed assets are purchased during the first year of operation, assuming that the depreciation period is five years.

2. Depreciation is calculated by the straight line method.

3. Bank loan for the project accounts for 57% of the total investment and will be paid off 4. within a period of 5 years.

4. Loan interest is 6% per year.

5. The value-added taxes is free (normally the tax rate is 17%) and 50% of the income taxes (normally the tax rate is 33%) will be rewarded by local government.

8.4 TOTAL INVESTMENT OF THE PROJECT

The total investment for the project is estimated at RMB14,034,000.

The capital required for the project is as follows:

Table 6: Capital Sources for the Investment

(Unit: RMB Yuan)

Source	Amount	Remarks
Bank loan	8,000,000	6% interest/year
Investment by the AFSMC	6,034,000	
Total	14,034,000	

Table 7: Budget of the project

(Unit: RMB Yuan)

Project	Area Required	Unit Price	Amount
Raw material warehouse	1000M2		220,000
Product warehouse	500M2		130,000
Quality control room	100M2		4,000
Processing workshop	600M2		180,000
Electricity/power room	50M2		20,000
Office room	200M2		60,000
Total investment of construction			650,000
Machine and equipment			528,000
Control system of electricity facilities			182,000
Weighing system			150, 000
Lab analysis equipment			40,000
Office furniture & facilities			10,000
Total investment of machine & equipment			910,000
Total investment			1,560,000

Table 8 : The machines and fixed assets

(Unit: RMB Yuan)

No	Items	Price	Remarks
I	Equipment(1+2)	710,000	
1	Machinery	5,280,000	
2	Electricity control system	182,000	Main parts from TE Co.
II	Weighing system	150,000	
III	Inspect equipment	40,000	
IV	Furniture and office equipment	10,000	
Total		910,000	

Table 9: Loan repayment schedule

(Unit: RMB Yuan)

Year	Principle reimburse	Loan left	Interest	Remarks
1	1,600,000	6,400,000	480,000	Interest 6%/year
2	1,600,000	4,800,000	384,000	”
3	1,600,000	3,200,000	288,000	”
4	1,600,000	1,600,000	192,000	”
5	1,600,000	/	96,000	”
Total	8,000,000		1,440,000	”

Table 10: The Management and Administration (one year)

(Unit: RMB Yuan)

No.	Particulars	Monthly salary	Amount	Remarks
01	General manager(1)	5,000	60,000	5,000x12
02	Dept. manager(2)	8,000	96,000	4,000x2x12
03	Quality dept. (2)	4,000	48,000	2,000x2x12
04	Production dept. (6)	120,000	144,000	2,000x6x12
05	Financial dept. (3)	6,000	72,000	2,000x3x12
06	Purchase dept. (3)	6,000	72,000	2,000x3x12
07	Sales dept. (6)	10,000	120,000	2,000x5x12
08	Service dept. (3)	6,000	72,000	2,000x3x12
Total	25 Staffs	57,000	684,000	57,000x12

Table 11: Depreciation cost (one year)

(Unit: RMB Yuan)

No.	Items	Quantity	Depreciat-ion value (¥)	Remarks
1	Machine & Equipment		105,600	Depreciation rate at 20% per year, 5 years
2	Electricity control system		36,400	Depreciation rate at 20%
3	Analysis equipment		8,000	5 years
4	Weighing system		30,000	5 years
5	Office Furniture & equipment		2,000	5 years
6	Workshop and facilities		13,000	Depreciation rate 2.0% per year 50 years
	Total		195,000	

Table 12: Details of fixed cost (one year)

(Unit: RMB Yuan)

No.	Items	Amount	Remarks
1	Salaries	684,000	
2	Loan interest	480,000	
3	Depreciation	195,000	
4	Insurance premium	18,000	
5	Repairs & maintenance	36,000	3,000x12months
6	Telephone/communications	48,000	4,000x12months
7	Sales promotion	1,200,000	10,000x12months
8	Other overheads	180,000	15,000x12months
9	Contingencies	360,000	30,000x12months
	Total	3,363,000	

Table 13: Details of variable cost (one year)

(Unit: RMB Yuan)

No	Items	Amount	Remarks
1	Raw materials	72,000,000	2000x3000x12months
2	Packing charges	1,620,000	45Yuan/ton x3000x12months
3	Electricity	432,000	20kwh/ton 0.6Yuan/kwh
4	Wages (15 employee)	144,000	800x15 x 12months
5	Transportation cost	324,000	9Yuan/tonx36000
	Total	74,520,000	

Table 14: Calculation of sales revenues of the products (one year)

Name of the products	Unit	Quantity (unit: ton)	Unit price	Amount (Unit: RMB Yuan)	Remarks
Concentrated feed	Mts	36,000	2,300 Yuan/Mt	82,800,000	
Total		36,000		82,800,000	

Table 15: B.E.P (capacity)

(Unit: RMB Yuan)

Amount	Remarks
$\frac{33.363.000}{82,800,000-74,520,000} \times 100\%$	$\frac{\text{Fixed Cost}}{\text{Sales Revenue-Variable}} \times 100\%$
$=40.60\%$	

1. Profit (before tax) = Sales revenue – Sales tax – Fixed cost – Variable cost

$$=82,800,000.00-0.00 - 3,363,000.00 -74,520,000.00$$

$$=4,917,000.00(\text{Yuan})$$

Profit (after tax)= Profit(before tax)-Income tax

$$=4,917,000.00-4,917,000 \times 15\%$$

$$=4,179,450(\text{Yuan})$$

2. Minimum Quantity (production)

$$= \frac{\text{Fixed Cost} + \text{Variable Cost}}{\text{Unit Price}}$$

$$= \frac{3,363,000 + 74,520,000}{2,300} = 33,862.17 \text{ MTS}$$

3. Profit Margin of Investment = $\frac{\text{Profit}}{\text{Total Investment}} \times 100\%$

$$= \frac{4,179,450}{14,034,000} \times 100\% = 29.8\%$$

4. Static State of Payback Period == $\frac{\text{Total Investment}}{\text{Profit} + \text{Annual depreciation}}$

$$= \frac{14,034,000.00}{4,179,450.00 + 195,000.00}$$

$$= 3.21 \text{ (Years)}$$

Table 16: Total operating capital required

(Unit RMB Yuan)

No.	Classification	Amount(+)	Amount(-)	Remarks
1	Fixed assets (for one month)	280,250		3,363,000 ÷ 12
2	Variable cost (for one month)	6,210,000		74,520,000 ÷ 12
3	Raw material (for one month)	6,000,000		
4	Depreciations (For one month)	/	16,250	195,000 ÷ 12
	Total operating capital	12,474,000		

** Assuming the production circle is one month.

Table17: Total Investment of the Project

(Unit RMB Yuan)

Classification	Amount	Remarks
Fixed assets	1,560,000.00	
Operating Capital	12,474,000.00	
Total	14,034,000.00	

Table 18: Cash flow of the Project

(Unit RMB Yuan)

Year	Inflow		Outflow		Net cash flow
	Sales Revenue	Salvage value	Capital expenditure	Total cost	
0	82,800,000		14,034,000		14,034,000
1	82,800,000			77,883,000	4,917,000
2	82,800,000			77,787,000	5,013,000
3	82,800,000			77,691,000	5,109,000
4	82,800,000			77,595,000	5,205,000
5	82,800,000			77,499,000	5,301,000
Total	414,000,000			388,455,000	39,579,000

- Sales revenue reduced the tax, but feed Sales tax is free;
- Outflow= Annual Variable Cost + Annual Fixed Cost

Table 19: Cost Analysis

(Unit RMB Yuan)

Year	Variable cost	Fixed cost	Total	Remarks
1	74,520,000	3,363,000	77,883,000	
2	74,520,000	3,267,000	77,787,000	
3	74,520,000	3,171,000	77,691,000	
4	74,520,000	3,075,000	77,595,000	
5	74,520,000	2,979,000	77,499,000	

** The annual expenses is classified to the variable cost and fixed cost.

Table 20: Cash Flow Analysis

(Unit RMB Yuan)

Year	Net cash flow P.B.D.T.	Accumulated cash flow
0	14,034,000	-14,034,000
1	4,917,000	-9117,000
2	5,013,000	-4104,000
3	5,109,000	1005,000
4	5,205,000	6210,000
5	5,301,000	11511,000

Table 21: Sensitivity Analysis

	Assumption	Payback Period(Years)	Profit Amount (unit: RMB Yuan)	Profit Margin (Profit/Sales revenue)		
1	Normal	3.21	4,179,450	5.00%		
2	Raw materials					
	Price					
	increase by 3%	5.53	2343450	2.83%		
	decrease by 3%	2.26	6015450	7.27%		
3	Sales Price					
	increase by 3%	2.16	6290850	7.38%		
	decrease by 3%	6.20	2068050	2.58%		

Table 22: Present Value of Cash Flow

Year	Net Cash Flow	6% Discount	Present value cash flow	Accumulated cash flow
0	14034000			-14034000
1	4,917,000	0.943	4636731	-9397269
2	5,013,000	0.800	4010400	-5386869
3	5,109,000	0.840	4291560	-1095309
4	5,205,000	0.792	4122360	3027051
5	5,301,000	0.747	3959847	6986898
	39579000		21020898	+6986898

N. P. V = + 6986898

Table 23: Internal Rate of Return (I. R. R)

	Year	Cash flow	DR. 20%	Present Value	DR. 25%	P.V.
Initial Cost		-14034000				-14034000
Cash Flow	1	4917000	0.833	4095861	0.800	3933600
	2	5013000	0.694	3479022	0.640	3208320
	3	5109000	0.579	2958111	0.512	2615808
	4	5205000	0.482	2508810	0.410	2134050
	5	5301000	0.402	3131000	0.320	1696320
				+2139000		-446000

$$\text{IRR} = 20\% + \frac{2139000}{20139000+446000} \times 1\% = 20.83\%$$

$$\text{IRR} = 25\% - \frac{446000}{2139000+446000} \times 1\% = 24.83\%$$

$$\text{ARR} = \frac{\text{Average cash flow}}{\text{Initial Invest}} = \frac{(4917+5013+5109+5205+5301) / 5}{14034} = 36.4\%$$

Table 24: Profit Analysis

(unit: RMB Yuan)

No	DETAILS	YR 1	YR2	YR3	YR4	YR5
1	Total production (Unit: ton)	36,000	36,000	36,000	36,000	36000
	Sales revenue	82800000	82800000	82800000	82800000	82800000
	Total revenue(36000X2300)	82800000	82800000	82800000	82800000	82800000
2	Variable cost					
	Raw materials	72,000,000	72,000,000	72,000,000	72,000,000	72,000,000
	Packing charges	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000
	Electricity	432,000	432,000	432,000	432,000	432,000
	Wages (15 employee)	144,000	144,000	144,000	144,000	144,000
	Transportation cost	324,000	324,000	324,000	324,000	324,000
	Sub total	74,520,000	74520000	74520000	74520000	74520000
3	Fixed cost					
	Salaries	684,000	684,000	684,000	684,000	684,000
	Loan interest	480,000	480,000	384,000	288,000	192,000
	Depreciation	195,000	195,000	195,000	195,000	195,000
	Insurance premium	18,000	18,000	18,000	18,000	18,000
	Repairs & maintenance	36,000	36,000	36,000	36,000	36,000
	Telephone/communications	48,000	48,000	48,000	48,000	48,000
	Sales promotion	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
	Other overheads	180,000	180,000	180,000	180,000	180,000
	Contingencies	360,000	360,000	360,000	360,000	360,000
	Sub Total	3,363,000	3,363,000	3,363,000	3,363,000	3,363,000
4	Profit Before Bank					
	Loan/Dep/Tax (P.B.L.D.T)	5,592,000	5,592,000	5,592,000	5,592,000	5,592,000
5	Interest	480,000	384,000	288,000	192,000	96,000
	Profit before Dep/Tax (P.B.D.T)	5112,000	5,208,000	5,304,000	540,000	5,496,000
6	Depreciation	195,000	195,000	195,000	195,000	195,000
	Profit before tax (P.B.T)	4,917,000	5,013,000	5,109,000	5,205,000	5,301,000
7	Tax 15%	737,550	751,950	766,350	780,750	795,150
	Profit after tax (P. A. T)	4,179,450	6,261,050	4,342,650	4,424,250	4,505,850