JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
MINISTRY OF FOOD AND AGRICULTURE, MONGOLIA (MOFA)

THE MASTER PLAN STUDY ON INTEGRATED AGRICULTURAL AND RURAL DEVELOPMENT IN CENTRAL REGION IN THE MONGOLIA

FINAL REPORT

MARCH 1996

JAPAN AGRICULTURAL LAND DEVELOPMENT AGENCY (JALDA)


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PREFACE

In response to a request from the Government of Mongolia , the Government of Japan decided to conduct a Master Plan study on the Integrated Agricultural and Rural Development in Central Region and entrusted the study to Japan International Cooperation Agency (JICA).

JICA sent to Mongolia a study team headed by Mr.Koji Hattori, Japan Agricultural Land Development Agency three times between August 1994 and December 1995.

The team held discussions with the officials concerned of the Government of Mongolia , and conducted field surveys at the study area. After the team returned to Japan , further studies were made and the present report was prepared.

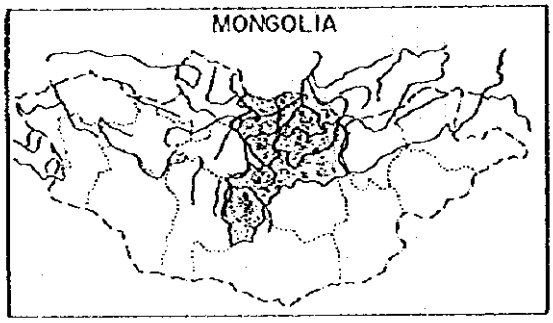
I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

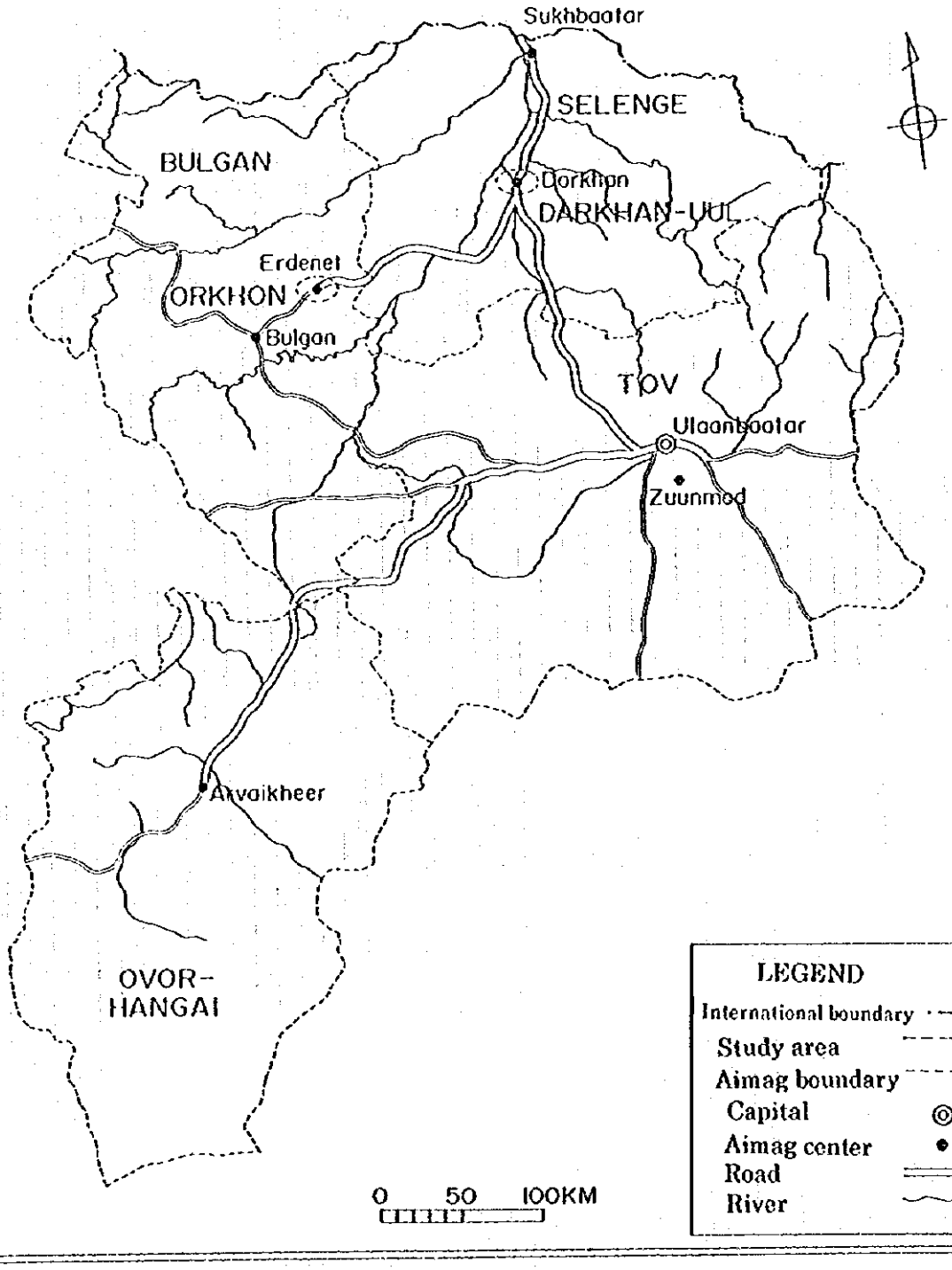
I wish to express my sincere appreciation to the officials concerned of the Government of Mongolia for their close cooperation extended to the team.

March 1996

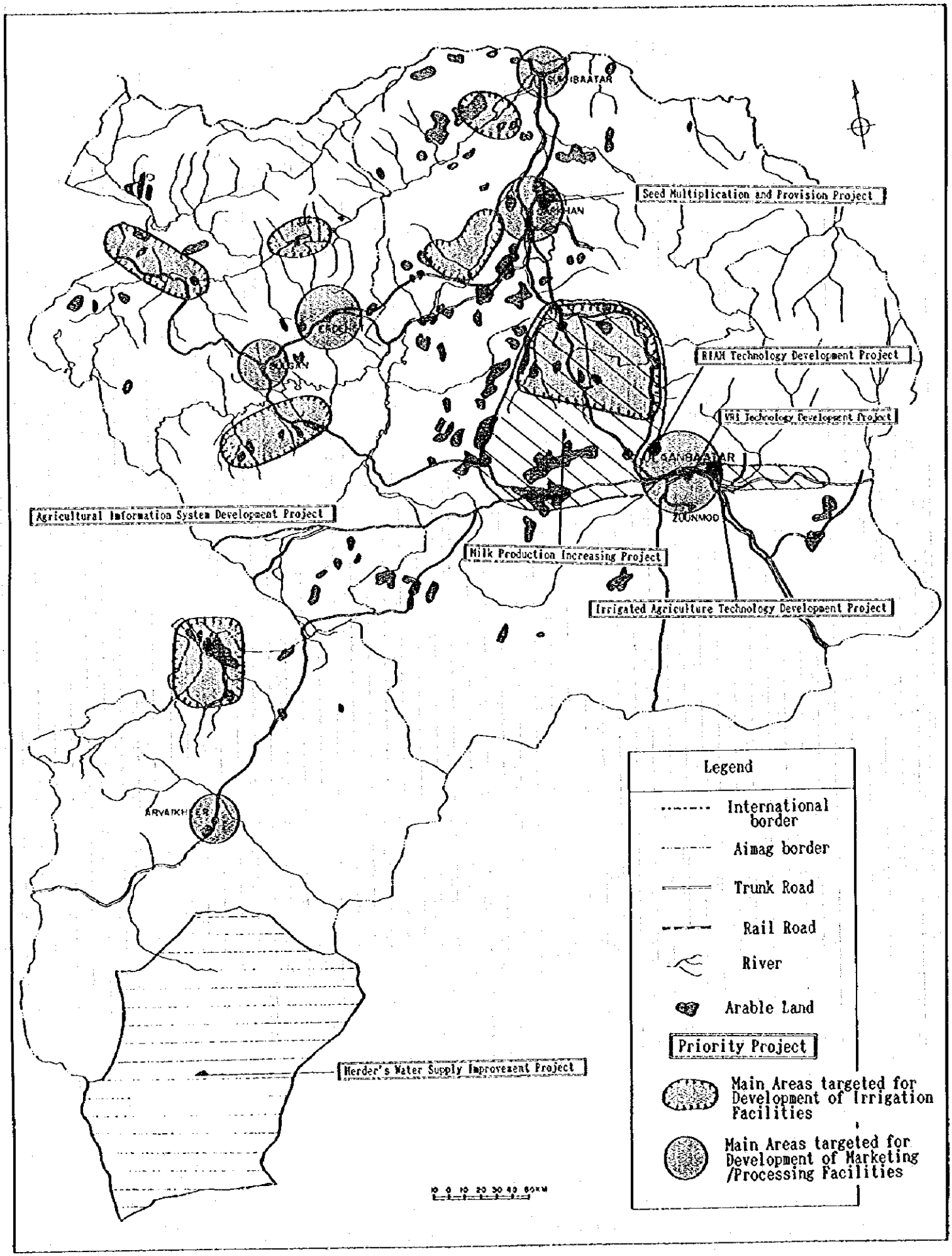
Kimio Fujita
President
Japan International Cooperation Agency

Map of the Study Area





General Map of Areas Covered by the Master Plan



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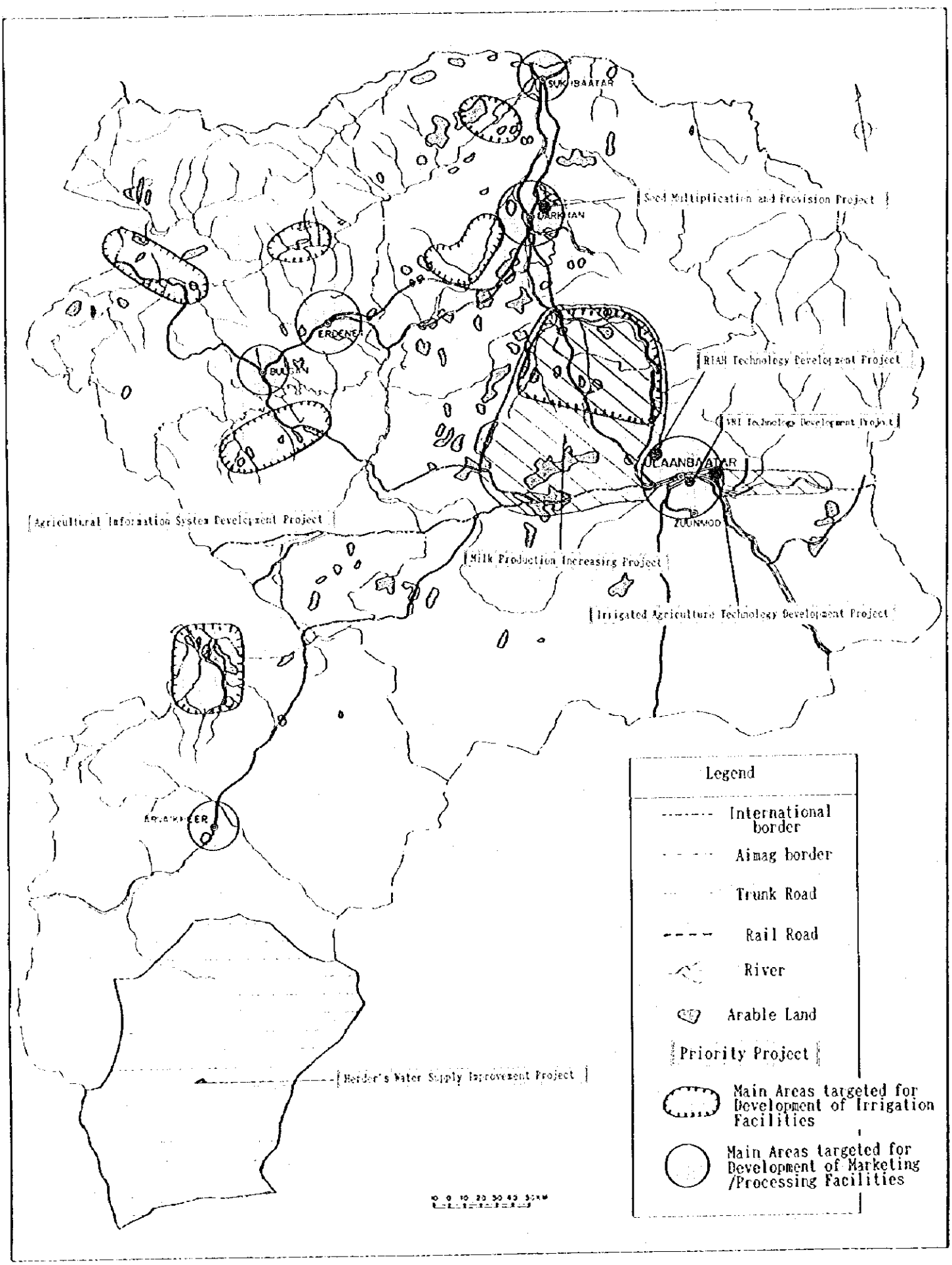

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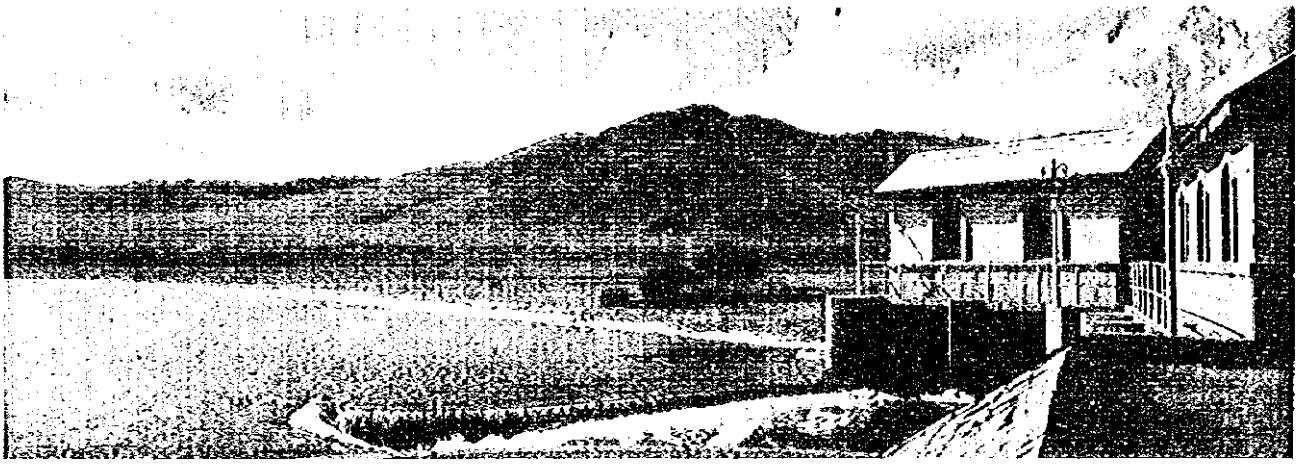

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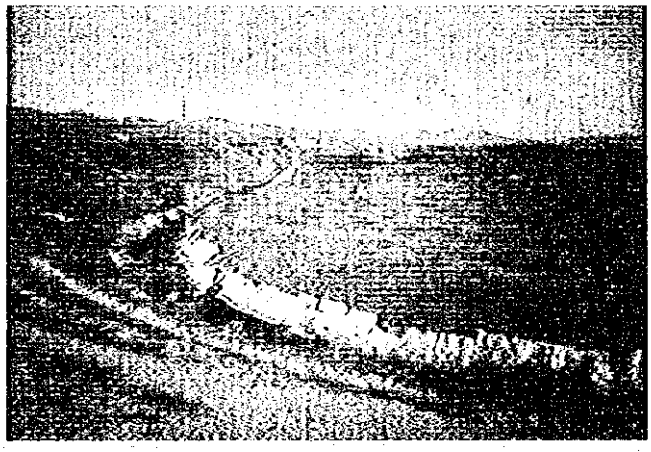

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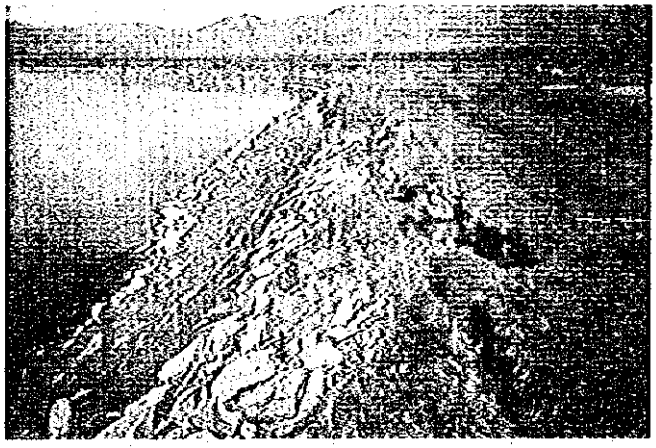

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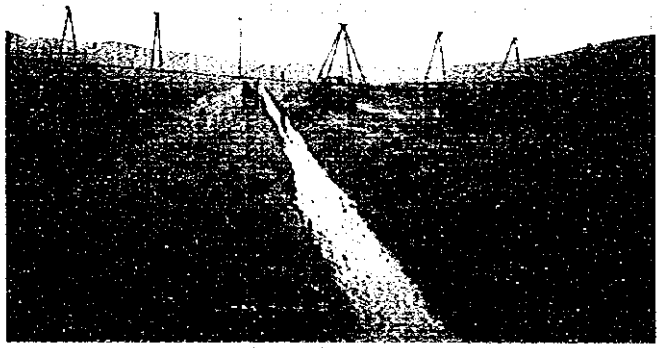

(5) Travelling Sprinkler

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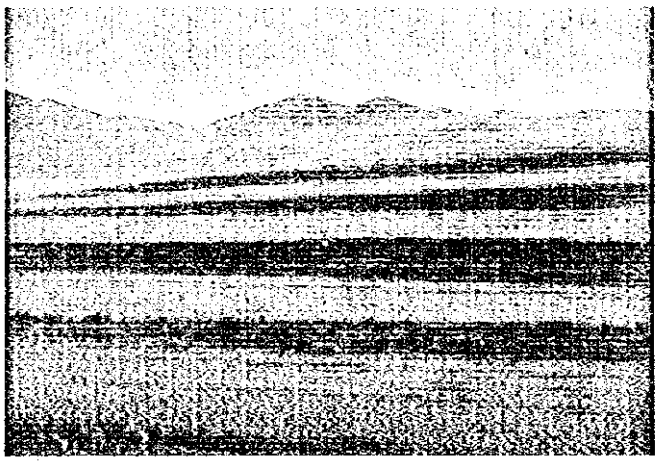
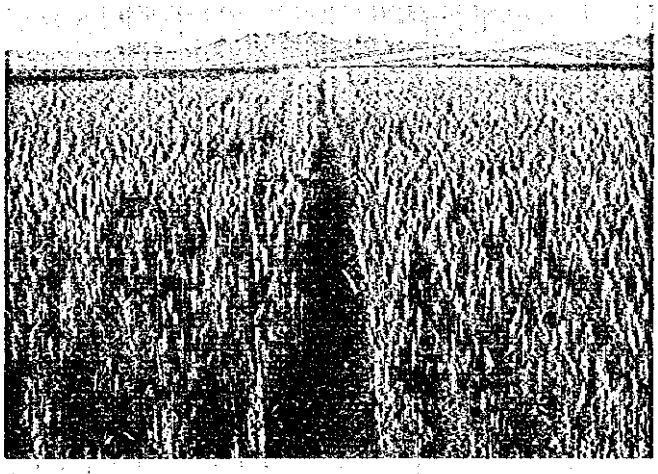
Ditches and fences are provided to keep out domestic animals.



(7) Wheat field (yellow: land under cultivation, dark: fallow land)



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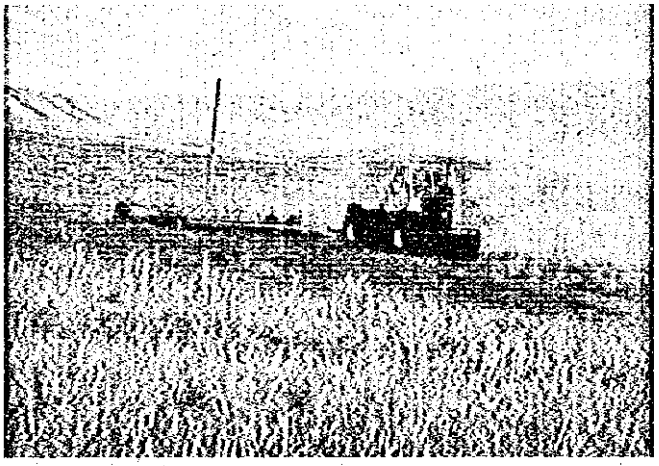

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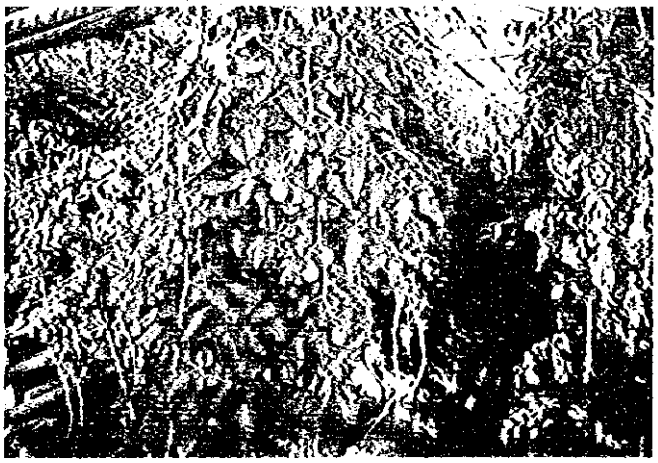

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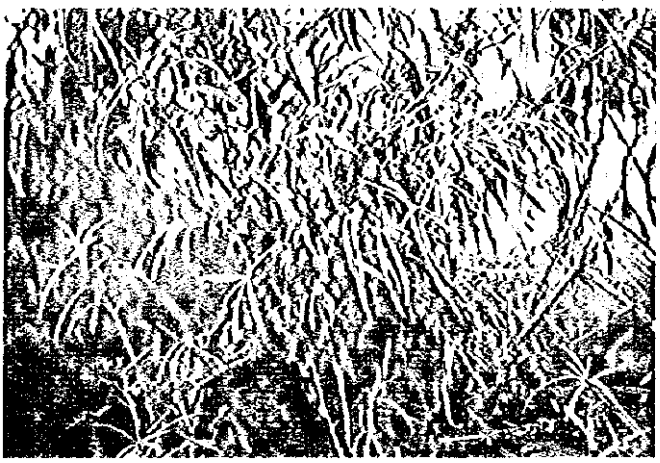

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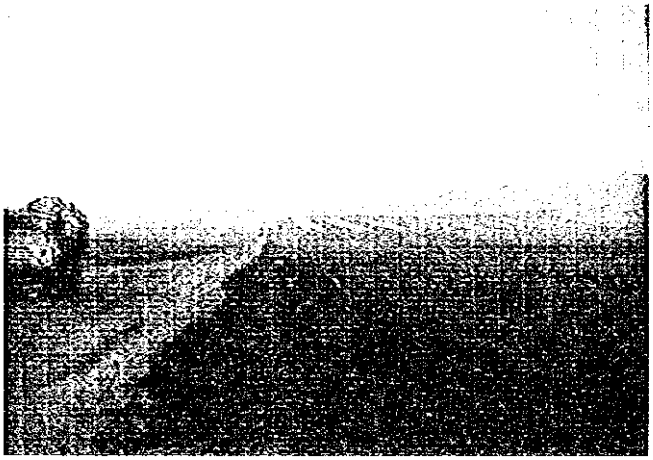

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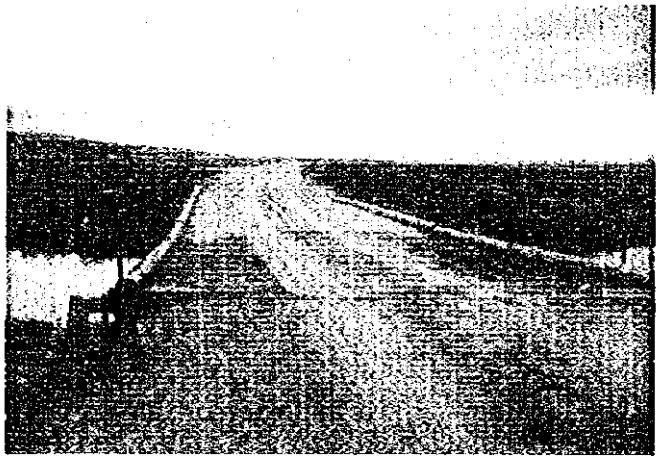

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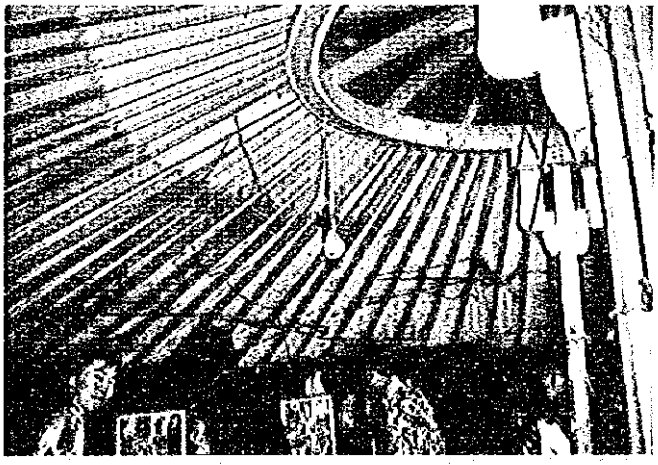

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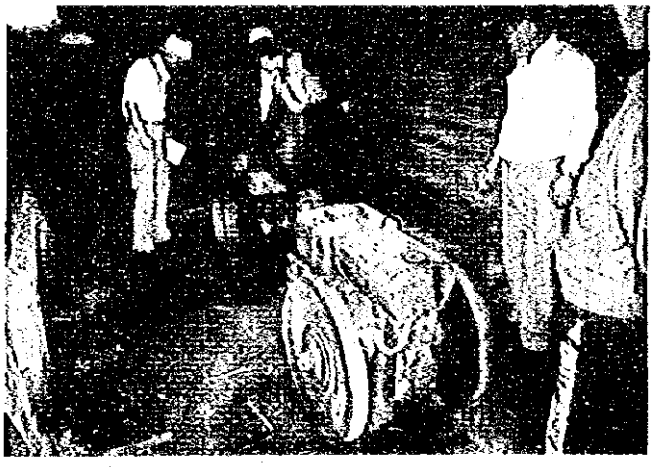

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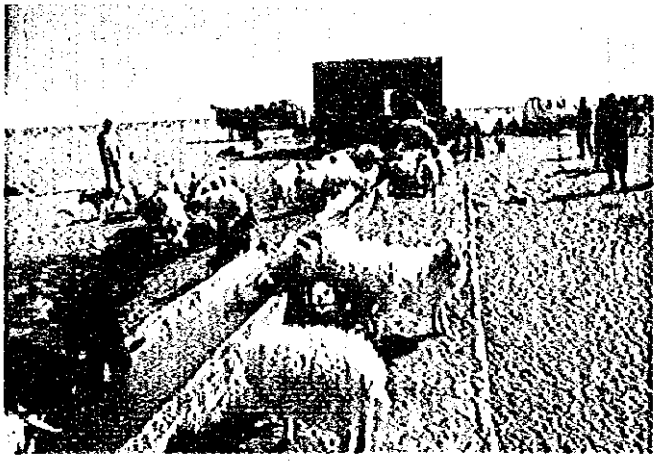

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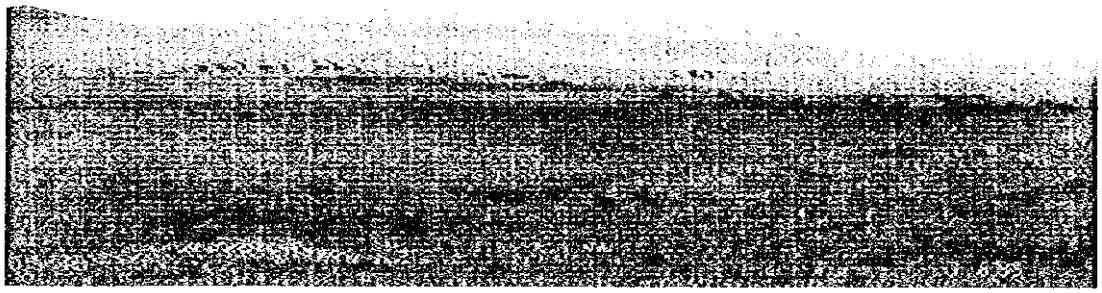

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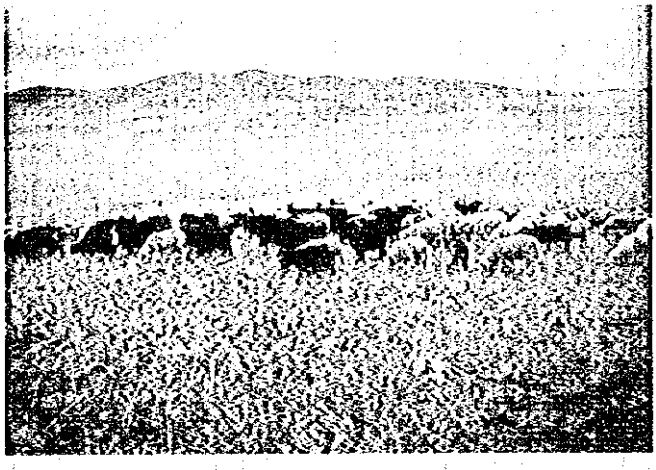

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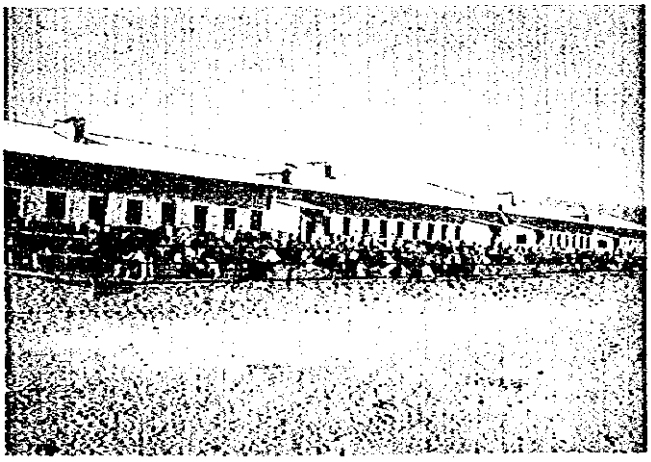

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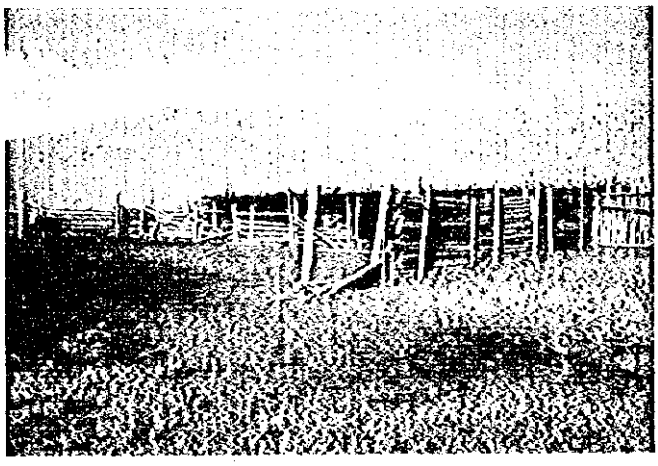

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ABBREVIATIONS

ACE	Agricultural Commodity Exchange
ADB	Asian Development Bank
Aimag	Province/Provincial Government
BOM	Bank of Mongolia (Mongolbank, the central bank)
CIS	Commonwealth of Independent States
CMEA (COMECON)	Council for Mutual Economic Assistance
DANIDA	Danish International Development Assistance
EIA	Environmental Impact Assessment
EICD	Economics and International Cooperation Department, MOFA
ESCAP	Economic and Social Commission for Asian and the Pacific
FAO	Food and Agriculture Organization of the United Nations
GATT	General Agreements on Tariff and Trade
GDP	Gross Domestic Product
GNP	Gross National Product
HOT	City
IEE	Initial Environmental Examination
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
KR	Kennedy Round
MASL	Meters above Sea Level
MSE	Ministry of Science and Education
MID	Ministry of Infrastructure Development
MNE	Ministry of Nature and Environment
MOF	Ministry of Finance
MOFA	Ministry of Food and Agriculture
MTI	Ministry of Trade and Industry
NDB	National Development Board
NEGDEL	Former Agricultural Cooperatives
ODA	Official Development Assistance
PSARI	Plant Science and Agricultural Research Institute
RIAH	Research Institute of Animal Husbandry
SEFF	State Emergency Feed Fund
SU	Sheep Unit
Sum	County/County Government
SSO	State Statistical Office
UN	United Nations
UNDP	United Nations Development Programme
USSR	Union of Soviet Socialist Republics
VRI	Veterinary Research Institute
WB	World Bank

CURRENCY EQUIVALENTS (August 1995)
Currency Unit = Tugrig (Tg)
Parallel Market Rate: US$ 1 = Tg 460

Summary

1. Introduction

This Master Plan has been prepared with the aim of contributing to the overall development of agriculture and rural areas in the central part of Mongolia, which forms the core of the country's economic and social base. This development is a necessary step for contributing to the early establishment of a market economy in Mongolia.

The Study Area consists of the Aimags of Selenge, Darkhan-Uul, Tov, Bulgan, Orkhon and Ovorhangai as well as the national capital of Ulaanbaatar in central Mongolia (a total area of 235,000 km^2).

The rapid transformation of the economy of Mongolia from a planned economy to a market economy has been accompanied by much confusion as well as the social and economic deterioration of the country, challenging its leaders with problems of various kinds. It is essential that they act quickly to resolve these problems and to establish sound economic management within a market economy as early as possible.

This Plan has been enacted as a cooperative effort of a survey team dispatched by the Japan International Cooperation Agency (JICA) and by counterpart organizations in Mongolia. Technology has already been transferred to Mongolia in the course of preparing this Plan.

2. Background

– National Land and Population –

Located in Central Asia, Mongolia occupies a total land area of 1.567 million square kilometers. It has an average annual temperature of -1.6 degrees Celsius (Ulaanbaatar), and features a continental dry cold climate receiving between 50 and 350 millimeters of rain per year. The land primarily consists of gently rolling grassland. The population of Mongolia in 1993 was approximately 2.25 million persons, and the population density of the country is the lowest in the world at 1.4 persons/sq. kilometer.

2.1 Effects of the Transition to a Market Economy on the Mongolian Economy and Society

As demonstrated by their traditional nomadic life style in the midst of harsh natural conditions, the Mongolian people are well able to adapt to their natural surroundings and are willingly help each other in difficult circumstances. Their educational level is fairly high, with the majority of the population completing compulsory education. Further, the country also receives overseas aid equivalent to more than 40% of its GDP.

These factors mean that Mongolia should have no difficulty completing the transition to a market economy and overcoming the problems obstructing and accompanying this process. However, the effects of this transition will be felt in all areas of Mongolian society and its economic life, creating conditions which can not be overlooked.

-- Structural Adjustment Policies --

Since February 1991, when Mongolia joined the ADB, IMF, and WB, many nations and international organizations have provided a growing amount of assistance based on structural adjustment policies established with the agreement of the Government of Mongolia. Since 1991, a total of $985 million has been promised as aid funds, an amount in excess of 1.5 times Mongolia's 1994 GDP.

Table S-1 Principal Policy Trends

Principle Policy	Year Commenced	Content and Present Status of Policies
1. Privatization	May 1991	88% complete in terms of asset values at the end of 1993, with the privatization of large corporations and irrigation facilities postponed.
2. Price Liberalization	January 1991	Liberalization largely realized through the complete abolition of the rationing system in August 1983.
3. Liberalization of Exchange Rates	July 1990	Abandonment of the ruble-linked system, and a switch to fluctuating exchange rates in May 1993.
4. Establishment of a Legal Environment	March 1990	A new foreign investment law, etc. and a new constitution in 1992; the process of establishing a full legal system is still in progress.
5. Trade Liberalization	1991	Participation of the private sector and liberalization by partially eliminating export bans and the restricted products list.
6. Financial System	August 1990	Participation of private banks, control of the money supply, interest rate manipulation, etc.

– Macroscopic Effects –

The transition to a market economy has been followed by an extremely severe economic slump, seriously effecting the daily lives of the people. The core of the Government of Mongolia's macroscopic polices consists of reducing unemployment and relieving poverty. In order to achieve these goals, the national government has put

top priority on stimulating productivity, improving the production infrastructure, and encouraging investments intended to resolve problems with the social infrastructure.

Table S-2 Change in Principal Macroscopic Indicators

Macroscopic Indicators	Post-transition Conditions
Slumping GDP	From US $310/person (WB calculations) in 1992 to US $303/person (calculated actual rate) in 1994
Rising consumer prices	App. 31 times between Jan. 1991 and Dec. 1994
Rising unemployment rate	1989: 3.8% 1993: 8.7%
Increase in the number of people living at poverty levels	Percentage of population living below minimum living standard in 1994: 25% of total population
Growing economic and social gaps between urban and rural areas	Agricultural Income/Urban Income = 86% (1993) and 75% (1994)
Falling caloric intake of the population	1989: 2,621 kcal, 1994: 2,104 kcal

– Industrial Structure and Trade –

Under the COMECON system of industrial classification, Mongolia was classified as a supplier of raw materials and a provider of primary processed goods. Since the transition to a market economy, Mongolia's industrial structure has remained overwhelmingly dependent upon agriculture and related industries as well as mining. Its dependency on agriculture has actually increased. However, the scale of its overall trade has been more than halved, and its CIS dependency rate has dropped from between 70% – 80% to between 50% – 60%.

Table S-3 Change in External Trade Turnover (Unit: $100 million)

Indicator	1989	1994	94/89	Remarks
Total Turnover	1,685	626	37%	While the trade balance had been consistently in deficit prior to transition, it has gone into a surplus due to a reduction in the amount of trade, especially imports, after transition. The trade surplus in 1994 exceeded US $100 million.
of which CIS	1,295	253	20%	
- ditto - Share	77%	40%	-37 points	
Total Exports	727	368	51%	
of which CIS	528	104	20%	
- ditto - Share	73%	28%	-45 points	
Total Imports	963	258	27%	
of which CIS	767	149	19%	
- ditto - Share	80%	58%	-22 points	

Most of Mongolia's exports consist of raw materials and agricultural products, which have undergone primary processing, as well as copper and molybdenum ore. Imported goods, on the other hand, primarily consist of machinery plus fertilizer, construction materials, and other industrial goods totaling 80% of all imports, with the remaining 20% consisting of consumer goods. The reduction in the total volume of trade has been the result of a fall in agricultural production and the direct effects of a slump in other industrial activities.

– Changes in Farm Management –

Prior to the transition to a market economy, there were a total of 360 state farms producing grains or feed or primarily engaged in intensive animal husbandry operations, as well as nomadic herding groups called negdel, in addition to their associations and association factories. As of September 1994, these units had been broken up into 400 agricultural corporations and many individual nomadic herding families and small vegetable farms. About 70 of the old state farms have been split up into 270 corporate farms or limited companies and other corporate bodies. Many of the irrigation facilities, state farm facilities, storage and processing facilities, and other large-scale facilities still remain in government hands.

– Agricultural Management Since the Transition –

The following problems, along with a shortage of materials and funds, have disrupted farm management of corporate farms:

[1] Inappropriate resources and management because of uneven division of the assets of the pre-transition farms;
[2] Poor asset management and the intrusion of the government because of the continued existence of government owned agricultural property;
[3] Delays in improving management methods due to changes in the form of agriculture;
[4] Reluctance of investors to invest because of uncertainty over ownership of land and assets; and
[5] Weakened management because of the appearance of minor shareholders.

Although the number of animals reared by nomadic herders, on the other hand, has increased with the privatization of animal husbandry, the collection and shipping of agricultural products, miscellaneous services, and the provision of information formerly handled by the negdel are no longer provided.

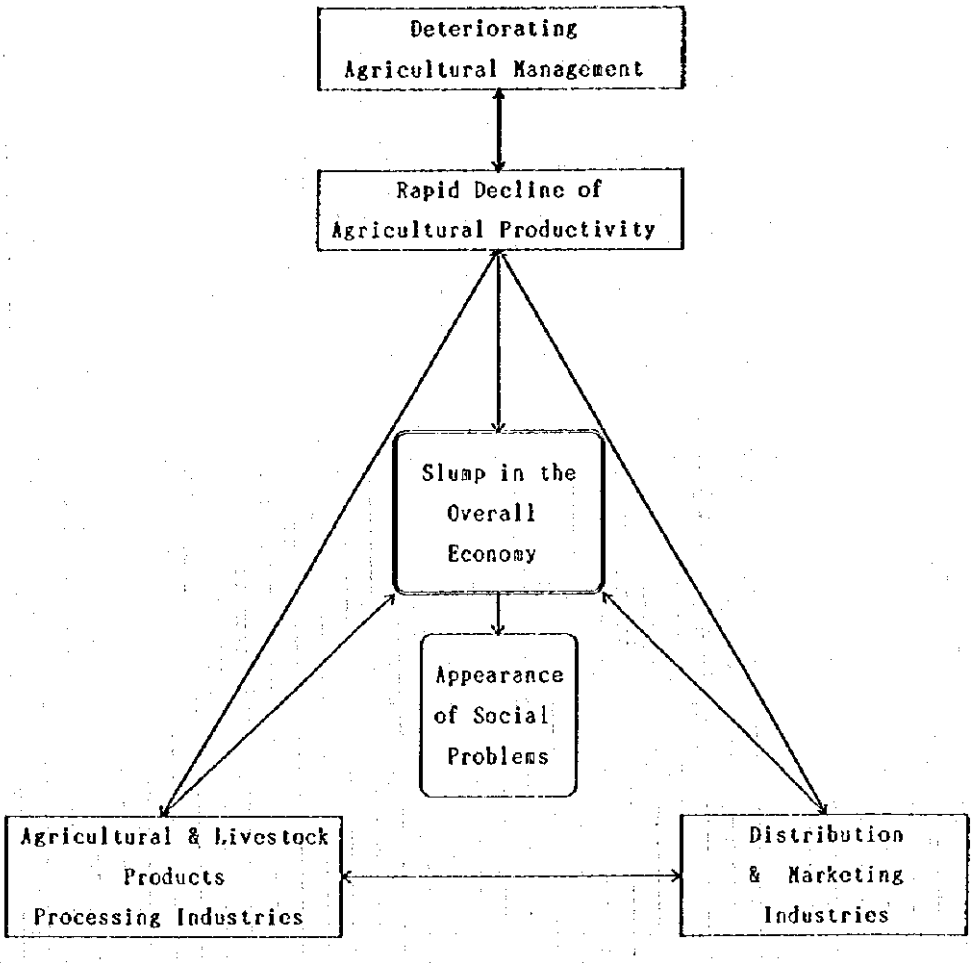
– Agriculture and Related Industries –

The decline of agriculture has been an important factor leading to various adverse macroscopic effects. The transition to a market economy has resulted in an abrupt decline in agricultural production, a deterioration in the quality of agricultural management, as well as a decline in related processing industries and the distribution industry. These industries are closely interdependent of each other, such that the deterioration of any one industry has a negative impact on the others, which in turn only serves to worsen that industry even further.

An escape from this vicious circle requires not only internal improvements to agriculture, but well-balanced improvements in related external factors. Improvement of the state of agriculture and related industries will not only improve these industries themselves, but will contribute to bringing about significant improvements in the social and economic life of Mongolia as a whole.

Most of the investment (78%) to be made under the government's public investment plan (1995 to 1998) will be devoted to the more immediate fields of energy, transportation, and communication which constitute the social and production infrastructure of the country. The weight being given these areas is quite large compared with the 10% that will be spent on agriculture, 7% on industry, and 5% marked for social investment.

Figure S-1 Agriculture and the Overall Economy



– Agriculture in the Study Area –

The central region of Mongolia, which is the target of this survey, elsewhere referred to in this report as the Survey Area, has the following major characteristics.

[1] It includes the capital Ulaanbaatar and is the political and economic heart of the country.

[2] One condition for its socio-economic stability is a supply of food to its inhabitants, who account for about 50% of the entire population.

[3] It is an agricultural production zone comprising 65% of Mongolia's cultivated land, and is the source for 74% of the country's grain and 80% of its vegetable production.

[4] It is a center of intensive animal husbandry including dairy, poultry, and swine production.

[5] It is the center of the agricultural distribution and processing industries.

For these reasons, the enhancement of agricultural productivity in the Survey Area will have a major impact on development in the country as a whole.

2.2 Factors Obstructing Agricultural Development

With the exception of the long-established animal husbandry industry which mainly consists of traditional nomadic stock-raising, the productivity of cultivators and modern fixed animal husbandry have both declined sharply. Production of the staple product wheat is off by more than 30%, while that of processed farm products is down more than 70%. The reasons for this severe fall in production include a decline in the area of land under production, falling unit yields, and a withdrawal of crops from production as a result of worsening management. However, a closer look at the factors behind these problems reveals the existence of many related internal and external causes. Almost all of these negative factors appeared after the transition to a market economy.

1) Factors Caused by the Transition Process

Major causes contributing to the problems described above include declining financial resources of the national and regional governments, elimination of subsidies, a lack of clarity concerning the responsibilities of organizations with regard to the administration and support of agriculture, the lack of a viable financial system, high interest rate policies, a reduction in the money supply, and the collapse of organizations to help producers.

2) Shortage of Human and Knowledge Resources

A number of human resources related challenges are also facing the country. These include such things as a shortage of personnel able to deal with a market economy, slow development of high productivity technology, a shortage of management know-how and other knowledge resources, a lack of organizations involved in the training of personnel and the development of technology needed to overcome these problems, and a lack of funding for such organizations.

3) Shortage of Material Resources

Problems in the area of material resources include a shortage of seeds, fertilizers, fuel, and other input materials because of a shortage of foreign currency and the collapse of

distribution systems, soaring prices for such input materials, deterioration of machinery and facilities, as well as a shortage of spare parts, and similar factors.

4) Related Fields: Insufficient Resources and Fragility

Other related areas needing to be addressed include the chaotic condition of the transportation system, soaring transportation costs, falling demand for resources, delays in payments for resources as a result of the weakness of related industries, deterioration of roads, energy, communication, information gathering and dissemination services, as well as various other aspects of the social and economic infrastructure.

These problems act to impede the growth of agriculture at the same time they restrict development. Other unalterable factors such as the cold climate, shortage of rainfall, and other natural conditions, along with the extremely low population density characteristic of the country, reduce the possibility of expanding agriculture by, for example, restricting the choice of crops and the ability of farmers to increase unit yields. These factors also hamper development by limiting the effectiveness of investments in development.

Figure S-2 Factors Obstructing the Development and Expansion of Agriculture in the Study Area

Position of the Study Area	
Population	Home to 50% of the total population of Mongolia.
Wheat Production	Source of 74% of total production
White Potato Production	Source of 78% of total production
Processed Meat:	Location of 75% of Mongolian meat processing capacity

Phenomenon

Fall in Agricultural Productivity (Nationwide)			
	1989 (a)	1993 (b)	Ratio b/a
Wheat Production	686,900t	450,200t	0.66
White Potato Production	155,500t	60100t	0.39
UB Dairy Plant Production Volume	39,657t	9,742t	0.25
Egg Production (mill)	35.8	10.0	0.28
Volume of Meat Exported	30,500t	7,100t	0.23

Cause

<Crop Cultivation>
[1]Fall in cultivated land
[2]Fall in irrigated land
[3]Fall in unit yields
[4]Deterioration of farm management

<Processing, Distribution>
[1]Fall in volume of processed products
[2]Decline in product quality
[3]Deterioration of plant management
[4]Delays in payments to agricultural households

<Animal Husbandry>
[1]Fall in dairy, swine, and poultry production (Increase in nos. of five species*)
[2]Deterioration of intensive livestock management

Factor

Shortage of Human and Knowledge Resources
[1]Shortage of personnel
[2]Insufficient systems for training of personnel
[3]Shortage of technology and know-how

Shortage of Funds

Shortage of Material Resources
[1]Shortage of seeds, fertilizer, and other input materials
[2]Deterioration of facilities and machinery
[3]Shortage of spare parts

Insufficient Systemic Support
[1]Insufficient administrative systems
[2]Insufficient financial systems
[3]Insufficient agricultural support systems

Natural Conditions
[1] Cold and dry
[2] Vast size of the national land (Inefficient for investment)

Related Fields: Insufficient Resources and Fragility
[1]Lack of transportation facilities
[2]Underdeveloped and deteriorated related industries
[3]Insufficient social infrastructure

* The five species consist of horses, sheep, goats, cattle and camels which together comprise the major types of livestock in Mongolia.

3. Comprehensive Agriculture and Rural Communities Development Plan

3.1 Development Objectives and Basic Guidelines

An analysis of the factors causing social and economic stagnation and deterioration in present-day Mongolia reveals that many external and internal factors related in complex ways are contributing to the challenges being faced by the country. Thus, in order to find methods and strategies that best address these problems, it will be necessary to implement an approach that looks at the issues from many angles, not simply that of the agricultural sector.

The section above outlined the factors obstructing the development and growth of agriculture and agricultural communities. Ultimately many of these problems are systematic and are socio-economic infrastructure problems caused by the introduction of a market economy. They cannot be resolved by internal measures alone to achieve overall development of agriculture and agricultural communities. The purpose of this Plan, therefore, is to present a coordinated strategy for effectively addressing these challenges.

Consequently, this Plan will focus on internal factors related to agriculture and agricultural communities that can be dealt with subjectively (personnel and knowledge resources and physical resources). Given the role of agriculture as the core of the country's productive economy, the goals of this Plan are intended to contribute to the resolution of the key social and economic problems currently afflicting Mongolia.

3.2 Development Plan Goals

1) Development Plan Goals

(1) Plan Target Year

The target year for the achievement of the goals of the Plan is set as 2010 because, given the present conditions in Mongolia, it will take a relatively long time for the effects of regional development to appear and become firmly established. Further, the target year for the structural adjustment policies proposed by the IMF and other organizations is also 2010, and the National Development Agency is currently in the process of enacting a National Development Plan to achieve this target.

(2) Development Goals

Development goals under the Plan are aimed at achieving the following aims:

[1] Guarantee the nutritional level of the population and boost the country's self-sufficiency in foodstuffs by increasing agricultural production and improving productivity.

[2] Improve agricultural household incomes and correct the imbalance in cultural amenities and incomes between urban and agricultural communities, relieve poverty, and reduce unemployment rates.

[3] Enhance productivity of farm products needed to replace imports, and stimulate exports of animal husbandry products.

(3) Food Supply Goals

The primary goal with regard to the supply of food is to provide enough food for a balanced diet for an estimated population of 1.5 million persons in the Study Area by raising the caloric intake per adult from the low of 1,962 kcal/day in 1993 to 3,200 kcal/day, the nutritional standard set for the population, by 2010 (Table S-4).

Table S-4 Targeted Production and Demand of Staple Foods

Item	Unit	Consumption in 1989 (State)	Target Values for the Year 2010				
			Demand		Production		
			Nation	Study Area (a)	Nation (Assumption)	Study Area (b)	Balance (b)-(a)
Population	Thousand	2,100	3,000	1,500 (50.0%)			
Meat and Meat Products	Thousand tons	196	255	115 (45.1%)	273 <107.1%>	73 (26.7%)	-42 < 63.5%>
Milk and Milk Products	Thousand tons	253	762	321 (42.1%)	822 <107.9%>	264 (32.1%)	-57 < 82.2%>
Wheat	Thousand tons	496	695	446 (64.2%)	732 <105.3%>	483 (66.0%)	37 <108.3%>
Flour	Thousand tons	221	314	156 (49.7%)	314 <100.0%>	179 (57.0%)	23 <114.7%>
Vegetable	Thousand tons	45	191	98 (51.3%)	192 <100.5%>	122 (63.5%)	24 <124.5%>
Sugar	Thousand tons	50	72	37 (51.4%)	19 < 26.4%>	19 (100.0%)	-18 < 51.4%>
Calories required per day	Kcal	2,600	3,200	3,200			

2) Development Strategies by Region and by Category

(1) Basic Development Strategy

The basic development strategy seeks to increase agricultural productivity by maximizing the potential of each region, and stimulate local industries that depend on the efforts and ingenuity of people in outlying regions.

(2) Development Strategies by Category

An outline of the development strategies to be pursued is presented below by category.

A. Crop Cultivation Category: Stimulate crop cultivation, particularly in Selenge and Tov Aimags and northern Ovorhangai Aimag where much land is used for raising crops.

A1. Stimulation of irrigated intensive agriculture.

Establish vegetable and fruit growing production centers including greenhouse cultivation close to the large cities of Ulaanbaatar, Darkhan, etc.

A2. Stimulation of irrigated industrial crop agriculture

Provide a domestic production system for sugar and vegetable oil in irrigated regions in Selenge and Tov Aimag and northern Ovorhangai Aimag.

A3. In all crop-growing regions except for irrigated areas, improve and expand their role as stable food supply centers for providing grains, white potatoes, feed, green manure crops, etc., and as animal husbandry feed supply centers.

B. Animal Husbandry: The Plan addresses traditional nomadic herding on grasslands and intensive animal husbandry separately.

B1. Stimulation of intensive animal husbandry

Increase the supply of milk, eggs, and other animal husbandry products, and stimulate dairy, swine, poultry, and other forms of intensive animal husbandry close to both large and core regional cities such as Ulaanbaatar, Darkhan, Erdenet, Arvaikheer, and other cities.

B2. Traditional Nomadic Herding

Establish a sustainable system for animal reproduction and increased productivity, particularly in the central and southern parts of Bulgan and Ovorhangai Aimag.

(3) Environmental Considerations

Attention needs to be given to the following environmental matters.

[1] Preservation of natural environment conservation areas and restriction of new farm development.

[2] Development of irrigation facilities taking into account the preservation of aquatic plant and animal life and the provision of water for the regional inhabitants.

[3] Agricultural land preservation along with the planting of wind-break groves as practices to improve farming.

[4] Measures to process the animal waste produced at dairy, swine, and poultry farms and the effective use of this material as an organic resource.

3) Land Use Plans

Land use plans are to be developed taking the national land policy of the Mongolian government into careful consideration. This policy sets forth land regulations that reflect urbanization and industrial land trends while at the same time help to preserve the natural environment. The proposed land use plans aim at securing sufficient amounts of agricultural land for achieving required levels of agricultural and animal husbandry production by the target year within the context of national land policy.

Table S-5 Land Use Program for 2010

(Unit: 1000 ha)

	Selenge & Darkhan-Uul	Tov & Ulaanbaatar	Bulgan & Orkhon	Ovorhangai	Total
Arable land	335	300	111	41	787
Grassland ①	1,976	4,962	2,974	5,956	15,868
Forest areas	1,821	1,284	1,415	212	4,732
Area of land to be used as a grass resource ②	(270)	(190)	(390)	(50)	(900)
Urban & Industrial areas	52	53	83	22	210
Natural Environment Protection areas	28	727	2	20	777
Other areas	231	549	373	38	1,191
Area of land to be used as a grass resource ③	(40)	(430)	(170)		(640)
Total	4,443	7,875	4,957	6,290	23,565
Area of land to be used as a grass resource ①+②+③	2,286	5,582	3,534	6,006	17,408

4. Improvement of Government Financial Systems

A number of studies have been conducted and proposals offered from various points of view by a number of donor countries and international organizations regarding the government financial systems to be introduced after the transition of the Mongolian economy to a market economy. A summary of the principal systemic improvements that have been proposed thus far is presented below.

1) Principal Improvement Proposals

(1) Reform of the Organization of MOFA

It is necessary to reform the organization of MOFA so that it is more in line with its basic purpose, namely to contribute to the independence of agricultural families and companies by nurturing the willingness of individual agriculturists to improve their farming practices through the dissemination of information and advice, elimination of impediments, and by providing the best possible income and benefits.

(2) Related Agencies

Agencies involved in the improvement of seed and domestic livestock, etc., are to establish commercially based operations in preparation for future privatization. Responsibility for overseeing the operations of government owned companies will be transferred to the Ministry of Finance, responsibility for the development and promotion of agricultural products to the Ministry of Trade and Industry, and responsibility for the management of stocks of food and feed for emergency use to the Ministry of Finance and other ministries.

(3) Land Policies

Responsibility for administrative matters related to the use and rental of land under the National Land Law, including responsibility for its implementation at the regional government level, will be shifted to the Ministry of Nature and the Environment.

(4) Social Development in Agricultural Communities

Local regions will take responsibility for the social development of agricultural communities based on national policy and its framework by concerned central government bureaus. Responsibility should only be vested in the MOFA in the case of policies involving agricultural productivity or market activities. Agricultural community development will be coordinated by establishing cooperative organizations or management groups at the regional or Aimag levels.

2) Opinion of the Survey Team Regarding Systemic Improvements

In order to establish a stable market economy, it is necessary to develop both unique as well as widely applied policies and methods for achieving structural adjustment which take into consideration the special characteristics of Mongolia. Excessive reduction in the scale of government or restrictions on investment would hamper economic growth. In addition, all new systems must account for the national character of the people of Mongolia, including their customs and their way of thinking.

5. Agricultural Development Plan

1) Guidelines for Stimulating Crop Production

A summary of the principal problems currently facing Mongolia are outlined below by major area.

– Principal Problems Currently Facing Mongolia –

[1] Crop Productivity

a. Deterioration of corporate farming and reduction in the area of cultivated land.

b. Shortage of supplies of seeds, fertilizer, and other production input materials.

c. Shortage of irrigated agriculture technology and of technicians in this field.

d. Inefficient operation of deteriorated irrigation facilities.

[2] Distribution and Processing

a. Insufficient collection of raw materials for processing and deterioration of plant operations.

b. Disorganization and lack of capacity of the distribution system.

– Stimulation Guidelines –

Proposed guidelines to address the above challenges are presented below.

[1] Improvement of the land use rate of existing cultivated land and enhancing the productivity of the land.

[2] Cultivation of improved varieties of crops in order to obtain higher yields as well as crops resistant to disease, pests, and cold, in addition to stable high unit yields.

[3] Promotion of imported replacement crops; increased production of sugar beet and rape seed.

[4] Encouragement of the development and introduction of new crops to meet the diversifying needs of the population.

[5] Planning the establishment of new distribution and processing facilities in outlying regions.

2) Cropping System and Production Plan

The cropping system and production plan will be prepared taking account of the amount of cultivated land and population in each Aimag, distance from consumers, and the location of processing plants. The production of vegetables and other perishable foodstuffs will be located near major urban areas, while the production of agricultural products to be used as raw material by processing plants will also be located near urban centers depending on the scale of the processing plants. The plan will be implemented

by adjusting the amount of land used to grow each product in conformity with the cropping system.

The principle crops will consist of grains (wheat, barley, oats, and rye), white potatoes, vegetables (cabbage, carrots, onions, turnips), and fruit (chattsurugana), along with other existing products. Sugar beet production will require considerable financial and technical support from concerned government agencies until production and processing technology and a farm operation system can be introduced. The cropping system will be changed from one crop every two years, including one fallow season, to between two and four crops every four years. In addition, a crop rotation system adapted to the characteristics of gramineous crops, root crops, leaf vegetables, legumes, etc. will be introduced.

The planned unit yields have been determined based on comprehensive judgments made based on test data from the Agricultural Research Institute in Darkhan, international unit yields and trends, and the feasibility of improvements to production management technology in Mongolia.

Table S-6 Land Use and Crop Planting Plan by Aimag

(unit: ha)

Aimag	Selenge & Darkhan-Uul	Tov & Ulaanbaatar	Bulgan & Orkhon	Ovorhangai	Study Area Total
Arable land	335,000	300,000	111,000	41,000	787,000
Irrigated	12,300	3,100	5,100	4,500	25,000
Planted area	227,440	201,040	75,700	28,830	533,010
Cereals	147,750	147,500	37,440	11,510	344,200
Potatoes	3,850	7,050	820	540	12,260
Vegetables	4,200	1,500	640	490	6,830
Sugar beet	2,600	350	1,000	1,050	5,000
Oil crops	1,100	200	500	510	2,310
Fruits	400	300	0	0	700
Fodder crops	67,540	44,140	35,300	14,730	161,710
Fallow land	107,560	98,960	35,300	12,170	253,990
Planted rate %	68	67	68	70	68

3) Production Infrastructure Improvement Plan

(1) Irrigation Development Plan

Under this Plan, the fifteen year period between now and the target year of 2010 is divided into two stages. During the Stage 1, which extends to 2000, a total of 12,000 hectares of irrigated land, corresponding to half of the total 25,000 hectares called for in the irrigation improvement plan, will be improved. An Irrigation Technology Development Center will be established for the purpose of developing irrigation and crop farming technology as well as to train specialists in this field in order to encourage the spread of irrigated agriculture. Beginning in the second stage between 2001 and 2010, irrigation technology that has been developed will be employed to provide an additional 13,000 hectares of irrigated land.

(2) Agricultural Land Preservation Plan

Measures based on the rotation system of farm operation are to form the foundation of land preservation. The degree of soil loss is to be categorized as being "weak," "medium," or "strong". A combination of measures will be implemented including the fallow system, covering the ground with residue from wheat harvesting, plowing-in, growing and plowing-in manure crops, the introduction of contour farming, and the planting of wind break trees depending on the category and degree of soil loss, as appropriate.

4) Agricultural Management Improvement Plan

Seven types of farm management models will be established in the Study Area, based on a cropping and production plan, labor division plan, machinery utilization plan, financing plan, and farm income - expenditure trial calculations, amongst others. The net profit ratio for the various farm management models is to be set between 2% and 36%, while the gross net profit per hectare by crop will be within a range of 34,000 to 1 million Tg.

The wheat farming model is planned to consist of 2,500 hectares and 500 hectares of non-irrigated land, respectively. One crop will be harvested every two years, with new seeds used each year.

Vegetable farming on exposed fields will be carried out by planting one crop per year of stable-demand vegetables such as cabbage, onions, turnips, carrots, and garlic on 140 hectares of irrigated fields. These crops will be rotated in four to five year cycles so as to avoid problems caused by continuous planting of the same crop and reduce the accompanying risks to farming operations.

Indoor vegetable cultivation will be conducted throughout the year in three hectares of irrigated glass greenhouses supplied with surplus hot water from a thermal power plant. Typical products produced at this facility will consist of tomatoes and cucumber, and the growing period will be eleven months with one month set aside for maintenance.

Fruit growing plans call for chattsurugana, raspberries, and black currents to be cultivated for 20 years on a 50 hectare irrigated field.

Potato farming will provide 1 crop every 2 years with one year fallow on a 600 hectare field without irrigation facilities. Combined production of potatoes and wheat will be carried out on a 2,640 hectare field without irrigation facilities. Every two years, one crop will be harvested and the field will be left fallow one year. The use of agricultural machinery and other facilities is planned as a way to reduce production costs.

5) Agricultural Product Distribution Plan

(1) Grain (Wheat)

This Plan focuses on wheat, the most important grain produced in Mongolia. The Plan is based on the forecast that the central region will consume 50% of all wheat consumed in Mongolia in the year 2010, that wheat will be supplied to regions where it can not be cultivated, and that it will also be used as raw material for alcohol production, as well as be fed to domestic livestock.

Table S-7 The Marketing and Processing Plan for Wheat

(Unit: tons)

Category \ District	Selenge & Darkhan-Uul	Tov & Ulaanbaatar	Bulgan & Orkhon	Ovorhangai	Study Area (Total)
Production Volume (grains)	253,200	251,100	67,500	23,000	594,800
For seed, Self-consumption, Losses, etc.	47,500	47,200	12,600	4,000	111,300
Supply Volume (grains)	205,700	203,900	54,900	19,000	483,500
For Flour Plants			(-2,900)	(2,900)	
Need for raw material (grain)	131,500	66,000	25,400	21,900	244,800
Flour production volume (1)	96,000	48,200	18,500	16,000	178,700
Flour demand in district (2)	26,500	96,000	18,500	15,300	156,300
Balance (1)-(2)	69,500	-47,800	0	700	22,400
To Tov/Ulaanbaatar district	(47,800)				(47,800)
To other regions	21,700			(700)	22,400
Formula feed production	60,400	94,600	26,600		181,600
Food processing & export	13,800	43,300			57,100

(2) Fruit

The Plan for the distribution and processing of fruit products will place priority on supplying urban residents in Ulaanbaatar and other cities having a high concentration of population. With regard to vegetables, since it will be necessary to establish a sales system in conjunction with the creation of the production system, the Plan call for the encouragement of the formation of wholesale companies and the establishment of a public wholesale market. Some fruit must be imported, but domestic production will be expanded as much as possible, and the technology needed for simple processing to make jams and juices will be established and popularized.

6) Program and Project Positioning Within the Master Plan

A list of the priority items within the Master Plan concerned with the Agricultural Development Plan is presented below.

– Priority Items –

(1) Technical Development and Personnel Resource Development
  [1] Irrigated Agriculture Technology Development Project
  [2] Farmland and Preservation Measures Model Demonstration Project
  [3] Agricultural Research Cooperation Project
  [4] Agricultural Weather Observation System Improvement Project

(2) Stable Improved Seed Provision
  [1] Seed Multiplication and Provision Project

(3) Rehabilitation of Irrigation Facilities
  [1] Basic Irrigation Facility Rehabilitation Project
  [2] Battsunberu Irrigation Facility Rehabilitation Project
  [3] Harhorin Area Rehabilitation Project
  [4] Hydrological Observation System Improvement Project

(4) Agricultural Management Improvement
  [1] Farmland Management Improvement Demonstration Model Project

(5) Processing and Distribution System Improvements
  [1] Greens Wholesale Market Development Project
  [2] Agricultural and Livestock Farming Products Distribution and Processing Support Program

6. Livestock Development Plan

1) Guidelines for Stimulating Livestock Production

– Principle problems at this time –

[1] Intensive animal husbandry

a. Deteriorating management at corporate farms and reduction in their scale of operations.

b. Shortage of technology and technical experts engaged in intensive animal husbandry.

[2] Nomadic herding

a. No established systems to support nomadic herders.

b. Deteriorated wells have ceased functioning.

[3] Distribution and processing

a. Insufficient raw materials are collected.

b. Reduction in the volume of animal products supplied to urban centers.

– Stimulation Policies –

[1] Stable supplies of milk, pork, and eggs to urban residents.

[2] Development of medium and small scale farm units with emphasis on costs.

[3] Sustained and efficient use of grasslands.

[4] Improved quality of animal husbandry products.

[5] Systematic establishment of new distribution and processing facilities in outlying regions.

2) Domestic Livestock Breeding Plan

[1] The number of the five livestock species raised will, considering the productivity of grassland, etc., reach 6.4 million head under the Plan, an increase of 5% over 1994.

[2] There will be 40,000 head of dairy cattle, returning back up to 1990 levels.

[3] The swine population target is 34,300 head, or 1.6 times as many as there are now, and encouragement will be given to medium-scale raising of different varieties of pigs introduced from overseas as well as to small-scale production of existing varieties.

[4] More hens will be bred in order to meet anticipated future increases in demand for eggs. The planned hen population is 280,000, or the same number as in 1990.

Table S-8 Projected Numbers of Livestock Under Livestock Breeding Plan (2010)

(Unit: 1000 head)

Species	Selenge & Darkhan-Uul		Tov & Ulaanbaatar		Bulgan & Orkhon		Ovorhangai		Total in Study Area	
	1994	2010	1994	2010	1994	2010	1994	2010	1994	2010
Cattle (Dairy Cattle)	120 4	126 9	247 12	300 28	209 1	209 2	236 1	236 2	812 18	870 40
Horses	49	49	246	236	158	158	222	222	676	665
Sheep	386	432	1,127	1,196	647	661	1,255	1,255	3,416	3,544
Goats	80	80	282	345	175	175	613	613	1,149	1,212
Camels	0	0	4	10	2	4	21	32	27	46
Total (Five species)	640	670	1,920	2,114	1,191	1,209	2,347	2,359	6,097	6,379
Pigs	11.2	17.2	5.9	9.8	3.2	5.8	0.9	1.5	21.2	34.3
Chickens	12.8	76.5	55.3	163.4	2.1	30.1	0.6	10.2	70.8	280.2

3) Livestock Production Plan

(1) Animal Husbandry Production

[1] Dairy Production: Make the best possible use will be made of milk of the 5 species reared by the nomadic herders and supplement supplies to city residents through the reconstruction of the dairy farming industry. Establish a system permitting the efficient and sanitary collection of milk produced by small scale dairy farms and nomadic herders. To achieve these goals, plan a milk production improvement project. The planned total milk production target is 264,000 tons per year.

[2] Meat Production: Productivity will be improved by upgrading the methods used to provide feed, promote swine raising to meet diversified meat demand, and improve management of the fattening of beef cattle. The projected total for meat production is 73,000 tons per year.

(2) Production Infrastructure Improvement

[1] Improved Intensive Livestock Raising Facilities: More effective use will be made of deteriorated and unused facilities along with the more effective use of animal excreta by providing facilities for processing livestock excreta.

[2] Drinking Water Facilities: More efficient use will be made of grasslands and the lives of the nomadic herders will be improved through the appropriate distribution of wells, and the establishment of facility maintenance systems by encouraging the

organization of the nomadic people. It will be necessary to dig 1,395 new wells and restore the functions of another 474 wells. The plan calls for the emergency restoration of wells at 151 locations in the south part of Ovorhangai Aimag, where well damage has been particularly severe.

4) Animal Husbandry Management Plan

Traditional nomadic herding is a superior technology perfectly suited to conditions in Mongolia, and this form of nomadic farming will be continued. A model plan for a nomadic herd with an average size of 100 heads will be prepared.

A model of a dairy farm with a herd size of 200 mature females will be prepared. A model of a medium size swine farm that will be established in the future, having about 30 mature females, will also be prepared. A model of a poultry farm with about 10,000 mature birds, a medium sized production unit that will be established in the future, will be provided as well. Other plans call for the promotion of combined livestock and cultivation farming in order to benefit from the joint use of livestock excreta and agricultural by-products, resolution of seasonal imbalances in farm labor requirements, and an increase in the income of farmers.

An Animal Husbandry Research Technology Development Project will be planned with the aim of contributing to technological development and the training of skilled personnel in the field of intensive livestock farming. Efforts will also be made to stabilize livestock farming.

5) Animal Husbandry Distribution and Processing Plan

(1) Milk

It is anticipated that in the target year, demand for milk nationwide will reach approximately 760,000 tons, with demand in the central region being about 320,000 tons. Demand from consumers in the capital, Ulaanbaatar, will account for 64% of this. In addition to milk provided by nomadic herders and dairy farms in the region, it will also be obtained from sources outside the Survey Area.

Table S-9 Marketing and Processing Plan for Milk

(Unit: tons)

Category \ District	Selenge & Darkhan-Uul	Tov & Ulaanbaatar	Bulgan & Orkhon	Ovorhangai	Study Area (S.A. Total)
Milk production (1)	35,600	111,900	49,000	67,900	264,400
Demand for milk (2)	59,900	178,100	42,200	41,000	321,200
Balance (1) – (2)	-24,300	-66,200	6,800	26,900	-56,800
Distribution					
To Selenge & Darkhan-Uul districts			(6,800)		
To Tov & Ulaanbaatar dist.				[26,900]	
Supply from within the Study Area	(6,800)	[2,900]			
Supply from other regions	17,500	39,300			56,800
New milk processing plants in main urban areas (planned)	Sukhbaatar 4,100 Darkhan 5,700	Ulaanbaatar 2,400 Zuunmod 4,300	Erdenet 2,800 Bulgan 3,400	Arvaiheer 2,600	

(2) Meat

It is anticipated that in the target year, the demand for meat nationwide will be approximately 255,000 tons, with demand in the Study Area expected to reach about 115,000 tons. As in the case of milk, meat will also be provided from other districts.

Table S-10 Meat Marketing and Processing Plan

(Unit: tons)

Category \ District	Selenge & Darkhan-Uul	Tov & Ulaanbaatar	Bulgan & Orkhon	Ovorhangai	Study Area (S.A. Total)
Meat production (1)	9,650	24,680	15,660	23,460	73,450
Demand for meat (2)	20,300	66,980	14,230	13,380	114,890
Balance (1) – (2)	-10,650	-42,300	1,430	10,080	-41,440
Distribution					
To Selenge & Darkhan-Uul district			(1,430)		
To Tov & Ulaanbaatar dist.				[10,080]	
Supply from within the Study Area	(1,430)	[10,080]			
Supply from other regions	9,220	32,220			41,440
New meat processing plants in main urban areas (planned)	Darkhan 1,200	Ulaanbaatar 1,200	Bulgan 8,200	Arvaiheer 2,700	

6) Program and Project Positioning Within the Master Plan

A list of the priority items within the Master Plan concerned with the Livestock Development Plan is presented below.

– Priority Items –

(1) Technological Development and Human Resources Development
  [1] RIAH Technology Development Project
  [2] Veterinary Research Institute Technology Development Program
  [3] Grassland Productivity Improvement Program

(2) Stimulation of Intensive Animal Husbandry
  [1] Milk Production Increasing Project
  [2] Intensive Livestock Farming Enterprises Development Program
  [3] Livestock Fattening Enterprises Development Project

(3) Support for Nomadic Herders
  [1] Herder's Water Supply Improvement Project
  [2] Portable Wind-powered Power Generator Promotion Project

(4) Milk Supply Stabilization
  [1] Milk Distribution and Processing System Enhancement Project
  [2] Milk Product Processing Plants Supporting Program

(5) Livestock Product quality
  [1] Agricultural and Livestock Farming Food Product Processing Technology and R&D Project
  [2] Food Products Hygiene Technology R&D Project

7. Agriculture Support Plans

1) Farm Family Support System Reinforcement Plan

(1) Plan to Improve Supply of Production Materials

An organization centered on the Darkhan Agriculture Research Institute will be established to carry out the integrated control of the propagation and distribution of seeds and seedlings needed for crop production. The Research Institute will be solely responsible for the development of improved varieties, the control of the propagation of breeding stock, the propagation of stock seed, and the propagation and distribution of cultivated seeds. Distribution to farms with seed production contracts will be handled by aimag and sum authorities. Sites for the seed propagation project will be selected. A supply and service system will also need to be established that can supply

farm equipment, spare parts, and production materials at reasonable cost. Moreover, farms should be organized through, for example, the establishment of Agriculture Cooperative Associations.

(2) Agricultural Financing System

The effective use of funds will be encouraged not only by promoting the reinforcement of the Food and Agriculture Fund System, providing funds through the use of KR, and direct financing from the fund, but also by incorporating interest supplements and credit guarantees for financing provided to farmers by ordinary banks.

(3) Agricultural Mutual Aid and Insurance System

A mutual aid and insurance system will be provided to protect principal agricultural products from fire and other disasters, regular payments by farmers will be reduced, a reinsurance system will be established for insurers, and compensation rates will be increased.

(4) Food Supply Stabilization System

The Wheat Fund and the Food and Agriculture Fund will be properly operated in accordance with the Food Law of 1995.

2) Farm Family Organization Promotion Reinforcement Plan

(1) Agriculture Cooperative Associations

Autonomous organizations will be established to handle the sale of agricultural products, information about the sale of agricultural products, to purchase production supplies and goods needed for daily life, to provide farm operating funds, and to disseminate and provide guidance concerning agricultural technology and farm operation. The organizations will promote the expansion of credit projects, mutual aid projects, utilization projects, and processing projects as the number of members and branch organizations increase.

(2) Agricultural Production Organizations

Organizations will be formed based on mutual aid projects carried out as part of production activities of individual corporations, and producers associations suited to a free-market economic system will be established.

3) Testing and Research System Reinforcement Plan

(1) Testing and Research Activities to be Enhanced

Priority will be given to the following principal research areas at the Agriculture Research Institute and the Animal Husbandry Research Institute in order to achieve substantial improvements in agricultural productivity.

[1] Improvement of plant varieties
[2] Agricultural chemistry
[3] Crop cultivation
[4] Agricultural machinery
[5] Improvement of domestic animals
[6] Animal feed
[7] Animal husbandry product processing
[8] Domestic animal diseases

(2) Improvement of Testing and Research System

The independent profitability system will be discontinued, national resources will be appropriated to provide funds for testing and research, and an organization capable of specializing solely in research activities needs to be reestablished.

At the same time that facilities, equipment, machinery, and materials needed to guarantee the smooth conduct of testing and research activities focusing on the principal research areas are provided, an organization will be established to systematically accumulate and use the results of these testing and research activities.

(3) Establishment of Human Resources Development System

The Agricultural Technology Training and Dissemination Center (tentative name) will be established,. Further, a comprehensive development system will be set up with the aim of acquiring and stocking basic testing and research knowledge as well as to offer training in applied technology.

Exchanges with other countries will be promoted, new knowledge and know-how obtained, and effective measures taken to train specialized technicians.

4) Technology Dissemination System Improvement Plan

A model agricultural technology dissemination system will be formed at the regional level. An area will also be chosen for the Agricultural Information Collection and Dissemination Reinforcement Project.

5) Program and Project Positioning Within the Master Plan

A list of the priority items within the Master Plan concerned with the Agricultural Support Plans is presented below.

– Priority Items –

(1) Systemic Improvement and Reinforcement
  [1] Agricultural Livestock Farming Financial System Program
  [2] Agricultural Livestock Mutual Relief and Insurance System Program
  [3] Food Supply Stabilization System Program

(2) Organizing the Farmers
  [1] Agricultural Livestock farming Cooperative, Formation Project

(3) Technology Promotion System Reinforcement
  [1] Agricultural Information System Improvement Project
  [2] Agricultural Livestock Farming Technology Training and Promotion Project
  [3] Agricultural Livestock Farming Technology Promotion System Development Project

8. Rural Infrastructure Improvement Plan

1) Road Improvement Plan

(1) Distribution Road Improvement Plan

This plan consists of implementing improvements to 1,110 kilometers of principal roads connecting agricultural product production districts, processing districts, and market areas.

(2) Agricultural Road Improvement Plan

This plan consists of improving 850 kilometers of connecting roads linking farming areas to national and aimag highways in counties with more than 5,000 hectares of land under cultivation. The improvements will involve the placing of a gravel surface.

(3) Agricultural Hamlet Road Improvement Plan

Improvements will be carried out on roads connecting county administrative offices with agricultural hamlets in farming districts.

2) Rural Electrification Plan

This plan calls for the electrification of farming communities: aimed at both fixed residents and nomadic herders in agricultural areas still without electricity.

3) Program and Project Positioning Within the Master Plan

A list of the priority items under the Master Plan concerned with the Rural Infrastructure Improvement Plan is presented below.

– Priority Items –

(1) Road Improvement and Maintenance
  [1] Distribution Road Development Project
  [2] Agricultural Road Improvement Project
  [3] Agricultural Hamlet Road Improvement Project
  [4] Rural Roads, Administration. Maintenance Center Project

(2) Electrical Supply Improvement Project
  [1] Agricultural Village Electric Power Supply Improvement Project

9. Stages of Program/Project Implementation Plan

1) Implementation of Stages of Implementation Plan

A. Stage 1 (To begin between the first half of 1996 and 2000)

[1] During Stage 1 of the Implementation Plan, efforts will focus on improving the country's financial administration, its financing systems, distribution system, and other institutions to provide the foundations for the implementation of the programs and projects set forth under the Master Plan.

[2] Attention will also be paid to enhancing testing and research facilities as well as provide organizations engaged in personnel resource development so that it will be possible to develop new crops and introduce new technology.

[3] Arrangements will be made for the implementation of urgent small- and medium-scale programs and projects that are expected to bring early beneficial results.

B. Stage 2 (To begin between mid 2001 and 2005)

[1] Stage 2 of the Implementation Plan consists of programs and projects aimed at providing the infrastructure necessary for large scale production and to establish distribution and processing related facilities.

[2] Programs and projects to reorganize farm management systems, personnel resource training, and to strengthen support systems will also be implemented at this time.

[3] Model agricultural village development programs and projects to reorganize regional economic systems.

C. Stage 3 (To begin between late 2006 and 2010)

[1] Stage 3 of the Implementation Plan focuses on programs and projects that seek to complete, improve, and renew the agriculture and rural infrastructure.

[2] It also includes programs and projects intended to lay the groundwork for the establishment of a technological renewal system for the coming years.

[3] Programs and projects will also be introduced to review the extent that the development goals have been achieved and to assess the effectiveness of the projects and programs.

10. Selection of Priority Projects

1) Priority Project Selection Criteria

The following six criteria have been established for determining the priority of each project.

[1] Urgency

[2] Temporal priority (it must precede other projects)

[3] Its value as a model for other projects

[4] Its public nature

[5] Its role as an implementation control and maintenance system

[6] The degree that it overlaps with other projects

A three-stage evaluation of the projects was carried out based on these criteria in order to select the final priority projects.

2) Selection of the Priority Projects

Seven priority projects have been selected as priority projects to be implemented before the programs and projects to be carried out as Stage 1 projects. The following are the priority projects selected in this manner.

[1] Seed Multiplication and Provision Project

[2] Irrigated Agriculture Technology Development Project

[3] RIAH Technology Development Project

[4] Herder's Water Supply Improvement Project

[5] Milk Production Increasing Project

[6] Agricultural Information System Improvement Project

[7] Veterinary Research Institute technology Development Project

11. Project/Program Implementation and Management System

1) Implementation Schedule

An implementation schedule will be prepared for the programs and projects which should commence during Stage 1. During Stages 2 and 3, it will be necessary to assess the early status and progress of Stage 1 projects/programs and coordinate as well as plan each one accordingly.

2) The Implementation Control Organization

(1) Obtaining and Nurturing Human Resources

In order to enhance the organizations that will be active in implementing the various projects and programs, a wide range of qualified personnel must be obtained with the support of a partially private and partially public organization under the jurisdiction of the MOFA along with the assistance of personnel in national agricultural colleges and research institutes. Personnel exchanges will also be conducted with other concerned government ministries.

(2) National Budgetary Support Measures

It will be necessary for the Mongolian government to enact the budgetary measures necessary to carry out the proposed projects.

(3) Establishment of Organizations to Accept Aid

It will be necessary for the roles of the organizations (government ministries, agencies) receiving aid to be carefully allotted, responsibility divided among various departments within these ministries, and the distribution of roles at the aimag and county level clarified.

(4) Establishment of Project Implementation Bodies

A promotion body (Project Promotion Committee) will need to be established to oversee the smooth implementation of the projects, along with implementation groups for each project formed under this committee to actually conduct each project.

12. Maintenance Organization for Each Facility Category

1) Irrigation Facilities

The government will continue to own 51% or more of principal irrigation facilities in the country providing water to 500 hectares or more of land. However, the range of facilities included among principal irrigation facilities will need to be clearly stipulated.

The way in which responsibility for improvement projects is to be apportioned will be clarified, and irrigation associations organized to maintain the facilities at their own expense.

2) Facilities to Supply Water in Nomadic Herding Regions

Maintenance associations organized in each sum by the MOFA and aimag authorities will maintain these facilities.

3) Rural Roads, Etc.

Rural road maintenance centers will be established in each aimag and city to maintain rural roads, etc.

13. Priority Projects

The following is an outline of seven priority projects that must be completed quickly in order to contribute to the development of agriculture and rural areas in the Survey Area by the year 2010.

1. Seed Multiplication and Provision Project
(1) Details: Financial Assistance ([1] Provision of seed propagation nurseries, [2] Improvement of laboratory facilities [3] Construction of facilities, [4] Introduction of equipment, machinery, etc.) Technical Assistance ([1] Dispatch of experts, [2] Overseas training of trainees)
(2) Implementing Organization: Plant Science and Agricultural Research Institute (PSARI)
(3) Responsible Ministry: MOFA and MSE
(4) Beneficiaries: Plant Science and Agricultural Research Institute and Cultivators.
(5) Approximate Project Costs: U.S. $12,800,000
(6) Project Evaluation: FIRR = 11%, EIRR = 13%
2. Irrigated Agriculture Technology Development Project
(1) Details: Financial Assistance ([1]Construction of a technology center, [2] Development of a trial field, [3] Introduction of machinery, etc.) Technical Assistance ([1] Dispatch of experts, [2] Overseas training of trainees)
(2) Implementing Organization: Crops , Machinery and Irrigation Department
(3) Responsible Ministry: MOFA and MSE
(4) Beneficiaries: Cultivators practicing irrigated agriculture (About 1,000 households in the Study Area)
(5) Approximate Project Costs: U.S. $2,100,000
(6) Project Evaluation: FIRR = 13%, EIRR 16%
3. RIAH Technology Development Project
(1) Details: Financial Assistance ([1] Provision of barns [2] Provision of testing and processing facilities, [3] Introduction of Machinery, etc.) Technical Assistance ([1] Dispatch of experts, [2] Overseas training of trainees)
(2) Implementing Organization: Research Institute of Animal Husbandry (RIAH)
(3) Responsible Ministries: MOFA and MSE
(4) Beneficiaries: RIAH, university students specializing in animal husbandry, animal husbandry specialists, farmers practicing intensive livestock raising.
(5) Approximate Project Costs: U.S. $5,100,000
(6) Project Evaluation: FIRR = 3%, EIRR = 25%
4. Herder's Water Supply Improvement Project
(1) Details: Financial Assistance ([1] Water resource survey, [2] Construction and improvement of wells, [3] Construction of water supply facilities, [4] Introduction of machinery, etc., [5] Reorganization of maintenance associations) Technical Assistance ([1] Short-term dispatch of experts, [2] Overseas training of trainees)
(2) Implementing Organization: Ovorhangai Aimag
(3) Responsible Ministry: MOFA
(4) Beneficiaries: Nomadic herdsmen in Tugrug Sum, Guchin-us Sum, and Bogd Sum
(5) Approximate Project Costs: U.S. $17,100,000
(6) Project Evaluation: EIRR = 5%
5. Milk Production Increasing Project
(1) Details: Financial Assistance ([1] Provision of central dairy farms, [2] Provision of milk collection and shipping facilities, [3] Establishment of a milk producers association) Technical Assistance ([1] Dispatch of experts, [2] Overseas training of trainees)
(2) Implementing Organization: Milk Producers Association
(3) Responsible Ministry: MOFA
(4) Beneficiaries: Dairy farms which will be members of the milk producers association
(5) Approximate Project Costs: U.S. $12,500,000
(6) Project Evaluation: FIRR = (12%), EIRR = 8%
6. Agricultural Information System Improvement Project
(1) Details: Financial Assistance ([1] Wireless communication facilities, [2] introduction of machinery, etc.) Technical Assistance ([1] Dispatch of experts, [2] Overseas training of trainees)
(2) Implementing Organization: MOFA, Six Aimags and one city
(3) Responsible Ministry: MOFA
(4) Beneficiaries: Corporate farms and nomads
(5) Approximate Project Costs: U.S. $1,200,000
7. Veterinary Research Institute Technology Development Project
(1) Details: Financial Assistance ([1] Improvement of institution, [2] introduction of machinery, etc.) Technical Assistance ([1] Short term dispatch of experts, [2] Overseas training of trainees)
(2) Implementing Organization: Veterinary Research Institute
(3) Responsible Ministries: MOFA and MSE
(4) Beneficiaries: Veterinary Research Institute, university students specializing in animal veterinary, animal veterinary specialists, and stock farmers

Note: None of these projects will harm the environment.

14. Conclusions and Proposals

1) Conclusions

The Government of Mongolia, donor nations, and international organizations all agree that up to 2010, the expansion of the economy of Mongolia should focus on agriculture, agriculture related processing industries, and mining. The Study Area is the social and economic heart of Mongolia and the area where these industries are concentrated. Consequently, the development of agriculture and agricultural communities in this region is expected to trigger the recovery and growth of the Mongolian economy, which is now in a severe slump, and serve to attract development capital to the country.

To deal with these conditions, this Master Plan was prepared in cooperation with MOFA in line with the Agricultural Community Development Policy Guidelines enacted by MOFA. The plan was prepared from the results of surveys and analysis projects conducted by numerous donor countries and international organizations and based on proposals offered by these countries and organizations.

The Master Plan, which encompasses the strategies and policies necessary to develop agriculture and agricultural communities in the Study Area, has been prepared as a model plan whose implementation will have a major impact not only on the Study Area, but on Mongolia as a whole. For this reason, the projects and programs proposed in the Plan must be systematically implemented at an early date. We are looking forward not only to renewed efforts on the part of the Government of Mongolia, but to positive action from the donor countries and organizations as well.

2) Proposals

The following proposals concerning the implementation of the Master Plan have been offered.

(1) If the objectives of the Master Plan are to be achieved, the first step must be the improvement of financial systems, insurance, mutual aid associations, and other institutions necessary to support producers, and the government must act quickly to carry out these improvements.

(2) The Government of Mongolia and concerned aimag and cities should incorporate the programs and projects proposed in the Master Plan into their own development plans and undertake the preparatory work and acquisition of funds needed to get an early start on the projects and programs as quickly as possible.

(3) Selected priority projects should be carried out at an early date so that the experience gained can be applied to the implementation of successive projects included in the Master Plan.

(4) In order to implement the projects and programs smoothly, it will be necessary both to enhance the organizations implementing them and to provide them with the needed skilled personnel. To this end, steps should be taken to obtain these skilled persons not only at the MOFA, but at research institutes and other concerned organizations.

(5) In order that a comprehensive development plan such as this Master Plan be implemented as smoothly as possible, the MOFA should organize an effective integrated system including all concerned central and regional organizations.

CHAPTER 1 INTRODUCTION

1.1 Background

Mongolia has been undergoing a transition from the communist form of government, that had maintained since 1924, to a significantly more liberal approach to governance in the wake of the collapse of the former Soviet Union and the COMECON system. The government has been initiating liberalization measures such as the introduction of free elections based on a multi-party system and the establishment of a new democratic constitution. In the economic sphere, it is carrying out economic reforms aimed at promoting the transition to a market economy, including the privatization of national properties and the privatization of state-run enterprises. However, the nation's effort to make this transition rapidly has resulted in confusion in many areas, and has placed its economy into serious difficulties.

The central region of Mongolia is a very important food production and supply base for the metropolitan area. However, since the former Soviet Union has substantially scaled back its economic and technical assistance to Mongolia in recent years, agricultural production in Mongolia has dropped sharply due to a shortage of facilities, spare parts and production materials, resulting in an unstable food supply for the people.

Under such circumstances, in October 1992 the Mongolian government requested Japan to provide technical assistance in drawing up a comprehensive development plan for agriculture and rural areas, aimed at increasing and stabilizing the production of agricultural and livestock products by developing the infrastructure required for production such as water resources and irrigation facilities in Tov (including Ulaanbaatar) and Selenge (including the former city of Darkhan) Aimag.

The Japanese government conducted a study on the formulation of an agricultural sector project in September 1993, and presented a report to the Mongolian government regarding the background, details and objectives of the study. The Mongolian government then indicated that it wanted Japan to conduct a study to propose a master plan for comprehensive agricultural and rural development in four aimag: Bulgan (including the former city of Erdenet) and Ovorhangai aimags, which are additionally included, and the above-mentioned aimag of Tov and Selenge. In response to this additional request, Japan sent a preliminary survey team to the region in March 1994, and concluded a summary of the scope of work (S/W) to be done for carrying out the master plan study.

After that, Mongolia modified its local administrative organization in April 1994, and elevated the former cities of Darkhan and Erdenet to the status of aimags (provinces), renaming them as Darkhan-uul and Orkhon Aimag, respectively. Therefore, the final study area includes these two additional Aimag together with the above-mentioned four Aimag (a total of six Aimag) and the city of Ulaanbaatar.

1.2 Objectives

The objectives of this Study are to formulate a plan (hereafter called the "Master Plan") for the comprehensive agricultural and rural development to be carried out in Selenge, Darkhan-uul, Tov, Bulgan, Orkhon and Ovorhangai and the city of Ulaanbaatar in Central Mongolia. This region has a total area of 235,000 km^2, and is referred to as the "Study Area" in both the Study and Master Plan. Another major objective of the Study is to facilitate the transfer of technology and technical skills necessary for preparation of the Master Plan to those members of the various ministries of the Mongolian government working jointly with the Study Team (hereinafter referred to "counterpart personnel" or "counterparts") during the course of the Study.

1.3 Relation of the Master Plan with Respect to National Development Plans

National development plans formulated after the beginning of the transition to a market economy include the "National Action Plan (1992)," which sets the basic targets to be achieved by 1996, and the "National Basic Plan for Improvement of the Food Supply (1994)," which has a target year of 2000. The major objective of both plans is to achieve a stable supply of food and to promote improvements in the living conditions of farmers by stepping up the production of agricultural and livestock products.

The "Guidelines for Rural Development Policy" provided by the Ministry of Food and Agriculture in 1955 also indicate the basic direction towards which promotion of a proper rural development policy suitable for the market economy system can be realized in order to stabilize agricultural production and improve the living environment in rural areas. The guidelines cite the formulation of this Master Plan in accordance with the guidelines as a priority matter to achieve this goal, and regard the Master Plan not only as a mere agricultural and rural development plan in the central region but also as a plan which needs to be extended to the entire nation.

1.4 Plan for Implementation of Study

1) Basic Procedure

The entire study operation was carried out over a period of two years. During Phase I of the study, studies were conducted in the form of field surveys, existing data and information were collected and analyzed, existing programs and related projects were reviewed, and a field survey was carried out to assess the circumstances of the natural, social and economic conditions as well as the environment in the Study Area. Estimates were then made regarding the development potential of the Study Area based on the assessment of agricultural and livestock output as well as on an analysis of the present conditions within each sector. Essential features of the development to be undertaken, which serve as the framework of the Master Plan, were determined based on further analysis and study carried out in Japan.

During the Phase II portion of the study, an additional survey was conducted to supplement the Phase I study, and plans for implementing the Master Plan and priority projects and programs were developed. In addition, a draft final report containing suggestions on improvements that should be made in the administrative and financial systems for the agriculture and livestock industries is in the process of being prepared. Necessary changes will be made to the draft final report after it has been presented to and reviewed by the Mongolian government. A final report will then be made after completion of discussions with representatives of the Mongolian government.

1.5 The Structure of This Report

This Report consists of a main text and Annexes, and is a compilation of the results of the Phase I and II studies.

Chapters 1 through 3 describe the background of the Study and the present state of the Study Area. Chapters 4 through 6 describe the concrete plans for implementing the Master Plan and priority projects under the Plan, evaluation of the economy, the environmental considerations given in each individual program, systems regarding the maintenance and management of various facilities, and the systems to be used for managing the implementation of the programs.

Annexes (including a separate volume) include minutes of meetings (M/M), reference materials and data compiled during each stage of this Study, as well as a list of the counterpart personnel, S/W and a list of Steering Committee members and counterparts.

1.6 System for Implementation of the Study

The organization of the Steering Committee, headed by the Vice Minister of Food and Agriculture and composed of representatives of the government agencies involved in this Study, was approved during a recent cabinet meeting, with a view to carrying out this Study smoothly. A Working Group, headed by the Director of the International Economic Cooperation Bureau and comprised of government personnel who are counterparts to the members of the Study Team, was established as a subordinate organization of the Steering Committee.

Based on the principle that this study should be conducted jointly with the Mongolian government and Study Team working in close cooperation with each other, meetings with the Working Group were held regularly to make arrangements for Working Group-level cooperation, in addition to engaging in joint work with counterpart personnel.

Further, the Study Team proceeded with the Study with the International Economic Cooperation Bureau serving as the contact office when coordination with related agencies was required, since this Study involved many related agencies, including not only the Ministry of Food and Agriculture (MOFA) but also the National Development Agency. In addition, the Study Team moved forward with the Study efficiently by collecting information from international organizations including the United Nations Development Program (UNDP). These efforts are also due in part to the fact that coordination with these organizations is also important as Mongolia currently receives much assistance from international organizations. Cooperation with these organizations helps avoid duplication of aid and contributes to the efficient provision of appropriate assistance.

The field survey was conducted in such a manner that full cooperation was obtained from the Agricultural and Environmental Bureau of each Aimag and city, as well as from public offices in Sum, by having the director of the International Cooperation Bureau communicate directly with the governors of each Aimag concerned. In addition, three different surveys, a soil analysis survey, a water quality survey and a survey of farmers' views, were assigned to various Mongolian organizations under contract at the same time that the Study Team was conducting field surveys of its own.

1.7 Technology Transfer

Technology and skills transfer to counterpart personnel, which is one of the objectives of this study, was done in the following manner.

1) OJT (On the-Job-Training)

Efforts were made to transfer expertise in each sector as well as know-how regarding the conduct of survey work and analytic techniques through such collaborative activities as the carrying out of surveys and analyses as well as compiling data during the field survey.

2) Training Program for Counterpart Personnel in Japan

A training program for three counterpart members of the Mongolian government was provided in Japan. Under the program, the Ministry of Agriculture, Forestry and Fisheries and other agencies provided general education regarding Japan's ODA system, agricultural administration, the system for agricultural and rural development projects, the agricultural cooperative association system, the system for supporting farmers and other related matters. In addition, technical training was provided in the specialized fields of the counterparts. Field trips were also arranged to observe projects in progress in a number of rural locations as well as to see first hand the current state of various rural districts in Japan.

3) Holding of Study Meetings

Study meetings were held to learn about technical skills and specialized knowledge in each area, and systems for agricultural and rural development as well as methods of drawing up plans both in Japan and Mongolia were reviewed by means of audiovisual aids. Furthermore, techniques for analyzing survey findings and methods of formulating and preparing plans were presented. Views were also exchanged at the end of each task required for the survey program.

CHAPTER 2 BACKGROUND

2.1 General

Mongolia is located in the central part of the Asian continent and has a total land area of 1,567,000 square kilometers. It is a landlocked country situated in a dry and cold climatic zone characterized by low temperatures (annual average temperature of -1.6 C in Ulaanbaatar) and small annual precipitation of 50 to 350 mm. Most of the land in the country consists of gently sloped grassland. It had a total population of about 2.25 million in 1993 and the world's lowest population density at 1.4 persons/km^2.

2.2 Present economic conditions

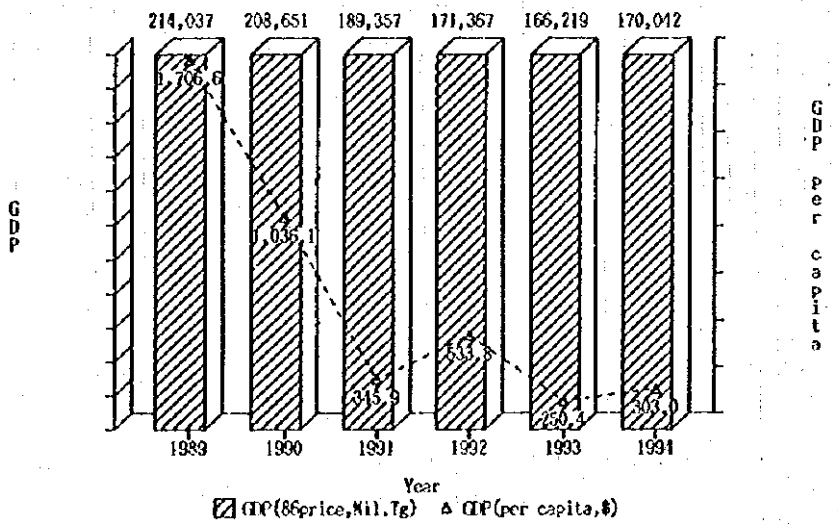
Five years have passed since the nation began its transition from a planned economy to a market economy in 1990. Mongolia had registered an economic growth rate of more than 5% before the transition during the 1980s. However, it has posted negative growth since the transition, and its GDP dropped to as low as 72% that of the 1989 level in real terms in 1993. As indicated by these facts, the nation's economy is considered to have been significantly affected by the economic structure adjustment policy (aimed at creating a small-budget government and a retrenched, well-balanced economy by reducing budget expenditures and imports) recommended by the IMF in addition to decreases in supply and trade volume of production and consumption goods as well as the termination of economic aid as a result of the collapse of the former COMECON system.

However, signs of dropping commodity price increase rates, stable exchange rates and improved trade balances started to show up during fiscal 1994 partly because of increases in economic assistance since 1992. What's more, the country recorded a positive increase in GDP in 1994 for the first time since it moved to a market economy. The nation's per capita GDP converted from Tugriks into U.S. dollars is about $280 per year, which is still low (Figure 2.2.1, Table 2.2.1).

Table 2.2.1 Major Economic Index

Year		1989	1990	1991	1992	1993	1994	REMARK
GDP (current price: Mil. Tg)	①	10,731	10,465	18,910	47,298	166,219	283,263	
GDP (1993 price, Mil. Tg)	②	241,037	208,651	189,357	171,367	166,219	170,042	
Growth rate (%)	③	4.2	-2.5	-9.2	-9.5	-3.0	2.3	
Industry	④	11.4	-0.3	-13.1	-11.5	-10.6	2.7	
Agriculture	⑤	13.8	-2.0	-5.1	-4.0	-7.1	7.1	
Subsidies & others	⑥	-43.7	-0.5	-1.0	26.8	28.4	-	
US$ Rate (Tg/US$)	⑦	3	4.7	25	40	295	410	NDB
GDP (US$:Mil)	⑧	3,577.0	2,226.6	756.4	1,182.5	563.5	690.9	①/⑦
GDP:percapita (US$)	⑨	1,706.6	1,036.1	345.9	533.8	250.4	303.0	⑧/⑩
Population (1000)	⑩	2,096	2,149	2,187	2,215	2,250	2,280	'94:estimate
Household (1000)	⑪	428	449	492	517	512	509	
Family size	⑫	4.9	4.8	4.4	4.3	4.4	4.5	⑩/⑪
Employment (1000)	⑬	764	784	796	806	773	787	
Unemployment (1000)	⑭	30	45.7	55.4	54	71.9	74.9	resistered
Unemployment rate	⑮	3.8%	5.5%	6.5%	6.3%	8.5%	8.7%	⑭/(⑬+⑭)
Import (US$:Mil)	⑯	963	924	361	418	379	258	MTI
Export (US$:Mil)	⑰	722	661	348	388	383	368	-do-
Balance	⑱	-241	-263	-13	-30	4	110	

Figure 2.2.1 Change of GDP in Mongolia



[Structural Adjustment Policies]

Since February 1991, when Mongolia joined the ADB, IMF, and WB, many nations and international organizations have provided a growing amount of assistance based on structural adjustment policies established with the agreement of the Government of Mongolia. The committed amount for the assistance by various donors has been reached US$985 million in accumulation since 1991 which is equivalent to one and half times more than the the Mongolia's GDP in 1994.

Table 2.2.2 Principal Policy Trends

Principle Policy	Year Commenced	Content and Present Status of Policies
1. Privatization	May 1991	88% complete in terms of asset values at the end of 1993, with the privatization of large corporations and irrigation facilities postponed.
2. Price Liberalization	January 1991	Liberalization largely realized through the complete abolition of the rationing system in August 1983.
3. Liberalization of Exchange Rates	July 1990	Abandonment of the ruble-linked system, and a switch to fluctuating exchange rates in May 1993.
4. Establishment of a Legal Environment	March 1990	A new foreign investment law, etc. and a new constitution in 1992: the process of establishing a full legal system is still in progress.
5. Trade Liberalization	1991	Participation of the private sector and liberalization by partially eliminating export bans and the restricted products list.
6. Financial System	August 1990	Participation of private banks, control of the money supply, interest rate manipulation, etc.

[Macroscopic Effects]

The transition to a market economy has been followed by an extremely severe economic slump, seriously effecting the daily lives of the people. The core of the Government of Mongolia's macroscopic polices consists of reducing unemployment and relieving poverty. In order to achieve these goals, the national government has put top priority on stimulating productivity, improving the production infrastructure, and encouraging investments intended to resolve problems with the social infrastructure.

Table 2.2.3 Change in Principal Macroscopic Indicators

Macroscopic Indicators	Post-transition Conditions
Slumping GDP	From US$310/person (WB calculations) in 1992 to US$303/person (calculated actual rate) in 1994
Rising consumer prices	App. 31 times between Jan. 1991 and Dec. 1994
Rising unemployment rate	1989: 3.8% 1993: 8.7%
Increase in the number of people living at proverty levels	Percentage of population living below minimum living standard in 1994: 25% of total population
Growing economic and social gaps between urban and rural areas	Agricultural Income/Urban Income = 86% (1993) and 75% (1994)
Falling caloric intake of the population	1989: 2,621 kcal, 1994: 2,104 kcal

[Industrial Structure and Trade]

Under the COMECON system of industrial classification, Mongolia was classified as a supplier of raw materials and a provider of primary processed goods. Since the transition to a market economy, Mongolia's industrial structure has remained overwhelmingly dependent upon agriculture and related industries as well as mining. Its dependency on agriculture has actually increased. However, the scale of its overall trade has been more than halved, and its CIS dependency rate has dropped from between 70% – 80% to between 50% – 60%.

Table 2.2.4 Change in External Trade Turnover (Unit: $100 million)

Indicater	1989	1994	94/89	Remarks
Total Turnover	1,685	626	37%	While the trade balance had been consistently a deficit before the transition, it has gone into a surplus due to the reduction of the trade size, especially the imports after the transition. The surplus in 1994 will be more than US$ 100 billion.
of which CIS	1,295	253	20%	
- do - Share	77%	40%	-37point	
Total Export	727	368	51%	
of which CIS	528	104	20%	
- do - Share	73%	28%	-45 point	
Total Import	963	258	27%	
of which CIS	767	149	19%	
- do - Share	80%	58%	-22 point	

Most of Mongolia's exports consist of raw materials or agricultural products, which have undergone primary processing, as well as copper and molybdenum ore. Imported goods, on the other hand, primarily consist of machinery plus fertilizer, construction materials, and other industrial goods totaling 80%, with the remaining 20% consisting of consumer goods. The reduction in the total volume of trade has been the result of a fall in agricultural production, and the direct effects of a slump in other industrial activities.

The drastic changes to which the economic system has been subjected without development of proper supporting structures resulted in a reduction of economic scale due to a deterioration of economic and social infrastructures such as transportation, communications, energy supply, education and culture, a shortage of talented and entrepreneurial type people capable of coping with a market economy, an inadequate financial system and a shortage of input goods. These various factors combined caused such social problems as an increase in unemployment rates as well as an expansion in the number of people living at poverty levels.

2.3 Agriculture and livestock industries

2.3.1 Positioning of agriculture and livestock industries

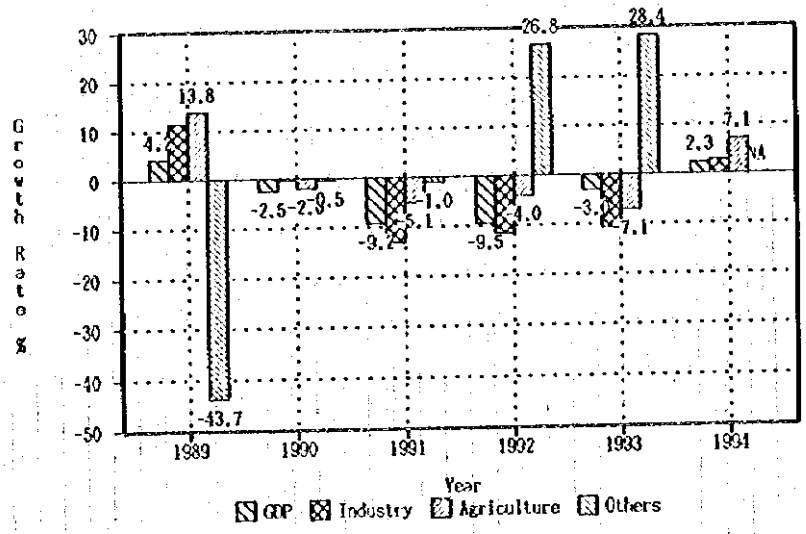
Under the system for division of work established by the former COMECON, Mongolia is defined as a supplier of primary products such as mineral resources and livestock products as well as a supplier of materials for processing. Consequently, Mongolia has an industrial structure dependent on the mining and manufacturing industries (copper, molybdenum, etc.) as well as the agriculture and livestock industries. The nation's industrial sector largely consists of processing and manufacturing industries which use agricultural and livestock products as raw materials. The share of agricultural and livestock products comprising export goods is also large.

Traditional livestock farming, which is the mainstay of agriculture and livestock industries in Mongolia, is a non-input, sustainable form of industry in which grass has always served as the main natural resource. It is also a very unique industry characterized by the fact that it cannot be easily affected by changes in the economic environment or system. Despite the economic wane and increases in the number of unemployed people or those in the poverty class which were brought about after the

transition to a market economy, political unrest or social chaos is not actualized in Mongolia at present.

The reason behind this is that the characteristics of the agriculture and livestock industry are such that they perform an important function as the base or buffer of the social economy in Mongolia. An examination of GDP trends after the transition to a market economy reveals that the agricultural sector has tended to show relatively low growth rates during the period of negative growth and high growth rates during the period of positive growth, indicating that the sector helps support the economy during a recession and triggers a higher growth rate during a growth period (Figure 2.3.1).

Figure 2.3.1 Change of GDP Growth Rate by Sector



2.3.2 Working Population in Agriculture and Livestock Industries

In 1989, 32.3% of the total working population of the country were employed in agriculture and livestock industry. This share has been increasing each year since, and the almost reaching 40% in this sector in 1994. The reason for this relatively steady increase is that the agricultural and livestock sector has apparently been absorbing redundant work force which has resulted from a scaling down of activity in the construction, transportation and commercial sectors due to the economic downturn. A similar tendency can be seen in an industry-by-industry breakdown of the amount of value added to production output.

2.3.3 Agricultural and Livestock Production

Production trends after the shift to a market economy have been towards a marked decrease in production in the crop cultivation sector where grain is the main product, and the intensive livestock farming sector, while the extensive livestock farming sector has shown an increase in production. In 1994, output of cereals dropped to 331,000 tons or 40% of the level recorded in 1989, while the output of potatoes fell to 54,000 tons or 35% of 1989 levels. Production of these crops was largely affected by a reduction in the amount of acreage under cultivation and a decrease in yield due to a shortage of production materials such as fuels for machines. By the same token, there has also been a substantial decrease in production of pork, chicken and eggs.

2.3.4 Changes in Farm Management

Prior to the transition to a market economy, there were a total of 360 state farms producing grains or feed or that were primarily engaged in intensive animal husbandry operations, as well as nomadic herding groups called **negdel**, in addition to their associations and association production facilities. in Mongolia. As of September 1994, these units had been broken up into 400 agricultural corporations and many individual nomadic herding families and small vegetable farms. About 70 of the old state farms have been split up into 270 corporate farms or limited companies and other corporate bodies. Many of the irrigation facilities, state farm facilities, storage and processing facilities, and other large-scale facilities still remain in government hands.

[Agricultural Management Since the Transition]

The following problems, along with a shortage of materials and funds, have disrupted farm management of corporate farms:

[1] Inappropriate resources and management due to uneven division of the assets of pre-transition farms;

[2] Poor asset management and the intrusion of the government because of the continued existence of government owned agricultural property;

[3] Delays in improving management methods due to changes in the form of agriculture;

[4] Reluctance of investors to invest because of uncertainty over ownership of land and assets; and

[5] Weakened management due to the appearance of minor shareholders.

Although the number of animals reared by nomadic herders, on the other hand, has increased with the privatization of animal husbandry, the collection and shipping of agricultural products, miscellaneous services, and the provision of information formerly handled by the negdel are no longer provided.

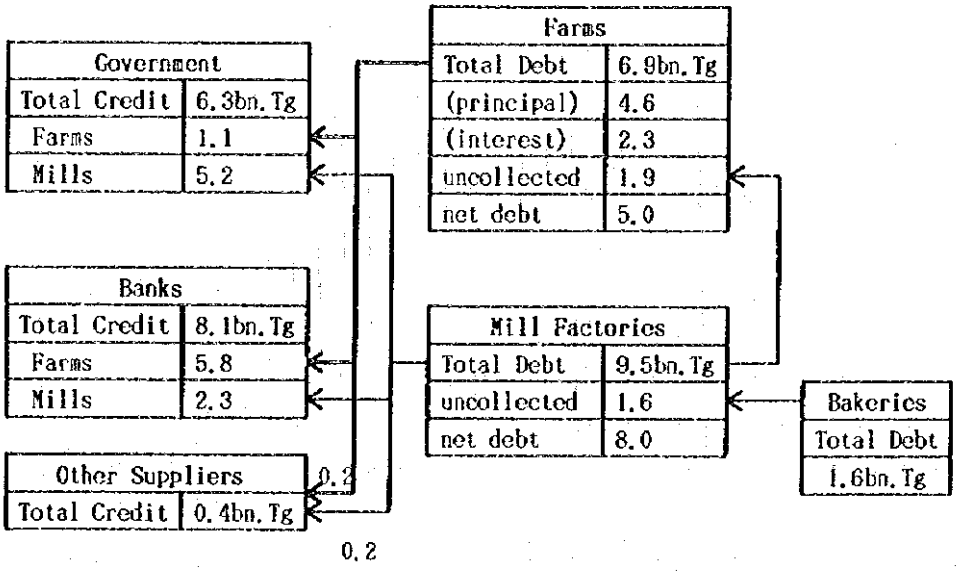
2.3.5 Agriculture and Related Industries

The decline of agriculture has been an important factor leading to various adverse macroscopic effects. The transition to a market economy has resulted in an abrupt decline in agricultural production, a deterioration in the quality of agricultural management, as well as a decline in related processing industries and the distribution industry. These industries are closely interdependent of each other, such that the deterioration of any one industry has a negative impact on the others, which in turn only serves to worsen that industry even further.

To take the debt structure surrounding agriculture as an example, the outstanding obligations of farmers reached a total of 7 billion Tg at the end of 1994. About 2 billion Tg of this debt was a result of money owed by flour mills for wheat purchased from the farmers. The liabilities of the flour mills were huge, amounting to as much as 9.6 billion Tg, but much of this debt was a result of a lack of purchasers for the flour they produce, and included unpaid bills for flour purchased by bakeries.

These circumstances not only adversely effect the profits of the farms and the flour mills, but to make matters worse, they slow the flow of funding from the government and from the banks, which are experiencing tight fund positions. And it results in a situation in which the growing chain-reaction effect on the production equipment supply companies, who are the creditors, adversely effects the entire economy (Figure 2.3.5.1)

Figure 2.3.5.1 Debt Structure of Farm Company and Milk Factory
(Outstanding Debt at the End of 1994, by ADB Study)



Delayed payment settlements create a vicious circle which invites an increase in loan interest. In the case of farms for example, the result is an extraordinary situation in which the interest portion of outstanding obligations equals 50% of the principle. This steadily reduces the farmers' ability to raise funds, and it is reported that only about 1/4 of all farms are either not in debt or can still borrow money (Table 2.3.5.1)

Table 2.3.5.1 Borrowing Capability of Farm

Classification	No. of Farms	Composition
Creditworthy, without debt	87	26%
Unbankable	71	21
of which bankrupt	(49)	(15)
Unidentified	176	53
Total	334	100

(Estimated by Agrotechimpex in 1994)

The relation between agriculture and agroindustry, and related industry such as electric company, is shown in Figure 2.3.5.2 ~ 3.

Figure 2.3.5.2 Analysis Chart of Agro-processing Industry
(From Aspects of Money Flow)

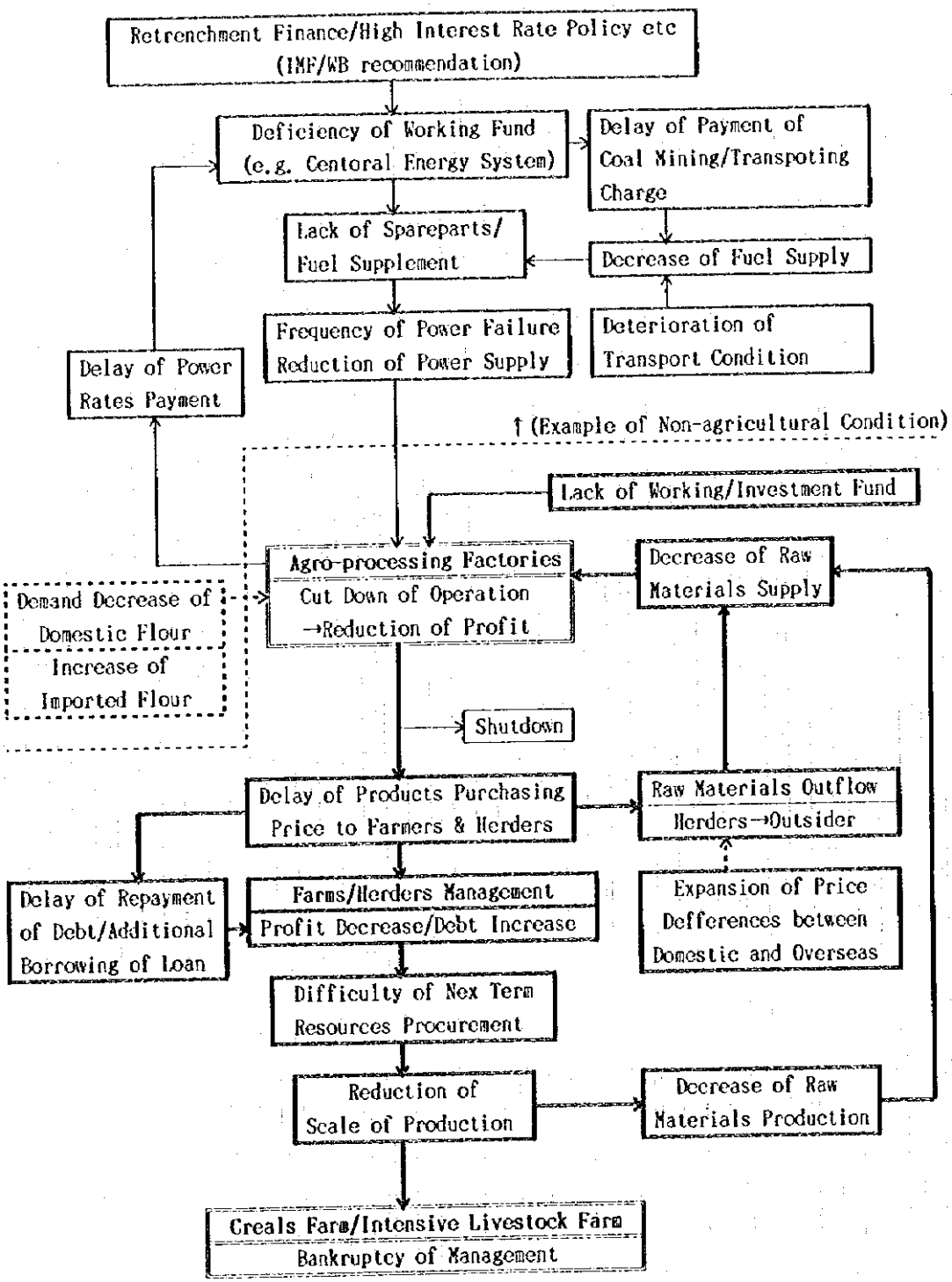
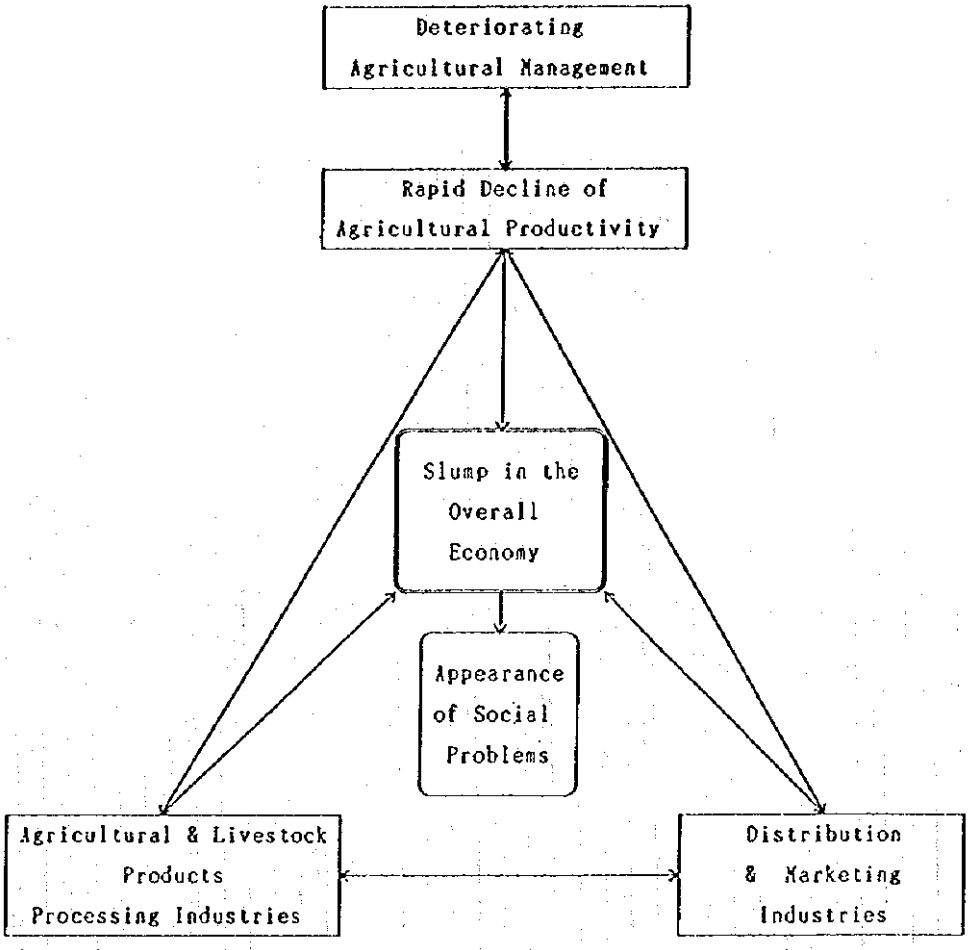


Figure 2.3.5.3 Agriculture and the Overall Economy



An escape from this vicious circle requires not only internal improvements to agriculture, but also well-balanced improvements with regard to related external factors. Improvement of the state of agriculture and related industries will not only improve these industries themselves, but will contribute to bringing about significant improvements in the social and economic life of the Mongolian pepole as a whole.

Most of the investment (78%) to be made under the government's public investment plan (1995 to 1998) will be devoted to the more immediate fields of energy, transportation, and communication, which constitute the social and production infrastructure of the country. The weight being given these areas is quite large compared with the 10% that will be spent on agriculture, 7% on industry, and 5% marked for social investment.

2.4 Development Status and Social Needs

2.4.1 Economic Development Plans

In Mongolia, eight five-year plans (first through eighth) were implemented from 1948 through 1990 on the basis of a long-term economic plan entered into between Mongolia and the former Soviet Union. The main objectives of the plans were to increase agricultural and livestock production and to develop mining and manufacturing industries including coal mining, power generation and food production. Thus, the country proceeded with the plans, with an emphasis on industrialization. However, in the eighth five-year plan (1986-1990) implemented during the nation's last stage of its planned economy, the focus of the country's economic development plans was reviewed and shifted from industrialization to agriculture and livestock farming. The major results obtained during the latter half of the implementation periods of the plans are shown in Table 2.4.1.

Table 2.4.1 Result of Five Year Development Plan

(Average Growth Rate per annum:%)

Plan / Major Index	5th ('71 - '75)	6th (76 - 80)	7th (81 - 85)	8th (estimated) (86 - 90)
GDP	6.7	5.6	6.5	5.6
Gross Products of Mining & Industry	9.2	8.4	9.3	4.5
- do - Agriculture	4.3	-2.6	7.1	1.3
Gross Investment	12.1	10.5	8.4	8.4
Turnover of Retail	6.2	6.2	3.9	-
Import	15.7	11.5	11.3	-
Export	12.0	13.8	14.9	-

With the shift to a market economy, economic reform programs aimed at realizing well-balanced government budgets, checking inflation, liberalizing prices, removing restrictions on commerce and trade, and privatizing state-run enterprises were implemented over a three-year period from 1991 to 1993. Despite those programs, the country posted negative GDP growth during the period.

The MDP (Management Development Program), a medium-term program intended for 2000 or so, was formulated and implemented in October 1994. In this program, (1)

administrative reforms and reorganization of public servants, (2) decentralization of government control and transferring greater power to local government, (3) promotion of privatization and restructuring of enterprises, (4) development of the private sector, and (5) improvement of training in management capabilities and reinforcement of the Prime Minister's Office are cited as strategic goals. This program lists projects for each sector scheduled to be implemented, and does not show economic indicators aimed for, investment funds or the term of the program.

In the agricultural and livestock sector, (1) completion of privatization, (2) establishment of a new agricultural cooperative association, (3) establishment of legally recognized means for setting up independent farms consisting of several families, (4) development of a law for owning and using land, and (5) promote the development of a small-scale local industry where the processing of raw materials, livestock farming and crop cultivation are combined.

In the meeting of nations providing assistance for Mongolia held in November 1994, the Mongolian government cited further growth of its economy and an improvement in the living standard of the people as the objectives of the medium-term development, and concretely indicated the following goals.

[1] Targeted GDP growth rate: 2.5% for 1995, 3.7% for 1996 and 5% for 1997

[2] To continue to tighten financial controls on capital markets and hold annual fluctuations in the exchange rate down to 20% or less until 1995.

[3] To show flexibility in the operation of savings and loan rates.

[4] To bring down the deficits in the current balance and the budget deficits to 17% and 16% of GDP respectively in 1996.

[5] To give priority to the development of the infrastructure sector.

[6] To bring down the ratio of population in the living at or below the poverty level to total population to 10%.

[7] To improve the management capabilities of the administrative section.

In addition, the National Development Board (NDB) is in process of formulating a long-term development plan targeted for 2010 under instructions from the Parliament, and was initially scheduled to obtain approval from the Great National Congress early in 1995. But the NDB has not completed work on the plan yet.

2.4.2 Agricultural Development Plans

During the "International Nutrition Conference" sponsored by the FAO and the WHO and held in Rome in 1992, the "Declaration on World Nutrition" and the "Nutrition Improvement Action Program" were adopted, and countries in the world were recommended to implement the program in accordance with them. In response to such recommendation, the Mongolian government formulated and is implementing the "National Program on the Population's Food Supply Improvement." In this program, the government estimated the nation's population to stand at 2.6 million in 2000 (3 million in 2005), and showed the targeted quantity of food to be produced to meet the requirements regarding intake of nutrition as well as measures needed for production of food.

Furthermore, in June 1995, the "Guidelines for Rural Development Policy" was developed by the Ministry of Food and Agriculture to show the basic direction in the nation's future policy for agriculture and livestock industry, and presented to the Great National Congress. The guidelines, in which the ministry set forth comprehensive measures, including measures for the development of rural infrastructure, training of manager (human resources development), and distribution, serves to supplement the National Program on the Population's Food Supply Improvement. The formulation of the Master Plan Study on Integrated Agricultural and Rural Development in Central Region is defined as places much importance a priority matter in the enforcement of the guidelines.

2.4.3 Need for Development of the Central Region

Five years have passed since the transition to a market economy, and signs of improvement in economic growth are at last beginning to emerge. This improvement is largely due to the measures which forms the core of the government's structural adjustment policy, including the direction for a "small-budget government" and "retrenched and well-balanced economy" through reductions in budget expenditures and imports, as well as to an inflow of a large amount of aid fund. However, these measures are to result in internal problems such as a lower nutrition intake level of the people, a higher unemployment rate, larger population in the poverty class, and an enlarged regional income gap. Thus, the current improvement in the macro economy is considered to be brought about at the cost of these problems.

Since these internal costs will sooner or later rebound on the country and lead to unstable conditions in economic growth, politics and society, the policy of an excessively retrenched and balanced economy will turn out to be disadvantageous to ensuring future economic growth. Consequently, it is necessary to create jobs and reduce the number of people living at poverty levels by expanding production, particularly by securing food for the population through recovery and development of agriculture and livestock industries which have a considerable ripple effect on other sectors, as well as by adding high value to the products made in the processing and manufacturing sector, and by increasing investment in production of replacements for products which the country heavily depends on imports.

In particular, the development of the Study Area, where the population and the key sectors of the Mongolian economy are concentrated, has been defined as an important task which will bring about the effective use of financial resources under circumstances where they are extremely limited as well as early effects of development. Moreover, development of the region will play a pioneering role in attaining economic growth in the nation as a whole.

As a matter of course, the development of infrastructure including transportation and communications as well as the development of human resources in the government and the private sector who are capable of coping with a market economy are urgently required as prerequisites for the development. In addition, as for acceptance of foreign aid funds, it is important to shift the emphasis from short-term measures to areas that will lead to future development of the nation's economic base.

2.5 Trends in Foreign Aid

2.5.1 Position of Other Assisting Countries and International Aid Organizations

1) Understanding of the Mongolian Economy and Aid

In providing balance of payment support, the World Bank and IMF recommended that Mongolia correct its structural imbalances by adopting such policies as price liberalization, privatization of national enterprises and liberalization of trade aimed at medium- and long-term growth, while improving its international balance of payments over the short term through devaluation of the currency, monetary restraint and reduced budgets.

Countries and international agencies offering aid are in basic agreement with this course of economic rehabilitation for Mongolia. However, the inherent problems concern a very wide range of areas involving economic activities, such as the improvement of existing production facilities and material infrastructure, the accumulation of human resources, measures related to direct production sectors built around agriculture, and the improvement of banking and governmental administrative and financial systems. It is precisely for this reason that the countries and organization involved strongly recognize the need to adequately organize and coordinate aid in terms of the fields, contents, methods, etc.

2) Awareness of and Aid for Agriculture and Livestock Industry

Agriculture and livestock industry are the production foundation of the Mongolian economy, and there is agreement that they constitute one of the most important economic sectors not only as the basic source of food supply but also as the source of raw materials for industrial use and as the means of acquiring foreign exchange through export.

That is to say, as far as agriculture and livestock industry are concerned, Mongolia has great potential to improve productivity while utilizing traditional production techniques. Furthermore, livestock related products such as meat, woolen fabrics and leather goods, have more potential than general industrial products, which have weak cost competitiveness in the international market. Therefore, it is conceivable that the agriculture and livestock industry will be able to contribute in no small way to the rehabilitation of the entire economy through the reflex of economic surpluses, produced by building up those sectors, into economic development. Of course, it goes without saying that this is premised upon the need to promote the improvement of roads and communications, distribution and financial systems, and other social infrastructure that will smooth economic relations with industrial and urban sectors and the need to promote the expansion of supply and demand in the agriculture and livestock sector.

It should be noted that the FAO and UNDP started to provide aid to improve productivity in the agriculture and livestock sector before the economic reforms. The FAO/ADB began assisting the agriculture and livestock sector relatively early, and its assistance has been in the form of technological aid to improve the production and quality of grass feed, improve and construct irrigation facilities for grain production, and improve the distribution of agricultural and livestock products. The number of