CHAPTER 7 RELATED DOCUMENTS

7.1 Exchange of M/M Signatures (Summary)

1. Matter: M/M concerning the Inception Report

Date Signed: August 29, 1994
Signatories: Study Team: Team Leader, Mr. Koji Hattori
Mongolian Signatory: Mr. Chultemyn Perenley (EICD General Director)
Witness: JICA Mr. Shiro Nabeya

Details:
(1) We approve of the Inception Report
(2) Special Items:
  [1] The Government of Mongolia will set up a steering committee (S/C).
  [2] A regional reorganization in Mongolia will form 6 prefectures and 1 city in the study region.
  [3] The target year of the Master Plan will be determined based on bilateral negotiations by the time Progress Report (1) is submitted.

2. Matter: M/M concerning the Progress Report (1)

Date Signed: December 8, 1994
Signatories: Study Team: Team Leader, Mr. Koji Hattori
Mongolian Signatory: Mr. D. Dorligsuren (EICD Deputy Director)

Details:
(1) We approve of the Progress Report (1).
(2) Special Items:
  [1] The area of the study region has been confirmed to be 235,000km2.
  [2] The target year of the Master Plan will be the year 2010.
  [3] The Mongolian side has requested the acceptance of two C/P trainees in 1995.
  [4] The S/C comments on the report will be submitted by the end of January 1995.

3. Matter: M/M concerning the Interim Report

Date Signed: June 20, 1995.
Signatories: Study Team Leader, Mr. Koji Hattori
Mongolian Signatory: Mr. D. Dorligsuren (EICD General Director)
Witness: JICA Mr. Kenichi Matsumoto

Details:
(1) We approve of the Interim Report
(2) Special Items:
  [1] The enactment of the Master Plan and the Selection of the priority projects will be done based on close bilateral negotiations.
  [2] The content of the Master Plan will conform to the development policies of Mongolia and the donor countries and organizations.
  [3] The Mongolian side has requested early implementation of the priority projects.
  [4] The Mongolian side has requested that a seminar be held at the time of the explanation of the Draft Final Report.
  [5] The Mongolian side has requested that Japan continue to accept C/P trainees after the study has been completed.

4. Matter: M/M concerning the Progress Report (II)

Date Signed: September 4, 1995
Signatories: Study Team Leader, Mr. Koji Hattori
Mongolian Signatory: Mr. D. Dorligsuren (EICD General Director)

Details:
(1) We approve of the Progress report (II).
(2) Special Items:
  [1] The Mongolian side has requested that the Government of Japan implement the selected priority projects quickly, and at the same time, promises to provide an implementation organization in Mongolia.
  [2] The Mongolian side has requested a Mongolian translation of summary of the Draft Final Report.
  [3] The Mongolian Government has requested grants of survey machinery and materials.

5. Matter: M/M concerning the Draft Final Report

Date Signed: December 12, 1995
Signatories: Study Team Leader, Mr. Koji Hattori
Mongolian Signatory: Mr. D. Dorligsuren (EICD General Director)
Witness: JICA, Mr. Tadashi Tsuchiya
Details:
(1) We approve of the Draft Final Report
(2) Special Items:
  [1] The comments of the S/C on the DF/R shall be submitted to the Embassy of Japan by January 12, 1996.
  [2] Mongolian party expressed strong hope for early implementation of the priority projects with the assistance from donor countries and organizations, especially from Japan.
  [3] Mongolian party also strongly expressed that Mongolian personnels be trained in Japan in order to realize projects to be contained in the Final Report.
  [4] The Study Team replied that requests related to above [2] and [3] should be submitted to the Embassy of Japan through formal procedures.

MINUTES OF MEETING
ON
THE INCEPTION REPORT
FOR
THE MASTER PLAN STUDY
THE INTEGRATED AGRICULTURAL AND RURAL DEVELOPMENT
IN
CENTRAL REGION
IN
MONGOLIA

For implementation of the first phase study for the Master Plan Study on Integrated Agricultural and Rural Development in Central Region Mongolia (hereinafter referred to as "The Study"), Japan International Cooperation Agency (JICA) has sent a Study Team headed by Mr. Koji Hattori in accordance with the Scope of Work signed on March 17, 1994. In the meantime, JICA has dispatched Mr. Shiro Nabeya, Deputy Director of Agricultural Development Study Division, JICA from August 25 to August 30 1994 for the purpose of supervising the Study.

The Economic and International Cooperation Department (hereinafter referred to as "EICD"), Ministry of Food and Agriculture (hereinafter referred to as "MFA"), competent authority responsible for the Study, received 20 copies of the Inception Report on the Study.

The explanatory meetings of the Inception Report were held by EICD, MFA., when the Study Team explained the contents of the Inception Report to the representatives from the institutions related to the Study, as well as for officials of EICD, MFA. The list of participants in a series of meetings is attached in Annex 1.

As a result of the discussion, EICD agreed on the content of the Inception Report presented by the Study Team.

1) Establishment of the Steering Committee of the Study

The Steering Committee of the Study has been established in accordance with the proposal of the Inception Report, and authorized by the Mongolian Government.
The Member list of the Steering Committee is attached in Annex 2.

2) Study Area

The Study Team was informed that City of Darkhan and Erdenet have been promoted to Aimag Darkhan-Uul and Orhon in April 1994. For that reason, EICD and the Study Team agreed that the Study Area covers Aimag of Tov, Selenge, Bulgan, Ovorhangai, Orhon, Darkhan-Uul and city of Ulaanbaatar.

3) Target Year

Target Year of the Master Plan will be discussed among Mongolian members of working group for the Study and the Study Team, and decided until the presentation of Progress Report (I)

Ulaanbaatar
August 29, 1994

Mr. Chultemyn Perenlei
General Director,
Economics and International
Cooperation Department ,
Ministry of Food and Agriculture

Mr. Koji Hattori
Leader,
JICA Study Team

鍋屋史朗

Mr. Shiro Nabeya
Deputy Director,
Agricultural Development
Study Division,

Annex 1.

LIST OF ATTENDANT

Name	Organization	Position
1. MONGOLIAN PARTY		
Ch. Perenlei	EICD of MFA	General Director
D. Dorligsuren	EICD of MFA	Deputy Director
R. Durima	EICD of MFA	Officer
Ch. Tungalag	EICD of MFA	Officer
Z. Oyuntsetseg	EICD of MFA	Officer
Ts. Enn-Amgalan	EICD of MFA	Officer
N. Batjargal	Animal Husbandry Department MFA	Officer
G. Hishgee	Crop. Machinery and Irrigation Department MFA	Officer
G. Hashbaatar	Food Department MFA	Officer
S. Hamjidorj	General Department of State Veterinary Service MFA	Officer
G. Mijildorj	Plant Scientific Agricultural research institute MFA	Officer
O. Enkh-Amgalan	Research Secretary of Agricultural Economics Institute MFA	Officer
T. Enebish	Macro-Economic Policy Department of National Development Board (NDB)	Officer
N. Tsagaach	Technology and investment Policy Department NDB	Officer
D. Batbayur	Water Policy Research Institute MNE	Research Worker
S. Magsarjav	Rangeland Institute MNE	Research Worker
Sh Bayusgalan	Hydro Meteorological Research Institute MNE	Chief of Section
E. Oyunchimeg	Autoroad Department Ministry of Infrastructure Development (MID)	Officer

2. JICA STUDY TEAM

Koji Hattori	Team Leader/Environment
Masaru Sasaki	Co-Team Leader, Irrigation and Drainage, Agricultural Institutional System
Yukio Shinomi	Co-Team Leader, Livestock Development, Animal Products Marketing and Processing
Kazuo Ogawa	Soils, Cultivation
Kunihiro Ozaki	Market-Economy, Agro-Economy, Finance
Toshiyuku Kiyonaga	Hydrology and Meteorology , Rural Infrastructures

3. JICA Tokyo Japan

Shiro Nabeya	Deputy Director, Agricultural Development Study Division JICA Tokyo

Annex 2.

Members of Steering Committee

1.Chairman of Steering Committee:
Deputy Minister of Food and Agriculture (MFA)

2.Coordinator of Steering Committee:
General Director of Economic and International Cooperation Dep.,MFA

3.Members:

①General Director of Dep. tional Development Board(NDB)

②Deputy Minister of Trade and Industry(MTI)

③Officer of Asian and African Dep.,Ministry of Foreign Relations (MFR)

④General Director of Technology and Investment Policy Dep.,NDB

⑤Chief of Cooperation Div.,Ministry of Nature and Environment(MNE)

⑥Director of Agricultural Dep.of Ulaanbaatar city

⑦General Director of Science and Technology Dep.,Ministry of Science and Education(MSE)

⑧General Director of Medical Aid Dep.,Ministry of Health(MOH)

⑨General Director of City Construction,Architecture,Social Service Dep., Ministry of Infrastructure Development(MID)

⑩Head of Central Energy Network,Ministry of Energy(MOE)

24,Aug.1994

MINUTES OF MEETING
ON
THE PROGRESS REPORT (1)
FOR
THE MASTER PLAN STUDY
ON
THE INTEGRATED AND RURAL DEVELOPMENT
IN
CENTRAL REGION
IN
THE MONGOLIA

BETWEEN

MINISTRY OF FOOD AND AGRICULTURE OF MONGOLIA

AND

THE MASTER PLAN STUDY TEAM
(JAPAN INTERNATIONAL COOPERATION AGENCY)

Ulaanbaatar
December 8, 1994

Mr.D.Dorligsuren
Deputy General Director
Economics and International
Cooperation Department
Ministry of Food and Agriculture

Mr.Koji Hattori
Leader,
JICA Study Team

Subject	:	Progress Report(I) presentation meeting
Date and Time	:	15:00 - 17:00,December 8, 1994
Place	:	Conference Room,Ministry of Food and Agriculture

In accordance with the Scope of Work for the first phase study for the Master Plan Study on Integrated Agricultural and Rural Development in Central Region Mongolia (hereinafter referred to as "The Study"), the Government of Japan dispatched through Japan International Cooperation Agency (hereinafter referred to as"JICA") a Study Team headed by Mr.Koji Hattori to the Mongolia. The Study Team and Mongolian counter personnel(hereinafter referred to as "the Working Group") carried out the field study and discussed about target year, and finally prepared the Progress Report (I). The Study Team submitted twenty (20) copies of the Progress Report(I) to the Working Group represented by Deputy General Director,Economics and International Cooperation Department (hereinafter referred to as "EICD"),Ministry of Food and Agriculture (hereinafter referred to as "MFA"). Furthermore, both sides discussed and exchanged views on the further study based on the presented Progress Report(I).

The list of participants in a series of meetings is attached in Annex 1.

1. As a result of discussion, both parties have confirmed following items concerning the Minutes of Meeting on the Inception Report.

1) Study Area

The 238,000 km² of the Study Area decided by the Scope of Work has been amended to 235,000km².

2) Target Year

The year of A.D.2010 has been set as the Target Year of the Master Plan in consideration of the Mongolian National Development Plan under preparation and so on.

2. On counterpart training in Japan, Mongolian party strongly requested to accept at least two(2) counterparts in 1995.

3. The Chief of Working Group shall inform the Study Team comments of Steering Committee concerning the Progress Report (I) by the end of January,1995.

Annex 1.

THE LIST OF PARTICIPANTS

Name	Organization	Position
1.MONGOLIAN PARTY		
D.Dorligsuren	EICD MFA	Deputy Director General
R.Durima	-do-	Officer
Ch.Tungalag	-do-	Officer
S.Mizuguchi	-do-	Adviser
N.Batjargal	Animal Husbandry Department MFA	Officer
G.Mishgee	Crop.Machinery and Irrigation Department MFA	Officer
G.Mashbaatar	Food Department MFA	Officer
Sh Bayusgalan	Hydro Meteorological Research Institute MNE	Chief of Section
E.Oyunchimeg	Autoroad Department Ministry of Infrastructure Development(MID)	Officer
Ch.Puntsagsuren	Crop,Machinary and Irrigation Dept.	Officer
T.Luvsanbud	-do-	Officer
Ts.Norloobaatar	-do-	Officer
T.Lhagva	-do-	Officer
D.Avaadorj	Land Policy Institute	Chief of Section
L.Lubsandabaajav	Water Policy Research Institute	Head of Water Policy Section
2.JICA STUDY TEAM		
K.Hattori	Team Leader,Environment	
H.Sasaki	Co-Team Leader,Irrigation and Drainage,Agricultural Institutional System	
H.Takai	Land use , Rural society	
K.Ozaki	Market-Economy, Agro-Economy,Finance	
K.Sakai	Farm management,Agricultural Farming and Extension, International trade	
Y.Shinomi	Co-Team Leader,Livestock development,Animal Products Marketing and Processing	
K.Okano	Agro-products Marketing and Processing, Project Evaluation,Economic and Financial Analysis	
T.Fujino	Work Coordination	
3.Embassy of Japan		
K.Kagawa	First Secretary	
4.Office of JOCV in Mongolia		
Y.Sasaki	Director	

MINUTES OF MEETING
FOR
THE INTERIM REPORT
OF
THE MASTER PLAN STUDY
ON
THE INTEGRATED AGRICULTURAL AND RURAL DEVELOPMENT
IN
CENTRAL REGION
IN
THE MONGOLIA

JUNE 20, 1995
ULAANBAATAR, MONGOLIA

MR.D.DORLIGUSUREN
GENERAL DIRECTOR,
ECONOMICS AND INTERNATIONAL
COOPERATION DEPARTMENT,
MINISTRY OF FOOD AND AGRICULTURE

MR.KOJI HATTORI
LEADER,
JICA STUDY TEAM

松本賢一

WITNESS: MR.KENICHI MATSUMOTO
AGRICULTURAL DEVELOPMENT
STUDY DIVISION,
JICA HEADQUATERS

1. Date and time: June 19, 1995, 9:30-12:30
2. Place: Conference Room of MOFA
3. Summary of Discussion:

The JICA Study Team submitted 20 copies of the Interim Report to MOFA on June 16, 1995. The meeting on the Interim Report and the Phase II Study was held at the MOFA Conference Room on June 19, 1995 at the presence of Mr.G.Surenjargal,Chairman of the Steering Committee: Vice Minister of MOFA, Mr.Kenichi Matsumoto, adviser from JICA Headquaters, and the members of the Working Group for the Study(attached attendants list). The meeting was presided by Mr.D.Bayartsogt, Deputy Director, Economics and International Cooperation Department, MOFA. At the request from the Chairman for the Meeting, Mr.K.Hattori,leader of the JICA Study Team,explained the outline of the Interim Report and work plan and proceeding of the Phase II Study to the attendants. After the presentation of Mr.Hattori, various discussions were made and the followings were confirmed through the discussions:

(1)The Interim Report was generally accepted by MOFA officials and other Working Group members who were present.
(2)For carrying out the Phase II Study, especially in formulation of the Master Plan and selection of priority projects/programs, both parties shall take a closer collaboration in accordance with the proposed work plan and schedule.
(3)The Master Plan should be prepared in accordance with the state strategy for rural development(expected to be approved by Parliament) and plans by other donor countries and/or organizations.
(4)Mongolian party formally requested the early execution of the high priority projects/programs, aimed to contribute in developing and strengthening of the country's economy, which is currently facing hardships of transition.
(5)Mongolian party formally requested Japanese side to hold a seminar on integrated agricultural and rural development including explanation of the contents of the Master Plan to the concerned people at the stage of a meeting on the Draft Final Report for the Study.
(6)Mongolian party also strongly requested to accept Mongolian counterparts in Japan to transfer related technology after the completion of the Study.

LIST OF ATTENDANTS

Name	Position	Organization
1 MONGOLIAN PARTY		
G.Surenjargal	Vice Minister	MOFA
D.Bayartsogt	Deputy Director	EICD of MOFA
A.Shiilegdamba	Officer	-do-
R.Namkhai	-do-	-do-
G.Hashbaatar	-do-	Food Dept., MOFA
S.Namjildorj	-do-	General Dept., of State Veterinary Service, MOFA
T.Luvsanbud	-do-	Crop, Machinery & Irrigation Dept.,MOFA
Ts.Borloobaatar	-do-	-do-
G.Unenbat	-do-	Animal Husbandry Dept.,MOFA
N.Tsagaach	-do-	Technology & Investment Policy Dept., NDB
Sh.Bayasgalan	Section Chief	Hydro Meteorological Research Institute
D.Avaadorj	-do-	Land Policy Institute,MNE
L.Luvsandavaajav	Head of Section	Water Policy Research Institute,MNE
E.Oyunchimeg	Officer	Autoroad Dept., MID
2 JICA HEADQUATERS		
K.Matsumoto	Adviser	
3 JICA STUDY TEAM		
K.Hattori	Team Leader	
Y.Shinomi		
T.Tajiri		
H.Takai		
T.Kiyonaga		
K.Kuniyasu		
S.Takahashi		
K.Sakai		
T.Takano		
K.Okano		

MINUTES OF MEETING
FOR
THE PROGRESS II REPORT
OF
THE MASTER PLAN STUDY
ON
THE INTEGRATED AGRICULTURAL AND RURAL DEVELOPMENT
IN
CENTRAL REGION
IN
MONGOLIA

September 4, 1995
ULAANBAATAR, MONGOLIA

MR.D.DORLIGSUREN
GENERAL DIRECTOR,
ECONOMICS AND INTERNATIONAL
COOPERATION DEPARTMENT,
MINISTRY OF FOOD AND AGRICULTURE

MR.KOJI HATTORI
LEADER,
JICA STUDY TEAM

1. Date and time: September 4, 1995, 15:00-18:00
2. Place: Conference Room of MOFA
3. Summary of Discussion:

The JICA Study Team submitted 20 copies of the Progress II Report to MOFA on August 30, 1995. The meeting on the Progress II Report was held at the MOFA Conference Room on September 1, 1995 in attendance of the Working Group for the Study(attached attendants list). The meeting was presided by Mr.G.Dorligsuren, General Director of Economics and International Cooperation Department, MOFA. At the request from the Chairman for the Meeting, Mr.K.Hattori, leader of the JICA Study Team, explained the outline of the Progress II Report and work plan and proceeding for the preparation of the Draft Final Report to the attendants. After the presentation of Mr. K.Hattori, various discussions were made and the followings were confirmed through the discussions;

1)Progress II Report was accepted in principle by Mongolian side after having various discussions between both sides.

2)Mongolian side strongly requested that priority projects proposed in the M/P should be early implemented by Japanese Government, and expressed that measures for project implementation such as recruitment of officials required for the project will be taken with great effort. The Study Team replied that the request from Mongolian side will be conveyed to the Japanese government and agencies concerned.

3)Mongolian side requested that at least summary of the Draft Final Report which will be submitted to the government of Mongolia on December, 1995 should be translated to Mongolia. The Study Team will transmit the request to JICA.

4)Mongolian side requested the equipments which have been used in the course of the Study for utilizing them effectively in MOFA. The Study Team will convey the request to JICA.

ANNEX

LIST OF ATTENDANTS
(WG MEETING ON 1ST OF SEPTEMBER, 1995)

Name	Position	Organization
1 MONGOLIAN PARTY		
D. Dorligsuren	General Director	Economics and International Cooperation Dept., MOFA
D. Dabaadorj	General Director	Crop, Machinery &Irrigation Dept., MOFA
A. Shiilegdamba	Officer	EICD, MOFA
G. Hashbaatar	-do-	Food Dept., MOFA
T. Luvsanbud	-do-	Crop, Machinery & Irrigation Dept., MOFA
T. Lhagva	-do-	-do-
N. Batjargar	-do-	Animal Hasbandry Dept.
G. Unenbat	-do-	-do-
N. Tsagaach	-do-	Technology & Investment Policy Dept., NDB
Sh. Bayasgalan	Section Chief	Hydro-Meteorological Research Institute, MNE
D. Avaadorj	-do-	Land Policy Institute, MNE
L. Luvsandavaajav	Head of Section	Water Policy Research Institute, MNE
2 JICA STUDY TEAM		
K. Hattori	Team Leader	
Y. Shinomi		
T. Tajiri		
T. Kiyonaga		
K. Kuniyasu		
S. Takahashi		
K. Sakai		
K. Okano		

MINUTES OF MEETING
FOR
THE DRAFT FINAL REPORT
OF
THE MASTER PLAN STUDY
ON
THE INTEGRATED AGRICULTURAL AND RURAL DEVELOPMENT
IN
CENTRAL REGION
IN
THE MONGOLIA

December 12, 1995
ULAANBAATAR, MONGOLIA

MR. DULAMSUREN .DORLIGUSUREN
GENERAL DIRECTOR,
ECONOMICS AND INTERNATIONAL
COOPERATION DEPARTMENT,
MINISTRY OF FOOD AND AGRICULTURE

MR. KOJI HATTORI
LEADER,
JICA STUDY TEAM

WITNESS: MR. TADASHI TSUCHIYA
LEADER, ADVISORY TEAM FOR
THE STUDY, JICA HEADQUARTERS

The JICA Study Team submitted 20 copies of the Draft Final Report to MOFA on December 7, 1995. The meeting on the Draft Final Report was held at the MOFA Conference Hall on December 11, 1995 at the presence of Mr. Tadashi Tsuchiya, adviser from JICA Headquarters and the members of the Working Group for the Study(attached attendants list).

The meeting was chaired by Mr.D.Dorligusren, General Director of Economics and International Cooperation Department, MOFA. At the request from the chairman, Mr.K.Hattori, leader of the JICA Study Team, explained the outline of the Draft Final Report. After the presentation of Mr.Hattori, various discussions were made and the main points of the discussions were as follows:

(1)The Draft Final Report was generally accepted by MOFA officials and other Working Group members.

(2)The comments of the Steering Committee on the Draft Final Report shall be submitted to the Embassy of Japan by January 12, 1996.

(3)Mongolian party expressed strong hope for early implementation of the priority projects with the assistance from donor countries and organizations, especially from Japan.

(4)Mongolian party also strongly expressed that Mongolian personnels be trained in Japan in order to realize projects to be contained in the Final Report.

(5)The Study Team replied that requests related to above(3) and (4) should be submitted to the Embassy of Japan through formal procedures.

ANNEX

LIST OF ATTENDANTS
(WG MEETING ON 11ST OF DECEMBER, 1995)

Name	Position	Organization
1 MONGOLIAN PARTY		
D.Dorligsuren	General Director	Economics and International Cooperation Dept., MOFA
D.Davaadorj	General Director	Crop, Machinery & Irrigation Dept.,MOFA
A.Shiilegdamba	Officer	EICD, MOFA
D.Dalantainyam	-do-	-do-
T.Luvsanbud	-do-	Crop, Machinery & Irrigation Dept.,MOFA
T.Lhagva	-do-	-do-
B.Enkhbold	-do-	-do-
N.Batjargar	-do-	Animal Hasbandry Dept.
G.Unenbat	-do-	-do-
S.Namjildorj	-do-	General dept. of State Veterinary Service
B.Minjigdorj	Director	Research Institute of Animal Husbandry
N.Tsagaach	Officer	Technology & Investment Policy Dept., NDB
T.Enebish	-do-	Macro-economic Policy dept., NDB
Sh.Bayasgalan	Section Chief	Hydro-Meteorological Research Institute, MNE
D.Avaadorj	-do-	Land Policy Institute,MNE
L.Luvsandavaajav	Head of Section	Water Policy Research Institute, MNE
E.Oyunchimeg	Oficer	MID
2 JICA ADVISORY TEAM		
T.Tuchiya	Team Leader	JICA Headquaters
3 JICA STUDY TEAM		
K.Hattori	Team Leader	JALDA
K.Sakai		
K.Okano		

7.2 Sub-contract Surveys in Mongolia

7.2.1 Events Leading Up to the Contract

(1)August 22: Explanation of the Survey Plans for the Economic International Cooperation Department (EICD) of the MOFA

During the explanation of the overall survey implementatin plan, an outline of the implementation plan for the three studies to be sub-contracted to other organization: the soil analysis, water quality survey, and the farm population opinion survey. the other side was asked to recommend organizations to undertake these three studies.

(2)August 23: Consultation with the Director of the EICD Concerning Implementation Methods

An explanation of the detailed content of the three Surveys to be subcontracted was accompanied by consultation regarding the organizations to carry them out, the survey period, etc. the following three organizations were recommended.

[1] Soil Analysis: Darkhan Plant and Agriculture Research Institute.
[2] Water Quality Survey: The Water Policy Research Department of the Ministry of Nature and the Environment.
[3] Farm Population Opinion Survey: Gurgem Co.,Ltd.

Because the Director of the EICD Will take responsibility for the implementation of the survey to be sub-contracted and will provide the needed guidance to the sub-contractors, the EICD Director will witness the signing of the contracts.

(3)August 24 to 30: Consultation with the Candidate Organizations

Consultations were held with the candidate Organizations concerning the survey plans and detailed content of the sueveys. As a result of there consultations, it was decided to add the survey items to the details the surveys in the Inception Reports, then partially revise and implement the plans.

(4) September 1: Approval of Specifications, Etc.

The supervisory staff from the JICA approved the draft specifications and contracts for the three surveys.

7.2.2 Details of the Surveys

1) Soil Survey

(1)Details of the Survey

[1] Number of Samples Taken: 300 samples

[2] Analysis Items: $pH(H_2O)$
Carbon (decayed vegetation)
Nitrate nitrogen
Available phosphate
Exchangeable magnesium, potassium, and sodium
Soluble salts
Carbon dioxide
Surfate radical
Cohesiveness

(2) Survey Period

Sixty days from the day the contract is signed (Sept. 8 to Nov. 6)

(3) Contractor

Darkhan plant and Agriculture Research Institute

(4) Reasons for the Selection of the Contractor

The Darkhan plant and Agriculture Research Institute, which is the central organization responsible for soil and crop cultivation in Mongolia, has more experience in soil analysis on agricultural land than any other Mongolian organization. when the crop cultivation plans to be included in the Master Plan areprepared, the survey team and the Institute will work closely together to make full use of the survey results.

2) Water Quality Survey

(1)Details of the Survey

[1] Number of Samples Taken: 300 samples

[2] Analysis Items: $pH(H_2O)$
Electrical conductivity (EC)
Coliform bacteria
Water Temperature
Sodium (Na)

Potassium (K)
Calcium (Ca_2)
Magnesium (Mg)
Chloride Ion (Cl)
Sulfate Ion (SO_4)
CO_3
HCO_3

(2) Survey Period
Seventy days from the day the contract is signed (Sept.19 to Nov.27)

(3) Contractor
The Water Policy Research Department of the Ministry of Nature and the Environment.

3) Farm Population Opinion Survey

(1)Details of the Survey

[1] Work content : 377 samples
Farm trend surveys: 127
Cooperative union trend surveys: 75
Nomadic people trend surveys: 100
County headmen trend surveys: 75

(2) Survey Period
Sixty days from the day the contract is signed (Sept. 9 to Nov. 7)

(3) Contractor
GURGEM Co. Ltd

7.2.3 Outline of Survey Resluts

1) Summary of the Resluts of the Soil Survey

(1) Purpose
To perform physical and chemical analyses of the soil infields in the study district to obtain basic data needed for a study of the productivity of the soil, factors hampering production, soil improvement measures, and improved fertilization measures.

(2) Details of the Analysis

[1] Number of Sampling Locations
344 locations (Conducted on fields on corporate farms formed by dividing up the state farms.)

[2] Items Analyzed

pH, carbon (decayed vegetation), nitrate nitrogen, available phosphate, exchangeable bases (Mg,k,Na), soluble salts, carbon dioxide, Surfate radical,cohesiveness.

(3) Organization Contracted to Perform the Survey

Darkhan Plant and Agriculture Research Institute.

(4) Results

The analysis results are presented in Figure 7.2.3.1 to 7.2.3.4. The soil taken from every location was categororized aseither powdery carbonate dark-brown soil or as powdery carbon atemeadow-brown soil, both of which correspond to the FAO category, kastanosems.

The pH(H_2O) of the soil indicates that almost all the soil is slightly acid, a type judged suitable for cultivation. The analysis of the organic material content reveals the it is nothigh, with almost all of the soil specimens (70% of all analysis locations) classified as Class II orIII according to the cassification system used in Mongolia (I : 2.5% or more, II : 1.1 to 2.5%, III :1.1% or less). The tendency is particularly marked in Tov, Bulgan, and Darkhan. An analysis of the relationship of soil type with organic material.

The nitrate nitrogen (NO^3) analysisi revels that at about 60% of the analysis locations. the soil has insufficient nitrate nitrogen judging from the standard values used in Mongolia. There tends to be less nitrate nitrogen in sandy soil with little organic material. The level is particularly low in soil in Ovorhangai, where the soil type ranges from sand soil to sandy loam soil. And perhaps because the soil is fine, there is little nitrate nitrogen in the meadow-brown soil on the wet grasslands. The available phosphate (P_2O_5) analysis reveals insufficient levels at about 40% of all the soil analysis locations with a particularly large number of low-level locationsin Ovorhangai.

Almost all the soil contains sufficient exchangeable potassium (K_2O) and plenty of exchangeable magnesium (Mgo).

Almost all the soil specimens contained no soluble salts. The result indicates no salinization has occurred in the soil in any of these fielde. But in soil which has been prepared for irrigation, light concentration of salinization was observed, although it has not progressed to a level at which it will hamper crop cultivation (farm in Darhan-uul and Darhan-orugiru Farm).

Judging from the above analysis results, a lot of the soil is short of nitrogen and phosphates, This means that it will be necessary to use fertilizers with plenty of nitrate sand phosphates. And because control of the organic matter content of soil is important, it will be necessary to addanimal excreta to the soil, return wheat stalks and other by products to the fields, introduce bean cultivation and plow these back into the ground, and take steps to prevent wind erosion in order to prevent the depletion of organic matter in the soil.

2) Outline of the water Quality Analysis

(1) Purpose

The water quality analysis was performed on the water in rivers, near typical irrigated farms, and on water from well sused by farmers and nomadic herders in the study region, in order to provide basic material for use when preparing irrigation water drainage plans for the provision of an agricultural community infrastructure.

(2) Details of the survey

[1] Survey Locations

River Water: 86 locations (two locations from each river near corporate farms that irrigate the fields)

Well Water: 215 locations (Wells etc. used by corporate farms and nomadic herders.)

Total: 301 locations

[2] Items Analyzed

Water temperature, pH, electrical conductivity, coliform bacteria count, Na, k, Ca, Mg, chlorine ions, sulphate ions, iron, carbon dioxide ions, heavy carbon dioxide ions.

[3] Allowed Water Quality Values

The potable water quality standards applied were water quality standards for the public water supply facilities enactedby the Government of Mongolia. The allowed values for electrical conductivity (EC) and the pH, which were analyzed in water to be used for irrigation, were Japanese standard values.

(3) Organization Contracted to perform the Study

The Water Policy Research Department of the Ministry of Nature and the Environment.

(4) Results

Table 3.1.3.8 and Figure 7.2.3.5 show the water quality sampling points. Interviews at these location indicate that thewater is used as potable water at 287 of the 301 locations regardless of its quality, while at the remaining 14 locations, the water is not used because of broken pumps.

a) Potable Water

Table 3.1.3.9 summarize the results of the potable water analysis. The results show that at 161 of the 215 sites, the water is safe for drinking as it is, that it is safe if boiled at 30 more sites, that it can be used for animals at 7 sites, and that it can not be used for animals or humans (too much iron, too hard) at 17 test location. This means water can be used as potable water at 89% of the test locations, and can be used to water animals at 92% of the sites.

b) Irrigation Water

Table 3.1.3.10 summarize the results of the EC (electrical conductivity) and pH analysis of irrigation water. The EC results show that all the water specimens are suitable for irrigation use. The pH levels exceed 8.0 at 10 locations, but if water of this kind flows in an irrigation channel during the summer irrigation season, its pH level falls as it is supplied with oxygen and carbon dioxide, so it is suited foruse as irrigation water.

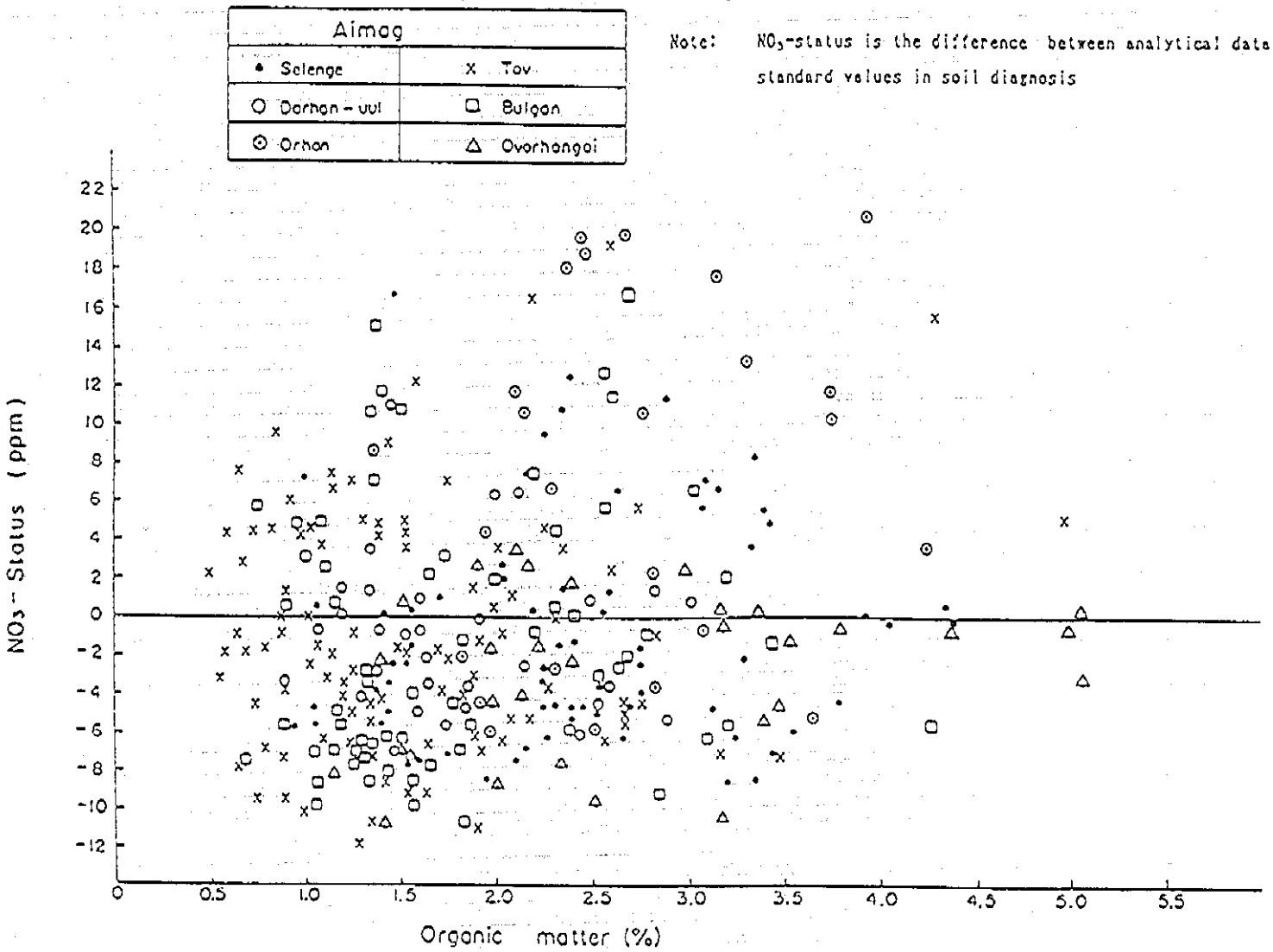
c) Comparison with the results of past Water Quality Surveys

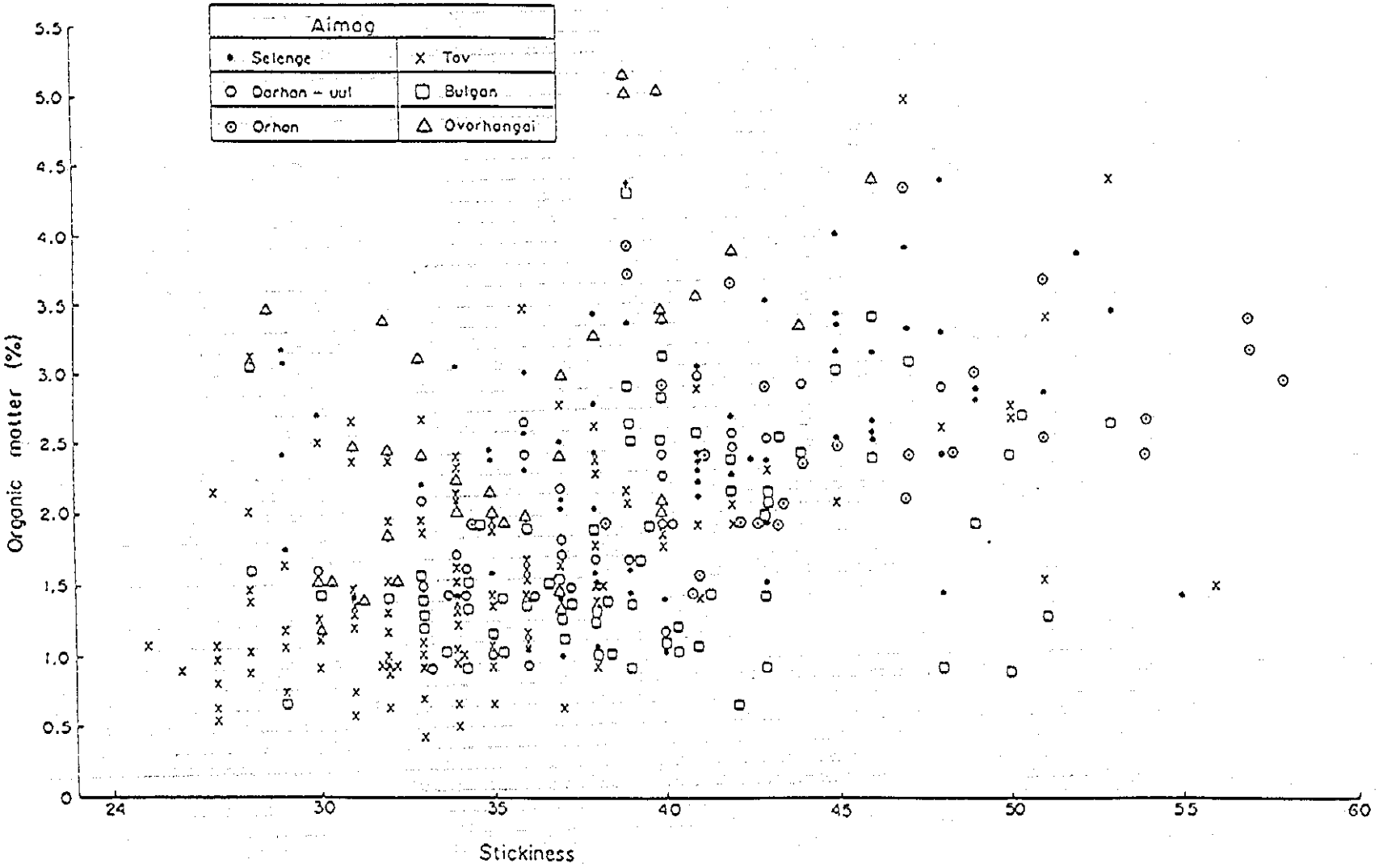
Table 3.1.3.11 compares the results of this water quality Survey with those of past water quality studies (Survey at the same locations peformed by the Water Policy Research Department between 1971 and 1989). The comparison of the water's total mineral content shows that at 19 out of 27 sampling locations (70%) the maximum mineral content increase equals 22%. A look at the over all results shows that with the exception of water at Bayanaguto and Shaihan Sum in Bulgan Aimag, the contamination of the water has not advanced very much, with the content changing less than 7%.

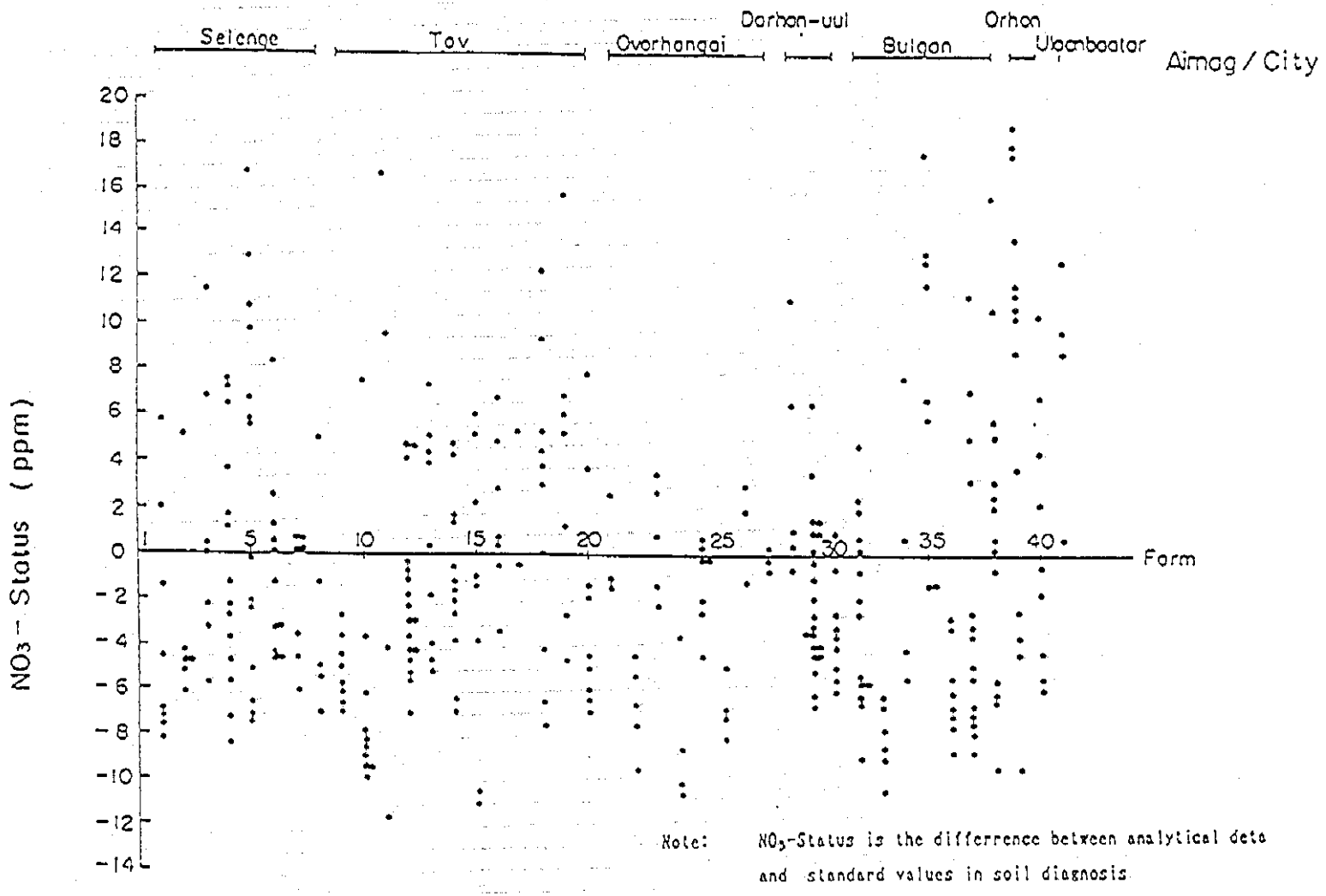
The sampling and analysis performed during this water quality survey

were done after the end of the harvest and before the first snow fall.

When the survey commenced, it was assumed that the discharge of household waste water, the dumping of industrial waste water, and an increase in the number of domestic animals had caused contamination of the water, but at many of the test locations, the water was found to be usable not only for irrigation purposes but for human consumption, indicating that water contamination has not progressed very farin the survey area. But sbout 10% of the wells were judged unusable because of measures are necessary in these cases.


Aimag
Selenge
Tov
Dornod - uul
Bulgan
Orhon
Ovorhangai
Note: NO3-status is the difference between analytical data and standard values in soil diagnosis
NO3- Status (ppm)
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
Organic matter (%)


Aimag
Selenge
Tov
Darhan - uul
Bulgan
Orhon
Ovorhangai
Organic matter (%)
Stickiness
0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
24
30
35
40
45
50
55
60



Note: NO_3-Status is the difference between analytical data and standard values in soil diagnosis

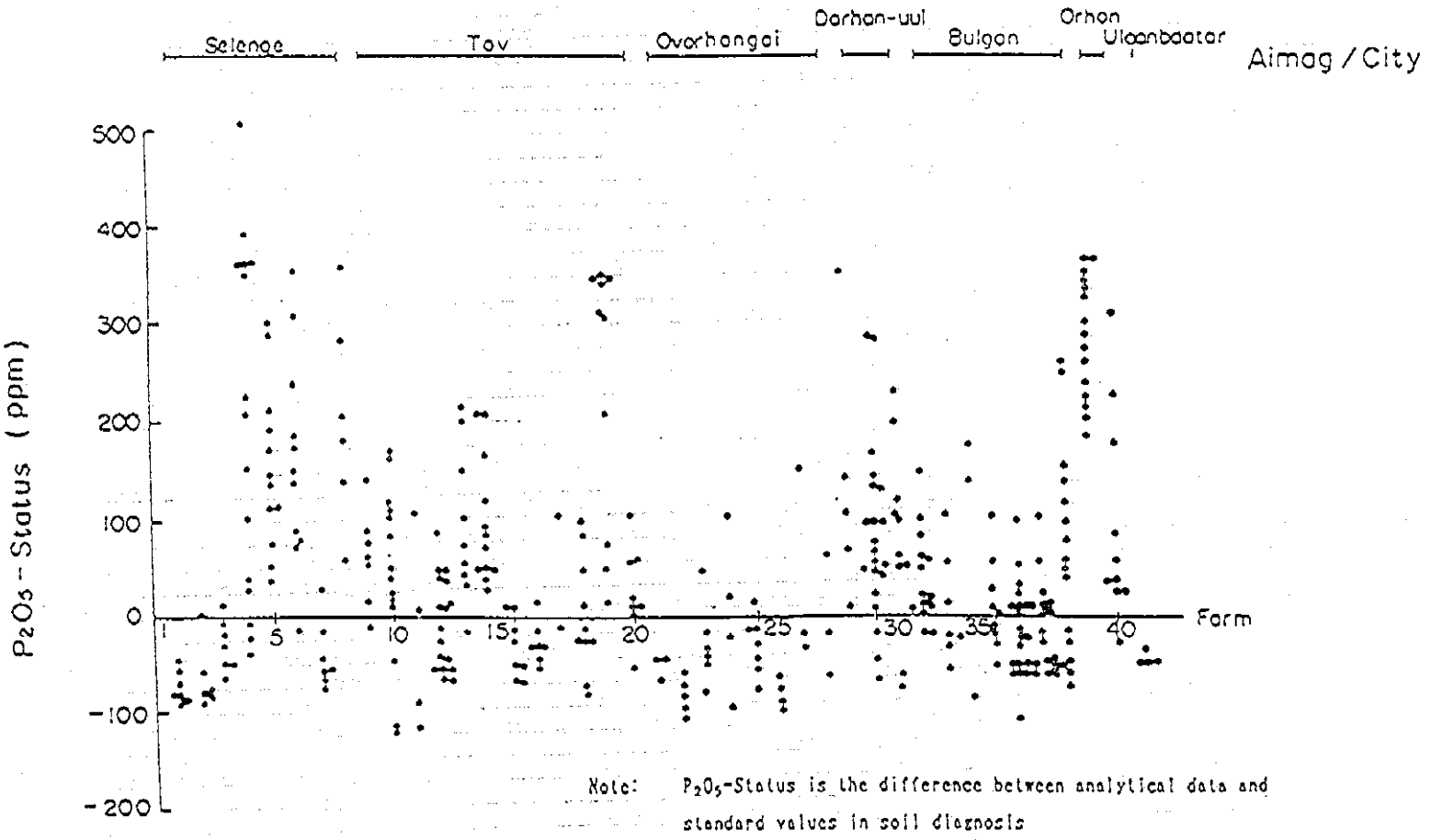
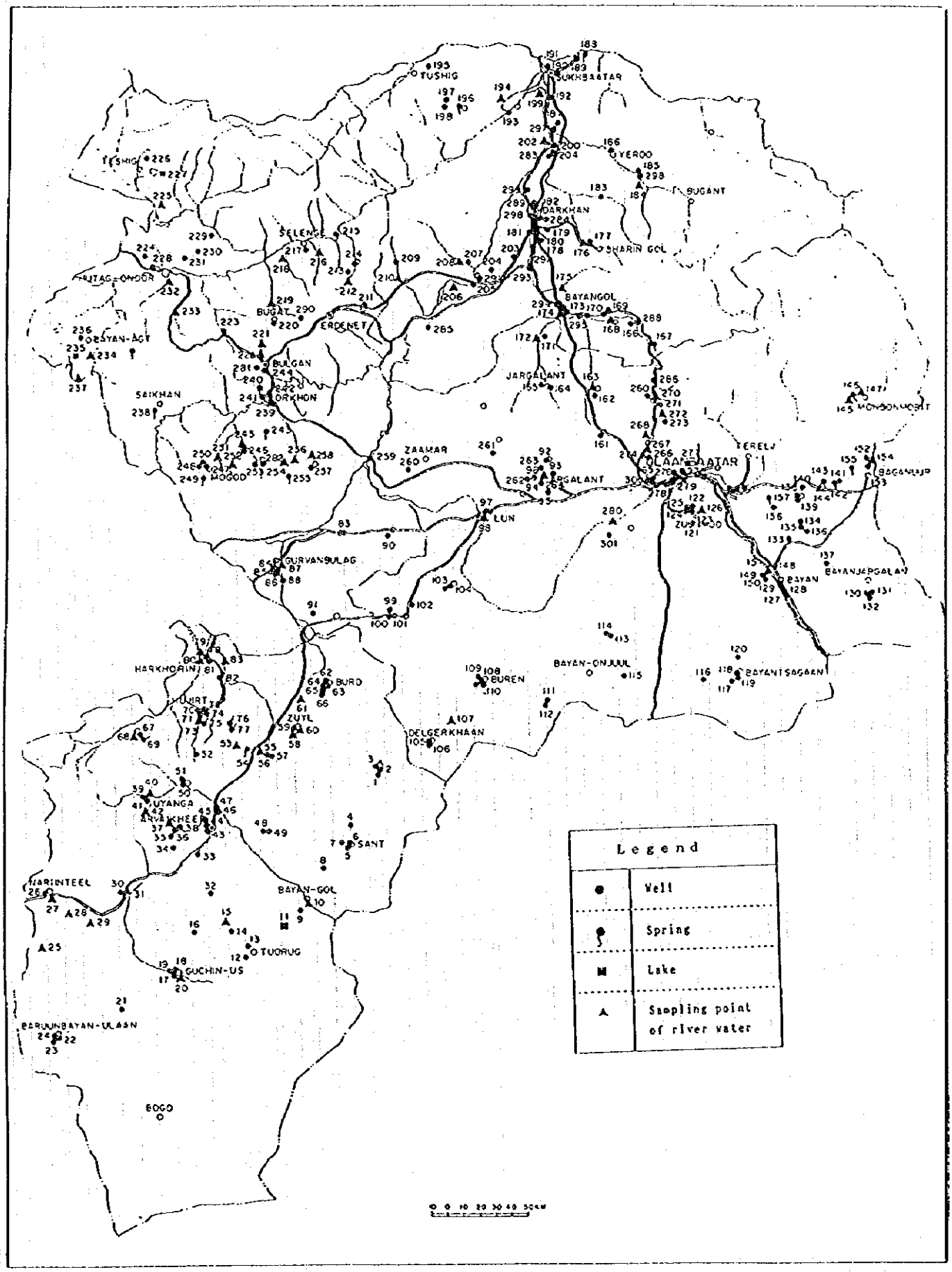

Selenge
Tov
Ovorhangai
Darhan-uul
Bulgan
Orhon
Ulaanbaatar
Aimag / City
500
400
300
200
100
0
-100
-200
P2O5 - Status (ppm)
1
5
10
15
20
25
30
35
40
Farm
Note: P2O5-Status is the difference between analytical data and standard values in soil diagnosis

Figure 7.2.3.5 Water Quality Study Sampling Location Map



Overview of results of opinion survey

This survey was distributed to county presidents, nomadic farmers, and owners and operators of commercial farms and agricultural cooperatives formed as a result of the privatization of nationallyowned farms and Negdel agricultural cooperatives.

Target of survey	Number of respondents
County presidents	79
Nomadic farmers	94
Commercial farms	157
Agricultural cooperatives	47
Total	377

(1) Methods of making improvements to agriculture and action required on the part of national and local government

The following is a summary of the responses we gained from county presidents, nomadic farmers, and the owners and operators of commercial farms and agricultural cooperatives on what they believed would be the best way to improve the state of the agricultural industry and on what actions they believed should be taken by national and local government. (Note that the figures below represent the results of multiple responses, and the percentages shown indicate the number of responses obtained with respect to the total number of persons covered in this survey.)

(a) Ways of improving the state of the agricultural industry and the management of farms

County presidents

Increase production	45%
Increase number of processing plants	46
Maintain current status	23

Commercial farms

Change methods of management	36%
Worker training	32
Improvement of machinery	19

Agricultural cooperatives

Increase number of processing plants	64%
Increase production	48
Entry of new businesses into market	19

Nomadic farmers

Increase scale of operations	76%
Maintain current status	7
Switch occupations	5

(b) Actions which should be taken by national and local government

County presidents

Investment assistance	35%
Replacement of machinery, improved technology	26
Provide support for the construction of processing plants	14

Commercial farms

Improved system of finance	59%
Find more markets for sale of goods	20
Replacement of machinery, improved technology	20

Agricultural cooperatives

Provide support for the construction of processing plants	40%
Provide services to nomadic farmers	33
Investment assistance	24

Nomadic farmers

Educational and welfare services	40%
Find more markets for sale of goods	28
Development of small and midsized companies	18

(2) Results of survey targeting county presidents

The figures in table (a) below were obtained from the results of a questionnaire distributed to the presidents of local counties, with the results shown here indicating the numbers of villages in individual counties, and figures indicating the numbers of markets, schools, wells, and other facilities required to provide a decent living environment.

The figures in table (b) below were also obtained from the results of a questionnaire distributed to the presidents of local counties, with the results shown here indicating the numbers of farms and plants for the processing of agricultural products located therein. Note that the data shown here on farms and plants for the processing of agricultural products still needs to be checked against other data collected in this survey for accuracy.

The figures in table (c) below were also obtained from the results of a questionnaire distributed to the presidents of local counties, with the results shown here indicating the results of questions on the degree to which facilities have been provided to provide residents with a better lifestyle, together with responses to an oral survey on the existence of lack thereof of plans for projects to improve these facilities and the feasibility of initiating such projects.

The figures in table (d) below were also obtained from the results of a questionnaire distributed to the presidents of local counties, with the results shown here indicating the results on question on the degree to which facilities have been provided to increase agricultural and livestock production, with the responses indicating the current state of any such facilities together with plans for future projects or the implementation of same.

(Note that the results of surveys targeting nomadic farmers and owners and operators of commercial farms and agricultural cooperatives have been presented in the same manner.)

(3) Results of survey targeting owners and operators of commercial farms

The figures in table (e) below show the capital funding, percentages of shares held, number of employees and other data on commercial farms, with this data shown in terms of totals for all farms included in the survey and averages per farm. (Note that answers which were left blank were not included in the calculation of these averages.)

The figures in table (f) below show the type and amount of equipment and goods owned by commercial farms together with data on the amount of land under irrigation.

The figures in table (g) below show the terms under which capital financing has been obtained.

The figures in table (h) below show data on fields under cultivation together with the numbers and types of livestock being raised.

The figures in table (i) below show the results of questions on future plans for increasing production, improving irrigation facilities, or improving the quality of life at commercial farms.

(4) Results of survey targeting owners and operators of agricultural cooperatives

The data in table (j) show the responses to questions on the general quality of life and conditions of production for agricultural and livestock products.

The data in table (k) show the answers to questions on whether or not plans exist to improve irrigation facilities.

The data in table (l) show the answers to questions on the feasibility of initiating any such projects.

(5) Results of survey targeting nomadic farmers

The data in table (m) show the average number and makeup of 97 nomadicfarmer households together with data on the distances moved, amount of income from farming, education of children, and the number and type of livestock being raised.

The data in table (n) show the results of questions on purchasing everyday goods and on the general quality of everyday life.

The data in table (o) show the results of a question posed to heads of households on any plans they might have for improving farming methods or for otherwise improving their quality of life.

Table 7.2.3.1 County Mayors' Survery Results

A:Survery of county (as a data of 1993)

	Total	Selenge Darhan	Tov Ulaanba.	Burgan Erdenet	Ovorhangai
Number of employee &	1385	266	435	316	368
of which, employees rerated to agri.	1068	661	145	127	135
Total area of county	5082.9	949.1	1727.6	1003.1	1403.1
of which, arable land area	2061.9	457.8	405.4	1059.8	138.9
Total population of the county	320796	65742	119779	46993	88282
total household	75596	17942	22944	11635	23075
of which, farming household	6294	2933	324	891	2146
Livestock household	34330	3380	9949	5836	15165
Number of village in the county	336	45	117	66	108

a) Life circumstances

	total
Number of market	34
secondary school	91
hospital	86
doctors	530
shops	625
of those, food shops	242
banks	90
turist site	17
mail delivary	1.5
railway station	9
toransportation company	3
distance/km from Ulannbaat.	
Rate of telephone ownership	
Vehicle ownership	
sewerge development area	
water supply development a.	
Number of well	2215

b) Farm, processing plant

	total
Number of state farm former	37
NEGDER former	42
Number of individual company	2352
partnership company	267
compnay	274
Number of entry farm	369
agricultural company	222
partnership farm	11
Number of state company	60
state farm	8
Number of storage facilities	343
processing plant	
of which, wheat mills	187
meat process. plant	11
wool & hide processing	13
other food process.	73

c) Social infrastructure in county (rate, as a rate of total answer)

(Present condition)

	Number of data	Answer 79	rate
Are transport connection with cities fully developed (bus,railway)?	many convenient	31	0.39
	many inconvenient	26	0.33
	undeveloped	15	0.19
Are road networks between villages adequately developed (reached by car)?	many convenient	47	0.59
	many inconvenient	13	0.16
	undeveloped	12	0.15
Are farm road fully developed (can trucks access all plantation)?	many convenient	34	0.43
	many inconvenient	19	0.24
	undeveloped	15	0.19
Is the water supply fully developed?	many convenient	24	0.30
	many inconvenient	30	0.38
	undeveloped	15	0.19
Is the sewarage fully developed?	many convenient	7	0.09
	many inconvenient	12	0.15
	undeveloped	37	0.47
Is electricity supplied to all household?	many convenient	16	0.20
	many inconvenient	35	0.44
	undeveloped	17	0.22
an living requisites be supplied by local shop?	many convenient	3	0.01
	many inconvenient	53	0.67
	undeveloped	12	0.15
an food provision be supplied by local shop?	many convenient	5	0.06
	many inconvenient	51	0.65
	undeveloped	13	0.16

Are there improvement plans;

	Number of data	Answer 79	rate
of transport connection with cities fully developed (bus,railway)?	entirly planned	7	0.09
	some project plan	15	0.19
	no project plan	27	0.34
of road networks between villages adequately developed (reached by car)?	entirly planned	10	0.13
	some project plan	15	0.19
	no project plan	25	0.32
of the farm road fully developed (can trucks access all plantation)?	entirly planned	8	0.10
	some project plan	14	0.18
	no project plan	25	0.32
of the water supply fully developed?	entirly planned	6	0.08
	some project plan	16	0.20
	no project plan	25	0.32
of the sewarage fully developed?	entirly planned	3	0.04
	some project plan	8	0.10
	no project plan	35	0.44
of the electricity supplied to all household?	entirly planned	6	0.08
	some project plan	21	0.27
	no project plan	20	0.25
to supply the living requisites by local shop?	entirly planned	5	0.06
	some project plan	22	0.28
	no project plan	22	0.28
to suplly the food provision by local shop?	entirly planned	5	0.06
	some project plan	23	0.29
	no project plan	21	0.27

Are there project potencial:

	Number of data	Answer 79	rate
of transport connection with cities fully developed (bus,railway)?	project possible	33	0.42
	project difficult	1	0.01
	proje. not needed	14	0.18
of road networks between villages adequately developed (reached by car)?	project possible	31	0.39
	project difficult	1	0.01
	proje. not needed	13	0.16
of the farm road fully developed (can trucks access all plantation)?	project possible	29	0.37
	project difficult	6	0.08
	proje. not needed	12	0.15
of the water supply fully developed?	project possible	31	0.39
	project difficult	3	0.04
	proje. not needed	10	0.13
of the sewarage fully developed?	project possible	19	0.24
	project difficult	6	0.08
	proje. not needed	19	0.21
of the electricity supplied to all household?	project possible	30	0.38
	project difficult	8	0.10
	proje. not needed	10	0.13
to supply the living requisites by local shop?	project possible	31	0.39
	project difficult	10	0.13
	proje. not needed	8	0.10
to suplly the food provision by local shop?	project possible	32	0.41
	project difficult	6	0.08
	proje. not needed	10	0.13

d) Agricultural infrastructure county

(Present condition)

	Number of data	Answer 79	rate
Is it possible to repair farm machinery in rural areas?	many convenient	14	0.18
	many inconvenient	26	0.33
	undeveloped	21	0.27
Can spare parts for farm machinery be procured?	many convenient	0	0.00
	many inconvenient	4	0.05
	undeveloped	53	0.67
Is the present scale of farm machinery suitable?	Yes	32	0.41
	No	25	0.32
Are the irrigation fasilities?	many convenient	18	0.23
	many inconvenient	7	0.09
	undeveloped	11	0.14
Is it possible to repair irrigation fasilities in rural areas?	many convenient	4	0.05
	many inconvenient	9	0.11
	undeveloped	5	0.06
Is the scale of irrigation fasilities suitable?	Yes	13	0.16
	No	37	0.47
No-irrigation-farm Is there a water source can be use int the county?	Yes	44	0.56
	No	8	0.10
Is there a water source near by?	many convenient	4	0.05
	many inconvenient	14	0.18
	undeveloped	30	0.38

Are there improvement plans;

	Number of data	Answer 79	rate
to repair farm machinery in rural areas?	entirly planned	5	0.06
	some project plan	10	0.13
	no project plan	33	0.42
to procured spare parts for farm machinery?	entirly planned	0	0.00
	some project plan	41	0.52
	no project plan	5	0.06
to introduce medium-scale machinery?	entirly planned	1	0.01
	some project plan	20	0.25
	no project plan	22	0.28
to repair irrigation fasilities?	entirly planned	2	0.03
	some project plan	8	0.10
	no project plan	32	0.41
to introduce small-scale fasilities?	entirly planned	1	0.01
	some project plan	12	0.15
	no project plan	28	0.35
No-irrigation-farm to introduce new fasilities in rural area?	entirly planned	1	0.01
	some project plan	7	0.09
	no project plan	31	0.39
to develop water resource in rural area?	entirly planned	1	0.01
	some project plan	15	0.19
	no project plan	25	0.32

Are there project potencial;

	Number of data	Answer 79	rate
to repair farm machinery in rural areas?	project possible	26	0.33
	project difficult	5	0.06
	proje. not needed	15	0.19
to procured spare parts for farm machinery?	project possible	12	0.15
	project difficult	9	0.11
	proje. not needed	23	0.29
to introduce medium-scale machinery?	project possible	21	0.27
	project difficult	11	0.14
	proje. not needed	9	0.11
to repair irrigation fasilities?	project possible	9	0.11
	project difficult	7	0.09
	proje. not needed	25	0.32
to introduce small-scale facilities?	project possible	11	0.14
	project difficult	10	0.13
	proje. not needed	20	0.25
No-irrigation-farm to introduce new fasilities in rural area?	project possible	8	0.10
	project difficult	5	0.06
	proje. not needed	25	0.32
to develop water resource in rural area?	project possible	17	0.22
	project difficult	6	0.08
	proje. not needed	17	0.22

Table 7.2.3.2 Results of Study of Corporations

Survey of Farm company,(as year of 1993)
(*avarage=total/number of company answered)

e) Outline

Location	Average of a company *	Total of F. Company in Study A
Number of data		155
Capital/Stock (at biginning)	12018	1754631
(at end of 1993)	29041	3717189
Issued stocks (as of 1994)	14987	2038275
% of stock holding (as of 1994)		
State /100	32	
Employee/100	60	
Others/100	8	
Farming & managing area of comp.	29166	4520801
Farm-land	11934	1348506
Grass-land	28912	462592
Fodder farm	3007	75180
Green house	1	4
Office	911	4555
Storage/Plant	21557	2629964
Number of worker	133	20496
for livestock	37	5359
for farming	58	7792
for machine operator	35	4003
for vegetable	26	1547
temporary employee	34	1053
other	42	6145
Number of each Age-group	107	320
under 29 young	45	5371
30-49	64	7715
50-59	14	1639
over 60 old	8	340
temporary Farm labours	47	2119
Unit wagies/Tg./day or month		
Cropped area of 1993	4109	8217

f) Capital Equipment

	Average of a company	Total of F. Company
Number of Telephones	3	280
Vehicles	6	715
Tracks	4	443
Farm machinery repair workshop	0.3	41
Stock of spare parts for above	0.4	65
Warehouse	0.7	112
Agricultural Processing Plant	0.3	44
Livestock processing plant	0.1	16
Number of tractors	19	2395
Subsidiary work machinery set	61	6518
Harvest for wheat	11	991
Machinry Purchased after 1990	6	49
Toraktors	3	208
Attachment	7	363
Harvesters	3	153
Other	2	68
Present irrigation areas (ha)		3739

g) Loan used

		Average of a company	Total of F. Company
Long-term	amout	5049	297903
	interest rate	44	88
	tarm of loan	0	0
Mediume-term	amout	5822	23290
	interest rate		0
	tarm of loan		0
Short-term	amout	21077	2191986
	interest rate	3770	56553
	tarm of loan	0	2

h) Cripping area and number of livestock

		Average of a company	Total of F. Company
Farm-land area		4109	8217
Cropped area of 1993		2260	6780
Crops	wheat	3167	275525
	barley	40	40
	potatoes	112	2834
	vegetable	33	601
	fodder for silage	311	3110
	green fodder	70	70
Animals			
	dairy cattle	95	1041
	beef cattle	346	43262
	hourses	137	18834
	goat	187	8987
	sheep	2213	300923
	pig	66	1644
	chickens	10031	70216
	other	3858	65584

i) Future plan

	data	answer 155	rate
Expansion of farm management scale	wish	57	0.37
	keeping	0	0.00
Expansion of farm livestock management	wish	55	0.35
	keeping	0	0.00
Improvement in Irrigation facilities	wish	13	0.08
	keeping	1	0.01
Renewal of Irrigation facilities	wish	79	0.51
	keeping	1	0.01
Need for more compact facilitites	wish	14	0.09
	keeping	1	0.01
Improvements of water supply	wish	8	0.05
	keeping	0	0.00
Improvements of sewerage	wish	14	0.09
	keeping	0	0.00
Improvements of electric cities	wish	17	0.11
	keeping	0	0.00

Table 7.2.3.3 Results of the Study of Associations and Society

Surve of Partnership company

j) Present condition of social and agricultural infrastructure in the partnership company

	Number of data	TOTAL 46
Road networks between villages adequatery developed(reached by car)	Many convenient	14
	Many inconvenient	17
	Undeveloped	10
Farm road are adequatery developed (trucks can access farm)	Many convenient	17
	Many inconvenient	11
	Undeveloped	13
Can living requisites be supplied by the p. company	Many convenient	3
	Many inconvenient	28
	Undeveloped	9
Can food provisions be supplied by the p. company	Many convenient	10
	Many inconvenient	20
	Undeveloped	9
Fertilizers chemicals etc. supplied by the p. company	Many convenient	0
	Many inconvenient	6
	Undeveloped	31
The introduction & extention of agricultural technology be provided by p. company	Many convenient	0
	Many inconvenient	4
	Undeveloped	32
Service of repairing farm machinery be provided by p. company	Many convenient	5
	Many inconvenient	23
	Undeveloped	8
Spare parts for farm machinery be provided by p. company	Many convenient	4
	Many inconvenient	13
	Undeveloped	19
Is the scale of farm machinery suitable?	Yes	8
	No	28
Is it necessary to introduce medium-scale machinery?	Many convenient	3
	Many inconvenient	9
	Undeveloped	22
Have irrigation fasilities? Is fasilities repair needed?	Many convenient	7
	Many inconvenient	0
	Undeveloped	1
	No answer	6
Is the scale of irrigation fasilities suitable?	Yes	4
	No	3
No-irrigation areas to introduce irrigation	Many convenient	1
	Many inconvenient	1
	Undeveloped	32
Is there a water source neaby company can use?	Many convenient	2
	Many inconvenient	20
	Undeveloped	12
Do water sources need to be developed?	Many convenient	5
	Many inconvenient	9
	Undeveloped	20

k) Improvement plan of social and agricultural infrastructure in the partnership company

	Number of data	TOTAL 46
Road networks between villages adequatery (reached by car)	entirely pland	2
	some plans	8
	no plan	23
Farm road are adequatery (trucks can access farm)	entirely pland	2
	some plans	5
	no plan	26
To supply living requisites	entirely pland	0
	some plans	17
	no plan	14
To supply food provisions	entirely pland	1
	some plans	16
	no plan	16
To supply Fertilizers chemicals etc.	entirely pland	1
	some plans	6
	no plan	25
To introduce & extend agricultural technology	entirely pland	0
	some plans	7
	no plan	26
To serve repairing farm machinery	entirely pland	2
	some plans	9
	no plan	22
To stock spare parts for farm machinery	entirely pland	0
	some plans	10
	no plan	23
To make sirvices of renewaling farm machinery	Yes	3
	No	31
To introduce medium-scale machinary?	entirely pland	2
	some plans	10
	no plan	22
Irrigation areas		7
To repair irrigation fasi.	entirely pland	0
	some plans	4
	no plan	3
To change scale of irrigation fasilities	Yes	2
	No	
To introduce saall-scale irrigation fasilities	entirely pland	0
	some plans	4
	no plan	3
No-irrigation areas to introduce irrigation	entirely pland	1
	some plans	0
	no plan	33
To develop a water source neaby company can use?	entirely pland	2
	some plans	3
	no plan	29

1) Project Potencial of social and agricultural infrastructure in the partnership company

	Number of data	TOTAL 46
Road networks between villages adequatery (reached by car)	project possible	16
	project difficulte	7
	no need	9
Farm road are adequatery (trucks can access farm)	project possible	14
	project difficulte	6
	no need	13
To supply living requisites	project possible	19
	project difficulte	8
	no need	4
To supply food provisions	project possible	20
	project difficulte	8
	no need	5
To supply Fertilizers chemicals etc.	project possible	7
	project difficulte	5
	no need	21
To introduce & extend agricultural technology	project possible	11
	project difficulte	11
	no need	11
To serve repairing farm machinery	project possible	14
	project difficulte	11
	no need	8
To stock spare parts for farm machinery	project possible	13
	project difficulte	9
	no need	11
To make services of renewaling farm machinary	Yes	12
	No	22
To introduce medium-scale machinary?	project possible	18
	project difficulte	11
	no need	5
Irrigation areas to repair irrigation fasl.	project possible	4
	project difficulte	3
	no need	27
To change scale of irrigation fasilities	Yes	4
	No	30
To introduce small-scale irrigation fasilities	project possible	1
	project difficulte	6
	no need	27
No-irrigation areas to introduce irrigation	project possible	4
	project difficulte	2
	no need	28
To develop a water source neaby company can use?	project possible	11
	project difficulte	6
	no need	17

m) Outline

	Number of data	Average of a Household 87
Logest Travelling Distance		22
Number of trip taking annually		63
Tripping times		3
Date of first trip		6
Date of last trip		9
Number of family members Total(Persons)		5
Engaged in family		3
Adult males		1
Adult females		1
Hired labour through year		
Thire Wage/day or month		
Wage for temporary worker		

Fasirities for winter life	Average of a Household
Area of farm-land owned	29
grass-land	4
Animal shads (m²)	132
Fence for winter life (m²)	237
Hey barn & storage for feed	55

Population incom expenditure	Average of a Household
Estimated gross farm income	336
Farming revenue	257
Non-farming revenue	70
Production cost	38
fodder & feed	21
transport	13
chemical	4
wages	

Childrens' education	Average of a Household 87
for education	
Together with travelling parents	2
Living at main domicil	1
Boarding hostel/rented house	13
Living expense for children	33,000

Number of Livestock (as of 1993)		Average of a Household
Livestock type		
Cattle	cow	9
	calf	9
	total	31
Horses	mare	8
	filly & colt	6
	total	26
Goat	ewe	71
	kid	68
	total	167
Sheep	adult	13
	lame	12
	total	35
Camel	adult	1
	kid	2
	total	5
Pig	adult	7
	kid	5
	total	9
Poultry	total	4

n) Procurment of requisites and social infrastructure

		Number of data	Average	rate
Water supply	natural		0	0.00
	nearby		0	0.00
	from city		83	0.95
Food supply	natural		0	0.00
	nearby		8	0.09
	from city		76	0.87
Fuel supply	natural		0	0.00
	nearby		3	0.03
	from city		74	0.85
Daily requisites	natural		6	0.07
	nearby		68	0.78
	from city		7	0.08

Water supply	undeveloped	19	0.22
	developing	5	0.06
	developed	46	0.53
Sewerage	undeveloped	0	0.00
	developing	0	0.00
	developed	45	0.52
Administration	undeveloped	8	0.09
	developing	28	0.32
	developed	25	0.29
Procurement requisites	undeveloped	7	0.08
	developing	36	0.41
	developed	26	0.30
Procurement production materials	undeveloped	6	0.07
	developing	32	0.37
	developed	33	0.38
Selling farm products	undeveloped	8	0.09
	developing	26	0.30
	developed	35	0.40

o) Improvement plan

		Average	rate
Change to fild farming	Wish	28	0.32
	Keeping	30	0.34
Improvements to main domicil Water supply	Wish	32	0.37
	Keeping	13	0.15
Sewerage	Wish	20	0.23
	Keeping	41	0.47
Store hose	Wish	33	0.38
	Keeping	16	0.18
Electrical	Wish	41	0.47
	Keeping	17	0.20
Telephones	Wish	35	0.40
	Keeping	8	0.09
Cargo vehicles	Wish	28	0.32
	Keeping	6	0.07

7.2.4 Specification of Surveys

Soil analysis work specifications

1. General provisions

This work shall be undertaken in accordance with these specifications.

2. Purpose

This work has the purpose of carrying out scientific analysis of the soil in each farm, elucidating its fundamental properties, and gathering necessary fundamental data in order to formulate plans such as a land use plan, a farm management plan, and an irrigation and drainage plan, in the target area of the survey for the master plan study on the integrated agricultural and rural development in central region in the Mongolia.

3. Work content

1) Taking samples: cultivated soil taken from 300 locations from the farms in question
2) Scientific analysis of samples taken from the farms: 300 tests
3) Summary of survey results: one set

4. Survey sites

The method of selecting survey sites in each farm shall be discussed in advance with the survey commission.

5. Management standards

The survey and analysis shall be conducted according to methods generally used in Mongolia, but will be discussed in advance with the survey commission and set out clearly in a report.

6. Method of implementation

1) Selecting sites for taking samples
Samples shall be selected on the basis of high and low yield fields of arable area in each farm.

2) State of land use of sample sites, etc.
The land use of sample sites (under separate headings for tilled land, fallow land, or grassland), cultivated crops (names and individual yields of crops cultivated over the past three years), separate headings for irrigation and drainage, figures for the

application of fertilizer (amount of fertilizer applied per unit area), figures for the application of compost (amount of compost applied per unit area), and types of soil shall be reported.

3) Taking samples
Cultivated soil shall be taken in amounts necessary for analysis from the selected sites. In doing so, care must be taken to purify the extraction instruments to avoid the admixture of other substances.

4) Scientific analysis of the samples taken
Soil analysis shall be carried out for the samples taken, under the following headings.

a. pH (H_2O)
b. Carbon (Humus)
c. Nitrate nitrogen (NO_3-N)
d. Available phosphoric acid (P_2O_5)
e. Exchangeable Mg
f. Exchangeable K
g. Exchangeable Na
h. Water soluble Salt
i. Carbonate (CO_3)
j. Sulphate (SO_4)
k. Stickiness

7. Results

The extraction survey results, soil analysis results, site location maps, site photographs, and examinations of these shall be compiled in a report, of which one original manuscript (A4 size, with colour photographs attached) and three duplicate copies shall be presented. Meanwhile, materials that show the names, country of origin, and efficiency such as precision of the analytical instruments used (e.g. copies of product catalogues or handling instructions) shall be attached.

Water quality survey work specifications

1. General provision

This work shall be undertaken in accordance with these specifications.

2. Purpose

This work has the purpose of carrying out surveys of the quality of river water adjacent to representative farms where irrigation farming is practiced and of well water used by farms and nomadic farmers in the target area of the survey for the master plan study on the integrated agricultural and rural development in central region in the Mongolia, and of gathering necessary fundamental data in order to formulate plans such as an irrigation and drainage plan and a rural infrastructure development plan.

3. Work content

1) Taking samples

(i) River water: 86 locations (2 locations in each of 43 corporate farms which have irrigation facilities)

(ii) Well water: 214 locations (127 wells in corporate farms and 87 wells used by nomadic farmers)

Total 300 locations, one sample from each

2) Water quality analysis: 300 samples

3) Summary of survey results: one set

4. Survey sites

The method of selecting survey sites in each farm shall be discussed in advance with the survey team.

5. Management standards

The survey and analysis shall be conducted according to methods generally used in Mongolia, but will be discussed in advance with the survey team and set out clearly in a report.

6. Method of implementation

1) Selecting sites for taking samples

For river water, sampling points shall be water outlet points in irrigation supply channels, while for well water they shall be wells that are in constant use.

2) Taking samples

Samples taken shall be promptly analyzed and measured.

3) Physics and Chemistry analysis of the samples taken
Analysis and measurement shall be carried out for the samples taken, under the following headings.

a. pH (H_2O)
b. Electrical conductivity (EC)
c. Coliform bacteria
d. Water temperature
e. Sodium (Na)
f. Potassium (K)
g. Calcium (Ca_2)
h. Magnesium (Mg)
i. Chloride Ion (Cl)
j. Sulfate Ion (SO_4)
k. Iron (Fe)
l. CO_3
m. HCO_3

7. Results

The water quality analysis results, site location maps, site photographs, and examinations of these shall be compiled in a report, of which one original manuscript (A4 size) and three duplicate copies shall be presented. Meanwhile, materials that show the names, country of origin, and performance such as precision of the analytical instruments used (e.g. copies of product catalogues or handling instructions) shall be attached.

Work specifications for Farm Intention surveys

1. General provisions

This work shall be undertaken in accordance with these specifications.

2. Purpose

This work has the purpose of gathering necessary data in order to formulate a farm management plan, a free pasturage livestock management plan, and a rural infrastructure development plan, by conducting trend surveys including an assessment of current situations, future trends, etc., on the production, distribution, and marketing of agricultural and livestock produce and the actual state of rural development, aimed at farms, cooperative unions, county headmen, and nomadic people in the target area of the survey for the master plan study on the integrated agricultural and rural development in central region in the Mongolia.

3. Work content

1) Farm trend surveys: 127
2) Cooperative union trend surveys: 75
3) Nomadic people trend surveys: 100
4) County headmen trend survey: 75
5) Summary of survey results: one set

4. Survey sites

The targets of the survey shall be counties, farms, cooperative unions, and nomadic people within the range of four provinces in the target area.

5. Management standards

The survey shall be conducted by questionnaire in the form of tabulated questions supplied by the survey commission, though fine details will be discussed in advance with those commissioned to carry out the survey and will be set out clearly in a report.

6. Method of implementation

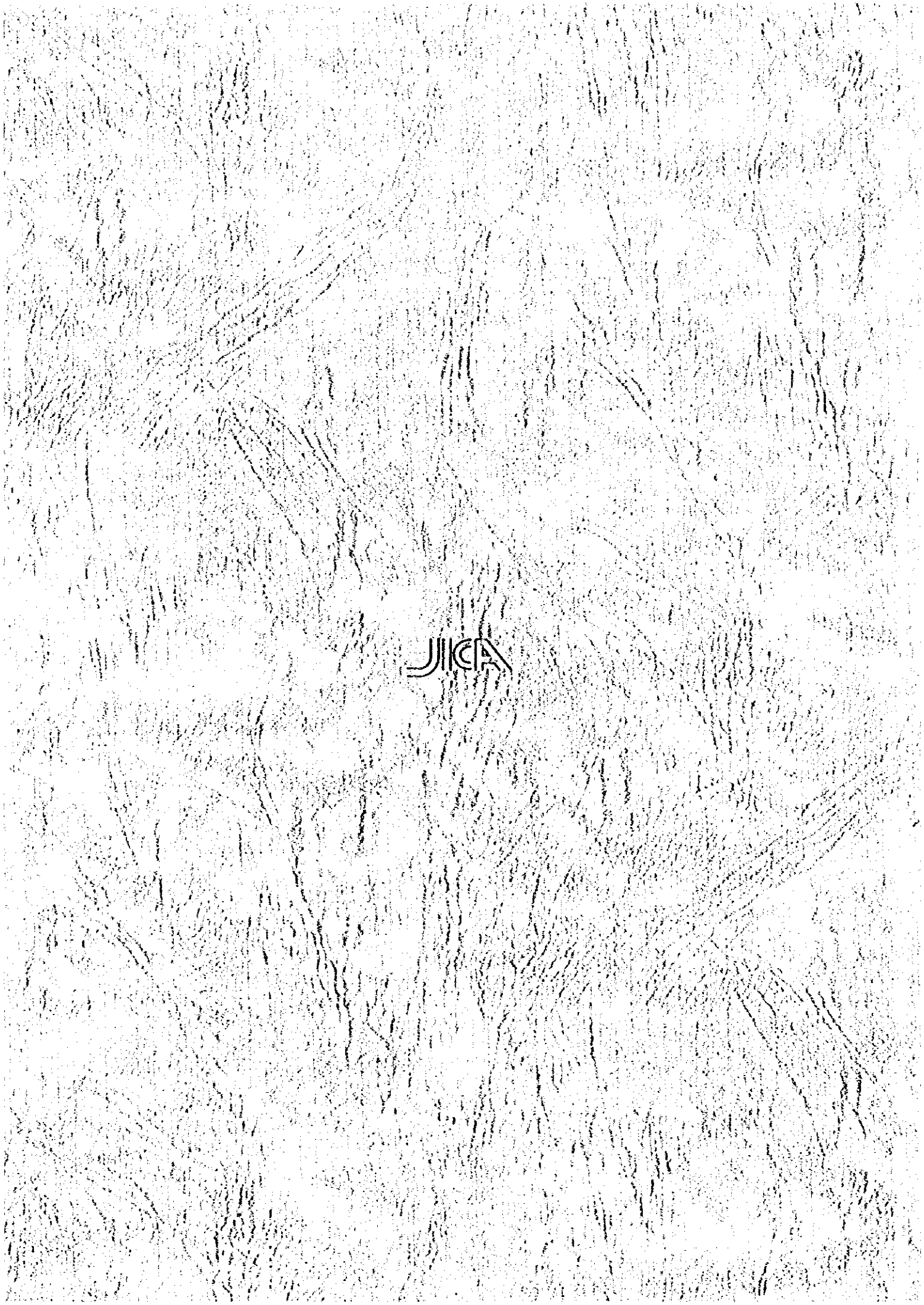
The method shall be done by which the members of the commissioned party shall carry out directly to county headmen, farm managers, cooperative union leaders, and nomadic people, in through

interviews.

1) Questionnaires to farm managers: see attached forms 1 and 2
2) Questionnaires to cooperative union leaders: see attached form 3
3) Questionnaires to nomadic people: see attached form 4
4) Questionnaires to county headmen: see attached form 5
5) Summary of survey responses: see 2) in 7 below.

Form 1 was aimed at all farm managers, while 20% of these farm managers also filled in form 2.

7. Results
   1) All trend survey responses from form 1 to form 5 (originals)
   2) Files compiled from the above (organized into separate prefectures, counties, and former state farms)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