

Republic of Kazakhstan
North Kazakhstan Oblast

Master Plan Study On Cluster Development
In Food Processing Industry
In The North Kazakhstan Oblast

Final Report
(Summary)

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July, 2010

Japan International Cooperation Agency (JICA)

Hokkaido Intellect Tank (HIT)
Overseas Merchandise Inspection Co., Ltd. (OMIC)

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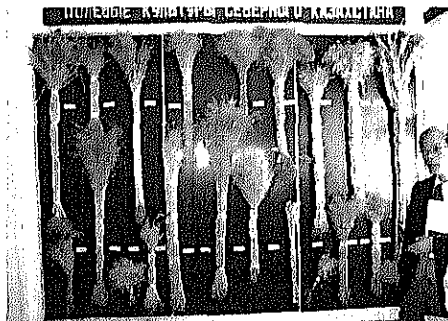
【MAP】



Source: <http://coinskz.narod.ru/>

【Photo】

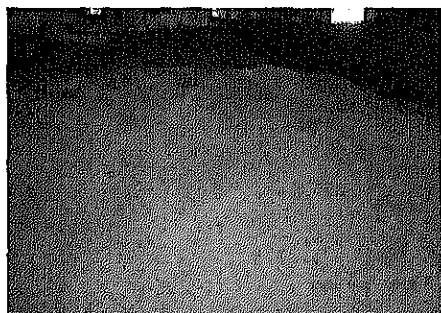
1 Material Purchasing
(Material Production and Livestock Situation)



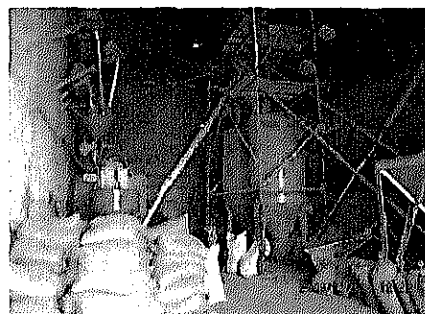
【No.1】 Oct 23, 2009, Esil agricultural university
The livestock industry of North Kazakhstan state is supported by the products from vast wild grassland and farmland. Those samples of grasses are collected by the agricultural universities to be utilized as teaching materials.



【No.2】 Nov 4, 2009, stripinsukoe area
Huge amount of grain are produced in North Kazakhstan state. After-harvest by-product such as wheat straws are also produced a lot every year; those are utilizing storage feed during winter time after treated as hay, haylage, and silage. Among the large company, the height of 5-6m, and the length of 50m hay is made.



【No.3】 Dec 4, 2009, kejirzaru area
Over middle-scale livestock farmers are produce grain also, those product such as wheat, barley are utilize as formula feed resources



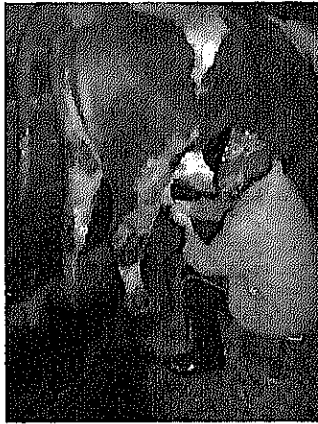
【No.4】 Nov 18, 2009, Ykoru area
Among the large-scale livestock companies, practicing self manufacture formula feed by introducing feed manufacturing machineries.



【No.5】 Among the large-scaled dairy companies, huge amount of silage are producing using large machineries

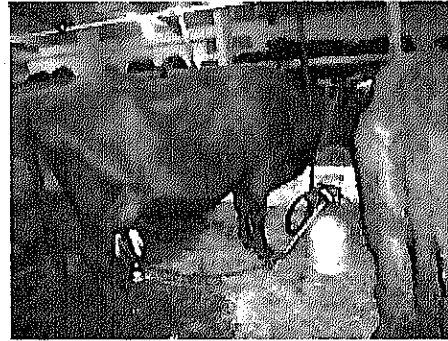


【No.6】 Dec 4, 2009, kejirzaru area
The basic method of reproduction pigs in North Kazakhstan state are carry on three-way cross breeding which of F1 made from landrace species and Duroc species, then re-breed with large-yorkshire species. The level of technology is very much differences between producers.



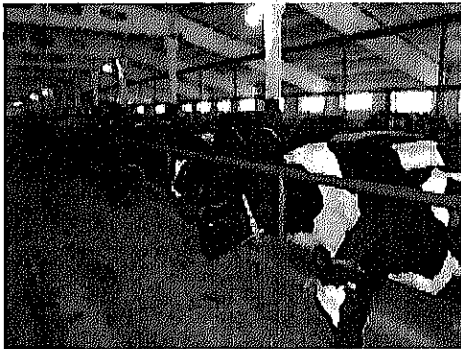
[No.7] Nov 3, 2009, kejrizaru area

This photo is showing typical small-scale dairy farm in North Kazakhstan. The type of cow is Red-Kazakh which is very strong to extensive care. The milk production per day is 6-8kg from one cow with 2-3heads per farm.



[No.8] Nov 3, 2009, stripinsukoe area

Over middle-scale farm (50-100 heads) are introducing bucket type milking facilities. The milk production per day is 6-8kg from one cow by Red-Kazakh.



[No.9] Nov 11, 2009, Zen-chenko dairy farm

This photo is showing the dairy farm with Holstein. The feeding management are very much different between producers, then all farms are not excellent. The milk production is about 20kg per day from one cow.



[No.10] Dec 14, 2009, syarakin area

This photo is showing the beef fattening farm using Red-Kazakh. This species produce high quality beef meat. The fattening period is 8month. Wild grass and grain straw are given as main feed.

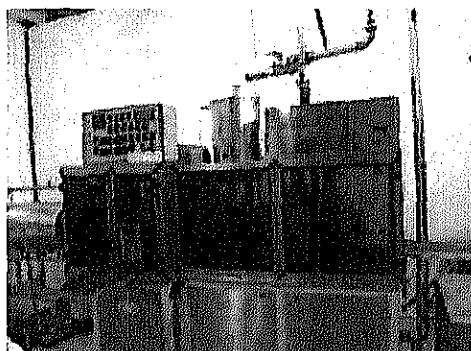
2 Dairy Product Processing
(From purchasing raw milk to processing)



[No.11] Nov. 3, 2009, Bolshaya Malishka
Milk collection by collection car.



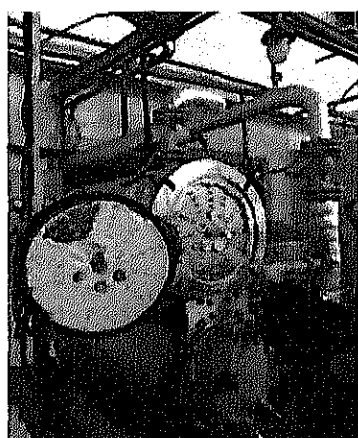
[No.12] Nov. 3, 2009, Bolshaya Malishka
Raw milk inspection at milk collection center.



[No.13] Dec. 19, Bishkul
Milk processing machine at dairy processing company.



[No.14] Oct. 20, 2009 Petropavlovsk
Cheese aging storage

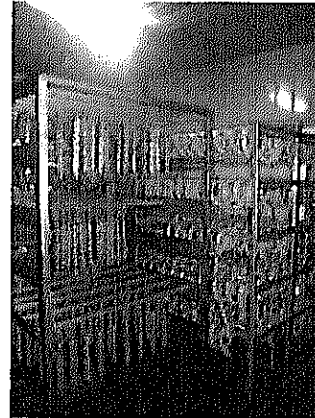


[No.15] Dec. 12, 2009, Petropavlovsk
Butter production machine.

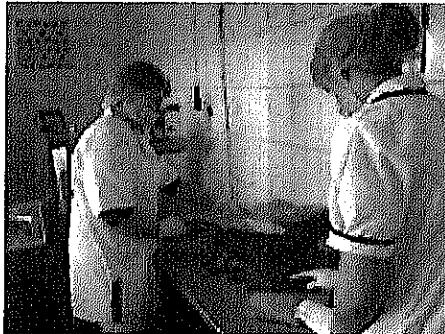
**3 Meat processing
(Sausage and Perimeni production)**



[No.16] Oct. 19, Petropavlovsk
Sausage stuffing process



[No.17] Oct. 22, Akkayin
Sausage smoking process

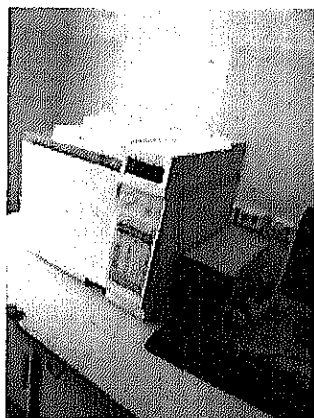


[No.18] Oct. 22, Akkayin
Sausage packaging process

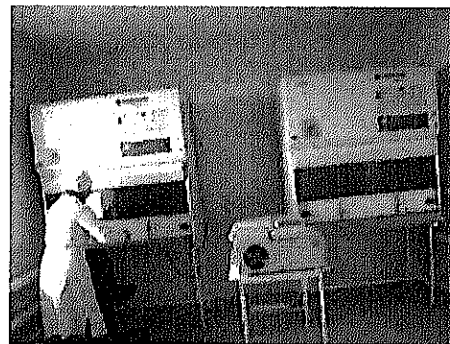


[No.19] Nov. 2, 2009 Petropavlovsk
Perimeni production process

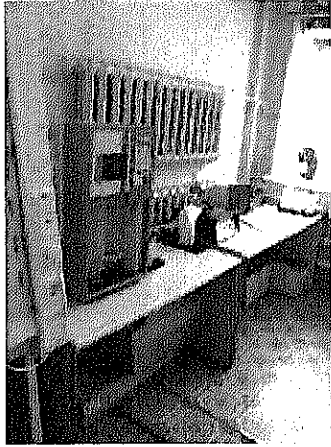
4 Government food inspection laboratory



[No.20] Nov. 6, 2009 Petropavlovsk
Hygiene and epidemiology inspection center
Gas Chromatograph for pesticide residue
analysis



[No.21] Nov. 9, 2009 Petropavlovsk
Veterinary laboratory
Polymerase Chain Reaction (PCR)
Apparatus for animal disease diagnosis

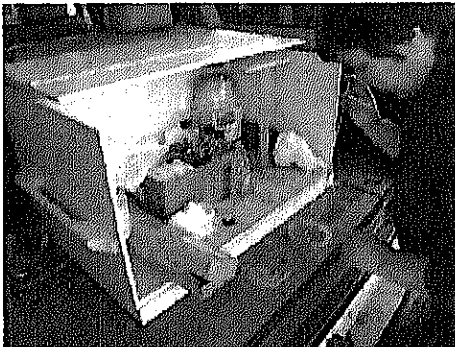


【No.22】 Nov. 10, 2009 Petropavlovsk
Agricultural laboratory
Wheat analysing apparatus



【No.23】 Dec. 8, 2009 Biskul
Livestock production and plant cultivation
research and development university, Dairy
product inspection room

5 Result of Technology Transfer



【No.24】 After technical transfer activities concerning
raw milk examination, the technicians from
dairy company carry on alcohol examination
test at milk collection point as rutin work.



【No.25】 The several food industry companies from
Petropavlovsk participated to the food
exposition at Astana. All the goods were well
received among the costumers.

Abbreviation List

C	C/P	Counterpart
D	DAMU	Entrepreneurship Development Fund
	DF/R	Draft Final Report
F	F/R	Final Report
G	FTZ	Free Trade Zone
H	HACCP	Hazard Analysis and Critical Control Point
I	IC/R	Inception Report
K	KAZYNA	Sustainable Development Fund
M	MCO	Microcredit Organization
	MEBP	Ministry of Economics and Budget Planning
	MIT	Ministry of Industry and Trade
	M/M	Minutes of Meeting
	M/P	Master Plan
N	NKO	North Kazakhstan Oblast
P	PPP	Public Private Partnership
S	S/W	Scope of Work
T	TOBOL	Joint Stock Company “Social Entrepreneur Corporation (SEC) ”

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*Master Plan Study on Cluster Development in Food Processing Industry
In The North Kazakhstan Oblast
FINAL REPORT (Summary)*

Master Plan Study on Cluster Development in Food Processing Industry In The North Kazakhstan Oblast, The Republic of Kazakhstan

Executive Summary

1. Issues relating to the investigation :

- The analysis of actual conditions and issues in relation to cluster promotion of the food processing industry in the North Kazakhstan Oblast.
- Recommendations of concrete action plans relating to the cluster promotion of the food processing industry .

2. Counterpart : Akimat of the North Kazakhstan Oblast

3. Objective: Enhance the competitiveness of small and medium-sized enterprises due to the cluster promotion approach

4. Details of investigation :

1 st phase October 2009 to December 2009	Current situation survey	Field survey, domestic and foreign market survey, statistical information survey
	Issue analysis	SWOT analysis, value chain analysis
	Technology transfer	Working group, seminars at educational facilities etc
2 nd phase January 2010 to July 2010	Technology transfer	Diffusion of technology directed at farmers, diffusion of technology directed at processing plants
	Model project	Participation in food related trade shows, development of a web site, opinion exchange meetings
	Advertisements, proposals	Master plan proposal, production of final report

5. Present state analysis (SWOT analysis) :

- Strength (S) : The high quality of the raw materials are highly valued domestically, high level of confidence from local consumers
- Weakness (W) : The level of technology including wrapping, product quality management etc, the structure of raw material procurement all year round
- Opportunities (O) : Increase the demand from domestic consumers, the export possibility to surrounding countries.
- Threats (T) : Imported food products, competition between similar products, the domestic market entry of large distribution chains.

6. Proposal for the master plan :

- The short, medium and long term strategies in relation to enhancing competitiveness in regards to raw materials, product development, market development.
- The cooperation between Local industry, Government and academia with Techno-Park being central, organizing the main operating structure.
- Aiming towards the objective actualization, the production of a schedule for the 1st phase (1~3 years), 2nd phase (4~5 years), 3rd phase (beyond 6th year).
- Improve the regional food processing technology center as the core project of the cluster activities. <summary is below>
- Implementation of the action plan for the purposes of overcoming the issues. <Details attached >

Summary of the Core Project
“Improvemnet of Regional Food Processing Technology Center”

Purpose	<ul style="list-style-type: none"> • Technology support for the purposes of quality improvements and product development • Market development support through brand development, sales promotion etc. • Cluster development systemization for the purposes of business solutions in relation to food processing technology • Implementation of a Kaizen (Improvement) team for the purpose of product quality management & food safety • Implementation of trials and tests for the purpose of practical business solutions for food processing • Implementation of training for the purposes of food technologists
Beneficiary target	Small and medium sized food corporations of North Kazakhstan Oblast
Operating structure	Cooperation of related institutions centering around Techno park
Establishment etc	Effectively using existing facilities but necessary to improve with partial Government finance, private industry capital and foreign donor support
Activity contents	<ul style="list-style-type: none"> • Introduction of improvements for wrapping technology • Introduction of product quality improvements in food processing • Support for product development • Information provision in relation to the procurement of food processing equipment • Staff training support in relation to food processing technology (Product quality improvements, food safety, management) • Provision of financial information • Marketing support (Trade shows, constructon of WEB site, development of brand) etc

7. Results from transfer of technology, model projects :

- Major improvements in product quality of fresh milk as a result of the introduction of technology on farms. (Reduction in bacteria by half in 1 week)
- Success in the improvements of staff consciousness in the technology introduction processing facilities
- Understanding the significance of local cooperation due to participation in food trade shows, increasing the motivation of participating businesses in cluster activities

8. Issues in relation to master plan implementation :

Apart from having the necessary capital for infrastructure maintenance of master plan implementation in the target country, in order to implement the project, a delay in the consciousness reforms of the participating members, the cooperative structure between Industry, Government and Academia will be lacking. It is possible to independently proceed with preparation of facility maintenance and establishment of a faculty for the purpose of staff training, but is not accompanied by the cultivation of local instructors and curriculum development. Accordingly, for the purpose of objective implementation, it will be necessary to receive cooperation from foreign donors or domestic specialized agencies, consciousness reform within the region, opportunities to enhance cooperative structures and promote the training of instructors.

Attachment: Organization of action plan

Sector	Issue	Strategy□	Recommendation	Action plan in response to the business solution
Raw materials (Livestock)	Technical improvements of rough fodder producers	I	In relation to rough fodder production	Farming management
	Lack of technical guidance in dairy sector			Farming management
	Contamination of milk			Dairy extension center
	Stable livelihood for full time farmers	I, II	Operational improvements for small scale farmers Breeding and reproduction of cattle Production of specialty ham and sausages	Farming management, Dairy extension center
	Product differentiation for pig farmers			Quality improvements and new product development support planning for processed food
Food processing	Labor shortages	II, III	Establishment of practical education facilities	Establish a new faculty in the state college
	Development of profitable products			Staff training support (Quality improvements, food safety, management)
	Packaging improvements			Product quality improvements and new product development support plan for processed food
	Lack of Management strategy			Food packaging technology improvement support plan, human resource development support
	Increasing product value due to distribution			Human resource development support, Food processing related information support
Distribution sector	Lack of sales strategy	III	Develop regional brands	Product quality improvements and new product development plan for processed food
	Lack of information transmission			Human resource development support, food processing related information provision support
	Conditions for fund procurement for business			Development of regional brands, food processing related information provision support
Finance	Lack of information re institutional finance	I, II, III	Finance information service Establishment of regional food technology centre	Infrastructure building for the purpose of analysis reporting for financial information aimed at private companies
	Secure constant administration and academic consultation center			Establish a regional food processing technology center
Cluster policy	Establish events and education businesses	I, II, III	Establish a regional food processing technology centre Establish regional branding Establishment of a practical training body	Construction of a regional branding plan
	Establish cooperative structures domestically and overseas			Establish a new faculty at a state college

I=Enhancement of competitiveness for raw materials, II=Enhancement of competitiveness for product development, III=Enhancement of competitiveness for developing new markets

1. General Outline of the Study

1 Survey Summary

This study was implemented as noted below based on the agreement and signing off of Scope of Work (S/W) between the North Kazakhstan Government and JICA and the minutes from the same discussions.

(1) The contents of the study

- 1) The actual condition and problem analysis in relation to cluster promotion of food processing industries in North Kazakhstan
- 2) Proposal of a concrete action plan connected to cluster promotion of the food processing industry.

(2) Scope of the study

- 1) Study which includes from the procurement of raw materials for the food processing industry to production, distribution and through to export.
- 2) Clarification of competitiveness (export) and those obstacles relating to the food production industry.
- 3) Study about competition between domestic products and imported products in the domestic market place, clarification of the demands in the international market for product specification, quality levels and production costs, together with a proposal with effective measures in value chain strengthening for the purpose of enhancing the competitiveness of small to medium sized companies.
- 4) A proposal where an effective cluster promotion strategy is appropriate with product features etc.
- 5) A proposal relating to the implement structure of cluster promotion (including cost estimation survey)
- 6) Implementation of a seminar for the purpose of skills development and awareness raising for staff from relation institutions.
- 7) A proposal to strengthen the cooperation between private and public sectors for the purpose of the promotion of small and medium sized industries relating to the cluster promotion approach.

(3) Schedule implementation

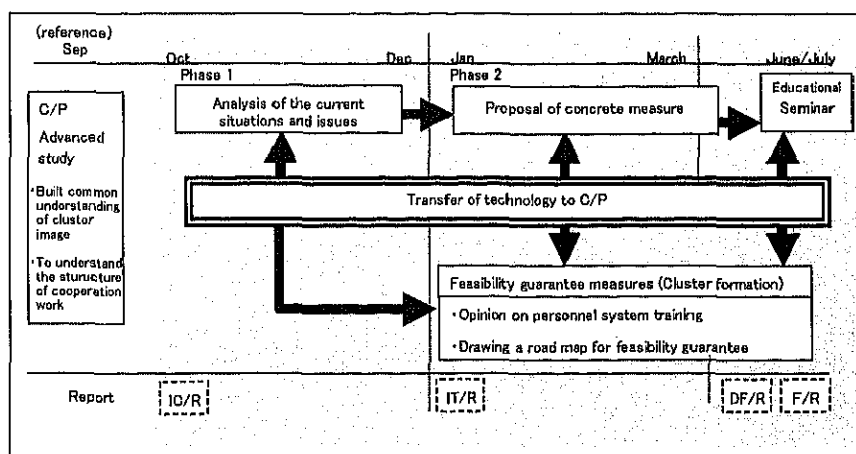


Figure 1-1 Schedule of Implementation of Study

(4) Implementation agencies from the Kazakhstan side

This is the North Kazakhstan Department of Industry and Entrepreneurship and the Department of Agriculture. The North Kazakhstan government established a “working group” to carry out joint study and M/P planning with a study team and will administer a “Steering committee” with support and advice from the study team’s director for the purposes of implementing useful results from the study.

2. Overview

2 Overview

(1) An overview of the North Kazakhstan economy

The population of North Kazakhstan in 2008 was 658,000 which is 4.1% of the total population of Kazakhstan. In the same year there was an increase in industrial production but there was a decrease in the amount of agricultural production compared to the previous year due to a reduction in wheat output.

Table 2-1 Major social economic indicators relating to regional development (2008)

	Population (people)	Average monthly wages (Tenge)	The minimum cost of living per person (Tenge)	Industrial production (1,000,000 Tenge)	Total agricultural production (1,000,000 Tenge)	Fixed capital investment (1,000,000 Tenge)	Retail trade volume (1,000,000 Tenge)
North Kazakhstan Total	648,343	39,695	11,519	61,265.1	193,826.4	39,867.6	51,308.2
Comparison to the previous year (%)	99.1	115.3	117.1	106.1	95.1	99.6	100.1

Source : North Kazakhstan social economic index (2008)

(2) Total production from regional North Kazakhstan

There was an increase in the total production from regional North Kazakhstan after 2004, and in 2008 the total regional production was 2.6 times that in 2004 and was equivalent to about 4,030 billion tenge. The total regional production of Kazakhstan was ranked 15 out of the 16 regions (which was equivalent to about 2.5% of the total). Agriculture is the main industry, however the ratio it occupies for the total production for the region is reducing annually.

Table 2-2 The shift in regional total production in the North of Kazakhstan
(A comparison to other regions)

	Top line : Total (1,000,000 tenge) / bottom line: percentage (%)				
	2004	2005	2006	2007	2008
Entire Kazakhstan	5,870,134.3	7,590,593.5	10,213,731.2	12,849,794.0	16,052,919.2
	100.0	100.0	100.0	100.0	100.0
Akmora*	166,162.5	196,761.3	254,186.2	406,298.4	477,641.1
	2.8	2.6	2.5	3.1	3.0
Qostanay	272,279.1	322,711.3	387,343.8	560,378.3	704,281.2
	4.6	4.3	3.8	4.4	4.4
North Kazakhstan	151,916.0	184,672.3	236,876.6	320,390.7	403,003.3
	2.6	2.4	2.3	2.5	2.5
Astana	468,769.9	711,612.0	957,070.7	1,134,213.5	1,291,813.2
	8.0	9.4	9.4	8.8	8.1

Source : Regional Kazakhstan (Kazakhstan bureau of statistics)

*except the amount of the regional total production of Astana.

Table 2-3 The composition of the regions total production of North Kazakhstan

	Unit: %				
	2004	2005	2006	2007	2008
Agriculture	36.4	36.2	30.8	27.9	27.7
Industry	13.7	11.8	9.9	8.3	10.0
Construction	1.4	3.2	3.1	2.7	3.2
Merchandise sales	18.9	17.8	15.4	13.7	15.0
Transport	12.3	10.8	10.6	8.0	7.8
Communication					
Other	17.3	20.2	25.7	35.1	32.4

Source : North Kazakhstan social economic development 2004—2008 (North Kazakhstan bureau of statistics)



3. The Current Situation and Issues for the Region

Moving Towards

Food Production Cluster Promotion

3 The current situation and issues for the region moving towards Food production cluster promotion

3.1 Structural diagram of food processing cluster promotion

The purpose of this study is while forming food production clusters with dairy products and processed meat products at its core in the state of North Kazakhstan strengthen competitiveness of small and medium scale businesses in the region. An industrial cluster policy is collaboration between “Industry”, “Government” and “Academia”, making effective use of the regions resources including raw materials, human resources, capital and technology and creating new value added products and services.

Consequently, in this chapter, the investigation of the food processing cluster promotion in the state of North Kazakhstan, together with the organization of the current situation and issues relating to the livestock industry, food processing industry and the distribution industry, we will report on the trend of financial support, cluster policy, transfer of technology etc provided by “Government” and “Academia”.

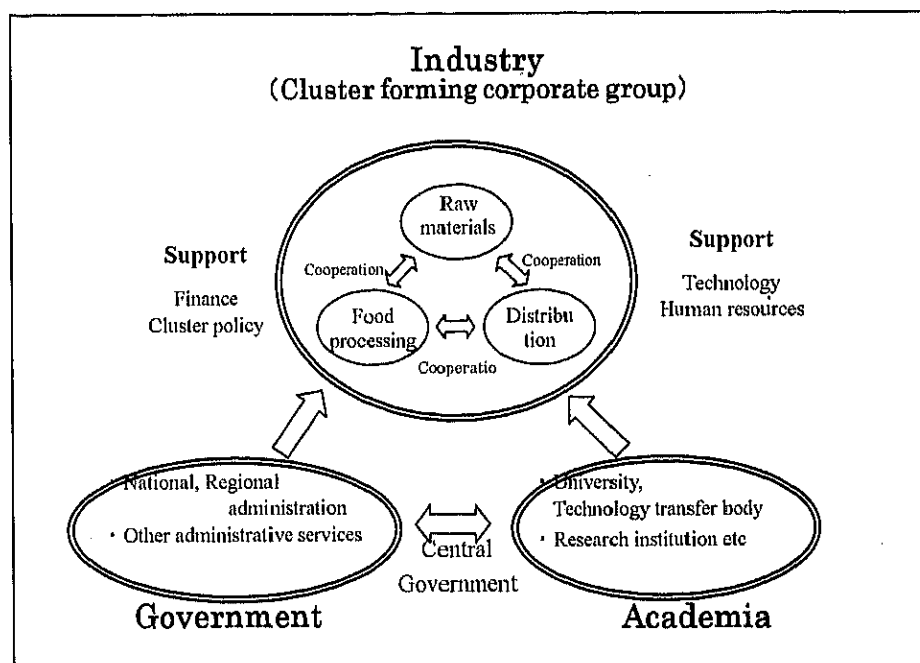


Figure 3-1 Conceptual Diagram of Food Processing Cluster Promotion

3.2 Raw materials (Livestock industry)

3.2.1 Situation of feed production

Kazakhstan is a country which is proud of the 6th in the world about the area of wild grass and cultivated land, which is 186 million ha. This is equivalent to 70% of the Kazakhstan country area. Furthermore, the area of North Kazakhstan state is about 8.4 million ha.¹ It is equivalent to about ¼ of the total area of Japan, which is 37.78 million ha. The grain production of North Kazakhstan state is the most productivity in the country. North Kazakhstan Oblast will grow about 30% grain of all the Kazakhstan. The livestock industry of North Kazakhstan is supported by the products from this vast wild grass place and cultivated land. The huge resources of feed of North Kazakhstan were made to realize potential with bigger livestock than anything.

3.2.2 Livestock feeding management

(1) Outline

The general condition of the feeding management was investigated in the North Kazakhstan Oblast. Properly speaking such investigation should be conducted in appropriate time to judge the situation throughout year, and thus views close to the actual condition could be acquired. But this investigation was conducted only in winter. Therefore, it naturally reflected the actual condition during winter. Therefore, the scale of each production site is mentioned in this report enabling to grasp the outline of the situation by integrating and analyzing each example. The current numbers of the livestock are as shown in the table.

Table 3-1 Transition of the number of livestock in North Kazakhstan state (2004 - 2008)
(0,000)

	2004	2005	2006	2007	2008	2008 (ratio % against 2007)
Beef cattle	324.8	332.0	338.5	344.5	351.6	102
Dairy cattle	163.6	166.0	170.0	171.5	174.1	102
The sheep and goat	181.9	196.7	220.6	234.0	247.6	105
Pig	204.2	204.4	224.1	240.9	247.6	103
Horse	74.0	77.0	80.0	83.7	88.8	106
Domestic fowls	2112.9	2218.6	2559.9	2604.0	2709.2	104

Source: The social economy index (2008) in North Kazakhstan state

(2) Hog Raising Situation

Most pigs are bred at the individual hog farmer (82.7%).² There were no small-scale hog raising farms (about ten head) that bred only the pig. Most of them were raising cattle but combined the cattle for milk and for meat, sheep for meat, etc. Especially there were many cases in which fence for pig breeding (3 to 5 heads) was made inside the shed for dairy cows. At the other middle-scale farm (about 50 to 500 heads), there were many farms running both grain cultivation and hog raising farm. Although it was small in number, some large farms (thousand

¹ World Bank Technical Paper, Rangelands in Transition The Resource, the Users and Sustainable Use, and North Kazakhstan state Livestock Industry Bureau data

² Same as the above

head) adopted the form of hog raising management almost equivalent to those of advanced nations.

(3) Dairy

1) Outline

The following table shows transition by year of the raw milk production per animal. If it sees by the national average, an upward tendency will be seen although it is little-by-little. However, it is desirable the improvement of dairy industry in kazafusutan since, the number of milk production which is 3,000kg or less can never be evaluated high production. (Reference: The amount of average milking per animal is 7,195 kg in Japan and the amount of average milking in the world 2,034kg "international agriculture-and-forestry fishery statistics" (Statistics and Information Department, the Ministry of Agriculture, Forestry, and Fisheries))

Table 3-2 Transition of the raw milk production per cow in Kazakhstan (2004~2008)

	(kg)				
	2004	2005	2006	2007	2008
Average of whole state	2786	2804	2814	2832	2929
Petropavloysk city	2810	2810	2829	2829	2908

Source: Kazakhstan statics committee

2) The dairy farming using Holstein species.

What should be mentioned especially at this farm is that they had a strategy to introduce Holstein species not only the Red Kazakh species of a native cow in order to increase raw milk production because Holstein species have been the most effective for that purpose. They had already purchased 890 cows from Canada. An average price was 5,000 dollars per head, and about breeding management, the technicians from Canada visited the farm, and guided about Holstein breeding so that they can be appropriately adapted to local environment. The annual quantity of milk production is 5,000kg per head. Some cows produced 7,000kg of milk. The total number of bacteria were 300,000 pieces per cc. Breeding is 100% artificial insemination and is 2.5 times fertilization per animal.

3) The large scaled dairy farming using native cattle.

Total number of breeding cattle is about 600 heads, mainly the Red Kazakh species. About 150 head were kept under the free stall system. The cow was very gentle and the ones which dislike milking machine (made in Israel) were not seen at all. The number of times of an average delivery is about 3 to 4 times a year. The hay feeding was systemized and the nutrition situation of the milking cow was by no means bad. The situation of rumination was also good and the cows which finished milking were lying down relaxed. Although breast washing before milking was practiced, the pre-milking was not done. Milk production in summer time was 13 kg and in winter season about 6kg per day. We were told that milking related illness such as mastitis, are seldom recognized. As counter-measures whenever the symptoms of mastitis recognized, shipment of raw milk from the infected animal is stopped for seven days after medical treatment. After the end of milking, raw milk was immediately stored in the refrigerated storage tank of a raw milk processing room, and waits for arrival of milk collecting truck.

4) The small scaled dairy farming using native cattle.

The average number of milking cow was 3-4 heads. About 70% of raw milk production in the North Kazakhstan state is produced by small-scale farms like this example. All the farms are milking by hand and milking is their wives' work. The amount of milking is 3 to 4kg per head.

Breast washing before milking was done with hot water in the bucket, and they were washing carefully with dishcloth. However, neither dishcloth nor hot water was changed. Although the pre-milking was performed, none of the farm has put the cloth for dustpans, etc. on the bucket for milking. The Red Kazakh species is main species. The cow is very gentle and none of them kicks a bucket. The average number of times of delivery was about 4 to 5 times. The nutrition situation of the milking cow was by no means bad. Sufficient hay was given to feeding trough at every farm, and we felt that the cow was treated carefully. Water is given by buckets. Cow are kept in the grazing land of the neighborhood all summer, winter season is kept in the shed. Although formula feed was also fed, the actual feed given is the grain of off-standard for edible purpose sales which was stored for feed of winter season.

5) The shipment of raw milk on the small scaled level.

Since almost all dairy farmers were not far from the collection point, they brought milk collection bucket themselves. However, it was not covered by lid in particular. There is a time lag of about 3 hours between the time when milk collecting truck visits first farmer at the farm, and the time it visits last farmer. According to explanation, the inspection about details, such as ingredient, the number of cells, made non-periodically (about once in a week).

(4) Beef cattle fattening

The beef cattle in Kazakhstan are mostly Red Kazakh species, which is originated from the Simmental species of European beef cattle, and crossed with the local native species. Four month old cattle were introduced from the affiliated company, and they were fattened to the age of eight months. Then they were shipped to an affiliated meat processing company. Hay was given basically and formula feed was given 5-6kg per head. A daily gain was 1kg. The formula feed is produced by themselves using wheat, oat, etc. which are produced at this farm or a contract farm. The rate of combination was 60% of oat, and about 40% of wheat.

(5) Poultry Farming

The interviewed broiler production companies introduced feeding system of Israel. 30,000 per one henhouse were raised and presently 180,000 birds are raised in total. Average weight will be 2.2 kg in 43 days when shipped. The number of birds in annual shipments was about 1 million birds. The destination is the wholesalers in the country. Processing apparatus were German made.

In the case of interviewed eggs production company, the number of birds at the start of business was 8,000 are, it has expanded to 250,000 birds now, and the annual egg production per bird is 320 pieces. Baby chickens are imported from Russia and are 150 tenges per bird. The first eggs are laid at about the 16th week. Since it is a dual purpose breed for egg and meat, they are killed in about average 17 months. The species of hen are two species, Roman Brown from Russia, and the Load meat II. The relations with Ministry of Agricultural Office are limited to only an exchange of the documents, such as submission of liquidation data, information related to credit, etc. The number of employees was 65 and 40 persons work in the direct production spot. The rest is engaged in marketing sector. The most of the maintenance work of machines is handled only by employees themselves. Eggs are sold to all over the country through

distribution centers called whole sale point where the product is classified into four kinds by the difference of each 10g weight and packed by workers by hand. The raw material of feed is locally purchased and fully automatic computer control blending was conducted. The materials were soybean, wheat, barley, sunflower, fish meal, meat and bone meal, etc... The feed blending was designed after conducting the ingredient inspection of materials in a feed inspecting room. Fish meal and meat and bone meal were imported materials from Russia. Design software was the Russian made. The cost of feed was about 200 dollars/ton.

3.2.3 Slaughtering facilities

In this country, livestock slaughtering are done in the yard of the farm in many cases in addition to the slaughtering facilities officially approved, and an immediate improvement is desired about the place of slaughtering, when the hygiene improvement of meat is argued globally. Legal revision took place in 2008 and now slaughtering of large sized livestock can only be permitted in exclusive slaughtering facilities and demolition disposal plants. Although there is no qualification system under the present circumstances about the butcher in charge, by the system under new law, only the special member of the graduates of an engineering/technological school can engage in slaughter work.

3.2.4 Livestock Breeding plan

In Kazakhstan, improvement of livestock breeding especially that of dairy cows is placed in high priority items among all policies on livestock. In 2001, the breeding improvement system was made. Under such basic government plan, each state has constructed systems to promote breeding industry. In North Kazakhstan Oblast, under the initiation of the Livestock Industry Bureau, more concrete plan was made in 2007. And its actual practice was just started. Under the livestock artificial insemination development plan, led by the livestock industry bureau, so far 700 livestock artificial insemination technicians were trained in those two years.

The two "Livestock Improvement Centers", under Ministry of agriculture are in charge to manufacture and supply of frozen semen. They have 100 excellent sires in total. The frozen semen manufactured there are conveyed to two "Semen Distribution Centers", then further conveyed to 300 "Artificial Insemination Centers" located at each village, where actual artificial insemination is conducted by artificial insemination technicians. Based on these numbers, the artificial insemination implementation rate in the small scale farmers is supposed to be 22%.³

On the other hand, in private large-scale raw milk industrial companies, they have their own original strategy respectively about artificial insemination activities, and already have good results. For example, in the case of our field survey, a company had improved the Holstein species raw milk production in their farm and livestock production is 100% by the artificial insemination.

3.2.5 Livestock diagnosis service and agricultural instruction system.

(1) Livestock diagnosis service

"Veterinary inspectors" of North Kazakhstan state Livestock Industry Bureau, are in a position to supervise all the veterinaries in the state. They work at District office, but do not directly go to production area. Actual medical services are done by ordinary veterinaries in the area. Farmers who need medical services on their cattle, contact ordinary veterinaries and receive medical services. The expenses involved in the services are paid by the farmers directly

³ By the North Kazakhstan state Livestock Industry Bureau

to the veterinaries. The "Veterinary inspector" does not give instructions or guidance directly to the farmers. The ordinary veterinaries whenever engaged in the medical services for cattle must report to "Veterinary inspector"

(2) Agricultural instruction System

The agricultural guidance system in North Kazakhstan Oblast is mainly by the work carried out by agricultural extension officers.

Kaz-Agro innovation activity is started in 2009. The farmer's education-related business is also included in this activity, and "Education centre" is inaugurated as part of that.

All people who feel necessity in training of special techniques will have opportunities to apply to Ministry of Agriculture and take lessons. Usually, it is the course of three to four days. The lecturers are from universities, research institutes. The base of those activities is "teaching sol-hose" of the Soviet Union era.

3.2.6 Issue of raw material (Livestock)

(1) Technology improvement of roughage producers.

To store abundant post-harvest residual substances and wild grass and use them as cattle feed is highly evaluated as effective measure for the benefit of the country. However, some points that can be improved were observed.

A large quantity of grains was left behind at the portion of the ear of hay in the field after harvest.⁴ Although it is called a harvest loss, the supplementary nutritive value which this portion can contribute should not be ignored. It is supposed that there is a supplementary role of sugar especially at the time of storage in silage or haylage. Although it concerns to storage of all feed, the percentage of fiber may increase and digestive rate reduced in the feed utilizing post-harvest residual substance. There is a necessity for improvement, such as trying early harvest especially wild grass. Moreover, although it was a partial example, in the quality check of the post-harvest residual substance in silage, silage fermentation was not observed at all.

Although this result may be caused by producer's technical level, the quality of raw material was supposed to be the greatest factor. Three prime factors for silage fermentation are pointed out such as (1) moderate moisture (70%) (2) Moderate sugar content. (3) Repression and air tightness since good quality product of the whole crop silage made from corn can be made even if it uses the same technique, true causes may be in the quality of raw material.

(2) Selectiveness of pork meat quality

A various gap is recognized in their apparatus and in their technical level in hog raising farms. There are some cases where the management level is about same as those of advanced nations, and there are some cases where the level is about 40 years ago. Some hog raisers explained that such prolonged fattening is not performed from a strategic viewpoint; but they merely have a feel from experience that better meat is made with this method and it is automatically continued. There are no extra profits found in this method. Although it is future issue, by specifying the difference of material with such special fattening method, and the other ordinary meat in a package by ham sausage companies, it may give a high-class feeling and it can sell as a brand-name product of the area. Naturally, if a price can be set to evaluate an appropriate difference about the material meat which performed such long-term fattening process, it can contribute to the stable management of hog raisers.

⁴ Since the machine is outdated according to interviews, if there is much generating of a loss

(3) Insufficient technical instruction regarding dairy farming.

About the milking cow, though it was regrettable, was far inferior as compared with the Case A. Every cow has no gloss in her skin and the insufficient nutrient condition was clear. It is presumed that the insufficient knowledge on the breeding management of Holstein species is probably the cause. Although introduction of the Holstein species seemed increasing, it is important to start breeding Holstein species after carefully studying the good example of advanced system of breeding. The problem is there is no organization which can do nutrition analysis of each feed. Farmers can not make proper feeding program. Even the producers of the big scale have to judge the quality of grass by tactility (feeling), and there was no way using scientific methods.

(4) Stability life of full time farmers

A wife of one of the dairy farm was a vice-principal of the elementary school. When we asked about the general condition of the life of this farm, she replied that there was a 70,000-tenge milk sales in six month, in addition, the income as a teacher was also expected. It was never a bad occupation. It is divided into two of the types for which it depends on the income from agriculture or dairy greatly about the means of living. The one (1) is the type which the fixed income from outside, (for example government official) is secured, and is performed in the viewpoint of the side job. The other (2) is the income outside can seldom is expected, and they rely on the income very much from agriculture or dairy. When it cannot say that the farm of the type of (2) is in the never blessed environment but synthetic stable development of the area by department of agriculture, the economical improvement of the farm without the income outside has realize as the very important thing.

(5) Contamination of raw milk

Whenever the raw milk produced in North Kazakhstan state became the topic of the talk, it was pointed out several times that the contamination of milk produced by small scale farmers is high. We asked views from one officer in a processing company. He said that most of the milk produced by small scale farmers is clean because farmers themselves consume as their product. They wash cow's breast cleanly and handle the milk carefully. But there are some farmers who do not pay sufficient attention in the hygienic milking. There are large differences exist. Accordingly, as a processing company, priority is always given to the milk produced by company level producers where there is little variation in the quality. Most small-scale dairy farmers have not received instruction formally about milking technology. The present condition is that technical transfer is performed from the grandmother in domestic education from a mother to a daughter to the mother. Therefore, since the difference can see in the technique with each farm, it is issue in what kind of form technical equalization can be attained.

(6) The issues concerning agriculture instruction activities.

To our question on the issues in agriculture in this area, he replied that although there is a local breeding center, the number of pure-bred pigs is decreasing sharply and in-breeding occurred frequently. And he is anxious about the influence it gives in breeding condition in the future. When it is consider for medium-and long view, this will be the problem that it is prevent development of the hog raising business of Kazakhstan. Establishment of the breeding plan which consider for the national standpoint also about the pig is desired like the breeding plan for the dairy cow. Furthermore, about the activates of Kaz-Agro, it is very splendid in concept, but

the issues are existing training points which are only four places. There are some problems in this system that dairy farmers who live in the neighborhood of a training base may be have the opportunity of training, but, for the small-scale dairy farmers who live long distance from the place or does not have independent means of transportation are not being easy for training attendance.

3.3 Food processing

3.3.1 Food Processing Industry in North Kazakhstan Oblast

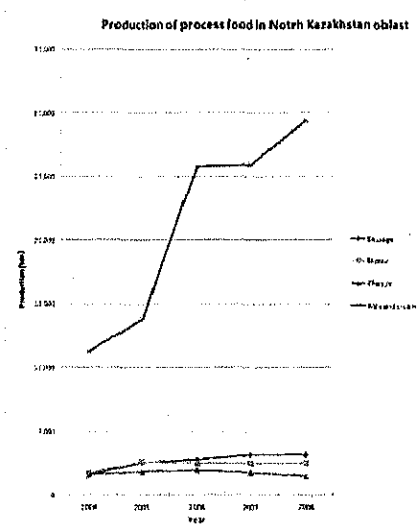
Food processing, depending on the degree of processing and combination of the extent of processing components, can be classified from primary processing to tertiary processing. Based on such criterion, this survey perceives the positioning of food processing in North Kazakhstan Oblast as described in the table hereunder. When North Kazakhstan Oblast was still a part of the Soviet Union, the state in question was positioned as the base or main source of the supply of processed foods, ranging from primary material, such as grain, including wheat, milk, and meat to primary processed foods. In the event development of food processing is considered, two aspects that are characterized by higher processed food processing (improved shelf life and furthered diversification), in addition to the production expansion of processed foods over those of the primary category, have to be taken into consideration.

Table 3-3 Feature of food processing industry in North Kazakhstan Oblast

Raw material	Primary processing	1.5 processing	Secondary processing	Tertiary processing
Raw milk	Milk, Cream	Sour milk, Yogurt	Butter, cheese	Ready-to-eat food, Retort food etc.
Raw meat	Table meat	Sausage, Ham (Heating after packaging)	Sliced pack (Packaging after heating), Frozen food	
Wheat	Flour	—	Pasta, bread	
Oil seed	Crude oil	vegetable oil	Margarine	

Source: Prepared by JICA Study Team

As the above table indicates, the output of processed foods has tended to expand over the past four years. It is believed that the main reasons for this was increased production and supply of primary materials, such as agricultural and livestock products, increased demand for processed foods centering around the domestic market, and, as a consequence, food processing firms increasing production capacity by expanding production bases and intensifying capital investment to satisfy market requirements.



Source: Prepared by JICA Study Team

Figure 3-2 Production of Proces Food in North Kazakhstan Oblast

The increased production of dairy products, in particular, and processed meat products at Petropavlovsk, which was subject to this survey, was outstanding. Whereas the market for wheat flour production was to a great extent overseas, dairy and processed meat products were processed mainly for the domestic market. Thus, one could say that this helped companies that process foods to reinforce their processing production bases near the point of consumption.

3.3.2 Present situations of Processing Dairy Industry

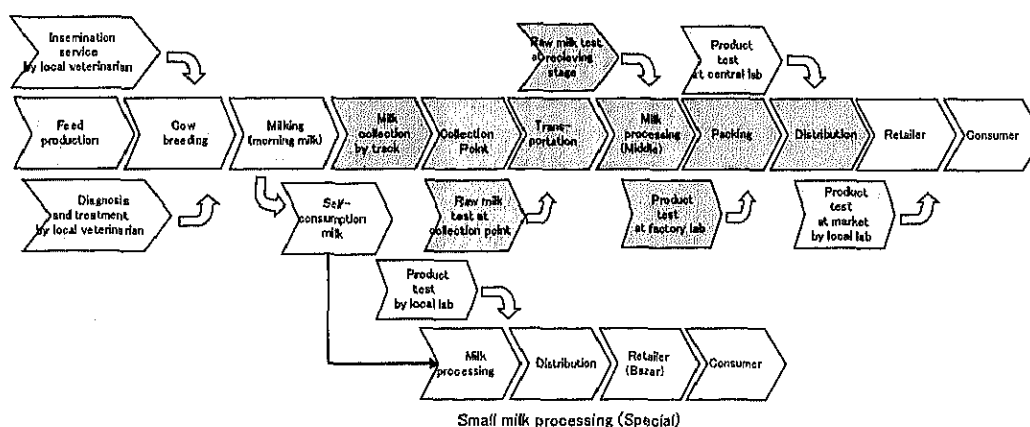
In Kazakhstan, the production of raw milk required for dairy product processing amounts to 1,000 tons during the summer season, while during the winter season 200 tons is often the norm. Seasonal fluctuation is significant. Furthermore, in particular, milk collection from small-scale farmers from whom roughly 70% of primary raw milk is supplied entails many problems. These farmers lack the refrigeration facilities necessary to store raw milk, hygiene is not up to standard, and milk transportation vehicles are not equipped with a refrigerating function, which puts the freshness of raw milk into question, alongside obvious concerns of hygiene/bacteria buildup, due to high temperature during the summer months. Moreover, small-scale farmers are confronted with other problems, such as fodder and the rearing environment, as well as the lack of technology concerning artificial insemination ratios, etc., ending up with a varied fat percentage and other concerns.

Some processed merchandise is highly dependent on imports, e.g., cheese (40%), butter (30–40%), high fat milk and cream (80%), and ice cream (60%), which are all imported. As a result, Kazakhstan's own dairy products are forced to compete with the products and markets of Russia, Ukraine, and Belarus, and other countries of the former Soviet Union.

As the shelf life is limited or short, dairy products tend to be considered under the concept of “local production for local consumption.” In North Kazakhstan Oblast, in particular, where the transportation infrastructure is not yet fully developed, dairy products, such as milk, are largely consumed in regions where distribution routes are established; however, the present situation is that products do not make it to remote areas.

The following diagram illustrates the value chain for milk from small farmers to consumers through the milk processing plants.

Milk Value chain from small farmers to consumer through milk collector and milk processing plant



Source: Prepared by JICA Study Team

Figure 3-3 Whole chain for milk from small farmers to consumers through the milk processing plant

Small-scale farmers generally supply processing companies with raw milk that is surplus to their own household requirements. Some small farmers pasteurize the milk for drinking and/or process it into products such as Smetana that can be sold on the market, typically at bazaars. Manufacturing and retailing of dairy products is subject to testing under government regulations, so the manufacturing processes can be considered safe. However the lack of packaging materials and equipment and containers does create potential hygiene issues during the subsequent distribution and retail processes.

3.3.3 Market prices for dairy products

(1) Market prices for milk and cream

Milk prices (per liter in the above table) are governed by fat content; the higher the fat content, the higher the price. There is a high level of milk consumption in Kazakhstan, and the stores and supermarkets are lined with a range of different products at different fat content levels. Thus, the milk fat content dictates the purchase price in terms of the raw milk price charged by the dairy farmer.

The issue in terms of market prices is that although Petropavlovsk manufacturers are able to supply a wide variety of dairy products in the 1.5% to 6% fat content range, they find it difficult to compete with products from Russia and Almaty at higher fat contents. Local consumers require milk products of various different fat contents, and the market has evolved accordingly. In order to compete with imports, there should be a stronger focus on developing different products to suit different purposes, while processors need to set up distribution and retail networks capable of supplying the full range of products. However the limited shelf life of dairy products is an issue. Based on sales of a wide range of products produced in small lots, it seems wiser to shift to a production structure predicated on added value in the form of product quality, by offering drinking milk and processed milk/milk for milk tea. In order to be cost competitive, it will be necessary to boost efficiency through simplification of production processes rather than just the dairy components.

(2) Market prices for yogurt

A survey of the yoghurt market in Petropavlovsk found that the correlation between fat content and price is same as that for milk products. In the case of yoghurt, the higher the fat content, the higher the price. Retail outlets in Kazakhstan currently stock a variety of yoghurt products of varying fat contents. Some fermented milk products exclusive to North Kazakhstan Oblast include Kefir, Ryazhenka, Smetana, fermented cream and cottage cheese. It is important to provide sales channels for these products while at the same time developing low-fat products tailored to market preferences in order to attract local consumers.

3.3.4 Procuring Raw Milk for Dairy Product Processing

Three systematic chains exist to procure raw milk for the eventual sale of milk and processed dairy products. They are: 1) from small-scale farmers to a collection center directly managed by the processing company, and then on to the processing plant; 2) from small-scale farmers to the processing plant through a third-party individual milk collector; and 3) from an agricultural company (medium- and large-scale farmers) directly to a processing company (including cases whereby the agricultural company owns the processing company). Summary about the advantages and disadvantages of the milk collection methods by above mentioned three kinds of farm as following table:

Table 3-4 Advantage and disadvantage of the milk collection methods

	Advantage	Disadvantage
Delivery from small-scale farmers through collection centers	<ul style="list-style-type: none"> • Raw milk is lower price. • Many farmers can supply milk. • Milk quality can be tested at collection center. • It may support to increase small-scale farmers income. • Raw milk is traceable to individual farm. 	<ul style="list-style-type: none"> • Milk quality is not stable because of inhomogeneous farmer technical level. • Low milk quantity in winter time. • Inadequate hygiene control in farm. • The amount of bacteria is very high in summer because of the difficulty of temperature control in storage
Delivery from small-scale farmers through third-party individual collector	<ul style="list-style-type: none"> • Many farmers can supply milk. • Not increase self-cost • It may support to increase small-scale farmers income. 	<ul style="list-style-type: none"> • Payment to third-party collector is more expensive than the cost of self collection center. • Milk quality is not stable because of inhomogeneous farmer technical level. • Inadequate hygiene control in farm. • The amount of bacteria is very high in summer because of the difficulty of temperature control in storage.
Direct delivery from agricultural companies (Medium, Large scale farmers)	<ul style="list-style-type: none"> • Rearing is well managed by experienced veterinarians. • Stable quality and quantity milk can be supplied. • They have freezing system for storage. 	<ul style="list-style-type: none"> • The price of raw milk is higher than small-scale farmers. • Limited number of medium and/or large scale farmers.

Source: *Prepared by JICA Study Team.

3.3.5 Certification system for dairy products

(1) The Government Approval System for Producing/Marketing Processed Foods

In addition to technical regulations (safety requirements) for each food category (dairy products, etc.) of processed foods to which producers and distributors are obligated to abide by in Kazakhstan, technical requirements affecting each product (raw milk and cheese, etc.) amongst such categories are in force. Consequently, processed food companies prepare in-house technical conditions for products and production lines of each product, which satisfy said technical requirements and safety requirements.

Processing companies, in order to produce and market their products, submit technical conditions to the Committee of Metrology and Technical Regulations for each product in advance, and are subject to scrutiny to determine whether safety and technical requirements are met. After attaining governmental approval, production and marketing becomes possible.

Again, to ensure that safety and technical requirements are met, the products of processing companies and relevant production lines are subject to inspection by the government agency in charge (the Committee of Metrology and Technical Regulations, the National Institute of Hygiene and Epidemiology of the Ministry of Healthcare, and the Veterinary Research Institute of the Ministry of Agriculture) and, furthermore, they are obligated to periodically send samples of their products to the laboratory of the agency in charge and attain certain levels of inspection certificates, which all come with a charge.

(2) Safety Requirements in Processing Dairy Products

Safety requirements of Kazakhstan necessary to produce and market dairy products describe matters related to processing plants, from the time raw milk is received, to production, storage, and the distribution of end products. Each dairy product processing company prepares production standards for their products based on such safety requirements, receives government approval, and undertakes production.

(3) The Production Process of Dairy Products

The dairy product processing company surveyed in this case produces milk, sour milk, yogurt, cheese, and butter, etc., all from raw milk..

3.3.6 Present situations of the Processed Meat Industry

Sausages and semi-finished products (i.e., frozen foods such as “pelmeni”) are the main processed meat products produced in North Kazakhstan Oblast. The output of canned and prepared foods is limited.

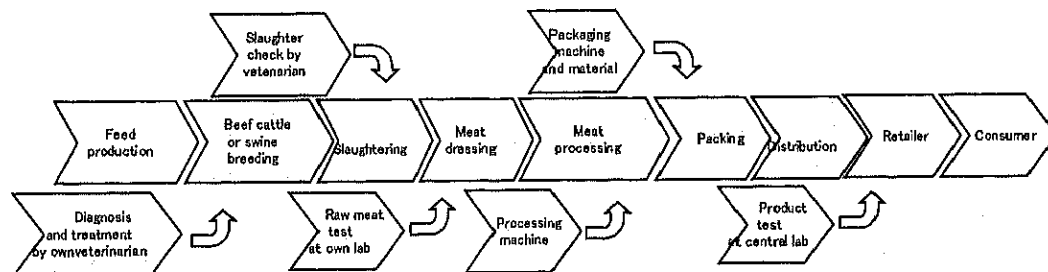
Food processing enterprises situated within North Kazakhstan Oblast are of small- to medium-size, and large-size plants are but a few. Production lines making frequent switchovers from one product to another are most common and can be referred to as being “multi-product, small-lot production.”

At a time when domestic demand for meat and processed products is on the rise, showcases in supermarkets and other retailers display homemade products, as well as products from neighboring countries. A large volume of processed meat products are being sold, but in spite of the large variety, differentiated products with special features seem to be lacking.

Enterprises introducing vacuum packaging have increased, and some have begun production of sliced produce packages for major supermarkets; however, a large part of them are still reliant on traditional production technology.

The following diagram illustrates the whole chain for processed meat products from medium-scale farmers to consumers via large-scale processing companies.

Meat Value chain from midium and large farmers to consumer through large meat processing plant



Source: Prepared by JICA Study Team

Figure 3-4 Flow of processed meat products from medium-scale farmers to consumers via large-scale processing companies.

The large meat processing facilities have their own facilities for slaughtering and for carcass refrigeration and storage. They also have their own in-house veterinary staff to perform veterinary tests on animals prior to slaughter and obtain meat samples for laboratory testing.

Given the scale of the operation, large processors source nearly all their meat from large-scale farmers, who use their own veterinary staff to monitor livestock health and provide a more consistent standard of quality.

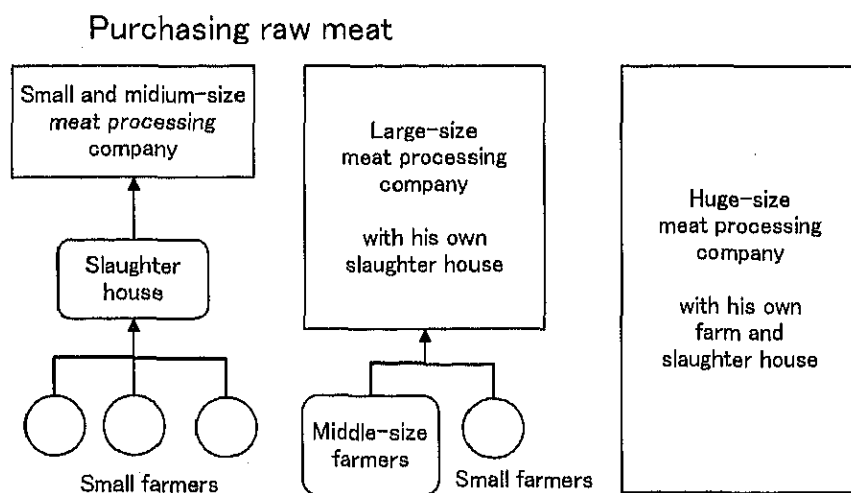
3.3.7 Market prices for sausages and ham

The study team conducted market price survey for sausages and ham in Petropavlovsk. Prices for sausages and ham generally fell within the 500 to 800 KTG range, with the most common price being around 600 KTG. Russian products tended to be more expensive, at around 1,200 KTG.

Although some processors in Petropavlovsk supply products in the higher price bracket (1,200 KTG and above), such as small sliced meat packs, most Petropavlovsk products are competing in the lower price bracket with products from regions such as Omsk. Given the purchasing power of Russian sausage products in the higher price bracket, a two-pronged approach is recommended, involving promotion of products in the lower price bracket while also developing products for the higher price bracket that capitalize on the unique regional characteristics of North Kazakhstan Oblast.

3.3.8 Procuring Basic Ingredients for Meat Processing

Procurement of basic ingredients for the production of meat products and processed products can be summarized as per the diagram below from the scale of processing plants concerned.



Source: Prepared by JICA Study Team

Figure 3-5 Flow of basic ingredient to meat processing company

(1) Basic Ingredient Procurement by Small- and Medium-size Meat Processing Companies

As small- and medium-sized meat processing companies often do not have slaughterhouses of their own, slaughtering takes place locally by contracted small-scale farmers, and basic meat ingredients are procured from the farmer concerned. Company-owned refrigerated vans haul meat ingredients and store them in a company refrigerator (at 10°C.) Meanwhile, small- and medium-size meat processing companies procure periodically from specific farmers, knowing that some of these farmers do not use growth hormones or other types of performance additives, and that their livestock is raised on natural pasture land. They recognize that the quality and safety of meat ingredients is most important.

(2) Basic Ingredient Procurement by Large-size Meat Processing Companies

Large-size meat processing companies have their own slaughterhouses and refrigerators/freezers in buildings separate from the processing plant. They also retain a house veterinarian to perform tests for diseases when slaughter takes place. According to what one large-size meat processing company had to say, 20% of meat ingredients are procured from small-scale farmers, while 80% is procured from large-scale farmers. The main reasons given as to why procurements from large-size farmers were predominant were: inspections by veterinarians are properly performed; quality meat ingredients can be selected; the fat content is good; and the meat quality is stable.

(3) Ingredient Procurement by Extremely Large Agricultural Corporations

The large agricultural corporation visited during the survey was a state enterprise from the days of the former Soviet Union, disorganized thereafter, and is currently managed as a corporation by its current owner.

It was said to have been managed as a vertically integrated cluster in the days of the Soviet Union, where every stage, from fodder production and the raising of livestock to meat processing and marketing, was executed.

Here, the operation is extremely large-scale, raising 6,000 hogs, and processing plant production capacity for ham and sausage is 100 tons monthly, currently producing in accordance with market demand. In comparison to production capacity, its operating rate seemed to be rather low.

3.3.9 Meat processing and its certification system

(1) Safety Requirement Standards for Meat Processing

In regard to processed meat products in Kazakhstan, as described in the clause that touched on dairy products, each company prepares its own technical conditions based on governmental safety requirements, and after attaining governmental approval, production and marketing becomes possible.

Such safety requirements are applicable to domestic and imported livestock meat, semi-finished products, sausages, processed blood products, and other foods, including meat.

3.3.10 Meat Products and Processed Foods Produced in Kazakhstan

In consideration of the present situations of processed meat products in Kazakhstan, processed meat products subjected to the recent survey were not limited to sausage and ham only, and included semi-finished products, as well as other meat products.

* Sausages: Sausage, ham, and salami sausage, etc.

* Semi-finished products: Frozen foods, such as "pelmeni" (a Kazakh-type gyoza dumpling,) meatballs, etc.

* Others: Horse meat and other unique Kazakhstan meat, smoked chicken, etc., and other meat products.

(1) The Production Process of Meat Products at Meat Processing Plants

Raw meat frozen after being slaughtered is defrosted and each part required for sausage is

dressed, and cured with sodium nitrite and salt. Next, while chopping and cutting takes place, sausage ingredients are adjusted with spices and sodium phosphate, then stuffed in casing, smoked, cooked, and after being cooled, cryopreserved.

(2) In-house inspection of processed meat and factory audit

As already referred to under dairy products, inspections carried out by processing companies for the sake of quality control, in accordance with in-house standards, and in order to meet safety requirements laid down by the government, consist of two types: an in-house voluntary inspection within the company, and externally commissioned inspections. In addition, external plant inspections are also performed.

3.3.11 Certification and inspection system for raw materials and finished products

(1) Government certification systems for food manufacturing and retailing

In Kazakhstan, all companies engaged in the production, processing, storage and/or retail of food products are required to undergo certification in relation to technical regulations on food safety (i.e., safety requirements). The safety regulations apply to manufacturing processes as well as finished products. This section describes the organizations responsible for administration and implementation of the certification system; the certification process; the scope of the certification system; and legal measures for infringements of the regulations.

1) Quality and safety standards for food products and manufacturing processes

Quality and safety standards for food products and manufacturing processes are broadly divided into three groups as follows.

- i) Technical regulations, prescribing the minimum safety requirements in each food category in Kazakhstan. These cover all areas from input of raw materials to manufacturing, production and storage facilities, distribution and retail. (Example: Technical Regulations on Milk and Dairy Products)
- ii) Technical requirements for products and manufacturing processes, specific to each food type in Kazakhstan. (Example: Technical Requirements for Cheese)
- iii) Technical conditions for products and manufacturing processes pertaining to specific *manufacturer products, setting out specifications and standards for each product*. All manufacturers are required to submit a set of Technical Conditions to the Committee of Metrology and Technical Regulations for approval, together with ingredients lists and the relevant food safety data.

2) Certification organisations

The Central Committee of Metrology and Technical Regulations has departments in each state which are responsible for granting authorization to approved laboratories and certification organizations as well as overseeing manufacturers and retailers.

Certification of food products (conformity with safety requirements) is carried out by approved laboratories, while certification of manufacturing processes (conformity with manufacturing standards) is carried out by certification centers. These bodies operate as a certification base and are authorized to issue certification documents. The certification base themselves are authorized by the National Center of Accreditation, which checks the manufacturing standards against the government safety requirements once per year.

3) Certification process

Certification of food companies encompasses the entire range of processes, from inspection of manufacturing equipment at production plants (including analysis of conformance with technical standards) through to the production and retailing of new products.

i) Production and retailing of new products

Certification from the Committee of Metrology and Technical Regulations is required in order to develop and manufacture new food products. The manufacturer is required to present a set of manufacturing and product standards in accordance with the government technical regulations, and to maintain technical data (for application purposes) describing the composition of new products and compliance with government safety requirements.

ii) Production line inspections

Factories are subject to hygiene inspections every three months by the National Institute of Hygiene and Epidemiology (Ministry of Health) and the Scientific Veterinary Research Institute (Ministry of Agriculture). Every six months, the National Certification Center checks internal compliance data at factories. (In addition, samples of all products must be forwarded regularly to the National Institute of Hygiene and Epidemiology and the Scientific Veterinary Research Institute for testing, as described below. Certificates are issued.)

iii) Conformance with government technical regulations/safety requirements

Every food product is tested annually by the Committee of Metrology and Technical Regulations for conformance to technical and/or safety requirements for specific food types.

4) Scope of certification

The scope of the certification system extends to all food products manufactured within and outside Kazakhstan, and covers the stages from production to processing, storage and retail. Distribution is excluded since it is subject to a different domestic certification scheme. Medical food products and products prepared for consumption in the home are also excluded.

Certification is valid for one year, or three years if the processing plant has ISO9001 accreditation. The certification scheme is recognized on exports to ten countries with which Kazakhstan has agreements in place, including Tadjhikistan, Russia, Belarus and Armenia.

(2) Inspection systems for raw materials and finished products

Each state of Kazakhstan has a major central laboratory that networks with local laboratories in the state. Together the laboratories are responsible for food safety testing of raw materials and processed products.

3.3.12 Educational institutions, related to agricultural food production, based on North Kazakhstan oblast

(1) The North Kazakhstan Research Institute of Livestock production and Plant Biology

The Institute is located in Bishkul town, 50 km away from Petropavlovsk. The Institute's main area of work is to conduct a research and provide guidance for PhD course students of

the North Kazakhstan State University. Moreover, the Institute has its own experimental fields for cultivating forage crops for milking cows, horse, camel, pigs etc.

(2) North Kazakhstan State University

With 10,000 full-time students, North Kazakhstan State University is considered the biggest university in North Kazakhstan oblast. In 2007, the University celebrated 70 years since foundation. Classes last 100 minutes with a five minutes break. Experiments and laboratory works are conducted in rather small groups of 5 students. University introduced the integrated automated management system, which connects all the departments and other services operating the teaching process.

(3) The Yessil Agricultural College (named after Mr.J.Kazatov)

The Yessil Agricultural College, a junior college, has a long history. It was established in 1885 as an agricultural school with only 25 students attending it in the beginning. In 1923 it was renamed the Yessil Agricultural College and started training of agricultural specialists, establishing stockbreeding and veterinary courses. In 1941, the number of faculties was raised to nine: Veterinary, Ecology and protection of agricultural brands, Agricultural economics, Agricultural machinery, Physical training, Forestry and Park Management, Accounting and Auditing, Law, Architecture and construction.

Number of students: number of full-time students – 686; number of external students – 200

3.3.13 Issues in Food Processing

(1) Shortage of human resources

There is shortage of educational institutions for food processing in whole Kazakhstan, not exclusively North Kazakhstan Oblast. To improve the management of small and medium-sized enterprise, it is desirable to reduce labor cost by sharing the common knowledge from raw material procurement and production to sales strategy within all staff, but there is shortage of human resources with wide knowledge because of sectionalism from former Soviet era.

Additionally, it is necessary to provide the staff continuous training and information in the company, but adult education system has not yet consolidated to update the information on commodity management and food safety regulations for new product and market development.

Major company can have own human resource development system, but small and medium-sized enterprise has some difficulty to train his staff without low cost practical training intuitions.

(2) Development of profitable products

In terms of the competitiveness of food processing industry in North Kazakhstan Oblast, it is necessary to consider how much value-added from raw material to final products, in other words, what product is most profitable. The following table shows the estimation of added value to the dairy products from the market price in Petropavlovsk. Most value-added product is Yogurt, by contrast, cheese and butter is low added-value product because of requiring a lot of care and time for processing with a large amount of raw milk.

Generally, the added-value of milk is low in the world. But the added-value of milk of North Kazakhstan Oblast is not so low, because the price of raw milk is also low. The low competitiveness of the products in North Kazakhstan Oblast attributes to the dependency on the

sales of milk.

(3) Improvement of packaging

Agroprodukt, dairy company in Almaty, has established new brand, Odary, and developed new cottage cheese to expand sales to 30% with reclosable packaging technology, and this is a sample for enforcement of competitiveness combined with improvement of packaging.

The company can introduce new packaging technology and build new brand because of large scale and big amount of sales and production. Following points are good hints for North Kazakhstan Oblast to enforce the competitiveness;

- To remove the bottle neck of short shelf-life by improving packaging
- To expand cottage cheese market by building new brand not compete with own existing brand
- To develop new product that can compete with foreign product in foreign countries

When the small and medium-sized enterprises in North Kazakhstan Oblast develop new products, they need a lot of knowledge and technology on information dissemination, technical development, human resource development, design development, and marketing. But they have no assistance system and organization for regional food industry, and it causes widening the regional difference.

3.4 Distribution Sector

3.4.1 Current situation of Markets

The distribution structure for the grocery market of the Republic of Kazakhstan and the Russian Federation, includes Hypermarkets, Cash and Carry (Cash only system), Supermarkets and other small scale stores such as kiosks.

In those three regions, the market scale varied greatly and as such it was difficult to draw comparisons, however Petropavlovsk with a small population without having a hypermarket or a middle sized supermarket, the bazaar was full of activity. On the other hand, Omsk with a population of 1,000,000, the hypermarket equipped the recreation facilities, was very popular among weekend shoppers with a large number consisting of the younger generation. With the wave of Foreign funded hypermarkets, talks have started in Kazakhstan, with the opening of METRO in late October 2009, and also plans to aim at opening a store in Almaty in 2010. While taking a step in the real world in a market which changes from moment to moment, it is necessary to build a marketing strategy for each of the areas.

3.4.2 The marketing strategy for North Kazakhstan companies

After looking at the range of meat processing products and dairy products in both the supermarket and markets of Petropavlovsk, it was clear that the share of Russian dairy products was increasing. For example, a Danon Yogurt produced locally in the state of Moscow, had their own cubicle and a booth set up which was equipped with a refrigerator, and were able to differentiate effectively.

Russian dairy products have a comparatively big lead over the products from Kazakhstan by way of package design, a longer expiry date, more variety and more products and advertising.

Large dairy producers which are based in Moscow have many factories in Russia and sends products nationwide. Even in relation to the Omsk market, it is clear that the large producers increase market shares in daily products. In Petropavlovsk and even in Astana, we were able to confirm the presence of products from large Russian producers.

Kazakhstan's market situation has been changed every moment. Therefore, they should do the marketing research regularly and need to understand the positive impression to their own products. As a result of research, if they are able to make differentiation from Russian products or products of large-scale national companies, the processing products of North Kazakhstan have more chance to entry into the markets of other area and other countries.

3.4.3 Issues of marketing of North Kazakhstan processing products

(1) Improvements of product value due to distribution level

Compared to large Russian producers, the packaging of products from North Kazakhstan and the quality of printing and the paper used was inferior. In order for the consumers to pick up a product, it is necessary to have impact so that the message from the producer is somehow shown in the package. The package is seen as the message from the producer to the consumer. A desired design would be one that is able to convey an image of product quality and safety. Comparing the best before date of meat processing products and dairy product from North Kazakhstan and Russia, more of the North Kazakhstan made products is shorter than Russian products. To expand the target of the market, they should consider the time for transportation to make the best before date longer.

Currently, the tastes of the consumers are diversifying. For example, even with the amount of butter fat in milk, large Russian producers have an assortment of products ranging between 0.5 ~6% butter fat and are making an effort to meet the demands of the consumer. Also, not only with regular products, but efforts are being put into development of a new series of products and development of new products etc. However, in relation to products in North Kazakhstan, there are only traditional products without any effort being put into development of new products.

(2) Lack of Sales Strategies

In relation to the sale of the products, without fully addressing market needs, there is the problem of insufficient marketing strategies for main city markets. The main cause and general counter measures are shown as bellow. From now it is necessary for corporate leaders to fully understand the actual state of their company as well as adjust to the environment in which they are making decisions in.

Table 3-5 Issues of North Kazakhstan processing food industry

Main Issues	Current situation	Main cause	Counter measures
Insufficient measure to the change of market requirement	Weak competitiveness to import products or products from other area in local market	Lack of quality and amount to producing the processing food	Level up of the skill of Small-scale farmer
	Unable to produce the highly cost products or products which required long time to produce	Taking cost and time for certification and examination	Ease the burden of the certification system of government
	Hard to improve or develop a new products	Less measures against to short of technical experts for food processing, and lack of market information	Training the experts for food technologies, teaching quality improvement
	Lack of packaging technique and designing which to appeal consumers	Lack of the knowledge for packaging technique and information	Offer the food packaging technique or new technology information
Lack of Marketing Strategies for markets of main city	Withdraw from supermarket in main city because of difference of the commercial habit	Unable to measure against the requirement of store	Having market research and construct the marketing strategies for the supermarkets
	Hard to expand the market to other area than local area (include import)	Sphere of distribution is narrow because of the period of the time for the best of product is short, No expert company for transportation	Introduce the food preservation technology

Source: Prepared by JICA Study Team

(3) Lack of information output

The amount of advertising material for processed meat items and dairy products from North Kazakhstan is extremely small compared to those of large Russian makers. Recently, companies have been playing commercials on monitors placed near the cash registers in Supermarkets within Petropavlovsk city, however advertisements are hardly being used through mass media. Consideration of market expansion in other regions and other countries, an investigation of sales promotion methods that effectively use the internet and mass media should be considered for the future.

3.5 View in relation to Funding

3.5.1 Outlook

This chapter reviews the current status of the food processing industries in North Kazakhstan focusing on funding and production costs. Reviewing how the food processing industry is raising funds and what the status of the financial support system is, the report refers to the issues and tasks in Funding to be resolved for the promotion of the food processing industry.

3.5.2 The Financial Support System-Subsidy Scheme provided by the Ministry of Agriculture

The subsidy provided by the Ministry of Agriculture are for the farming in the spring, harvest work, cattle breeding, purchase of seed for cereal crops, dairy goods and meat processing as well as fertilizer. For the subsidy application, the following are necessary, i.e. certificates issued by the tax authorities, identification cards, certificates proving bank accounts and

certificates for land use .

The subsidy programmes by the Agriculture Department of North Kazakhstan (Kungurtseva Luydmila Nikolayevna) are as follows:

(1) The Subsidy for the purchase of Breeding Cattle

For the purchase of Breeding Cattle, applicants are required to present the business authorization showing they are dairy farmers. They are obliged every year by December to present a business plan (Monthly sales and sales amounts) in respect to the cattle in the following year to December. The authority calculates the subsidy according to the sales plan. The approved dairy farmers are subsidized based on the sales plan which they present.

(2) The subsidy for the seeds of cereal crops etc

For purchasing of seeds for cereal crops etc are subsidized according to the sales plan of the industries.

(3) The subsidy for food processors of dairy products and meat products

The food processors of dairy products and meat products are subsidized according to the business plan in relation to production and their sales. As for the year 2009, forty six industries were subsidized.

(4) The subsidy for the manufacturers of fertilizer

The target manufacturers for subsidy scheme are Kazazot Inc. and Kazphosphat Inc. which are in the southern part. These manufacturers were subsidized from the Government so that they could discount 40% of the selling price to the farmers.

3.5.3 The Financial Support System in North Kazakhstan - Credit

The financing scheme which used the funds from Northern Kazakhstan started from 2009. In order to get funding from North Kazakhstan, the scheme is required to promote the regional development, especially the improvement of the employment and the living standard in the region. Financing is available for those industries who are already established and maintain operations. There is no limit for financing from North Kazakhstan but the repayment term is maximum 5 years. The interest rate is 9.5% per annum which is more favourable than the commercial banks.

Applicant present a business plan, proof of bank accounts and collateral. The committee is established when determining financing and evaluates applications. Collateral includes real estate, machinery, a car and etc. Through the financing period the authorities hold onto the title deed.

The budget in 2009 was 50,000,000 TENGE. One of the three was the financing of a bakery, which received large scale financing. The business also contributes to new employment in the region.

3.5.4 The financial Support System by Governmental Corporations

Government Corporations established by the Central Government provide the financial support for the agricultural sectors. It is KazAgro Holding which the Ministry of Agriculture

invested in and controls. The other is Samruk Kazyna which the Ministry of Industry and Trade controls.

There are two Government corporations established under a Government holding company, i.e. KazAgro Holding. One is the Foundation of Financial Support of Agriculture providing Micro-Credit service. The other is KazAgro Finance. In addition, KazAgro Holding incorporated KazAgro Credit, KazAgro Grant and KazAgro Marketing providing services such as financing, grants, marketing and consulting.

(1) JSC Foundation for Financial Support of Agriculture

JSC Foundation for Financial Support of Agriculture was established as a Governmental corporation by KazAgroHolding under the Ministry of Agriculture. The purpose of the business is to supply the district with funds to develop the economy of the district by creating employment. The head office is in Astana. Instead of appointing a local agency, there are four Micro-Credit Organizations (MCO). In the 5 years up until today, the Northern Kazakhstan branch has been operated to provide the total sum of 31,100 TENGE. The result of funding was 121,000,000 TENGE in 2009.

Micro-Credit is financed to individuals and companies who plan to start their own business. The beneficiaries are mainly small-scale farmers. The main uses of the fund are to purchase breeding cattle, crop seeds such as wheat and so on. The loan period is 12~24 months. The interest rate is more favourable than the commercial banks. The collateral can include real estate, machinery or a car etc. Through the financing period, the authorities keep the title deed. A committee is established to review the application for financing. MCO will execute financing at the rate between 10.5% ~12%. At the same time, from JSC Foundation for Financial Support of Agriculture, MCO will borrow fund which is financed to the end user at 9.5%. MCO will profit from the difference in the interest rates between the two loans.

(2) KazAgro Finance JSC

KazAgro Finance is a Government corporation established in 1999. The capital at the foundation stage was about 20Billion TENGE. As the government has continued investing every year, the cumulative investment has amounted to 5,200,000,000 TENGE in 2009. Since 2007, KazAgro Finance became a subsidiary company of KazAgro Holding of the Ministry of Agriculture. Therefore, KazAgro Finance is the sister company of Foundation of Financial Support of Agriculture mentioned previously.

The main business of KazAgro Finance is the leasing of farming machinery but also is involved in financing. The services are limited to the agricultural sector. The target customers are general farmers and private companies. Among the farmers, the main customers are grain farmers, dairy farmers and food processors.

The lease together with the loan business, there is no limitation in terms of amount. Over 40,000,000 TENGE, Head office is in charge for approval otherwise, i.e. under 400,000, the provincial office are in charge.

(3) DAMU (DAMU Entrepreneurship Development Fund)

DAMU as the financial organization under the JSC Samruk Kazyna Holding owned by the Ministry of Trade and Industry provides soft loans to assist and promote the business of entrepreneurs. The following are DAMU's activities in relation to financial support.

1) Overview of the financial service

① The 1st stage (2008-I)

The seven private banks were selected as DAMU banks, who borrows funds from DAMU to refinance in non-governmental enterprises and individuals.

② The second-stage (2008-II)

At the 2nd stage, the top 10 private banks were appointed without bidding. 2 banks were rejected later and other 3 banks were appointed.

③ The 3rd stage (2009-I)

A special committee was organized. 12 banks were selected.

Stage	Financial Condition DAMU / Banks	Financial Condition Banks / Entrepreneurs
1st-stage (2008-I)	<ul style="list-style-type: none"> • Grace period : 24 months • Interest rate : 11.2~11.5 % • Repayment Term : 7 years (6 months payment) • Collateral : No conditions 	<ul style="list-style-type: none"> • Grace period : 12 months • Interest rate : 18~19 % • Repayment Term : 5 years (monthly payment) • Collateral : No conditions • Credit : 120Million TENGE (@25Million)
2nd-stage (2008-II)	<ul style="list-style-type: none"> • Grace period : 24 months • Interest rate : 8 % • Repayment Term : 7 years (6 months payment) • Collateral : No conditions 	<ul style="list-style-type: none"> • Grace period : 12 months • Interest rate : 13.38% • Repayment Term : 5 years (monthly payment) • Collateral : No conditions • Credit : 120~500Million TENGE (@42Million)
3rd-stage (2009-I)	<ul style="list-style-type: none"> • Grace period : 24 months • Interest rate : 8 % • Repayment Term : 7 years (6 months payment) • Collateral : No conditions 	<ul style="list-style-type: none"> • Grace period : 12 months • Interest rate : 12.5 % • Repayment Term : 5 years (monthly payment) • Collateral : No conditions • Credit : 750Million TENGE (@33Million)

④ The 4th stage (The 4th Tranche: Program for Manufacturers)

The objective of the program of the 4th stage is to provide financial support for small and medium entrepreneurs under the government policy of the industrial development for entrepreneurship. The national treasury is the funding source. The Commercial Banks contracted as the partner for the program promotion are to pool the program funds. The role of the partner banks is a mediator between entrepreneurs and DAMU, who is operating the program fund. Under the program regulation, the partner banks do not receive any profit from the program operation except for the accountable expense borne by the banks. The banks do not expect financial advantage, but the benefit of the opportunities to see new potential customers.

Program purpose	<ul style="list-style-type: none"> Loss remedies and financial support for small and medium enterprises of manufacturing industry
Detailed program	<ul style="list-style-type: none"> Reduction of the financial expense for small and medium entrepreneurs; To identify small and medium enterprises which are funded by the commercial banks; Reduction of the financial cost through refinance of the existing debt; and Quick and timely funding by commercial banks for small and medium enterprises
Commercial Banks (Partners Banks)	<ul style="list-style-type: none"> Top 5 banks with Certain Business Results and Size
Financial Conditions	<ul style="list-style-type: none"> Repayment Term: 84 months; Interest Rate : 8.0 %; Currency: Kazakhstan TENGE; Grace Period : 24 months (Principal); Loan conditions: <ul style="list-style-type: none"> after signing the loan agreement, fund must be drawn within 2 months; Individual discussion required for the detailed conditions; Credit line : Maximum 750Million TENGE per enterprise Balance of Borrowing: Less than 750Million TENGE per Bank

2) Establishment of DAMA's Regional Program

The purchasing power in Almaty and Astana is extremely strong. In the big cities the market size is extremely large. The profitability within the agribusiness is smaller than that of the commercial and the industrial. As the value of the assets owned by the agriculture sectors is small, the evaluation by private banks for the collateral in the rural areas is insufficient to be funded from private banks. The following table shows the result from the financial support by DAMU. During the 1st and 2nd stages, the fund for North Kazakhstan amounted to only 5,137.7 million TENGE, which is only 3.1% compared to the total of Kazakhstan. DAMU focuses financing towards the regions where social and economic development is delayed. Therefore, in the 3rd Stage of DAMU Program, the government organized the special committee to set up DAMU Region Program.

Table 3-6 The national financing results of DAMU (All types of industry)
Unit : Million TENGE

Tranche and Program	NKO	Non-NKO	Total
1st + 2nd Tranche	5,137.7	160,987.3	166,125.0
Share (%)	3.1%	96.9%	100.0%
DAMU Region	1,173.4	7,569.0	8,742.4
Share (%)	13.4%	86.6%	100.0%
Total	6,311.1	168,556.3	174,867.4
Share (%)	3.6%	96.4%	100.0%

Source : The JICA Study Team (based on the interview with DAMU)

The fund for DAMU Region is funded by 50%-50% shared by DAMU and the local government. The fund from the local government is loan to DAMU with the interest rate of 6.72~7.12%. The direct fund from DAMU is free from the cost of 6.72%~7.12%, which is 50% of the total fund for DAMU Region Program. The average interest rate is finally 9.86%~10.06%, which is considered as lower level. The grace period is 18 months for the maximum case. The payback period is 7 years.

3) The Micro-Credit

The law for Micro-Credit was enacted in 2004 and Micro-Credit started in Kazakhstan.

Stage	Outline	Financial Condition DAMU / MCO
1st- stage (2004)	<ul style="list-style-type: none"> • 1 MCO (100% capital by Local Government) • 3 MCOs(49% capital by Local Government) • Two-Step Loan via Commercial Bank 	<ul style="list-style-type: none"> • Repayment Term: 5years • Interest Rate : 6.0~ 9.0 %; • Currency: Kazakhstan TENGE; • Grace Period : 24 months • Collateral: Real Estate etc. • Guarantee : DAMU to MCO
2nd-stage (2005-2007)	<ul style="list-style-type: none"> • 9 MCOs 	<ul style="list-style-type: none"> • Same as 1st stage • DAMU → MCO: 60 million TENGE (@ loan: 15 million) • MCO → Entrepreneur: <ul style="list-style-type: none"> a First: 1 million TENGE b Later: 10 million TENGE c Average (@) : 3 million TENGE.
3rd-stage (2007E-2009M)	<ul style="list-style-type: none"> • MCO Guideline <ul style="list-style-type: none"> - MCO with Lower rate : promoted - Credit history - Activity in the region - Branch network - MCO with IT : promoted • MCO Sator: selected and DAMO funded 	<ul style="list-style-type: none"> • Interest Rate <ul style="list-style-type: none"> a) Loan to DAMU:6% b) DAMU → Bank:7% (DAMU 1%) c) Bank → End User: 14%(Bank 7%) • Grace Period: 6months • Repayment Term: 3years • Collateral: Real Estate etc. • Credit Line: 260Million TENGE

3.5.5 Financial Support Program by the Commercial Banks

In North Kazakhstan, Commercial Banks are the general source of the finance for private industries. Therefore, Commercial Banks are indispensable and their role is very important for the promotion and development of cluster development. There are 15 Commercial Banks in the province of North Kazakhstan. The funding activities of the two banks, which the JICA Team had interviews with are as follows:

(1) Aliance Bank

Aliance Bank, high ranked among commercial banks, is one of the best banks. Aliance Bank participates in the programs of DAMU from the beginning stage, keeping good relations with DAMU.

After the world credit crunch, the loan applications from blue chip companies had decreased.

(2) Tsesna Bank

Tsesna Bank applies the similar and normal conditions to the other banks for their loan approval process and collateral requirements. The typical collateral is ①Real Estate; ②Automobiles; and ③Machinery. As the value of the real estate of farmers in the rural areas is not appreciated, the financed amount is smaller than the required fund.

The major customers who are generally private commercial and manufacturing companies become the main business counterparts for the Bank[Paul]. The Bank can expect a quick return from commercial and manufacturers. On the other hand, the capital return of farmers and agribusiness are rather slow and therefore the Banks do not expect high return from agricultures.

The majority of people in North Kazakhstan are farmers. The Manager therefore expects and forecasts that there is an acceptable level of business potential in the agriculture sector although the individual business size is estimated to be small. The Bank has therefore through its policy agreed to put high priority on the business within the agriculture sectors in North Kazakhstan.

3.5.6 Fund Raising and the Cost Management of the Food Processing Industry

The JICA Team interviewed with two of the medium-sized food processors for finance and cost management. The interviews were conducted with the Meat Processor and the Dairy Processor in North Kazakhstan.

The private sectors gave up the Commercial Bank loan because of the high interest rate, the short repayment term and the rigid evaluation of the collateral. Under such criteria, finance from the Commercial Banks is not a realistic option. On the other hand, the public finance provides the lower interest rate from which food processing industries may be acceptable.

The fund prepared by the governmental sectors is not enough to meet the demand from the industry. Accordingly, the numbers of the financed companies are limited.

The reduction of the production cost may lead to increasing the retained earnings, which may result in an increase in equity that will enable funding through a Commercial Bank loan. For the food processors, such effort is important and necessary. The following are the case study for the finance and cost management with the Meat Processor, who the JICA Team had interviewed. Through the case study, the issues and tasks to be resolved will be reviewed to promote the Food Processing Industry.

(1) Fund Raising and the Cost Management of the Food Processing Industry

① The Corporate Overview of the Meat Processor

The company was established in the second half of the 1990s. At first, the company was trading meat between North Kazakhstan and Russia. In 2001, the company started processing their meat and producing ham and sausages in addition to the butchering industry. As of December 2009, the company employed more than 60.

For the raw meat supply, the meat processor has contracts with 5 companies of who have large farms located within the 250 km. The company imported the processing machines from Germany.

The company owns vehicles to transport the raw meat and the products. In addition to the head office and the factory in the industrial part of the suburbs of Petropavlovsk, the company own two buildings in downtown for retailing their meat products as well as provision for other retail shops for the tenants to sell food and the fashion clothes.

The company need fund not only for replacement and refurbishment of their manufacturing facilities but also for working capital.

Recently, the company had received finance through governmental support, which was one year soft loan. The purpose of the loan was considered as the refinance to pay back the previous loan, which had been more costly because of the higher interest rate. The industry[Paul2] does not seem to be confident enough to invest for fundamental purposes, which should improve the business profitability.

② The Fund Raising of Meat Processor

The Meat Processing Company has track record of using the soft loan provided by the Ministry of Agriculture as follows:

- Finance program : The government finance for the food processing industry
Repayment Term : 1year Interest Rate : 4.5%

The company had received finance from the DAMU fund as well.

- DAMU finance : The government finance for the food processing industry
Repayment Term : 1year Interest Rate : 12.5% (the bank) + 1.5%(DAMU)

The management of the Meat Processing Company disclosed the following as the preferable conditions for bank loans:

- (1) Interest Rate: Less than 5%
- (2) Repayment Term: More than 3 years
- (3) Grace Period: More than 1 year

Incidentally, there are examples where financing was obtained with the borrowing interest rate being subsidized. Hence there seems to be on going interest in the public financing from the positive experience which was blessed with the low interest.

3) Cost Management

For the processing plant, the investment cost is 200,000 Euro for the new machine. On the other hand, the average sale price of their products is 500 TENGE per kg, which is not enough to allow the loan to be paid back within one year. The improvement against the financial disadvantage should be realized through the effort of the management. The management, for instance, should enhance the profitability by cost reduction especially in the production process.

Raw meat amounts to 60~70% of the total cost. The personnel expenses were revealed to be 2%, with 10% attributed to the energy cost. The transportation cost and the heating fuel expenses are under the control of the company, because the company owns the transportation vehicles and heating equipment. In the present situation, it will be difficult to have any control on the cost of the raw meat even it is the main part of the total cost, because the raw meat price is decided by external factors.

The management plans to continue using the existing old facilities until there are positive indicators in the form of economic recovery which may result in favourable financing conditions. At that time it is proposed that the old facilities will be replaced with new facilities. As the maintenance costs tend to increase each year, the facilities which exceed their normal economic life will result in increased maintenance cost as well as leading to a fall in production efficiency, where the manufacturing costs increase. It is questionable about whether or not it is a scenario which the present facilities can hold out against until the financial situation recovers.

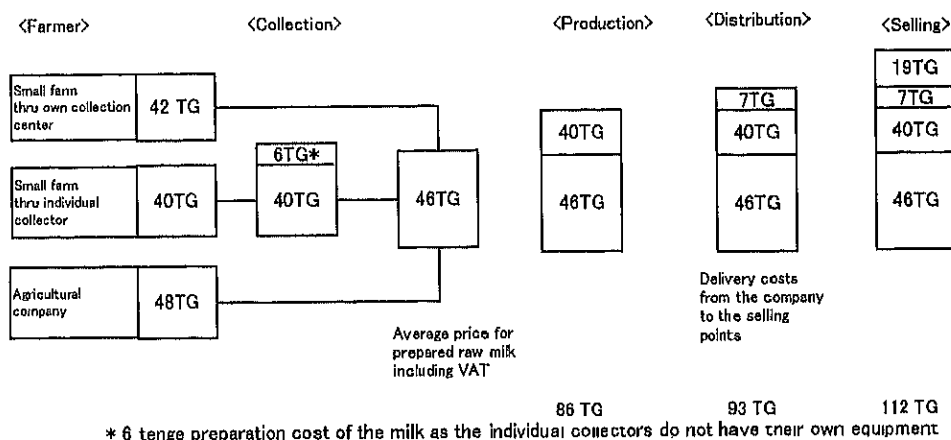
(2) The analysis of the cost structure (Dairy Products There is no Russian translation.)

The Dairy Processing Company in Petropavlovsk disclosed some cost data as below. A breakdown for the cost of the milk with a selling price of 112 TENGE is as follows:

- Production cost is 46 TENGE by the average;
- Production cost in the factory is 40 TENGE'
- Distribution cost is 7 TENGE; and
- Sales cost is 19 TENGE.

The production cost at the factory includes the personnel expenses, the administrative and maintenance expenses for the processing plants, the lighting, water and heating expenses at the factory and so on. Raw milk is purchased from three different sources. As above-mentioned the price from the small-scale farmhouse is lower. For the purchase from the agricultural company, the quality is good but the price is expensive. As for the distribution cost, only own cost are included

Cost structure of Milk market in Kazakhstan

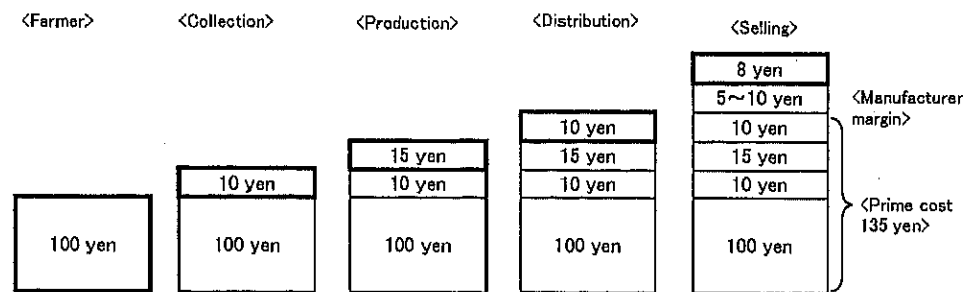


Source: The JICA Study Team (based on the interview with the dairy company in Petropavlovsk)

Figure 3-6 The Cost Structure of Milk in Kazakhstan

At the major supermarket in Japan, in case of the milk of the private brand, the general price is 188 Yen per litre and the bargain-price is from 158 Yen to 178 Yen. As for the breakdown of the cost, 100 Yen for the producer price is, 10 Yen for the raw milk collection cost, 15 Yen for production cost in the factory and 10 Yen for the distribution cost.

Cost structure of Milk market in Japan



Source: The JICA Study Team (based on "The value and the price of the milk in case of the retail distribution" by Dairy information centre of Japan, March, 2003)

Figure 3-7 The Cost Structure of Milk in Japan

Regarding the ratio with the raw material cost to the selling price, the case of the meat processing and the case of the dairy factory in Petropavlovsk are 60% and 41% respectively. As for the dairy factory in Japan, the ratio is 53%.

③ Funding of the Food Processors

The Dairy Product Processor's decision for capital expenditure was to invest by using his own fund instead of using the loan, because borrowing money was too risky for the management of this company. His decision was based on the rigid evaluation on collateral by the commercial banks. Even for the commercial banks, the situation is the same, i.e. fund is not easily available. The financial market is really tight. The Dairy Product Processor wondered if he will still be able to invest his own funds again for the second and larger expenditure for positive investment, i.e. business development to expand the production capacity. Finally it was realized that a financial scheme would be necessary utilizing public and/or private funding.

One of the farm companies planned to build cow sheds. The owner planned to borrow money from public loan instead of commercial bank loan. Even after three years, there is no announcement from the authority. Finally, the owner gave up the loan and invested his own funds.

One of the dairy processing companies plans to build the factory building and the depot facility for collection of raw materials and delivery of the products. The President applied for 65 Million TENGE credit from KazAgro Finance two years ago. Only 3 Million was approved. He decided to apply for a bank loan from the Commercial Bank. The response from the Commercial Bank was quick and positive. Although the loan conditions were not satisfactory, the President decided to apply because of the quick procedure and decision by the bank. The President knows about DAMU program, but does not know about newest and most attractive loan program, i.e. the 4th stage.

Most of the management from the private sector did not have sufficient information on the financial affairs. There is financial information delivered through the internet. However, on the other hand, the private sectors are not confident enough to watch and catch the important

information only by internet. The public organization usually do not visit customers to promote the business, the important information is not available for the passive management. There are Commercial Banks between DAMU and the end customer. DAMU is frustrated with the lack of communication with the private sector.

The public funding may need to improve the communication for exchange of mutual information between supplier and recipient of the fund.

3.5.7 Issues and Tasks in Funding

Issues and tasks will be reviewed in funding with industries of agriculture and processing of dairy and meat products in Northern Kazakhstan

(1) Funding Issues with Industries

The owner of the processing industry of ham and sausage visited and interviewed by the study team is willing to replace the processing facility, because it is more than ten years since the establishment.

The food processor made funding from DAMU. The funding seemed to be refinance to reduce the interest payment for the previous loan. The finance is not aimed to replace and renew the processing facility to improve the productivity for further business development.

(2) Problems with the Institutional Fund

In 2008 direct credit between DAMU and private industries was abolished. Instead of direct loan, two step loan has been introduced through commercial banks and MCO. The direct finance by DAMU should be promoted to deliver the lower interest rate for industries. The existing funding mechanism of DAMU with commercial banks and MCO is to be reconsidered.

(3) "Lack of the Information" as Issues and Tasks in Funding

Focusing on the demand and supply of the Institutional Fund in order to structure the Master Plan, the two tasks and issues are identified. Both are related to the lack of the information.

One is the financial information for industries. The sufficient information on the financial programs is not delivered to industries. They do not seem to have adequate knowledge for finance.

DAMU does not have the opportunities to obtain and evaluate the business intention of entrepreneurs directly. From financial organizations, the strong demand is expressed for the opportunity to exchange views with entrepreneurs.

In the following chapters, the solution and action plans are to be reviewed in order to deliver the necessary and sufficient information to each sector.

3.6 The current situation in relation to cluster promotion

3.6.1 Cluster policy

(1) Current condition

Programs relating to the cluster concept in North Kazakhstan have been summarized as follow. According to a report from the North Kazakhstan department of industry and Entrepreneurship, as for the results from 2003 and 2006, examples include the propulsion of the bio-ethanol business, the diversification of the machine industry, training within energy related businesses, as such the program has been advanced successfully. On the other hand, even local North Kazakhstan and related institutions have emphasized the importance of increasing productivity of small and medium sized companies as well as education for small and medium sized companies, and as such not only large projects but it is conceivable that industrial promotion can be progressed with small and medium sized business playing a leading role.

3.6.2 A consolidated cluster image in North Kazakhstan

An explanation in relation to the cluster as imaged by the survey personnel was carried out. Understanding was expressed in relation to both the merits and demerits of the survey teams' plan by a central person who had previously participant in the C/P training program carried out in Japan.

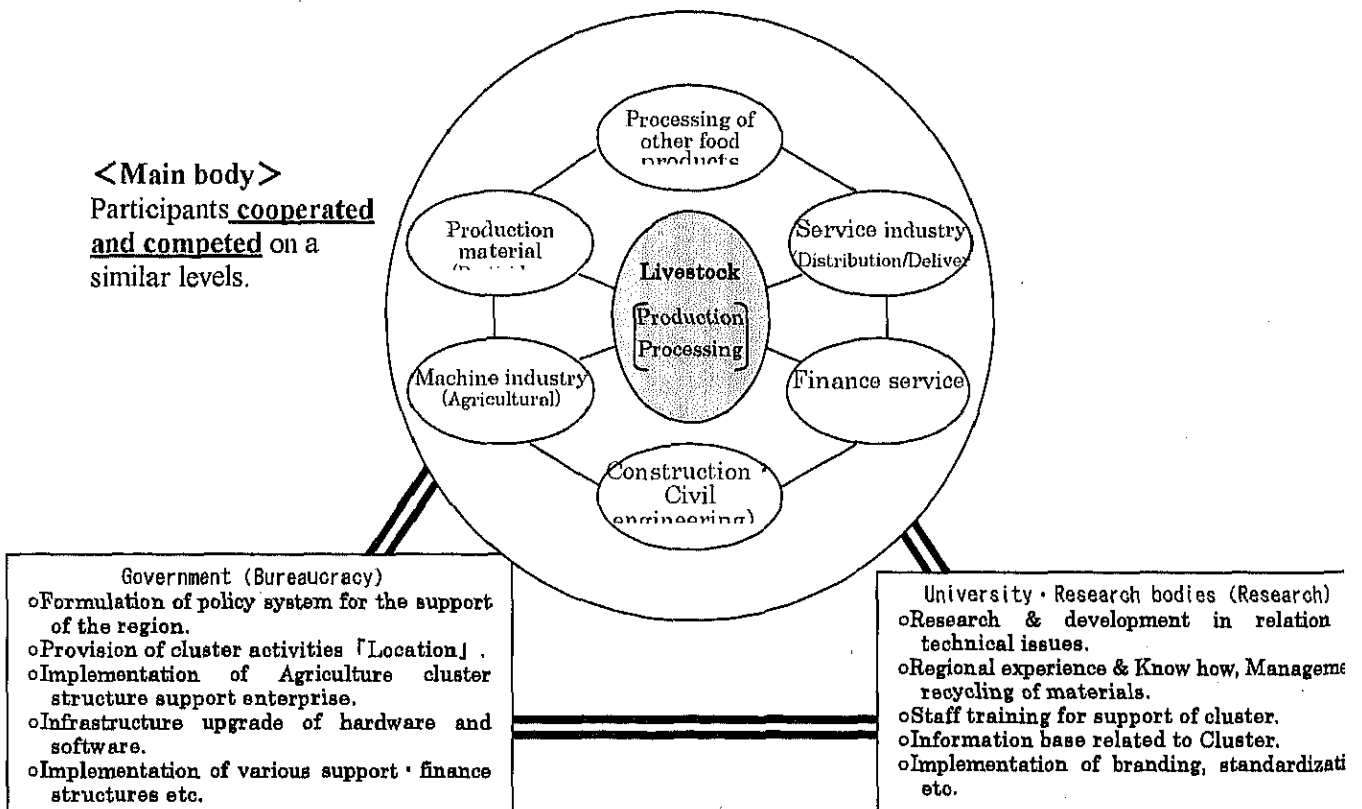


Figure 3-8 Cluster image as proposed by the survey team

Table 3-7 Comparison of the cluster image

Comparative items	The image envisaged by the main survey	The current image in Kazakhstan
Main body	A group consisting mainly of private enterprise.	Government, integrator and other large businesses.
Relationship	The relationship between cooperation and competition on an even level.	Top down decision making.
Profit	It is possible to have value creation at each level.	Distribution according to the wish of senior personell.
Stakeholder	Cluster members and increasing it to include businesses in the area / region.	Government & overseas companies limited to middle size companies.
Merit	<ul style="list-style-type: none"> • There is little effect as a result of management for some companies. • Diversification of the industrial structure, benefits of synergy. • Possibility to add value at each level. 	<ul style="list-style-type: none"> • Possible to create a new business over a short period of time. • Simplicity to decision making.
Demerit	<ul style="list-style-type: none"> • A multi year is necessary when starting up a business. • Base for long term regional confidence building. 	<ul style="list-style-type: none"> • The management of core companies has an overall effect. • Stagnant wages at producer level / widening of gap. • Difficult to accumulate manpower, technology and capital in the region. (Becomes the property of core companies)

Source: Prepared by JICA Study Team

3.6.3 The issues of cluster promotion

Past examples of the implementation of food processing cluster promotion in regional Japan are presented below and it is desirable to follow these 9 conditions.

Requirements for Cluster Promotion in a Regional Area

- ① Not top down, rather the maintainance of the environemnt which respects the initiative of private business.
- ② Mainatin a seamless support structure between Agricultural department and the industrial sector.
- ③ Upgrading the finance system that is in line with industrial charachteristics from raw materials to distribution.
- ④ **Confidence building beetwen businesses in the region** ⑤ Permiate a business model which complies with contracts
- ⑥ **The securing of staff that can support long term business in the region**
- ⑦ **Ensuring cluster participants are able to consult easily with regular government and securing a contact point for consultation with academics.**
- ⑧ **Operate enlightenment programs and events that sustain motivation of participants**
- ⑨ **Build a Cooperative structure with areas of the region and overseas which help educate staff within the state**

With an understanding of the above the current situation in North Kazakhstan is described as follows.

In relation to ① the environment that respects the opinions of private business, policies of recent Central Governments such as “Business road map 2020” and its implementation have been written about and it is recognized that it is something that is necessary for the country. However with this study, even now, top-down behavioral patterns are often seen where instead private business should be expressing their own opinion.

Also in relation to ② and ③, without the elimination of sectionalism within the Administrative institutions there will be no improvements.

Also in relation to ④, companies have little experience of having lateral type relationships. The most common type of relationship is a pyramid type relationship where the Government is at the top. Experience and customs from the former Soviet period can not be changed in a brief space of time, however it is important to introduce systems and reform consciousness in relation to everyday activities. At the time of developing a master plan and an action plan it is desirable to have an objective which includes the urging of the elimination of sectionalism and build regional confidence.

In relation to the business model of ⑤, conditions have improved through the increase in companies carrying out trade with foreign countries in recent years. However, the issues that should be improved by local companies in order for business to expand include lack of responsibility in relation to commercial activities, delivery date and product quality issues which are not currently covered by contracts.

In relation to ⑥ which is staff training, this is not just from the point of view of technology but also includes issues of management and education in relation to ideas of regional promotion. Academic and Technical education is currently carried out at High Schools and Universities in North Kazakhstan, but the issue is that there is no body that undertakes practical training or the transfer of managerial know-how.

Apart from those mentioned above, it is essential to ⑦ secure a contact point for consultations, ⑧ establish an event education program and ⑨ form cooperative programs and cluster formations with both internal and external institutions, however this hasn't been confirmed with this study. Proper leaders such as Techno Park and TOBOL should be the structure but, as there is a lack of staff, budget and experience it seems that the implementation will not be possible.

Hereafter, the issues are cluster promotion where consolidating the environment in relation to the development of ⑦ securing of a contact point for Academic consultations and a constant Government, ⑧ the establishment of events and education programs and ⑨ the development of a cooperative structure with institutions outside of the region and overseas. These issues have already been discussed and have something in common with food processing, finance and distribution.

4. Strategy Review for Enforcement of Competitiveness

4 Strategy review for enforcement of competitiveness

4.1 Review of strategic framework for enforcement of competitiveness

4.1.1 Present situation analysis in North Kazakhstan Oblast

(1) Value Chain Analysis

Value chain is a chain of added-value activities in the product stages from raw material production and its procurement to processing, distribution, sales, and consumption, and it is a framework to analyze that what role and function the activities undertake and where are the source of value and bottle neck in the product stage. It is most important for the value chain analysis to find what processes produce high value, to enforce the processes, to eliminate the unnecessary processes, and to restructure the activity chain by reducing costs with outsourcing the activities.

(5) SWOT analysis

SWOT analysis is a method for integration of both external factor analysis and internal factor analysis, and to analyze four items such as Strength, Weakness, Opportunity and Threat.

Table 4-1 SWOT analysis for enforcement of food processing industry

	Opportunity (O) Domestic market is expanding Potential markets in overseas	Threat (T) Competition with imported good Market penetration of big retailers
Strength (S) Strong in local market Major production area	<To pursue the opportunities> • Market expansion of local competitive products by branding • Development of marketable specialty good	<To change threat to chance> • Product diversification with low cost such as cream cheese • Marketing to big retailer in Astana
Weakness (W) Problems in quality and sanitary condition Seasonal fluctuation of raw milk	<To identify the way to use its strength> • improvement training for small farmers to increase milk production • Raw milk production control by artificial insemination	<To establish defensive plan> • Introducing new packaging technology and design • Quality development and new product development

Source: Prepared by JICA Study Team

4.1.2 Value chain analysis of food processing industry

This report applies the value chain analysis for dairy products and process meat products to identify the value sources and locating bottlenecks in the chain from raw material production to final products. And this report applies SWOT analysis and develop the short-, middle- and long-term strategies with the Strength, Weakness, Opportunity, and Threat in North Kazakhstan Oblast.

(1) Dairy products

The causal analysis and countermeasures for each key issue is summarized as following table;

Table 4-2 Causal analysis and countermeasures for dairy products value chain

Key issues	Causal analysis	Primary cause	Countermeasure
Shortage of milk production, esp. in winter	<ul style="list-style-type: none"> • Some farmers have no good quality of feed, such as low digestive fibrous feed using the post-harvest residues in winter. • Some farmers have not enough feeding management to Holstein breed to increase milk production. • Some farmers have not enough knowledge and technology for feed production. 	<ul style="list-style-type: none"> • Disparity in farmers knowledge and technology level • Not enough agricultural technical extension service 	Technical extension to small scale farmers
Unstable raw milk quality	<ul style="list-style-type: none"> • Some milking cowshed are not hygiene. • Not well equipped refrigerated storages • The number of bacteria increases during transportation 	<ul style="list-style-type: none"> • Disparity in farmers knowledge and technology level. • Not enough hygiene control 	Technical extension to small scale farmers Improvement of collection center
Difficulty in new product development	<ul style="list-style-type: none"> • Difficulty to produce cheese with existing time and cost consuming technology. • Existing machine is obsolete, and difficulty for financing of replacement • Shortage of food processing technicians who have information and technology on the new product development and food hygiene. 	<ul style="list-style-type: none"> • Lack of information on new technology and equipment. • Lack of information on financing system • Lack of educational system for food technician. 	Establishment of information dissemination system on technology and equipment. Establishment of supporting system for technology and financial issues.
Low competing power in the market	<ul style="list-style-type: none"> • Low product diversity compare to foreign products • Shorter shelf-life compare to foreign products. • Difficulty to expand sales channel because of no third party transporters. 	<ul style="list-style-type: none"> • Difficulty to grow in diversity because of long time for Gov. certification to expanding shelf life. • The cost of introducing new packaging is high. 	New technology development including packaging Developing marketing strategy such as branding

Source: Prepared by JICA Study Team

(2) Process meat products

The causal analysis and countermeasures for each key issue is summarized as following table;

Table 4-3 Causal analysis and countermeasures for processed meat products value chain

Key issues	Causal analysis	Primary cause	Countermeasure
Poor profits in farmers	<ul style="list-style-type: none"> • Long fatten period for swine (Nine months) • Some farmers have not enough knowledge and technology for feed production. • Farmer has weak negotiation power • No price formation system because of no public market 	<ul style="list-style-type: none"> • Disparity in farmers knowledge and technology level • Farmer cannot negotiate fairly with processing company • Not enough agricultural technical extension service 	Technical extension to small scale farmers Establish livestock public markets
Need permission for slaughtering by the Government	<ul style="list-style-type: none"> • Some local areas do not have certified slaughterhouses. • Inconvenient for small farmers because the slaughter house is far distance. • Some slaughter has no good hygiene condition 	<ul style="list-style-type: none"> • Shortage of slaughterhouse 	Awareness of slaughter house regulation to small farmers Parallel establishment of slaughter house and public market
Lack of cold chain system	<ul style="list-style-type: none"> • Lack of transportation truck with freezer • Some processing factories donot have freezer but refrigerator. 	<ul style="list-style-type: none"> • Fund shortage for purchasing cold system 	Financial assistance system for introducing cold chain
Difficulty in new product development	<ul style="list-style-type: none"> • Existing machine is obsolete, and difficulty for financing of replacement • Shortage of food processing technicians who have information and technology on the new product development and food hygiene. 	<ul style="list-style-type: none"> • Lack of information on new technology and equipment. • Difficulty to grow in diversity because of long time for Gov. certification 	Introduction of new packaging technology development
Low competing power in the market	<ul style="list-style-type: none"> • Low product diversity compare to foreign products • Shorter shelf-life compare to foreign products. • Difficulty to expand sales channel because of no third party transporters. 	<ul style="list-style-type: none"> • Lack of marketing strategy • High cost for introducing packaging to expanding shelf-life 	New technology development .Development of marketing strategy such as branding

Source: Prepared by JICA Study Team

4.2 Food processing industry development strategy for enforcement of competitiveness

Based on the results of value chain analysis, Study team analyzes the external factors such as Opportunities and Threats, and Internal factors such as Strength and Weakness, and plans the strategies for enforcing the competitiveness on each products in North Kazakhstan Oblast.

4.2.1 SWOT Analysis of Dairy and Meat Products

(1) SWOT analysis of dairy products

North Kazakhstan Oblast is one of the major producer state of butter and cheese in the country, with its amount of production increasing every year, and the dairy product processing industry is given great importance as a political measure. Nevertheless, the amount of production varies greatly between summer and winter, and the quality itself is variable. Cheese products are mostly imported, and local products have to compete with imported products and those from other states. The commencement of FTZ, the free trade zone with Russia and Belarus, from January 2010, is both an opportunity and a threat for North Kazakhstan Oblast.

SWOT analysis of Dairy Products

		Opportunity	Threat
		Domestic market is expanding Potential markets in overseas Trade liberalization in FTZ	Competition with imported goods Dependency of import Market penetration of big retailers
S	-Production increase Politically important Regional market Major production area	<To pursue the opportunities> Market expansion of local competitive products by branding	<To change threat to chance> Product diversification with low cost , Marketing to big retailer in Astana
W	Problems in quality And sanitary condition Lack of cold chain system Seasonal fluctuation of raw milk, Old equipment Shortage of specialist	<To identify the way to use its strength> Increase the raw milk in winter, Quality improvement training for small farmers, Human resource development	<To establish defensive plan> Introducing new packaging technology and design, Product development for long shelf life

Resource: Prepared by JICA Study Team form field collection data

(2) SWOT analysis of meat products

The land of North Kazakhstan Oblast has especially bountiful soil, and the area produces lots of grains, such as wheat and barley, which are given as fodder to livestock. Additionally, a great number of livestock are farmed in the state. The amount of livestock has been increasing each year, which is given importance as a political measure in the same way as dairy products; however, farmer profits are not very high, as many of them are small and their productions are dependent on the contracts they have with processing manufacturers. Meanwhile, wholesale markets are not well-organized. In the domestic market, local products compete with imported products from Russia, as the market depends on imports. The free trade zone beginning from January 2010 is both an opportunity and a threat to the market, just like dairy products.

SWOT analysis of Processed Meat Products

		Opportunity	Threat
		Domestic market is expanding Potential markets in overseas Trade liberalization in FTZ	Competition with imported goods Dependency of import Difficulty in purchasing fund
S	-Production increase Politically important Regional market	<To pursue the opportunities> Brand marketing for high class sausage products to appeal special breeding and processing	<To change threat to chance> Product diversification with low cost , Marketing to big retailer in Astana
W	Problems in quality And sanitary condition Lack of cold chain system Old equipment, No livestock market Shortage of specialist	<To identify the way to use its strength> Quality improvement training for small farmers, Distribution system improvement Human resource development	<To establish defensive plan> Introducing new packaging technology and design, Product development for long shelf life Master accreditation system

Source: Prepared by JICA Study Team

(3) The free trade zone and customs unions in Kazakhstan

At present, it is still difficult to estimate the impact of the free trade zone on the food processing industry in Kazakhstan, as uniform custom duties have just come into force in January 2010. Therefore, it is necessary to collect more information. We also need to study trade liberation, due to the free trade zone, from both the viewpoints of its opportunities and threats, taking into account the increase in the amount of imported and exported dairy and meat processing products.

Opportunities for Kazakhstan expected from the free trade zone

-A huge market will be created by the free trade zone, and its annual import and export amounts are estimated to reach 900 billion dollars. Furthermore, the GDP is expected to increase by 15% in 2015, due to abolition of tariffs among the three countries. North Kazakhstan Oblast, which is located near the border of Russia, is situated in an important area as a logistics base of an enormous number of products flowing into Kazakhstan, and can make good use of its geographical advantage in food processing and distribution.

-Thanks to the free trade zone, Russia and Kazakhstan will be able to reinforce their competitiveness in the energy industry and grain market, in which they have comparative advantage. Furthermore, the customs union will have a strong influence on both of them. Dairy and meat processing products will strengthen their competitiveness by offering high-value-added products.

-Some economists who favor customs unions say that the customs union will increase trade, support a free flow of cash and labor, and facilitate access to the markets of non-member countries, and will make further investment possible in the member countries.

Possible threats for Kazakhstan caused by the free trade zone

-It is possible that the development of its industrial foundation could be hindered since untaxed Russian products that are cheaper than domestic products will flow into Kazakhstan.

-Companies will be exposed to the threat of corporate acquisition by major Russian dairy product and/or meat processing product companies; therefore, it is necessary for small- and medium-size enterprises to develop original merchandise or foster human resources.

-As custom clearances will be simplified, there is the risk that imported food products may be distributed without enough control and inspection. It will be necessary to reinforce incoming inspections on imported products in terms of their quality and safety, from the viewpoint of consumer protection.

4.2.2 Strategy for the Reinforcement of Competitiveness Based on SWOT Analysis

Below figure shows the issues and main causes as well as the response policy for the components in the value chain including raw materials, production / processing and marketing.

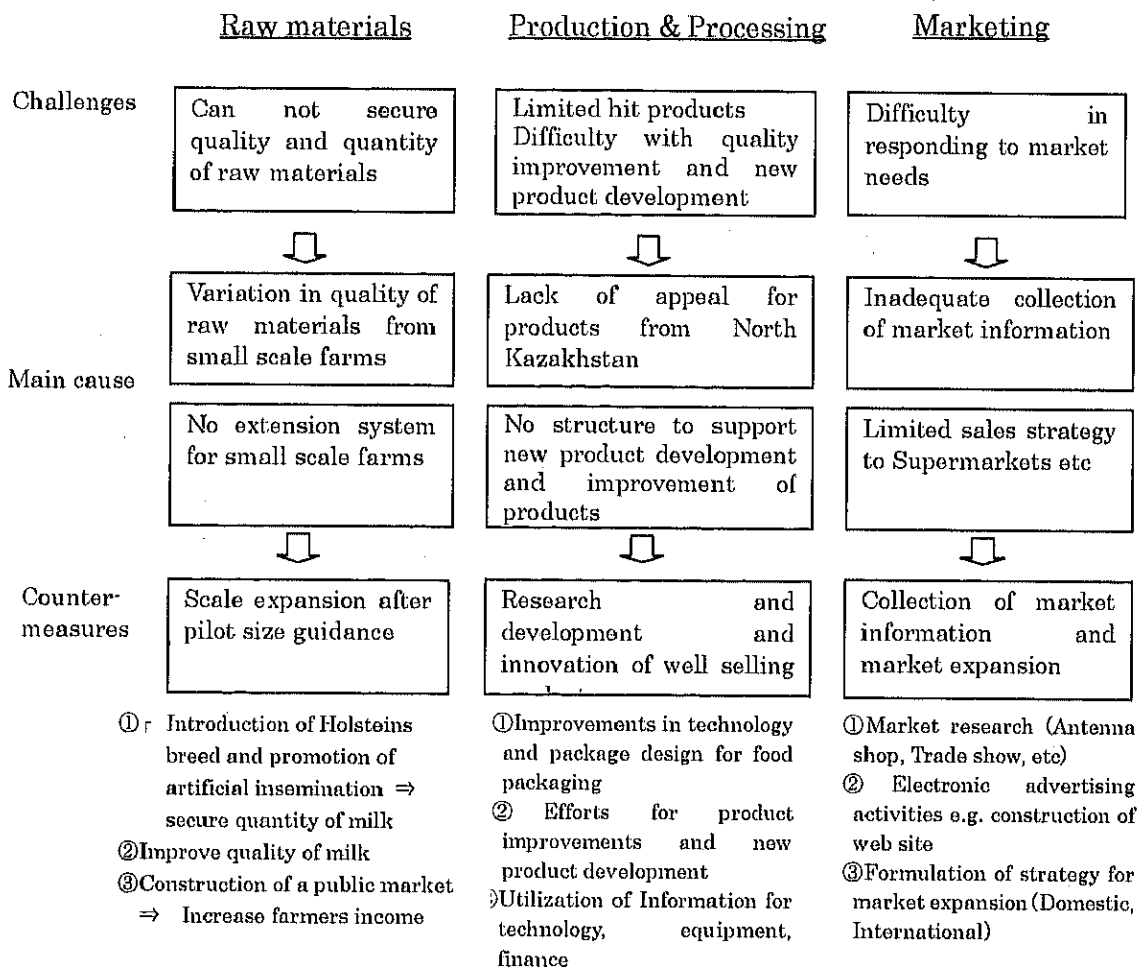


Figure 4-1 Flow chart from issues, main cause, to counter measures

Based on the discussion of above figure, The study team suggests the establishment of short-, medium-, and long-term strategies to enforce competitiveness in the three fields of the dairy products and meat products processing industry as following table.

Table 4-4 Strategy plan for enforcement of competitiveness by SWOT analysis

Area	short-term strategy	middle-term strategy	long-term strategy
Competitiveness reinforcements in raw materials	Technical training for small-scale farmers in pilot area; feeding, breeding and sanitary conditions etc.	Expansion of pilot area for the technical training	Establishment of livestock public market Development of local collection center
Reinforcing competitiveness within product development	Brand building such as Petropavlovsk butter and special breeding pork sausage etc.	Development of packaging technology Improvement and development of livestock production	Product development assistance system; Quality evaluation system and information services for technology
Enhancement of competitiveness in market development	Market survey in principal cities to study future plan of food processing products	Establishing marketing strategy for big retailers Development of distribution center in domestic market	Development of marketing strategy for overseas market

Source: Prepared by JICA Study Team

(1) Competitiveness reinforcements in raw materials

Short-term strategy: Quick results can be expected from small-scale farmers in terms of fodder, rearing, and hygiene, only by raising and equalizing their skill levels without spending capital on equipment and machinery. First, we shall select a pilot region and disseminate and implement farming techniques concerning fodder design, the rearing environment, and rearing techniques, etc. Then, an improvement in the quality of raw milk will be encouraged, in tandem with a production increase. In addition, implementation and reinforcement of livestock artificial insemination, as a countermeasure against a shortage of milk yields in the winter, will be promoted.

Medium-term strategy: Expanding on the pilot area established in the short-term strategy, promotion and reinforcement of farming techniques all over the country will be increased. In addition, we will teach small-scale farmers to rear Holstein cattle for the purpose of increasing milk yields, and will provide financial support to the farmers themselves (for the financing of facilities, etc.), in order to expand the rearing of Holstein cattle.

Long-term strategy: As for cattle and swine for the production of meat processing products, farmers do not have strong bargaining power when it comes to setting prices, since, in most cases, they produce raw meat based on the contracts they have. One of the reasons for this situation is the fact that there is no livestock market. Also it is necessary to establish facilities where a slaughterhouse and a public market can exist side-by-side, as certified facilities will be required for slaughtering in the future. The quality of raw meat will also be publicly evaluated, which can be an incentive for farmers. In addition, it is necessary to study the implementation of raw milk evaluation by an independent organization, such as a quality evaluation (amount of milk fat, etc.) performed by an independent organization in Japan, by which farmers can stand on a equal footing with processing companies in regard to setting prices.

(2) Reinforcing competitiveness within product development

Short-term strategy: In Astana, butter from Petropavlovsk is recognized as a high-fat product in the market. Because Buraevo in North Kazakhstan Oblast is famous for being a butter production region, we will provide a scientific basis and a certification system to make it a branded product, and will establish a marketing strategy to boost its appeal. Additionally we

will implement test marketing in and out of the state, promoting butter as a branded product. Furthermore, we should examine the possibility of branding other products, such as high-fat smetana and local, specialty pork sausages

Medium-term strategy: Dairy products and meat products are perishable, and supermarkets in North Kazakhstan Oblast sell not only local fresh groceries but also lots of food products from Russia, Ukraine, and the EU. North Kazakhstan Oblast imports a variety of food products, in order to meet the needs of consumers, but local food products must also be flexible to accommodate market changes. It is urgently necessary to develop food packaging techniques, since major supermarkets have lots of small packaged products, such as packages of sliced ham. Packaging techniques can help to realize longer storage and distribution at normal temperature, which may be applied to sales in other cities of the country and to future exportation. Additionally, more attractive package design may help sales promotion.

Long-term strategy: As for dairy and meat processing products, new products are constantly being developed according to market needs and consumer preference. Currently, there is no system to support the development of new merchandise in North Kazakhstan Oblast. We should examine the establishment of a study center for reinforcing competitiveness in collaboration with the public, private, and academic sectors. The functions of this center will include: "inspection and analysis of products and raw materials for quality evaluation", "simulation in a mini factory for manufacturing tests", "training and fostering in terms of hygiene and food product safety", "tests related to packaging techniques", "information services for the implementation of food equipment", and "financial support for the purchase or lease of equipment to be implemented".

(3) Enhancement of competitiveness in market development

Short-term Strategy: In supermarkets and bazaars in Astana, some Petropavlovsk products, such as packages of sliced sausages and high-fat butter, are sold. However, the market share of Petropavlovsk processed foods is not necessarily high. This is because it is difficult to make an adjustment to business customs in which major supermarkets need to shoulder high costs for sales, such as storage fees, and costs for distribution to Astana. It is therefore necessary to conduct market research in existing major cities, including Petropavlovsk (as well as Astana, Karaganda, Pavlodar, Kostanai, and Almaty, etc.), and establish city-by-city and product-by-product market strategies that match regional characteristics. Also, it is important to situate North Kazakhstan Oblast's antenna shops in major cities, and to consider systems that exhibit developed brand-name products and regional specialties, such as butter and smetana.

Medium-term Strategy: Food sales channels in Astana and Almaty consist mainly of markets (bazaars) where buyers and sellers meet face to face, as well as supermarkets, where consumers select products from within a spacious retail space. These cities are battleground regions for imported processed foods and domestic products. To promote sales, processed food manufacturers design packages attracting consumer interest to ensure the advantage of their products, supply showcases to gain their own sales space, and provide sales forces (such as mannequins). Consumer buying trends tend to shift from markets (bazaars) to supermarkets.

It is necessary for food processing companies to conduct market research and establish market strategies arranged by type of sales because needs for quality and quantity vary depending on each market sales system.

Long-term Strategy: The non-domestic markets that are geographically closest to North Kazakhstan Oblast are Omsk, Ekaterinburg, Chelyabinsk, and Kurgan. These cities are seen as promising markets because they are large cities located in the Siberian Federal District and have a large population. Because these cities are also areas of production for dairy and processed meat products, it is necessary for Petropavlovsk to consider competitive products, such as its regional specialties and brand-name products. Although a free trade zone (FTZ) is expected to

be established, there is an urgent need to develop competitive products because price competition is likely to occur in destinations for export and even within the country itself. Information concerning regulations necessary for exports into Russia must be collected, in addition to information about the FTZ.

