COUNCIL OF MINISTERS
REPUBLIC OF KARAKALPAKSTAN
REPUBLIC OF UZBEKISTAN

THE STUDY ON REGIONAL DEVELOPMENT IN KARAKALPAKSTAN IN THE REPUBLIC OF UZBEKISTAN

FINAL REPORT

ANNEX

FEBRUARY 2011

JAPAN INTERNATIONAL COOPERATION AGENCY

ORIENTAL CONSULTANTS CO., LTD.
SANYU CONSULTANTS INC.
NTC INTERNATIONAL CO., LTD.

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IN THE REPUBLIC OF UZBEKISTAN

ANNEX

TABLE OF CONTENTS

ANNEX G COST ESTIMATION OF ACTION PLAN

ANNEX A: MINUTES OF MEETING ON THE STUDY

SCOPE OF WORK

FOR

THE STUDY

ON

REGIONAL DEVELOPMENT IN KARAKALPAKSTAN

IN

THE REPUBLIC OF UZBEKISTAN

AGREED UPON BETWEEN

COUNCIL OF MINISTERS, THE REPUBLIC OF KARAKALPAKSTAN

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

Nukus, April 27, 2007

Mr. Bahadir Yangibaev
Chairman,
Council of Ministers,
The Republic of Karakalpakstan

Mr. Minoru HOMMA
Leader,
Preparatory Study Team,
Japan International Cooperation Agency
(JICA)

Witness:

Mr. Mukhammadkosim Olimov
Deputy Head of the Complex on Economic Issues,
Ministry of Agriculture and Water Resources,
The Republic of Uzbekistan

I. INTRODUCTION

In response to the official request of the Government of the Republic of Uzbekistan (hereinafter referred to as "the Government of Uzbekistan") and the Government of the Republic of Karakalpakstan (hereinafter referred to as "the Government of Karakalpakstan"), the Government of Japan has decided to conduct the Study on Regional Development in Karakalpakstan (hereinafter referred to as "the Study") together with the Government of Uzbekistan and the Government of Karakalpakstan in accordance with the Agreement on technical cooperation between the Government of Uzbekistan and the Government of Japan signed on June 5, 2006 (hereinafter referred to as "the Agreement")

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will jointly undertake the Study with the authorities concerned of the Government of Uzbekistan and the Government of Karakalpakstan.

The present document sets forth the Scope of Work with regard to the Study and will be valid after the notification of approval by JICA Uzbekistan Office to the Government of Karakalpakstan.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are:

1. To formulate the Master Plan on regional development in the Republic of Karakalpakstan.
2. To develop the capacities on planning and implementing the projects, of the Government of Karakalpakstan and other concerned organizations.

III. STUDY AREA

The Study shall cover eleven (11) Districts of the Republic of the Karakalpakstan (KUNGRAD, MUYNAK, SHUMANAY, KANLIKUL, KEGEILY, CHIMBAY, KHODJEYLI, NUKUS, KARAUZYAK, TAKHTAKUPYR, BERUNI).

IV. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Scope of Work for the Study shall cover the following items.

Phase 1:

(1) Situation analysis
   1) Review of the existing data, information and reports including Program on The Social and Economic Development of the Republic of Karakalpakstan
   2) Baseline survey for supplementary data collection on the following aspects in the above mentioned study area:
      a Natural, social and economic conditions
      b National policy, strategy and plans
      c Household economy of rural farmers
      d Agriculture, horticulture, animal husbandry and inland fisheries
      e Farming system and Post-harvesting

f Processing, marketing and distribution of agricultural products
g Rural infrastructure and facilities including irrigation and drainage system
h Operation and maintenance of existing rural infrastructure and facilities including irrigation and drainage system
i Agricultural extension and credit
j Environmental issues
k Location of districts and population distribution
l Inventory of food processing and marketing related facilities
m Others

3) Review of the relevant projects by the government, donors and NGOs etc.

4) Considerations on environmental and social factors

(2) Identification and clarification of potentials and constraints for attaining regional development of eleven (11) districts of the Republic of Karakalpakstan

(3) Conceptualization of the Master Plan in line with the above potentials and constraints

(4) Drafting the Action Plan

(5) Selection of activities and targeted areas for the verification studies

Phase 2:

(1) Preparation for the verification studies

(2) Implementation of the above planned activities with capacity development of concerned organizations

(3) Considerations on environmental and social factors

(4) Extraction and summarization of lessons and experiences learnt through the verification studies

(5) Finalization of the Action Plans on the basis of findings from the verification studies

(6) Finalization of the Master Plan

V. SCHEDULE OF THE STUDY

The Study will be carried out in accordance with the attached tentative schedule.

VI. REPORTS

JICA shall prepare and submit the following reports in English to the Government of Karakalpakstan. JICA will also prepare the reports in Russian for information purpose. The English version shall remain official.

1. Inception Report:
Fifteen (15) English copies and Thirty (30) Russian copies at the commencement of the first field work period in Karakalpakstan. This report shall contain the schedule and methodology of the

work period in Karakalpakstan. This report shall contain the schedule and methodology of the Study as well.

2. Progress Reports:
Fifteen (15) English copies and Thirty (30) Russian copies at the middle of the Phase1 and Phase2, respectively.

3. Interim Report:
Fifteen (15) English copies and Thirty (30) Russian copies at the end of the Phase1 of the Study.

4. Draft Final Report:
Fifteen (15) English copies and Thirty (30) Russian copies at the end of the verification studies; the Government of Karakalpakstan shall submit its comments within one (1) month after the receipt of the Draft Final Report.

5. Final Report:
Twenty (20) English copies and Forty (40) Russian copies within two (2) months after the receipt of the comments on the Draft Final Report.

VII. ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

The Government of Karakalpakstan shall comply with the relevant regulations and standards in the Government of Uzbekistan as well as the JICA Guidelines for Environmental and Social Considerations in relation to the implementation of the Study.

VIII. UNDERTAKINGS OF THE GOVERNMENT OF UZBEKISTAN AND THE GOVERNMENT OF KARAKALPAKSTAN

1. In accordance with the Agreement, the Government of Uzbekistan and the Government of Karakalpakstan shall take the following necessary measures;
(1) To accord privileges, exemptions and other benefits to the JICA Study team (hereinafter referred to as "the Team")
(2) To bear claims, if any arises, against the members of the Team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Team.

2. To facilitate smooth implementation of the Study, the Government of Uzbekistan and the Government of Karakalpakstan shall provide necessary facilities to the Team for the remittance as well as utilization of the funds introduced into Uzbekistan from Japan in connection with the implementation of the Study.

3. Council of Ministers, the Republic of Karakalpakstan, shall act as the counterpart agency to the Team and also as the coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

4. Council of Ministers, the Republic of Karakalpakstan, shall at its own expense, provide the Team with the following in cooperation with other agencies concerned:
(1) Security-related information on as well as measures to ensure the safety of the Team;
(2) Information on as well as support in obtaining medical service;
(3) Available data (including maps and photographs) and information related to the Study;
(4) Counterpart personnel;

(5) Suitable office space with telephone lines; and
(6) Support in obtaining credentials or identification cards.

IX. UNDERTAKINGS OF JICA

For the implementation of the Study, JICA shall take the following measures;

1. To dispatch, at its own expense, the Team to the Government of Karakalpakstan; and

2. To transfer relevant skills and technologies to the counterpart personnel in the Government of Karakalpakstan in the course of the Study.

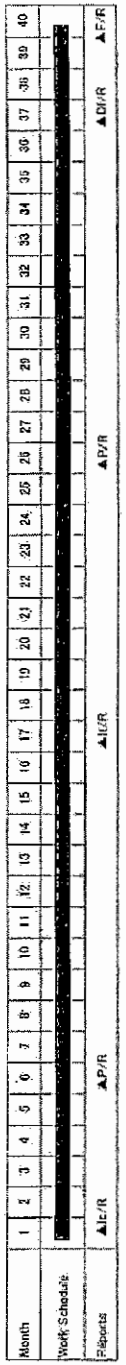
X. CONSULTATION

JICA and Council of Ministers, the Republic of Karakalpakstan, shall consult with each other in respect of any matter that may arise from or in connection with the Study.

A - 3

Annex

Tentative Schedule of the Study



Note:
Ic/R: Inception Report
P/R: Progress Report
It/R: Interim Report
Df/R: Draft Final Report
F/R: Final Report

MINUTES OF MEETING

ON

THE STUDY ON

REGIONAL DEVELOPMENT IN KARAKALPAKSTAN

IN

THE REPUBLIC OF UZBEKISTAN

AGREED UPON BETWEEN

COUNCIL OF MINISTERS, THE REPUBLIC OF KARAKALPAKSTAN

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

Nukus, April 27, 2007

Mr. Bahadir Yangibaev
Chairman,
Council of Ministers,
The Republic of Karakalpakstan

Mr. Minoru HOMMA
Leader,
Preparatory Study Team,
Japan International Cooperation Agency
(JICA)

Witness:

Mr. Mukhammadkosim Olimov
Deputy Head of the Complex on Economic Issues,
Ministry of Agriculture and Water Resources,
The Republic of Uzbekistan

A - 4

1. Introduction

With regards to the Scope of Work for the Study on Regional Development in Karakalpakstan (hereinafter referred to as "the Study") signed by the Government of the Republic of Karakalpakstan (hereinafter referred to as "the Government of Karakalpakstan") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on 27 April, 2007, the Preparatory Study Team headed by Mr. Minoru HOMMA, dispatched by JICA to Uzbekistan from April 10 to May 1, 2007, and the representatives of the Government of the Karakalpakstan and other relevant organizations had a series of discussions on the detailed matters related to the Study.

The list of the participants in a series of meeting is attached as Appendix.

As a result of discussions, the followings were agreed upon by both Karakalpakstan and Japanese sides in relation to the implementation of the Study.

2. Language

The Uzbekistan side and the Japanese side agreed that the Scope of Work and the Minutes of Meeting be prepared in both English and Russian text, each one being equally authentic. In the case of any divergence of interpretation, the English text shall prevail.

3. Target Year

The both sides agreed that the target year of Master Plan should be ten (10) years from 2011 (2011-2020).

4. Contents of the Study

(1) The both sides agreed that the Master Plan shall focus mainly on agricultural sector in Karakalpakstan in consideration of the importance of agriculture in the Karakalpakstan.

(2) The both sides agreed that the Master Plan shall be utilized in formulation of "Program on Social and Economic Development of the Republic of Karakalpakstan".

(3) The both sides agreed that the Master Plan shall target the *Fermer* and *Dejkon* based on the market economy.

(4) The both sides agreed that several verification studies shall be selected from the Draft Action Plan in accordance with the criteria agreed in the course of the Phase 1 of the Study.

A.2 Minutes of Meeting on the Scope of Work of the Study

5. Counterpart Personnel

Council of Ministers, the Republic of Karakalpakstan, shall assign the necessary number of counterpart personnel from the concerned organizations for the Study and submit the list of counterpart personnel at the beginning of the Study.

6. Steering Committee

For the smooth and effective implementation of the Study, both Karakalpakstan and Japanese sides agreed upon the need for establishment of a steering committee consisting of the following members:

The Chairperson may invite representatives from other relevant organizations, whenever necessary.

(1) Chairman of Council of Ministers of the Republic of Karakalpakstan (chairperson)
(2) Deputy Chairman of Council of Ministers of the Republic of Karakalpakstan
(3) Representatives, Ministry of Economy of the Government of Uzbekistan (As agreed)
(4) Representatives, Minister of Agriculture and Water Resources of the Government of Uzbekistan (As agreed)
(5) Deputy Minister of Foreign Economic Relations, Investments and Trade of Karakalpakstan
(6) Minister of Economy of Karakalpakstan
(7) Minister of Agriculture and Water Resources of Karakalpakstan
(8) Chairman of Farmers' Association of Krakalpakstan
(9) Chairman of Chamber of Commerce and Industry in Karakalpakstan
(10) Representative of JICA Uzbekistan Office
(11) JICA Study Team

7. Counterpart Training in Japan

The Karakalpakstan side requested that the counterpart personnel take advantage of training in Japan or other countries to promote an effective technology transfer related to the Study.

The Japanese side understood the necessity of training and explained that the formal request for the training should be made by the Uzbekistan side through the Embassy of Japan.

8. Office Space

The Government of Karakalpakstan promised to provide the members of the Study with suitable office space with telephone lines and to prepare it before the commencement of the Study.

9. Report

(1) The Government of Karakalpakstan agreed that the Final Report would be open to the public in order to maximum use of the results of the Study.
(2) Both sides agreed that all reports would be principally prepared in English, and Russian as indicated in the Scope of Work. In the case of any divergence of interpretation, the English text shall prevail. Yet, both sides further agreed that the annexed documents such as data sets, maps and drawings in the Draft Final Report and the Final Report would be available only in English.

10. Environmental and Social Considerations

The necessary administrative procedures shall be taken by the Karakalpakstan side as well as bearing the cost for applications and permissions, while JICA Study Team shall bear the cost for the necessary activities for environmental and social considerations, including studies and stakeholder meetings etc.

11. Undertakings of the Government of Uzbekistan and the Government of Karakalpakstan

Regarding the necessary vehicles of the study and furniture for the office space, the Karakalpakstan side, due to its budgetary constraints, requested the Japanese side to prepare them at JICA's expense.

Japanese side stated that it would convey the request to the JICA Headquarters for consideration.

12. Other Relevant Issues

As explained in the Scope of Work, the notification of its validity will be made officially in writing from JICA Uzbekistan Office to the Government of Karakalpakstan with a copy to the Government of Uzbekistan.

Appendix

List of Attendants

Karakalpakstan side

Council of Ministers of Karakalpakstan

Mr. Yangibaev B.	Chairman
Mr. Abdurakhmanov Kh.	Deputy Chairman
Mr. Mukhanov M.	Head of Secretariat on Agricultural and Water

Ministry of Foreign Economy Relations, Investments & Trade of Karakalpakstan

Mr. Sultamuratov A.	Minister
Mr.Ganiev M.	Deputy Minister

Ministry of Economy of Karakalpakstan

Mr. Ernazarov M.	Minister
Ms. Khalmuratova G.	Deputy Minister

Ministry of Agriculture and Water Resources of Karakalpakstan

Mr. Ermanov. F.U.	Minister
Mr. Abdirov M. A.	Head of Management, Lower Amudarrya Basin Management of Irrigation System

State Committee on Nature Protection of Karakalpakstan

Mr. Reimov R. P.	Chairman

Chamber of Commerce and Industry of Uzbekistan Karakalpakstan Regional Administration

Mr. Kaypnazarov K.	Head of Administration
Mr. Kosnazarov M.	Deputy Head of the Administration

Fermer's Association of Karakalpakstan

Mr. Tleumuratov A.	President

Fishery Association

Mr. Juzbaev B.	Chairman

Uzbekistan side

Ministry of Economy of Uzbekistan

Mr. Shoabdurahmanov R.	Deputy Minister
Mr. Sattorov S.	Head of Department for Accommodation and Complex Development of Regions
Mr. Tuliev A.	Head of section for Development of Agriculture and Water Resources
Mr. Mirzaev A.	Head of section on Cooperation Issues with Eurasian Economic Community & International Financial Institutions
Mr. Umarov O.	Head of Section for Possessing Industry of Food Staff
Mr. Ibragimov F.	Deputy Head of Section for Processing Industry and Food Staff

Ministry of Agriculture and Water Resources of Uzbekistan

Mr. Sherkobilov S.	Head, Department for Development of Production Vegetables, Fruits and Processing of Agricultural Products
Mr. Mamarasulov K.	Deputy Head, Department for Coordination and Development of Market Infrastructure in Rural Areas
Mr. Durmatov D.	Deputy Head, Department for Exploitation of Irrigation Networks
Mr. Mamutov R.	Head, Section for Exploitation and Improvement of Ameliorative System
Mr. Djumaboev B.	Head, Section for Development Planning and Investments
Mr. Ibragimov R. P.	Director, Foreign Investment Department
Mr. Salikhov Z.A.	Deputy Head, Foreign Investment Department

Japanese side

The Preparatory Study Team

Mr. Minoru Honma	Team Leader
Dr. Kazuo Nakabayashi	Development Plan for Agriculture
Mr. Shiro Akamatsu	Rural Society
Mr. Hirohide Kono	Farming System (Livestock)
Ms. Yasuko Ose	Marketing and Distribution of Agricultural Products
Mr. Takayoshi Itoigawa	Processing of Agricultural Products
Mr. Seiichi Yamakawa	Rural Infrastructure / Environmental and Social Considerations
Ms. Fumi Nakamura	Planning Management
Ms. Yurika Kuroda	Interpreter

JICA Uzbekistan Office

Mr. Jun Yamazaki	Assistant Resident Representative

MINUTES OF MEETING
ON
THE INCEPTION REPORT
FOR
THE STUDY ON REGIONAL DEVELOPMENT IN KARAKALPAKSTAN
IN
THE REPUBLIC OF UZBEKISTAN
AGREED UPON BETWEEN
COUNCIL OF MINISTERS, THE REPUBLIC OF KARAKALPAKSTAN
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Nukus, March 29, 2008

Mr. Bahadir Yangibaev
Chairman,
Council of Ministers ,
The Republic of Karakalpakstan

Mr. Keiji MATSUMOTO
Team Leader,
Study Team,
Japan International Cooperation Agency (JICA)

Witness:

Mr. Minoru HOMMA
Leader
Monitoring Team,
Japan International Cooperation Agency (JICA)

In accordance with the Scope of Work for the Study on Regional Development in Karakalpakstan in the Republic of Uzbekistan (hereinafter referred to as "the Study"), signed on April 27, 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched to the Republic of Karakalpakstan in the Republic of Uzbekistan the Study Team for the Study (hereinafter referred to as "the Study Team"), headed by Mr. Keiji MATSUMOTO, for the implementation of the Study. The Study Team submitted officially fifteen (15) copies in English and thirty (30) copies in Russian of the Inception Report and had explained the basic concepts, methodology and schedule of the Study in presence of the Steering Committee together with the representative of the Government of the Republic of Karakalpakstan (hereinafter referred to as "the Karakalpakstan side") on March 27 and 28, 2008 at Nukus. The list of participants is attached as Appendix I.

As a result of the explanations and exchange of opinions on the Inception Report, Karakalpakstan Side and Study Team agreed upon the following points:

1. The Karakalpakstan side confirmed that the contents of the Inception Report were prepared based on the conditions set forth in the Scope of Work for the Study and agreed that the Study Team would proceed to the next stage of the Study in accordance with the methodology and schedule mentioned in the Inception Report.

2. The Karakalpakstan side organized a team of Counterparts for implementing the Study. The list of Counterparts is attached as Appendix II.

3. The Karakalpakstan side made several comments on the Inception Report including ideas on the verification studies such as introduction of agro-technologies, cattle breeding, irrigation and drainage system for *Fermer & Dekhkan*, processing of agricultural and animal products and training of staff personnel. The Japanese side appreciated the constructive contribution of the Karakalpakstan side to the Study. The both sides agreed these comments will be carefully taken into consideration during the implementation of the Study.

APPENDIX I: List of Participants

Karakalpakstan side

Mr. Bahadir Yangibacv	Chairman, Council of Ministers
Mr. Abdurakhmanov Khaytmurat.	Deputy Chairman, Council of Ministers
Mr. Ermazarov Makhsud	Minister, Ministry of Economy
Mr. Ganiev Mirtemir	Deputy Minister, Ministry of Foreign Economic Relations
Mr. Farkhod Ermanov	Minister, Ministry of Agriculture and Water Resources
Mr. Rustam Nizamatdinov	Deputy Minister, Ministry of Agriculture and Water Resources
Mr. Makhmud Kaipanov	Head, Department of Veterinary, Ministry of Agriculture and Water Resources
Mr. Koshekov Rashid	Deputy Head, Lower Amudarrya Basin Management Department, Ministry of Agriculture and Water Resources
Mr. Kaldiboev Nurbek	Senior Specialoist for Horticulture, Ministry of Agriculture and Water Resources
Mr. Allambergenov Ergash	Deputy Director, Karakalpakstan Experimental Station of Vegetables and Potato, Production Centre of Agriculture
Mr. Aytmuratov Parakhat	Deputy Chairman, State Committee on Nature Protection of Karakalpakstan
Mr. Azat Tleumuratov	Chairman, Farmer's Association of Karakalpakstan
Mr. Fulle H.J.	SIM Expert, Head, Department of Marketing Development, Farmer's Association of Karakalpakstan
Ms. Saburova M.	Head, Center of Pro-active Women (*TASHABUSKOR AYOL*), Farmer's Association of Karakalpakstan
Mr. Juzbaev B.	Chairman, Fishery Association of Karakalpakstan

Uzbekistan side

Mr. Mukhammodjen Foraginov	Deputy Head, Department of Information Analysis, Ministry of Agriculture and Water Resources
Mr. Tylkin Parmanov	Head, Department of Development and Coordination of Infrastructure in Agriculture, Ministry of Agriculture and Water Resources
Mr. Hasan Mamarasulov	Deputy Head, Department of Development and Coordination of Infrastructure in Agriculture, Ministry of Agriculture and Water Resources
Mr. Abdyholik Muhtorov	Head of Section, Institute of Market Reforms in Agriculture, Ministry of Agriculture and Water Resources
Mr. Zakhid Salikhov	Deputy Head, Department of Foreign Investment, Ministry of Agriculture and Water Resources

Japanese side

(JICA Monitoring Team)

Mr. Minoru HONMMA	Team Leader
Ms. Akiko MIYASHITA	JICA Headquarters
Mr. Jun YAMAZAKI	Assistant Resident Representative, JICA Uzbekistan Office
Mr. Bakhodir KUZIYEV	Program Officer, JICA Uzbekistan Office

(JICA Study Team)

Mr. Keiji MATSUMOTO	Team Leader
Mr. Kensuke IRIYA	Member
Mr. Harunobu YOSHINO	Member
Mr. Ikutaro ITO	Member

APPENDIX II: List of Counterparts

1. Mr. Rustam Nizamatdinov — Deputy Minister, Ministry of Agriculture and Water Resources, Karakalpakstan
2. Mr. Azat Tleumuratov — Chairman, Fermer Association, Karakalpakstan
3. Mr. Juzbaev B — Chairman, Fishery Association, Karakalpakstan
4. Mr. Koshekov Rashid — Deputy Head, Lower Amudarrya Basin Management Department, Ministry of Agriculture and Water Resources, Karakalpakstan
5. Mr. Kurbaniyazov M. — Head, Department of Production and Marketing, Ministry of Agriculture and Water Resources, Karakalpakstan
6. Mr. Burkitbaev K. — Head, Department of Animal Husbandry, Ministry of Agriculture and Water Resources, Karakalpakstan
7. Mr. Makhmud Kaipanov — Head, Department of Veterinary, Ministry of Agriculture and Water Resources, Karakalpakstan
8. Mr. Kaldiboev N. — Senior Specialist for Horticulture, Ministry of Agriculture and Water Resources, Karakalpakstan

The Study on Regional Development in Karakalpakstan in the Republic of Uzbekistan

The First Steering Committee on the Inception Report

Date: 28 March 2008

Venue: Conference Room of Council Ministers of Karakalpakstan, Nukus

	Name	Organization and Position	Signature
1.	Юзбаев Б.Е.	Ассоциация рыболов. хоз РК	[signature]
2.	Тлеумуратов П.М.	Госкомприроды РК зам. пред	[signature]
3.	Сабурова [illegible]	представ. фер. хоз. [illegible]	[signature]
4.	Кандыбаев Н.	[illegible]	[signature]
5.	Низаматдинов Р.К.	[illegible] Вазир [illegible]	[signature]
6.	Тлеумуратов А.У.	Пред. Ассоциации фермеров Р.К.	[signature]
7.	Fulle H.-J.	Farmers Assiation	[signature]
8.	Аллабергенов [illegible]	Директор КК. Опытной станции овощ. бахчевых культур и картофеля	[signature]
9.	Кошеков Рашид	Зам. нач. Нижне-Амударьинского бассейнового управления ирригационных систем	[signature]
10.	Ганиев М.	зам. министра [illegible]	[signature]
11.	Ерназаров [illegible]	Мин. Экономики РК	[signature]

MINUTES OF MEETING
ON
THE PROGRESS REPORT (1)
FOR
THE STUDY ON REGIONAL DEVELOPMENT IN KARAKALPAKSTAN
IN
THE REPUBLIC OF UZBEKISTAN
AGREED UPON BETWEEN
COUNCIL OF MINISTERS, THE REPUBLIC OF KARAKALPAKSTAN
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Nukus, June 17, 2008

Mr. Karamatdin Abdijaliev
Deputy Chairman,
Council of Ministers,
Republic of Karakalpakstan

Mr. Keiji Matsumoto
Team Leader,
Study Team,
Japan International Cooperation Agency (JICA)

Witness:

Mr. Farkhod Ermanov
Minister of Agriculture and Water Resources,
Republic of Karakalpakstan

Dr. Kazuo Nakabayashi
Leader
Monitoring Team,
Japan International Cooperation Agency (JICA)

In accordance with the Scope of Work for the Study on Regional Development in Karakalpakstan in the Republic of Uzbekistan (hereinafter referred to as "the Study"), signed on April 27, 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched to the Republic of Karakalpakstan in the Republic of Uzbekistan the Study Team for the Study (hereinafter referred to as "the Study Team"), headed by Mr. Keiji MATSUMOTO, for the implementation of the Study. The Study Team submitted officially fifteen (15) copies in English and thirty (30) copies in Russian of the Progress Report (1) and had explained the results of the 1st Field Work and the basic concepts of the Draft Master Plan in presence of the Steering Committee together with the representative of the Government of the Republic of Karakalpakstan (hereinafter referred to as "the Karakalpakstan side") on June 16 at Nukus. The list of participants is attached as Appendix I.

As a result of the explanations and exchange of opinions on the Progress Report (1), the Karakalpakstan Side and the Study Team agreed upon the following points:

1. The Karakalpakstan side confirmed that the contents of the Progress Report (1) were prepared based on the conditions mentioned in the Inception Report, agreed upon and signed by the Karakalpakstan side and the Study Team on 29 March, 2008, and accepted that the Study Team will proceed to the next stage of the Study in accordance with the methodology mentioned in the Inception Report.

2. The Karakalpakstan side basically accepted the basic concepts of the Draft Master Plan presented in the Progress Report(1), which will be further considered during the formulation of the Draft Master Plan and the Action Plan and will become the finalized Master Plan.

3 The Karakalpkstan side will provide the comments to Japanese side after perusal of the contents and those comments will be reflected for further implementation of the Study.

APPENDIX I: List of Participants

Karakalpakstan side

1. Mr. Karamatdin Abdijaliev	Deputy Chairman, Council of Ministers
2. Mr. Farkhod Ermanov	Minister of Agriculture and Water Resources
3. Mr. Ganiev Mirtemir	Deputy Minister, Ministry of Foreign Economic Relations
4. Mr. Nizamatdinov Rustam	Deputy Minister, Ministry of Agriculture and Water Resources
5. Mr. Kurbaniyazov Murat	Head, Department of Production and Marketing, Ministry of Agriculture and Water Resources
6. Mr. Kaipanov Makhmud	Head, Department of Veterinary, Ministry of Agriculture and Water Resources
7. Mr. Kaldiboev Nurbek	Senior Specialoist for Horticulture, Ministry of Agriculture and Water Resources
8. Mr. Azat Tleumuratov	Chairman, Farmer's Association of Karakalpakstan
9. Mr. Fulle Hans Jurgen	SIM Expert, Head, Department of Marketing Development, Farmer's Association of Karakalpakstan
10. Ms. Saburova Muhabbat	Head, Center of Pro-active Women (TASHABUSKOR AYOL), Farmer's Association of Karakalpakstan
11. Mr. Juzbaev Bakhtiar	Chairman, Fishery Association of Karakalpakstan
12. Mr. Troitski Vladimir	Chief Specialist, Farmer's Association
13. Mr. Tureshov Parakhat	Statistical Department of Karakalpakstan
14. Mr. Matmuratov Jumamurat	Representative of Ministry of Economy of Karakalpakstan
15. Mr. Seitov Miyrbek	Chief Specialist of the State Committee for Environment Protection

Japanese side

(JICA Monitoring Team)

16. Dr. Kazuo NAKABAYASHI	Team Leader
17. Mr. Jun YAMAZAKI	Assistant Resident Representative, JICA Uzbekistan Office
18. Mr. Bakhodir KUZIYEV	Program Officer, JICA Uzbekistan Office

(JICA Study Team)

19. Mr. Keiji MATSUMOTO	Team Leader
20. Mr. Shigeru TAKAGI	Member
21. Mr. Harunobu YOSHINO	Member
22. Mr. Kazuhiro TSICHIDA	Member
23. Mr. Ikutaro ITO	Member
24. Mr. Atomu FURUSAWA	Member
25. Mr. Kotaro KIKUCHI	Member

MINUTES OF MEETING
ON
THE PROGRESS REPORT (2)
FOR
THE STUDY ON REGIONAL DEVELOPMENT IN KARAKALPAKSTAN
IN
THE REPUBLIC OF UZBEKISTAN
AGREED UPON BETWEEN
COUNCIL OF MINISTERS, THE REPUBLIC OF KARAKALPAKSTAN
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Nukus, October 2, 2008

Mr. Karamatdin Abdijaliev
Deputy Chairman,
Council of Ministers,
Republic of Karakalpakstan

Mr. Keiji Matsumoto
Team Leader,
Study Team,
Japan International Cooperation Agency (JICA)

Witness:

Mr. Farkhod Ermanov
Minister of Agriculture and Water Resources,
Republic of Karakalpakstan

Mr. Jun Yamazaki
Assistant Resident Representative,
Japan International Cooperation Agency (JICA) in Uzbekistan

In accordance with the Scope of Work for the Study on Regional Development in Karakalpakstan in the Republic of Uzbekistan (hereinafter referred to as "the Study"), signed on April 27, 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched to the Republic of Karakalpakstan in the Republic of Uzbekistan the Study Team for the Study (hereinafter referred to as "the Study Team"), headed by Mr. Keiji MATSUMOTO, for the implementation of the Study. The Study Team submitted officially fifteen (15) copies in English and thirty (30) copies in Russian of the Progress Report (2) and had explained the results of the 2nd Field Work and the contents of the Preliminary Draft Action Plan as well as the Candidates of Pilot Project and the Criteria for Selection of Pilot Project in presence of the Steering Committee together with the representative of the Government of the Republic of Karakalpakstan (hereinafter referred to as "the Karakalpakstan side") on September 25 at Nukus. The list of participants is attached as Appendix I.

As a result of the explanations and exchange of opinions on the Progress Report (2), the Karakalpakstan Side and the Study Team agreed upon the following points:

1. The Karakalpakstan side confirmed that the contents of the Progress Report (2) were prepared based on the conditions mentioned in the Inception Report, agreed upon and signed by the Karakalpakstan side and the Study Team on 29 March, 2008, and accepted that the Study Team will proceed to the next stage of the Study in accordance with the methodology mentioned in the Inception Report.

2. The Karakalpakstan side basically accepted the contents of the Preliminary Draft Action Plan presented in the Progress Report (2), wich will be further considered during the formulation of the Action Plan and will become the finalized Master Plan

3. The Karakalpakstan side basically accepted the Candidates of the Pilot Projects and the Criteria for Selection of Pilot Project.

4. The Karakalpakstan side requested to implement the whole of the Candidates of the Pilot Projects during the period of the Study.

5. The Karakalpkstan side will provide the comments to Japanese side after perusal of the contents and those comments will be reflected for further implementation of the Study.

APPENDIX I: List of Participants

Karakalpakstan side

1.	Mr. Ganiev Mirtemir	Minister of Foreign Economic Relations
2.	Mr. Gulimov Bakhram	Head of Information and Analytical Department, Council of Ministers of Karakalpakstan
3.	Mr. Nizamatdinov Rustam	Deputy Minister, Ministry of Agriculture and Water Resources
4.	Mr. Kurbaniyazov Murat	Head, Department of Production and Marketing, Ministry of Agriculture and Water Resources
5.	Mr. Azat Tleumuratov	Chairman, Farmer's Association of Karakalpakstan
6.	Mr. Fulle Hans Jurgen	SIM Expert, Head, Department of Marketing Development, Farmer's Association of Karakalpakstan
7.	Mr. Kazakbaev Bakhit	Deputy Chairman, Farmer's Association of Karakalpakstan
8.	Mr. Bekbergenov Keulimjay	Head of Science and Research Center of Ministry of Agriculture and Water Resources
9.	Mr. Embergenov Jenis	Specialist of Nukus Branch of Aral Fund
10.	Mr. Yusupov Esemurat	Vice-Chairman of Nukus Branch of Aral Fund
11.	Mr. Burkitbaev Kozibagar	Main specialist, Department of Livestock of Ministry of Agriculture and Water Resources
12.	A. Doshumbaev	Main Specialist on Fishing of Ministry of Agriculture and Water Resources
13.	G. Demegenov	Main Specialist on Water Use of Ministry of Agriculture and Water Resources

Japanese side

(JICA Monitoring Team)

14.	Jun YAMAZAKI	Assistant Resident Representative, JICA Uzbekistan Office

(JICA Study Team)

15.	Keiji MATSUMOTO	Team Leader
16.	Shigeru TAKAGI	Member
17.	Harunobu YOSHINO	Member
18.	Kazuhiro TSUCHIDA	Member
19.	Atsuhiko YAMAMOTO	Member
20.	Ikutaro ITO	Member
21.	Kotaro KIKUCHI	Member
22.	Shinichi ARAI	Member
23.	Naohito WATANABE	Member

MINUTES OF MEETING
ON
THE INTERIM REPORT
FOR
THE STUDY ON REGIONAL DEVELOPMENT IN KARAKALPAKSTAN
IN
THE REPUBLIC OF UZBEKISTAN
AGREED UPON BETWEEN
COUNCIL OF MINISTERS, THE REPUBLIC OF KARAKALPAKSTAN
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Nukus, January 8, 2009

Mr. Karamatdin Abdijaliev
Deputy Chairman,
Council of Ministers,
Republic of Karakalpakstan

Mr. Keiji Matsumoto
Team Leader,
Study Team,
Japan International Cooperation Agency (JICA)

Witness:

Mr. Farkhod Ermanov
Minister of Agriculture and Water Resources,
Republic of Karakalpakstan

Mr. Jun Yamazaki
Representative,
Japan International Cooperation Agency (JICA) in Uzbekistan

In accordance with the Scope of Work for the Study on Regional Development in Karakalpakstan in the Republic of Uzbekistan (hereinafter referred to as "the Study"), signed on April 27, 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched to the Republic of Karakalpakstan in the Republic of Uzbekistan the Study Team for the Study (hereinafter referred to as "the Study Team"), headed by Mr. Keiji MATSUMOTO, for the implementation of the Study. The Study Team submitted officially fifteen (15) copies in English and thirty (30) copies in Russian of the Interim Report, together with thirty (30) copies of Interim Report Summary in Uzbek, and explained the contents of the Draft Action Plan and Draft Implementation Plan for the Pilot Projects in presence of the Steering Committee together with the representative of the Government of the Republic of Karakalpakstan (hereinafter referred to as "the Karakalpakstan side") on January 8 at Nukus. The list of participants is attached as Appendix I.

As a result of the explanations and exchange of opinions on the Interim Report, the Karakalpakstan Side and the Study Team agreed upon the following points:

1. The Karakalpakstan side confirmed that the contents of the Interim Report were prepared based on the conditions mentioned in the Inception Report, agreed upon and signed by the Karakalpakstan side and the Study Team on 29 March, 2008, and accepted that the Study Team will proceed to the next stage of the Study in accordance with the methodology mentioned in the Inception Report.

2. The Karakalpakstan side basically accepted the contents of the Draft Action Plan presented in the Interim Report, which will be further considered through the implementation and feedback of the Pilot Projects and will become the finalized Master Plan.

3. The Karakalpakstan side basically accepted the Draft Implementation Plan for the Pilot Projects.

4. The Karakalpakstan side will provide the comments on the Interim Report to the Study Team after perusal of the contents and those comments will be reflected for further implementation of the Study.

APPENDIX 1: List of Participants

Karakalpakstan side

1.	Mr. Karamatdin Abdijaliev	Deputy Chairman of Council of Ministers, Republic of Karakalpakstan
2.	Mr. Farkhod Ermanov	Minister of Agriculture and Water Resources, Republic of Karakalpakstan
3.	Mr. Ganiev Mirtemir	Minister of Foreign Economic Relations
4.	Ms. Matniyazova Mubarak	Deputy Head of Analytical Department, Council of Ministers of Karakalpakstan
5.	Mr. Nizamatdinov Rustam	Deputy Minister, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
6.	Mr. Kurbaniyazov Murat	Head, Department of Production and Marketing, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
7.	Mr. Kalenderov Zulxandar	Head of livestock Department in Minister of Agriculture and Water Resources, Republic of Karakalpakstan
8.	Mr. Demegenov Gabit	Main Specialist on Water Use of Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
9.	Mr. Azat Tleumuratov	Chairman, Farmer's Association of Karakalpakstan
10.	Mr. Kaypanov M.	Head of Veterinary Department, Republic of Karakalpakstan
11.	Mr. Bekbergenov Keulimjay	Head of Science and Research Center of Ministry of Agriculture and Water Resources, Republic of Karakalpakstan

Japanese side

(JICA Monitoring Team)

16.	Mr. Jun YAMAZAKI	Representative, JICA Uzbekistan Office
17.	Mr. Bakhodir Kuziyev	Program Officer, JICA Uzbekistan Office

(JICA Study Team)

18.	Mr. Keiji MATSUMOTO	Team Leader
19.	Mr. Shigeru TAKAGI	Member
20.	Mr. Harunobu YOSHINO	Member
21.	Mr. Kazuhiro TSUCHIDA	Member
22.	Mr. Atsuhiko YAMAMOTO	Member
23.	Mr. Ikutaro ITO	Member
24.	Mr. Shinichi ARAI	Member
25.	Mr. Naohito WATANABE	Member

MINUTES OF MEETING
ON
PILOT PROJECT IMPLEMENTATION PLAN
FOR
THE STUDY ON REGIONAL DEVELOPMENT IN KARAKALPAKSTAN
IN
THE REPUBLIC OF UZBEKISTAN
AGREED UPON BETWEEN
COUNCIL OF MINISTERS, THE REPUBLIC OF KARAKALPAKSTAN
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Nukus, January 29, 2009

Mr. Karamatdin Abdijaliev
Deputy Chairman,
Council of Ministers,
Republic of Karakalpakstan

Mr. Keiji Matsumoto
Team Leader,
Study Team,
Japan International Cooperation Agency (JICA)

Witness:

Mr. Farkhod Ermanov
Minister of Agriculture and Water Resources,
Republic of Karakalpakstan

Mr. Jun Yamazaki
Representative,
Japan International Cooperation Agency (JICA) in Uzbekistan

In accordance with the Scope of Work for the Study on Regional Development in Karakalpakstan in the Republic of Uzbekistan (hereinafter referred to as "the Study"), signed on April 27, 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched to the Republic of Karakalpakstan in the Republic of Uzbekistan the Study Team for the Study (hereinafter referred to as "the Study Team"), headed by Mr. Keiji MATSUMOTO, for the implementation of the Study. The Study Team submitted officially fifteen (15) copies in English and thirty (30) copies in Russian of the Pilot Project Implementation Plan, and explained the contents of the Implementation Plan in presence of the Steering Committee together with the representative of the Government of the Republic of Karakalpakstan (hereinafter referred to as "the Karakalpakstan side") on January 29 at Nukus. The list of participants is attached as Appendix I.

As a result of the explanations and exchange of opinions on the Pilot Project Implementation Plan, the Karakalpakstan Side and the Study Team agreed upon the following points:

1. The Karakalpakstan side confirmed that the contents of the Pilot Project Implementation Plan were prepared based on the conditions mentioned in the Inception Report, agreed upon and signed by the Karakalpakstan side and the Study Team on 29 March, 2008, and accepted that the Study Team will proceed to the next stage of the Study in accordance with the methodology mentioned in the Inception Report.

2. The Karakalpakstan side basically accepted the Pilot Project Implementation Plan, and agreed to provide its support for implementation of the Seven (7) Pilot Projects as stated below.

1) Development of On-farm Technical Manual for Fermer
2) Trial for Development of Melons and Potential Crops Cultivation
3) Pilot Project for the Promotion of Women's Vegetable Production in Tamarka
4) Dairy Promotion Package Project
5) Verification of Improving Internal Canal System and Water Management by WUA
6) Verification of Improving Water Use and Drainage Condition in the Field
7) Model Agro-firm Establishment

3. The Karakalpakstan side will provide the comments on the Pilot Project Implementation Plan to the Study Team before 4 February 2009 and those comments will be reflected for further implementation of the Study.

APPENDIX I: List of Participants

Karakalpakstan side

Mr. Abdijaliyev Karamatdin	Deputy chairman of Council of Ministers, Republic of Karakalpakstan.
Mr. Farxod Ermanov	Minister of Agriculture and Water Resources, Republic of Karakalpakstan.
Mrs. Matniyazova Mubarak	Deputy chair person of Information and Analytical Department, Council of Ministers of Karakalpakstan
Mr. Nizamatdinov Rustam	Deputy Minister, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Kurbaniyazov Murat	Head, Department of Production and Marketing, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Bekbergenov Keulimjay	Head of Science and Research Center of Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Gabit Demegenov	Main Specialist on Water Use of Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr Jolimov Ibat	Main specialist on Veterinary Departments, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Nurjanov Nurlan	Deputy chairman of Crop Research Institute
Mr. Azat Tleumuratov	Chairman, Farmer's Association of Karakalpakstan
Mr. Usmanov Tursinbay	Farmer Association of Karakalpakstan
Mr. Fulle Hans Jurgen	SIM Expert, Head, Department of Marketing Development, Farmer's Association of Karakalpakstan

Japanese side

(JICA Monitoring Team)

Mr. Jun YAMAZAKI	Representative, JICA Uzbekistan Office
Mr. Bakhodir Kuziyev	Program Officer, JICA Uzbekistan Office

(JICA Study Team)

Mr. Keiji MATSUMOTO	Team Leader
Mr. Shigeru TAKAGI	Member
Mr. Harunobu YOSHINO	Member
Mr. Kazuhiro TSUCHIDA	Member
Mr. Atsuhiko YAMAMOTO	Member
Mr. Ikutaro ITO	Member
Mr. Shinichi ARAI	Member
Mr. Naohito WATANABE	Member

MINUTES OF MEETING
ON
THE PROGRESS REPORT (3)
FOR
THE STUDY ON REGIONAL DEVELOPMENT IN KARAKALPAKSTAN
IN
THE REPUBLIC OF UZBEKISTAN
AGREED UPON BETWEEN
COUNCIL OF MINISTERS, THE REPUBLIC OF KARAKALPAKSTAN
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Nukus, October 22, 2009

Mr. Karamatdin Abdijaliev
Deputy Chairman,
Council of Ministers,
Republic of Karakalpakstan

Mr. Keiji Matsumoto
Team Leader,
Study Team,
Japan International Cooperation Agency (JICA)

Witness:

Mr. Farkhod Ermanov
Minister of Agriculture and Water Resources,
Republic of Karakalpakstan

In accordance with the Scope of Work for the Study on Regional Development in Karakalpakstan in the Republic of Uzbekistan (hereinafter referred to as "the Study"), signed on April 27, 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched to the Republic of Karakalpakstan in the Republic of Uzbekistan the Study Team for the Study (hereinafter referred to as "the Study Team"), headed by Mr. Keiji MATSUMOTO, for the implementation of the Study. The Study Team submitted officially fifteen (15) copies in English and thirty (30) copies in Russian of the Progress Report (3), together with thirty (30) copies of the Progress Report (3) Summary in Uzbek, and had explained the results of the 5th Field Work and the results of the interim evaluation of the Verification Study Projects in presence of the Steering Committee together with the representative of the Government of the Republic of Karakalpakstan (hereinafter referred to as "the Karakalpakstan side") on October 22 at Nukus. The list of participants is attached as Appendix I.

As a result of the explanations and exchange of opinions on the Progress Report (3), the Karakalpakstan Side and the Study Team agreed upon the following points:

1. The Karakalpakstan side confirmed that the contents of the Progress Report (3) were prepared based on the conditions mentioned in the Inception Report, agreed upon and signed by the Karakalpakstan side and the Study Team on 29 March, 2008, and accepted that the Study Team will proceed to the next stage of the Study in accordance with the Report.

2. The Karakalpakstan side confirmed the progress of the Pilot Projects and agreed that the Pilot Projects will be further implemented in accordance to the plans indicated in the Progress Report (3).

3. Both sides agreed on further cooperation and coordination for the efficient implementation of the Pilot Projects, in order to have fruitful results.

APPENDIX I: List of Participants

Karakalpakstan side

Mr. Abdijaliyev Karamatdin	Deputy chairman of Council of Ministers, Republic of Karakalpakstan.
Mr. Farxod Ermanov	Minister of Agriculture and Water Resources, Republic of Karakalpakstan.
Mr. Gulimov Bakhram	Head of Information and Analytical Department, Council of Ministers of Karakalpakstan
Mr. Ganiev Mirtemir	Minister of Foreign Economic Relation and Trade of Republic of Karakalpakstan
Mrs. Khalmuratova Guljan	Deputy Minister, Ministry of Economics Republic of Karakalpakstan
Mr. Kaipov Darebai	Acting deputy Minister, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Kurbaniyazov Murat	Head, Department of Production and Marketing, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Bekbergenov Keulimjay	Head of Science and Research Center of Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Ismailov Salamat	Main Specialist on Water Use of Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr Kaipanov Makhmud	Head of Veterinary Departments, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Saparniyazov Kambar	Specialist of Agriculture Department Council of Ministers, Republic of Karakalpakstan
Mr. Azat Tleumuratov	Chairman, Farmer's Association of Karakalpakstan
Mr. Fulle Hans Jurgen	SIM Expert, Head, Department of Marketing Development, Farmer's Association of Karakalpakstan
Mr. Saijanov Bazarbai	Chairmen, Fishery Association of Republic of Karakalpakstan
Mr. Ospanov Asemkhan	Main specialist, Veterinary Departments, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan

Japanese side
(JICA Study Team)

Mr. Keiji MATSUMOTO	Team Leader
Mr. Harunobu YOSHINO	Member
Mr. Kazuhiro TSUCHIDA	Member
Mr. Ikutaro ITO	Member
Mr. Kensuke IRIYA	Member
Mr. Shinichi ARAI	Member
Mr. Naohito WATANABE	Member

The study Regional Development in Karakalpakstan in the Republic of Uzbekistan
Изучение Регионального Развития Каракалпакстан в Республике Узбекистан.

The third steering committee on the progress report (3)
Третье Заседание Координационного Комитета по текущему отчету (3)

Date: 22 October 2009
Дата: 22 Октября 2009 г.

№	Name / Ф.И.О	Organization and Position / Организация и Должность	Signature/ Подпись
1.	Тлеумуратов Азат.	Фермерский Ассоциация [illegible]	
2.	Fulle Фюлле Г.-Ю	Фермерская Ассоциация Каракалп.	
3.	Бабамов Мирполат	Бизнес Инкубатор директор	
4.	Сапарниязов Калбай	Минсельхоз Нач. - отдела	
5.	Бурханиязов Марат	Нач. отд. переработки отрасли Минсельхоз РК	
6.	Садыков Камал	МВЭСИТ РК	
7.	Сайжанов Базарбай	Ассоциация рыбоводства	
8.	Усманов. Турсынбай	Фермерский Ассоциация.	
9.	Гулимов Бахрам.	СовМин отд. СИАД	
10.	Оспанов Асемхан	Минсельхоз отд. животноводства	
11.	Халмуратова Гульжан	Зам министра экономики	
12.	Маджиев. О.	Вет управ.	
13.			
14.			
15.			
16.			
17.			
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20.			

MINUTES OF MEETING
ON
THE PROGRESS REPORT (4)
FOR
THE STUDY ON REGIONAL DEVELOPMENT IN KARAKALPAKSTAN
IN
THE REPUBLIC OF UZBEKISTAN
AGREED UPON BETWEEN
COUNCIL OF MINISTERS, THE REPUBLIC OF KARAKALPAKSTAN
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Nukus, October 13, 2010

Mr. Karamatdin Abdijaliev
Deputy Chairman,
Council of Ministers,
Republic of Karakalpakstan

Mr. Keiji Matsumoto
Team Leader,
Study Team,
Japan International Cooperation Agency (JICA)

Mr. Muratbai Abdirov
Minister of Agriculture and Water Resources,
Republic of Karakalpakstan

In accordance with the Scope of Work for the Study on Regional Development in Karakalpakstan in the Republic of Uzbekistan (hereinafter referred to as "the Study"), signed on 27 April 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched to the Republic of Karakalpakstan in the Republic of Uzbekistan the Study Team for the Study (hereinafter referred to as "the Study Team"), headed by Mr. Keiji MATSUMOTO, for the implementation of the Study. The Study Team submitted officially fifteen (15) copies in English and thirty (30) copies in Russian of the Progress Report (4), together with thirty (30) copies of the Progress Report (4) Summary in Uzbek, and had explained the results of the 7th Field Work and the results of the final evaluation of the Verification Study Projects in presence of the Steering Committee together with the representative of the Government of the Republic of Karakalpakstan (hereinafter referred to as "the Karakalpakstan side") on 13 October 2010 at Nukus. The list of participants is attached as Appendix I.

As a result of the explanations and exchange of opinions on the Progress Report (4), the Karakalpakstan Side and the Study Team agreed upon the following points:

1. The Karakalpakstan side confirmed that the contents of the Progress Report (4) were prepared based on the conditions mentioned in the Inception Report, agreed upon and signed by the Karakalpakstan side and the Study Team on 29 March 2008, and accepted that the Study Team will proceed to the next stage of the Study in accordance with the Report.

2. The Karakalpakstan side confirmed the results of the final evaluation of the Verification Study Projects implemented through the Study, and agreed that this will be further used to modify the Draft Master Plan and Action Plan, which shall be indicated in the Draft Final Report.

APPENDIX I: List of Participants

Karakalpakstan side

Mr. Mukhanov Murat	Head of Secretariat for Agriculture and Water Resources within the Council of Minister Republic of Karakalpakstan
Mr. Mambetlepesov Oralbay	Deputy Minister of MAWR
Mr. Kaipanov Makhmud	Deputy Minister of MAWR
Mr. Kurbaniyazov Murat	Head, Department of Production and Marketing, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Kidirbayev Abu	Lower Amudarya Basin Management
Mr. Bekbergenov Keulimjay	Head of Science and Research Center of Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Utemuratov Timur	Livestock specialist of Council of Ministers
Mr. Ospanov Asemkhan	Main specialist, Veterinary Departments, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Nurjhanov Nurlan	KK Rice Research Institute
Mr. Azat Tleumuratov	Chairman, Farmer's Association of Karakalpakstan
Mr. Fulle Hans Jurgen	SIM Expert, Head, Department of Marketing Development, Farmer's Association of Karakalpakstan
Mr. Usmanov Tursinbay	Farmer's Association of Karakalpakstan

Japanese side
(JICA Study Team)

Mr. Keiji MATSUMOTO	Team Leader
Mr. Harunobu YOSHINO	Member
Mr. Kazuhiro TSUCHIDA	Member
Mr. Kensuke IRIYA	Member
Mr. Naohito WATANABE	Member

[signature]

 [signatures] М. Ор...

The study Regional Development in Karakalpakstan in the Republic of Uzbekistan
Изучение Регионального Развития Каракалпакстан в Республике Узбекистан.

The Seventh steering committee on the progress report (4)
Седьмое Заседание Координационного Комитета по текущему отчету (4)

Date: 13 October 2010
Дата: 13 Октября 2010 г.

№	Name and Sir Name / Ф.И.О.	Organization and Position / Организация и Должность	Signature/ Подпись
1.	Момбетлепесов Оралбай	Зам. министра МинСелХоз	
2.	Утемуратов Тимур	Главспециалист по живот.	[signature]
3.	Курбаниязов Марат	нач отд.	[signature]
4.	Бекбергенов Кеулимжай	Начальник ККРНИЦ	[signature]
5.	Нуржанов Нурлан	Зам. ККРО ФНИИСХ	[signature]
6.	Оспанов Асемхан	спец. МСХ	[signature]
7.	Тлеумуратов Азат	АФРК	[signature]
8.	Усманов Турсынбай	АФРК	[signature]
9.	Фюлле Ханс	АФРК	[signature]
10.	Кайпанов Махмуд	МинСелХоз зам.мин	[signature]
11.	Кыдырбаев Абу	НАБУИС	[signature]
12.	Муханов Мурат	Сов мин	[signature]
13.			
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MINUTES OF MEETING
ON
THE DRAFT FINAL REPORT
FOR
THE STUDY ON REGIONAL DEVELOPMENT IN KARAKALPAKSTAN
IN
THE REPUBLIC OF UZBEKISTAN
AGREED UPON BETWEEN
COUNCIL OF MINISTERS, THE REPUBLIC OF KARAKALPAKSTAN
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Nukus, December 2, 2010

Mr. Nurlan Erlepesov
Deputy Chairman,
Council of Ministers,
Republic of Karakalpakstan

Mr. Keiji Matsumoto
Team Leader,
Study Team,
Japan International Cooperation Agency (JICA)

Witness:

Mr. Muratbai Abdirov
Minister of Agriculture and Water Resources,
Republic of Karakalpakstan

Mr. Shinji Totsuka
Senior *Representative,*
Japan International Cooperation Agency (JICA) in Uzbekistan

In accordance with the Scope of Work for the Study on Regional Development in Karakalpakstan in the Republic of Uzbekistan (hereinafter referred to as "the Study"), signed on April 27, 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched to the Republic of Karakalpakstan in the Republic of Uzbekistan the Study Team for the Study (hereinafter referred to as "the Study Team"), headed by Mr. Keiji MATSUMOTO, for the implementation of the Study. The Study Team submitted officially twenty (15) copies in English and thirty (30) copies in Russian of the Draft Final Report, together with thirty (30) copies of the Draft Final Report Summary in Uzbek, and had explained the Contents of the Final Master Plan and Action Plan for Regional Development in Karakalpakstan in presence of the Steering Committee together with the representative of the Government of the Republic of Karakalpakstan (hereinafter referred to as "the Karakalpakstan side") on December 2 at Nukus. The list of participants is attached as Appendix I.

As a result of the explanations and exchange of opinions on the Draft Final Report, the Karakalpakstan Side and the Study Team agreed upon the following points:

1. The Karakalpakstan side confirmed that the Draft Final Report was prepared based on the conditions mentioned in the Inception Report, agreed upon and signed by the Karakalpakstan side and the Study Team on 29 March, 2008, and basically accepted the contents of the Master Plan and Action Plan.

2. The Karakalpakstan side expressed their strong interest in implementing the contents of the Master Plan and Action Plan. In this context, the Karakalpakstan side requested further financial and technical support from the Japanese Government for the Implementation of the Master Plan and Action Plan.

3. Both sides agreed that further comments, if any, on the Draft Final Report will be submitted in written form to the JICA Study Team before 2 January 2011, and that these comments will be further examined in the course of preparing the Final Report for the Study.

APPENDIX I: List of Participants

Karakalpakstan side

Mr. Mukhanov Murat	Head of Secretariat for Agriculture and Water Resources within the Council of Minister Republic of Karakalpakstan
Mr. Mambetlepesov Oralbay	Deputy Minister of MAWR
Mr. Kaipanov Makhmud	Deputy Minister of MAWR
Mr. Kurbaniyazov Murat	Head, Department of Production and Marketing, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Aknazarov Omirbay	Deputy Head, Lower Amudarya Basin Management
Mr. Bekbergenov Keulimjay	Head of Science and Research Center of Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Ospanov Asemkhan	Main specialist, Veterinary Departments, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Ustandinov Umirbay	Head, Department of Horticulture, Ministry of Agriculture and Water Resources, Republic of Karakalpakstan
Mr. Kosnazarov Mels	Deputy Chairman, Trade Industry Chamber, Republic of Karakalpakstan
Mr. Azat Tileumuratov	Chairman, Farmer's Association of Karakalpakstan
Mr. Fulle Hans Jurgen	SIM Expert, Head, Department of Marketing Development, Farmer's Association of Karakalpakstan

Japanese side

(JICA Monitoring Team)

Mr. Shinji TOTSUKA	Representative, Japan International Cooperation Agency (JICA) in Uzbekistan
Ms. Dilbar SULAYMANOVA	Program Officer, Japan International Cooperation Agency (JICA) in Uzbekistan

(JICA Study Team)

Mr. Keiji MATSUMOTO	Team Leader
Mr. Harunobu YOSHINO	Member
Mr. Kazuhiro TSUCHIDA	Member
Mr. Naohito WATANABE	Member

КОРАКАЛПОГИСТОН
РЕСПУБЛИКАСИ ВАЗИРЛАР
КЕНГАШИ КИШЛОК ВА СУВ
ХЎЖАЛИГИ МАСАЛАЛАРИ
БЎЙИЧА КОТИБИЯТИ

КАРАКАЛПАКСТАН
РЕСПУБЛИКАСЫ МИНИСТРЛЕР
КЕНЕСИ АЎЫЛ ХАМ СУЎ
ХОЖАЛЫГЫ МАСЕЛЕЛЕРИ
БОЙЫНША СЕКРЕТАРИАТЫ

Нукус шахри
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19.01.2011

Нокис каласы
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Г-ну Кейджи Матцумото
Руководитель, Группы Изучения JICA
Oriental Consultants Co.Ltd

Согласно протоколу заседания от 2 Декабря 2010 года по рассмотрению предварительного Заключительного Отчета, Каракалпакская сторона тщательно рассмотрела содержания предварительного заключительного отчета, и представляет Японской стороне свои нижеследующие комментарии и надеется, что данные комментарии будут отражены в заключительном отчете по Изучению Регионального Развития Республики Каракалпакстан.

Страница /Пункт	Комментарий
Глава 6 Региональный План Развития	Оценка и анализ Генерального Плана/Плана Действий должна быть указана в отчете.
6-77 Структура Реализации	Фактические исполнители / соответствующие организации должны быть указаны в отчете.
6-77 Стоимость Реализации и Выгоды	План ежегодных затрат на реализацию Плана Действий должна быть указана.

Заместитель начальника Б. Нурабуллаев

КОРАКАЛПОГИСТОН
РЕСПУБЛИКАСИ ВАЗИРЛАР
КЕНГАШИ КИШЛОК ВА СУВ
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Mr. Keiji Matsumoto
Leader of JICA Study Team
Oriental Consultants Co.Ltd

According to the Minutes of Meeting on Draft Final Report signed on December 2nd 2010, Karakalpakstan side, after perusal of the contents of submitted Draft Final Report has prepared the following comments to Japanese side and hope that those comments will be reflected in Final Report of Study on Regional Development in Karakalpakstan.

Page / Item	Comment
Chapter 6 Regional Development Plan	Evaluation of the Master Plan / Action Plan should be indicated in the report.
6-77 Implementation Structure	Actual implementing / relevant agencies should be indicated
6-77 Implementation Cost and Benefit	Annual disbursement plan of the costs of the Action Plan should be added.

Deputy Head B. Nurabullaev

ANNEX B DISTRICTS IN THE STUDY AREA

ANNEX B DISTRICTS IN THE STUDY AREA

B.1 Information of Districts in the Study Area

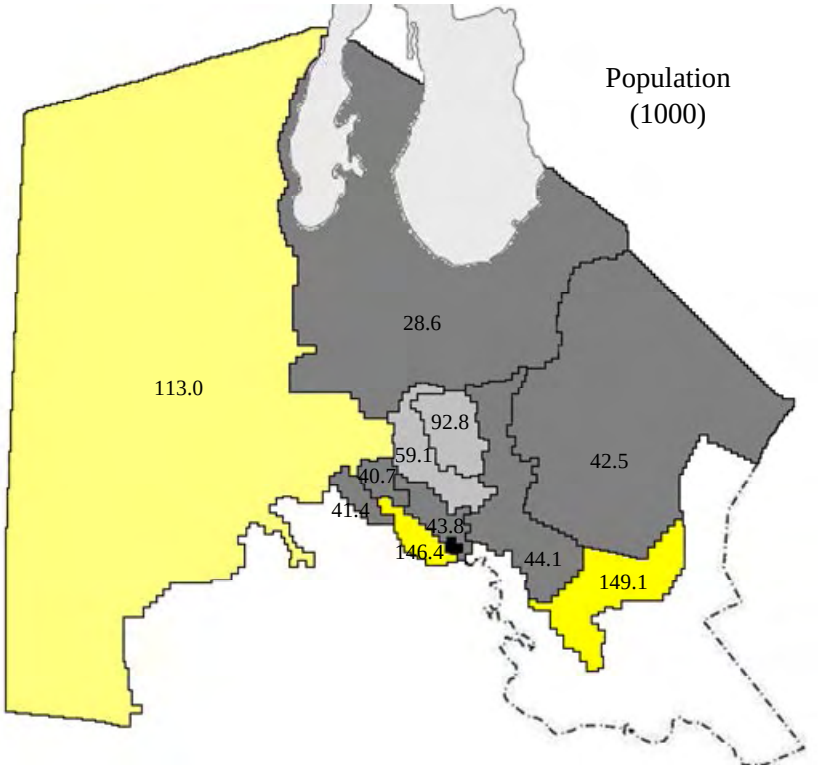
B.1.1 General Information of Districts in the Study Area

(1) General Statistics

Itam	Kungrad	Muynak	Shumanay	Kanlikul	Kegeily	Chimbay	Khodjeyli	Nukus	Karauzyak	Takhtakupyr	Beruni	Karakalpakstan	Year
Population/a	113,000	28,600	41,200	41,200	76,500	97,200	145,800	44,200	44,300	42,300	150,200	1,582,700	2004
(share of Karakalpakstan)	7%	2%	3%	3%	5%	6%	9%	3%	3%	3%	9%	100%	2004
Majority of Nationality (%)/a	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		2004
Karakalpak	22.0	46.0	40.0	70.0	83.0	80.0	30.0	58.0	20.0	47.0	-		2004
Kazakh	40.0	53.0	36.0	-	-	-	30.0	32.0	77.0	52.0	-		2004
Uzbek	-	-	-	15.0	-	-	30.0	-	-	-	66.0		2004
Others	38.0	1.0	24.0	15.0	17.0	20.0	10.0	10.0	3.0	1.0	34.0		2004
Distace from Nukus C. (km)	105	200	75	80	40	55	20	-	85	105	130	-	-
Agricultural Prod. (t)/b	34,159	2,938	26,992	34,076	37,231	37,261	46,836	75,741	33,517	31,730	51,743	627,219	2006
Per capita Prod. (kg)	302	103	655	827	487	383	321	1,714	757	750	344	396	2006
Livestock Prod. (t)/b	7,541	931	7,318	9,004	10,381	12,715	19,160	5,550	7,334	6,542	37,677	224,947	2006
Per capita Prod. (kg)	67	33	178	219	136	131	131	126	166	155	251	142	2006
External Trade Turnover (thou. US$)	8,211	36	-	-	-	-	680	74	-	-	126	62,358	2004
Export (thou. US$)	-	-	-	-	-	-	178	56	-	-	33	23,889	2004
Import (thou. US$)	8,211	36	-	-	-	-	502	18	-	-	92	38,414	2004
Industrial Prod. w/ FDI (mln. soums)	77	-	-	-	193	-	1,195	3	-	-	24	3,158	2004
Retail Trade Turnpver (mln. soums)/	17,353	973	2,528	1,685	3,425	6,896	16,745	1,586	2,629	4,831	8,814	132,917	2004
Paid Service Volume (mln. soums)/c	1,694	138	328	346	384	707	1,681	321	387	274	1,056	21,568	2004
Consummer Service (mln. soums)/c	103	8	23	15	18	71	93	28	14	43	75	1,899	2004

Source: a/ "living Consitions in Karakalpakstan", A.A.Joldasov, March 2004 (data on 2004)
b/ The Ministry of Economy of the Republic of Karakalpakstan (data on 2006)
c/ "living Consitions in Karakalpakstan", A.A.Joldasov, March 2004 (data on 2003)

(2) Distribution of population (2006)



(3) Fermers and Dehkan in Karakalpakstan

1) Contribution of Fermer and Dehkan to Agricultural and Livestock Production in Karakalpakstan

(million sum)

	2004	2005	2006
Total output	137,260.6	169,483.5	246,272.8
- Crop farming	82,101.9	98,159.5	131,744.5
- Livestock raising	55,158.7	71,324.0	114,528.3
By Fermer	42,904.0	62,347.0	97,304.0
- Crop farming	17,244.1	19,263.4	27,987.2
- Livestock raising	1,776.8	59,941.7	93,372.7
By Dehkan	65,268.2	85,665.3	135,939.0
- Crop farming	17,244.1	19,263.4	27,987.2
- Livestock raising	48,024.1	66,401.9	107,951.8
By others	29,088.2	21,470.8	13,029.2
- Crop farming	23,730.4	18,954.4	10,384.6
- Livestock raising	5,357.8	2,516.4	2,644.6

Source. Ministry of Economy of the Republic of Karakalpakstan

2) Transition of Fermer in Karakalpakstan

	2002	2003	2004	2005	2006
Number of fermer (1,000)	4,509	5,855	6,767	8,294	9,066
- Fermers specialized in crop farming (1,000)	3,864	5,157	6,004	7,552	8,290
- Fermers specialized in livestock farming (1,000)	613	690	706	685	758
Total land area of Fermers (1,000 ha)	151,723	241,875	339,065	464,012	566,197
Average land area per Fermer (ha)	33.6	41.3	50.1	55.9	62.5
Number of people employed by Fermers, (1,000 persons)	25,974	37,352	49,127	64,107	80,003
Number of people employed in a typical Fermer (persons)	5.8	6.4	7.3	7.7	8.8
Average land of people employed in a Fermer (ha)	5.8	6.5	6.9	7.2	7.1

Source. Ministry of Economy of the Republic of Karakalpakstan

3) Number of Dehkan in Karakalpakstan

	2002	2003	2004	2005	2006
Number of Dehkan	198,713	200,581	203,636	203,859	225,308
- of which, Dehkans with legal status	637	555	475	308	626
Total land area of Dehkans (1,000 ha)	21.7	28.9	29.3	29.9	47.0
Average land area per Dehkan (ha)	0.11	0.14	0.14	0.15	0.21
Number of people employed in Dehkan (persons)	198,713	200,581	203,636	203,859	225,308

Source. Ministry of Economy of the Republic of Karakalpakstan

(4) Fermers and Dehkan by Type in the Study Area (2006)

		Fermer								Dehkan			
		Total Fermer		Crop Fermer		Livestock Fermer		Other Fermer		Total Dehkan		Legalized	
		(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)		(No.)	
Karakalpakstan		9,066	100	8,290	100	758	100	18	100	225,308	100	626	100
District													
1	Kungrad	618	6.8	572	6.9	45	6	1	5.6	12,926	142.6	192	2.3
2	Muynak	23	0.3	20	0.2	3	0	0	0.0	4,199	46.3	0	0.0
3	Shumanay	308	3.4	285	3.4	23	3	0	0.0	6,524	72.0	1	0.0
4	Kanlikul	510	5.6	491	5.9	19	3	0	0.0	5,475	60.4	2	0.0
5	Kegeily	471	5.2	398	4.8	72	9	1	5.6	11,594	127.9	34	0.4
6	Chimbay	827	9.1	761	9.2	66	9	0	0.0	14,946	164.9	0	0.0
7	Khodjeyli	655	7.2	567	6.8	86	11	2	11.1	16,865	186.0	3	0.0
8	Nukus	1,113	12.3	1,080	13.0	30	4	3	16.7	6,566	72.4	3	0.0
9	Karauzyak	620	6.8	598	7.2	21	3	1	5.6	7,083	78.1	7	0.1
10	Takhtakupyr	334	3.7	327	3.9	7	1	0	0.0	7,604	83.9	27	0.3
11	Beruni	1,060	11.7	830	10.0	230	30	0	0.0	21,735	239.7	15	0.2
Total (1-11)		6,539	72.1	5,929	71.5	602	79	8	44.4	115,517	1,274.2	284	3.4

Source. Ministry of Economy

(5) Land Holding and Land Use of Fermer in the Study Area

	2006															
	Total Land of Fermer		Averaged Land per Fermer		Crop Land of Fermer		Averaged Crop Land per Fermer		Prairies		Averaged Prairies per Fermer		Fodder Crop		Averaged Fodder crop per Fermer	
	(1,000 ha)		(ha)		(ha)		(ha)		(ha)		(ha)		(ha)		(ha)	
Karakalpakstan	570,583	100	62.9		190,129	100	21.0		102,277	100	11.3		20,697	100	2.3	
District																
1 Kungrad	50,163	8.8	81.2	129.0	13,199	6.9	21.4	101.8	11,664	11.4	18.9	167.3	2,377	11.5	3.8	168.5
2 Muynak	1,146	0.2	49.8	79.2	226	0.1	9.8	46.9	147	0.1	6.4	56.7	14	0.1	0.6	26.7
3 Shumanay	45,558	8.0	147.9	235.0	10,484	5.5	34.0	162.3	14,123	13.8	45.9	406.5	1,003	4.8	3.3	142.6
4 Kanlikul	45,876	8.0	90.0	142.9	8,969	4.7	17.6	83.9	4,559	4.5	8.9	79.2	333	1.6	0.7	28.6
5 Kegeily	54,630	9.6	116.0	184.3	14,218	7.5	30.2	143.9	14,850	14.5	31.5	279.5	932	4.5	2.0	86.7
6 Chimbay	54,817	9.6	66.3	105.3	12,448	6.5	15.1	71.8	13,872	13.6	16.8	148.7	1,027	5.0	1.2	54.4
7 Khodjeyli	38,696	6.8	59.1	93.9	18,688	9.8	28.5	136.0	5,193	5.1	7.9	70.3	1,994	9.6	3.0	133.3
8 Nukus	34,071	6.0	30.6	48.6	12,883	6.8	11.6	55.2	6,714	6.6	6.0	53.5	1,094	5.3	1.0	43.1
9 Karauzyak	47,171	8.3	76.1	120.9	11,588	6.1	18.7	89.1	10,386	10.2	16.8	148.5	557	2.7	0.9	39.4
10 Takhtakupyr	20,938	3.7	62.7	99.6	7,888	4.1	23.6	112.6	1,008	1.0	3.0	26.8	911	4.4	2.7	119.5
11 Beruni	38,172	6.7	36.0	57.2	16,508	8.7	15.6	74.3	3,725	3.6	3.5	31.2	1,312	6.3	1.2	54.2
Total (1-11)	431,238	75.6	65.9	104.8	127,099	66.8	19.4	92.7	86,241	84.3	13.2	116.9	11,554	55.8	1.8	77.4

Source. Ministry of Economy

(6) Land Holding and Land Use of Dehkans

	2006							
	Total Land of Dehkan (1,000 ha)		Averaged Land per Dehkan (ha)		Crop Land of Dehkan (ha)		Averaged Crop Land per Dehkan (ha)	
Karakalpakstan	47,000	100	0.21		29,564	100	0.13	
District								
1 Kungrad	1,900	4.0	0.15	70.5	1,303	4.4	0.10	76.8
2 Muynak	300	0.6	0.07	34.2	73	0.2	0.02	13.2
3 Shumanay	2,500	5.3	0.38	183.7	877	3.0	0.13	102.4
4 Kanlikul	1,200	2.6	0.22	105.1	819	2.8	0.15	114.0
5 Kegeily	2,700	5.7	0.23	111.6	1,958	6.6	0.17	128.7
6 Chimbay	4,100	8.7	0.27	131.5	3,053	10.3	0.20	155.7
7 Khodjeyli	5,100	10.9	0.30	145.0	2,655	9.0	0.16	120.0
8 Nukus	1,100	2.3	0.17	80.3	887	3.0	0.14	103.0
9 Karauzyak	2,200	4.7	0.31	148.9	1,669	5.6	0.24	179.6
10 Takhtakupyr	1,400	3.0	0.18	88.3	630	2.1	0.08	63.1
11 Beruni	4,300	9.1	0.20	94.8	2,507	8.5	0.12	87.9
Total (1-11)	26,800	57.0	0.23	111.2	16,431	55.6	0.14	108.4

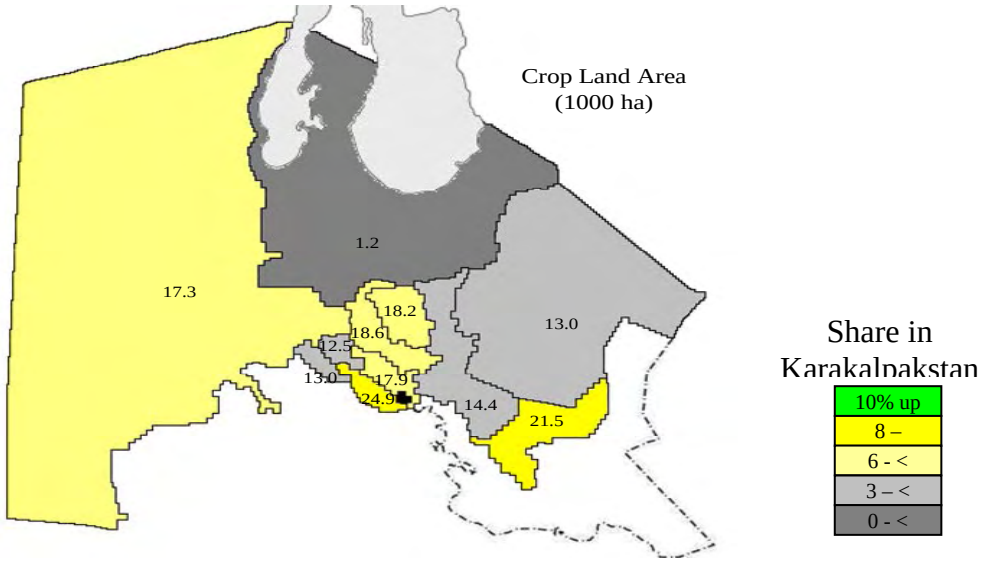
Source. Ministry of Economy

B.1.2 Agriculture in Districts in the Study Area

(1) Cropped Area in 2006

	Crops / District	Wheat	Other grains	Cotton	Rice	Corn (grain)	Potato	Grape	Vegetables	Melons & Gourds	Fodder crops	Fruits	Total	Crop land	Crop intensity
Cropped Area (ha)	Karakalpakstan	64,315	30,195	106,698	22,789	2,347	2,135	494	7,352	5,310	32,446	4,518	278,599	252,848	110.2%
	Kungrad	5,615	2,504	4,311	1,943	195	34	30	319	507	3,542	102	19,102	17,330	110.2%
	Muynak	510	286	120	236	32	9	0	93	83	105	26	1,500	1,206	124.4%
	Shumanay	4,020	739	6,314	569	2	22	10	135	134	1,463	28	13,436	12,985	103.5%
	Kanlikul	5,370	2,730	3,450	2,557	14	14	28	200	293	421	152	15,229	12,549	121.4%
	Kegeily	5,522	1,653	7,763	1,138	9	54	18	397	310	2,682	141	19,687	18,602	105.8%
	Chimbay	4,980	2,927	5,793	2,000	183	144	21	673	636	2,097	122	19,576	18,249	107.3%
	Khodjeyli	3,455	3,530	12,990	2,837	140	212	60	425	461	3,323	333	27,766	24,906	111.5%
	Nukus	6,387	6,587	1,200	6,134	121	44	25	1,779	529	1,318	456	24,580	17,935	137.1%
	Karauzyak	4,898	3,254	4,210	2,932	25	65	8	186	447	905	116	17,046	14,412	118.3%
	Takhtakupyr	4,693	2,534	3,442	2,443	23	24	6	86	154	2,067	71	15,543	13,038	119.2%
	Beruni	4,158	354	13,304	0	79	252	99	437	336	2,416	846	22,281	21,459	103.8%
	11 Districts Total	49,608	27,098	62,897	22,789	823	874	305	4,730	3,890	20,339	2,393	195,746	172,671	113.4%
		77.1%	*89.7%*	*58.9%*	*100.0%*	*35.1%*	*40.9%*	*61.7%*	*64.3%*	*73.3%*	*62.7%*	*53.0%*	*70.3%*		
Production (ton)	Karakalpakstan	215,193		193,725	55,504		15,532	2,160	88,487	41,527		15,091			
	Kungrad	17,582		7,318	3,467		106	106	2,667	2,492		421			
	Muynak	1,223		205	310		28	0	495	651		26			
	Shumanay	14,061		10,342	764		112	15	1,020	632		46			
	Kanlikul	17,408		6,083	6,088		107	71	1,801	2,183		335			
	Kegeily	16,260		12,675	2,294		363	93	2,652	2,256		638			
	Chimbay	15,965		8,989	2,201		991	100	5,062	3,646		307			
	Khodjeyli	12,096		20,878	4,326		1,367	307	2,959	3,965		938			
	Nukus	12,432		2,050	24,365		236	44	28,978	4,905		2,731			
	Karauzyak	16,961		7,370	4,536		431	30	1,478	2,286		425			
	Takhtakupyr	16,615		5,330	7,153		95	13	703	1,686		135			
	Beruni	15,587		22,296	0		2,096	576	4,901	3,360		2,927			
	11 Districts Total	156,190		103,536	55,504		5,932	1,355	52,716	28,062		8,929			
		72.6%		53.4%	100.0%		38.2%	62.7%	59.6%	67.6%		59.2%			
Yield (ton/ha)	Karakalpakstan	3.35		1.82	2.44		7.27	4.37	12.04	7.82		0.47			
	Kungrad	3.13		1.70	1.78		3.12	3.53	8.36	4.92		0.12			
	Muynak	2.40		1.71	1.31		3.11		5.32	7.84		0.25			
	Shumanay	3.50		1.64	1.34		5.09	1.50	7.56	4.72		0.03			
	Kanlikul	3.24		1.76	2.38		7.64	2.54	9.01	7.45		0.80			
	Kegeily	2.94		1.63	2.02		6.72	5.17	6.68	7.28		0.24			
	Chimbay	3.21		1.55	1.10		6.88	4.76	7.52	5.73		0.15			
	Khodjeyli	3.50		1.61	1.52		6.45	5.12	6.96	8.60		0.28			
	Nukus	1.95		1.71	3.97		5.36	1.76	16.29	9.27		2.07			
	Karauzyak	3.46		1.75	1.55		6.63	3.75	7.95	5.11		0.47			
	Takhtakupyr	3.54		1.55	2.93		3.96	2.17	8.17	10.95		0.07			
	Beruni	3.75		1.68			8.32	5.82	11.22	10.00		1.21			
	11 Districts Average	3.15		1.66	1.99		5.75	3.61	8.64	7.44		0.52			
		94.1%		91.5%	81.7%		79.1%	82.6%	71.8%	95.2%		111.0%			

(Source) The Ministry of Economy of the Republic of Karakalpakstan



B.1.3 Data on Livestock in Karakalpakstan and Districts in the Study Area

(1) Livestock in Karakalpakstan

1) Trend of Agricultural and Livestock Production in Karakalpakstan

(unit;1,000 ton)

	2000	2001	2002	2003	2004	2005	2006
Wheat	89.1	42.7	56.5	137.3	154.9	162.1	215.2
Cotton	125.4	111.6	72.6	88.0	184.1	212.6	193.7
Rice	14.2	1.1	36.0	114.3	43.9	25.7	55.5
Potato	8.8	6.8	6.8	8.3	13.8	13.2	15.5
Vegetables	33.4	30.7	37.7	45.1	52.9	49.8	88.5
Melons and gourds	24.7	22.5	27.7	17.8	28.4	29.3	41.5
Fruits	8.9	8.1	8.7	7.5	8.0	9.8	15.1
Grapes	1.4	1.3	1.4	1.3	1.7	1.9	2.2
Meats (LBW:1,000 ton)	39.0	36.4	36.3	38.5	40.5	42.1	45.2
Milk (1,000 ton)	126.1	121.2	119.2	126.6	130.4	133.2	143.7
Eggs (million pcs)	20.6	15.8	18.5	27.2	27.2	29.2	29.6
Wool (phys. weight:1,000 ton)	0.5	0.5	0.5	0.5	0.6	0.6	0.6
Karakul hide (1,000 pcs)	58.7	54.0	48.3	51.4	52.4	53.8	54.4

Source. Ministry of Economy of the Republic of Karakalpakstan

2) Trend of Livestock Population in Karakalpakstan

(unit;head/birds)

	2000	2001	2002	2003	2004	2005	2006
Cattle	221,304	237,114	237,125	248,752	4,554,818	260,668	391,679
Cow	161,302	161,825	163,810	173,981	182,909	189,865	209,286
Sheep and goat	435,811	946,642	460,897	504,721	539,858	576,437	622,337
Horses	16,164	15,536	15,071	15,584	15,757	16,199	16,561
Camels	4,580	4,597	4,596	4,802	4,874	4,949	5,060
Pigs	7,831	5,837	3,626	3,044	3,121	3,218	3,377
Poultry (1,000)	687.6	672.9	723.4	800.1	844.7	897.3	967.6

Source. Ministry of Economy of the Republic of Karakalpakstan

3) Trend of Livestock Products in Karakalpakstan

	2000		2001		2002		2003		2004		2005		2006	
	Fermer	Dehkan	Fermer	Dehkan	Fermer	Dehkan	Fermer	Dehkan	Fermer	Dehkan	Fermer	Dehkan	Fermer	Dehkan
Meat (LBW:1,000 ton)	0.80	35.40	0.75	33.20	0.58	33.60	0.67	36.00	0.73	37.80	0.80	39.70	0.90	42.80
Milk (1,000 ton)	5.6	108.1	6.3	105.5	6.3	106.8	6.7	115.6	7.1	120.8	7.4	124.3	7.7	135.1
Egg (million pcs)	0.08	12.80	0.13	11.80	0.14	12.30	0.47	13.10	0.22	15.90	0.30	20.80	0.70	21.50
Wool (phys. Weight:kg	0.7	299.5	1.4	323.8	1.2	293.0	4.8	334.6	6.4	362.6	9.4	391.2	15.0	426.4
Karakul hide (1,000 pcs	-	24.80	0.10	23.80	0.06	18.00	0.30	21.60	0.30	28.10	0.40	40.50	0.40	43.20

Source. Ministry of Economy of the Republic of Karakalpakstan

4) Karakul Sheep Development Program for 2008-2012 in Karakalpakstan

(head)

Shirkat	2008	2009	2010	2011	2012
Kizil kum	30,472	31,690	32,957	34,275	35,646
Bukhon merei	24,541	25,522	26,542	27,603	28,707
Kizil kala	21,501	22,361	23,255	24,185	25,152
Ustyurt	37,897	39,452	41,070	43,752	45,502
KR 40 years	17,229	17,918	18,634	19,379	20,154
Mulik	23,514	24,454	25,432	26,449	27,506
Kungradkul	12,461	12,959	13,477	14,016	14,576
Janadarya	14,345	14,918	15,514	16,134	16,779
Takhta otkorm	917	917	917	917	917
Beruni otkorm	353	383	383	383	383
Breeding	1,351	1,378	1,405	1,433	1,461
Total:	184,581	191,952	199,586	208,526	216,783

5) Trend of Livestock Population Owned by Fermer and Dehkan in Karakalpakstan

	2000		2001		2002		2003		2004		2005		2006	
	Fermer	Dehkan	Fermer	Dehkan	Fermer	Dehkan	Fermer	Dehkan	Fermer	Dehkan	Fermer	Dehkan	Fermer	Dehkan
Cattle	12,814	160,585	16,281	170,239	17,467	173,855	21,808	187,039	23,711	198,821	26,790	209,077	27,232	342,859
Cow	6,171	136,058	7,025	137,525	7,708	139,727	9,406	150,622	10,593	160,938	12,166	168,806	12,418	189,103
Sheep and goat	8,340	285,256	9,387	293,572	9,201	304,856	10,808	342,488	11,018	372,381	12,308	388,863	13,447	420,373
Horse	995	10,054	965	10,028	921	9,792	993	10,386	867	11,106	1,309	11,731	1,345	12,404
Camels	229	2,366	230	2,379	214	2,393	190	2,671	174	2,806	284	3,003	293	3,289
Pigs	1,385	384	1,225	431	619	459	488	590	651	970	624	1,791	649	2,281
Poultry (1,000)	4.9	589.7	6.9	586.5	4.9	616.4	7.2	692.4	8.6	743.7	11.1	812.9	14.0	862.9

Source. Ministry of Economy of the Republic of Karakalpakstan

(2) Data on Livestock in Districts of the Study Area

1) Livestock Population in the Study Area

	2006											
	Cattle		Cow		Sheep/Goat		Horse		Pig		Poultry	
	(head)	%	(head)	%	(head)	%	(head)	%	(head)	%	(1,000 birds)	%
Karakalpakstan	391,679	100	209,286	100	622,337	100	16,561	100	3,377	100	967,647	100
District												
1 Kungrad	25,591	6.5	13,094	6.3	67,839	10.9	1,169	7.1	313	9.3	25,072	2.6
2 Muynak	7,940	2.0	5,042	2.4	9,319	1.5	748	4.5	0	0.0	14,073	1.5
3 Shumanay	32,007	8.2	9,777	4.7	44,138	7.1	707	4.3	124	3.7	37,040	3.8
4 Kanlikul	12,404	3.2	6,916	3.3	16,007	2.6	820	5.0	0	0.0	14,600	1.5
5 Kegeily	36,965	9.4	16,830	8.0	34,077	5.5	2,535	15.3	0	0.0	45,729	4.7
6 Chimbay	27,817	7.1	14,671	7.0	38,353	6.2	1,900	11.5	34	1.0	60,027	6.2
7 Khodjeyli	25,259	6.4	14,159	6.8	20,010	3.2	536	3.2	174	5.2	73,206	7.6
8 Nukus	12,772	3.3	9,123	4.4	14,705	2.4	740	4.5	911	27.0	47,201	4.9
9 Karauzyak	12,678	3.2	8,210	3.9	52,160	8.4	1,020	6.2	149	4.4	52,830	5.5
10 Takhtakupyr	9,353	2.4	8,327	4.0	75,401	12.1	1,591	9.6	0	0.0	22,368	2.3
11 Beruni	51,274	13.1	25,581	12.2	48,020	7.7	772	4.7	703	20.8	165,609	17.1
Total (1-11)	254,060	64.9	131,730	62.9	420,029	67.5	12,538	75.7	2,408	71.3	557,755	57.6

Source. Ministry of Economy

2) Number of Livestock Population by Fermer and Dehkan in the Study Area

	2006											
	Cattle (head)				Cow (head)				Sheep/Goat (head)			
	Total	Fermer	Dekhan	Others	Total	Fermer	Dekhan	Others	Total	Fermer	Dekhan	Others
Karakalpakstan	391,679	27,142	342,859	21,678	209,286	12,418	189,103	7,765	622,337	13,447	420,373	188,517
District												
1 Kungrad	25,591	1,180	20,942	3,469	13,094	506	11,252	1,336	67,839	980	26,540	40,319
2 Muynak	7,940	376	5,136	2,428	5,042	112	4,228	702	9,319	158	8,897	264
3 Shumanay	32,007	1,535	30,470	2	9,777	788	8,986	3	44,138	1,347	42,645	146
4 Kanlikul	12,404	503	10,581	1,320	6,916	262	6,106	548	16,007	630	14,211	1,166
5 Kegeily	36,965	1,650	26,881	8,434	16,830	593	13,457	2,780	34,077	1,151	32,890	36
6 Chimbay	27,817	2,221	23,035	2,561	14,671	899	12,945	827	38,353	690	37,309	354
7 Khodjeyli	25,259	2,750	22,167	342	14,159	1,453	12,600	106	20,010	1,421	18,589	0
8 Nukus	12,772	1,224	11,548	0	9,123	491	8,630	2	14,705	300	14,190	215
9 Karauzyak	12,678	500	12,022	156	8,210	450	7,747	13	52,160	226	35,274	16,660
10 Takhtakupyr	9,353	205	7,515	1,633	8,327	83	7,094	1,150	75,401	1,179	24,358	49,864
11 Beruni	51,274	4,754	46,169	351	25,581	2,558	22,994	29	48,020	1,490	25,022	21,508
Total (1-11)	254,060	16,898	216,466	20,696	131,730	8,195	116,039	7,496	420,029	9,572	279,925	130,532

	Horse (head)				Pig (head)				Poultry (1,000 birds)			
	Total	Fermer	Dekhan	Others	Total	Fermer	Dekhan	Others	Total	Fermer	Dekhan	Others
Karakalpakstan	16,561	1,345	12,404	2,812	3,377	649	2,281	447	967,647	13,999	862,900	90,748
District												
1 Kungrad	1,169	42	750	377	313	25	120	168	25,072	0	25,072	0
2 Muynak	748	171	423	154	0	0	0	0	14,073	105	13,500	468
3 Shumanay	707	17	689	1	124	85	39	0	37,040	370	36,670	0
4 Kanlikul	820	36	773	11	0	0	0	0	14,600	0	14,600	0
5 Kegeily	2,535	211	2,107	217	0	0	0	0	45,729	736	44,993	0
6 Chimbay	1,900	67	1,721	112	34	10	24	0	60,027	215	59,812	0
7 Khodjeyli	536	87	440	9	174	37	87	50	73,206	2,210	70,996	0
8 Nukus	740	87	643	10	911	0	911	0	47,201	0	47,201	0
9 Karauzyak	1,020	29	934	57	149	0	149	0	52,830	0	52,830	0
10 Takhtakupyr	1,591	31	1,164	396	0	0	0	0	22,368	0	22,368	0
11 Beruni	772	156	600	16	703	447	256	0	165,609	1,400	127,600	36,609
Total (1-11)	12,538	934	10,244	1,360	2,408	604	1,586	218	557,755	5,036	515,642	37,077

Source. Ministry of Economy

3) Share of Gross Output by Fermer and Dehkan in the Study Area

(million sum)

		2006											
		Total Agricultural Output			By Fermer			By Dehkan			By Others		
		Crop Farming	Livestock Farming	Total	Crop Farming	Livestock Farming	Total	Crop Farming	Livestock Farming	Total	Crop Farming	Livestock Farming	Total
Karakalpakstan		131,744.5	114,528.3	246,272.8	93,372.7	3,931.9	97,304.6	27,987.2	107,951.8	135,939.0	10,384.6	2,644.6	13,029.2
Share(%)		53.5	46.5	100.0	96.0	4.0	100.0	20.6	79.4	100.0	79.7	20.3	100.0
Share(%)		100.0	100.0	100.0	70.9	3.4	39.5	21.2	94.3	55.2	7.9	2.3	5.3
District											0.0	0.0	0.0
	Kungrad	6,829.0	4,090.5	10,919.5	5,761.5	194.8	5,956.3	589.7	3,560.4	4,150.1	477.8	335.3	813.1
1	Share(%)	62.5	37.5	100.0	96.7	3.3	100.0	14.2	85.8	100.0	58.8	41.2	100.0
	Share (%)	100.0	100.0	100.0	84.4	4.8	54.5	8.6	87.0	38.0	7.0	8.2	7.4
	Muynak	430.4	707.1	1,137.5	57.0	39.2	96.2	27.7	540.4	568.1	345.7	127.5	473.2
2	Share(%)	37.8	62.2	100.0	59.3	40.7	100.0	4.9	95.1	100.0	73.1	26.9	100.0
	Share (%)	100.0	100.0	100.0	13.2	5.5	8.5	6.4	76.4	49.9	80.3	18.0	41.6
	Shumanay	6,071.2	3,758.2	9,829.4	4,982.0	82.8	5,064.8	251.8	3,665.9	3,917.7	837.4	9.5	846.9
3	Share(%)	61.8	38.2	100.0	98.4	1.6	100.0	6.4	93.6	100.0	98.9	1.1	100.0
	Share (%)	100.0	100.0	100.0	82.1	2.2	51.5	4.1	97.5	39.9	13.8	0.3	8.6
	Kanlikul	5,754.7	5,047.1	10,801.8	3,910.1	41.8	3,951.9	685.8	4,950.1	5,635.9	1,158.8	55.2	1,214.0
4	Share(%)	53.3	46.7	100.0	98.9	1.1	100.0	12.2	87.8	100.0	95.5	4.5	100.0
	Share (%)	100.0	100.0	100.0	67.9	0.8	36.6	11.9	98.1	52.2	20.1	1.1	11.2
	Kegeily	8,588.1	7,129.4	15,717.5	6,927.7	96.5	7,024.2	1,238.7	6,888.0	8,126.7	421.7	144.9	566.6
5	Share(%)	54.6	45.4	100.0	98.6	1.4	100.0	15.2	84.8	100.0	74.4	25.6	100.0
	Share (%)	100.0	100.0	100.0	80.7	1.4	44.7	14.4	96.6	51.7	4.9	2.0	3.6
	Chimbay	8,043.8	7,029.5	15,073.3	4,963.8	150.9	5,114.7	1,941.2	6,789.8	8,731.0	1,138.8	88.8	1,227.6
6	Share(%)	53.4	46.6	100.0	97.0	3.0	100.0	22.2	77.8	100.0	92.8	7.2	100.0
	Share (%)	100.0	100.0	100.0	61.7	2.1	33.9	24.1	96.6	57.9	14.2	1.3	8.1
	Khodjeyli	10,748.4	8,220.7	18,969.1	7,353.5	267.3	7,620.8	1,981.9	7,876.0	9,857.9	1,413.0	77.4	1,490.4
7	Share(%)	56.7	43.3	100.0	96.5	3.5	100.0	20.1	79.9	100.0	94.8	5.2	100.0
	Share (%)	100.0	100.0	100.0	68.4	3.3	40.2	18.4	95.8	52.0	13.1	0.9	7.9
	Nukus	4,650.9	2,406.0	7,056.9	2,299.2	106.1	2,405.3	606.7	2,298.8	2,905.5	1,745.0	1.1	1,746.1
8	Share(%)	65.9	34.1	100.0	95.6	4.4	100.0	20.9	79.1	100.0	99.9	0.1	100.0
	Share (%)	100.0	100.0	100.0	49.4	4.4	34.1	13.0	95.5	41.2	37.5	0.0	24.7
	Karauzyak	6,766.1	5,199.2	11,965.3	5,054.2	66.5	5,120.7	1,244.1	5,020.0	6,264.1	467.8	112.7	580.5
9	Share(%)	56.5	43.5	100.0	98.7	1.3	100.0	19.9	80.1	100.0	80.6	19.4	100.0
	Share (%)	100.0	100.0	100.0	74.7	1.3	42.8	18.4	96.6	52.4	6.9	2.2	4.9
	Takhtakupyr	5,077.7	4,486.3	9,564.0	3,286.4	8.8	3,295.2	320.4	3,991.8	4,312.2	1,470.9	485.7	1,956.6
10	Share(%)	53.1	46.9	100.0	99.7	0.3	100.0	7.4	92.6	100.0	75.2	24.8	100.0
	Share (%)	100.0	100.0	100.0	64.7	0.2	34.5	6.3	89.0	45.1	29.0	10.8	20.5
	Beruni	13,352.4	18,728.8	32,081.2	9,310.7	855.7	10,166.4	3,472.6	17,571.3	21,043.9	569.1	301.8	870.9
11	Share(%)	41.6	58.4	100.0	91.6	8.4	100.0	16.5	83.5	100.0	65.3	34.7	100.0
	Share (%)	100.0	100.0	100.0	69.7	4.6	31.7	26.0	93.8	65.6	4.3	1.6	2.7
Total (1-11)		76,312.7	66,802.8	143,115.5	53,906.1	1,910.4	55,816.5	12,360.6	63,152.5	75,513.1	10,046.0	1,739.9	11,785.9
Share (%)		53.3	46.7	100.0	96.6	3.4	100.0	16.4	83.6	100.0	85.2	14.8	100.0
Share (%)		100.0	100.0	100.0	70.6	2.9	39.0	16.2	94.5	52.8	13.2	2.6	8.2

Source. Ministry of Economy

4) Animal Products Production by Fermer and Dehkan in the Study Area

	2006											
	Meat (live body weight:ton)				Milk (ton)				Egg (milion pcs)			
	Total	Fermer	Dekhan	Shirkat	Total	Fermer	Dekhan	Shirkat	Total	Fermer	Dekhan	Shrkat
Karakalpakstan	45,207	864	42,815	1,528	143,728	7,712	135,136	880	29,606	652	21,554	7,400
District												
1 Kungrad	1,832	84	1,502	246	4,533	302	3,999	232	363	0	363	0
2 Muynak	398	22	264	112	458	25	391	42	44	6	37	1
3 Shumanay	1,477	30	1,438	9	4,896	162	4,734	0	685	5	680	0
4 Kanlikul	2,028	19	1,966	43	6,718	58	6,615	45	182	0	182	0
5 Kegeily	3,409	35	3,237	137	5,592	112	5,480	0	1,260	8	1,251	1
6 Chimbay	2,952	9	2,876	67	7,906	562	7,262	82	1,581	2	1,579	0
7 Khodjeyli	2,625	46	2,515	64	14,591	597	13,956	38	1,531	157	1,374	0
8 Nukus	803	47	755	1	3,933	157	3,776	0	759	0	759	0
9 Karauzyak	2,552	35	2,423	94	3,832	61	3,750	21	472	0	472	0
10 Takhtakupyr	2,282	5	1,904	373	3,559	5	3,260	294	92	0	92	0
11 Beruni	7,697	135	7,538	24	17,979	2,131	15,844	4	11,675	23	8,892	2,760
Total (1-11)	28,055	467	26,418	1,170	73,997	4,172	69,067	758	18,644	201	15,681	2,762

	Wool (ton)				Karakul Hide (1,000 pcs)			
	Total	Fermer	Dekhan	Shirkat	Total	Fermer	Dekhan	Shirkat
Karakalpakstan	6,352	150	4,264	1,938	54.4	0.4	43.2	10.8
District								
1 Kungrad	808	8	328	472	4.8	0.0	2.2	2.6
2 Muynak	31	0	31	0	0.0	0.0	0.0	0.0
3 Shumanay	260	8	251	1	0.0	0.0	0.0	0.0
4 Kanlikul	76	4	69	3	0.0	0.0	0.0	0.0
5 Kegeily	120	5	115	0	0.0	0.0	0.0	0.0
6 Chimbay	276	4	271	1	0.0	0.0	0.0	0.0
7 Khodjeyli	413	22	391	0	0.0	0.0	0.0	0.0
8 Nukus	55	0	55	0	0.0	0.0	0.0	0.0
9 Karauzyak	477	3	302	172	1.40	0.05	0.50	0.85
10 Takhtakupyr	605	7	96	502	4.4	0.0	1.4	3.0
11 Beruni	318	0	106	212	7.9	0.0	6.8	1.1
Total (1-11)	3,439	61	2,015	1,363	18.5	0	11	8

Source. Ministry of Economy

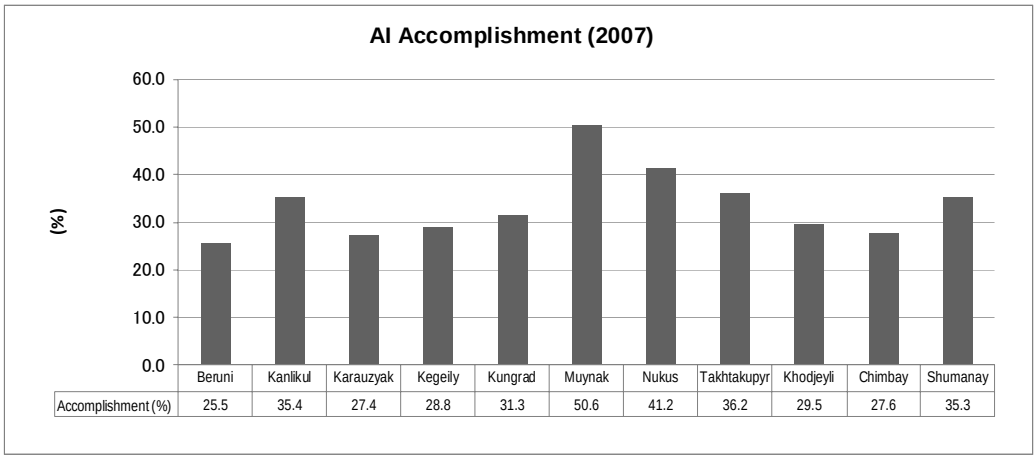
5) Animal Feed Sources in the Study Area

Feed Sources in the Study Area

	2006			
	Fodder Crops ha	Wheat Straw * ton	Rice Straw * ton	Cotton Seed Cake/meal * ton
Karakalpakstan	32,446	215,193	55,504	193,725
District				
1 Kungrad	3,542	17,582	3,467	7,318
2 Muynak	105	1,223	310	205
3 Shumanay	1,463	14,061	764	10,342
4 Kanlikul	421	17,408	6,088	6,083
5 Kegeily	2,682	16,260	2,294	12,675
6 Chimbay	2,097	15,965	2,201	8,989
7 Khodjeyli	3,323	12,096	4,326	20,878
8 Nukus	1,318	12,432	24,365	2,050
9 Karauzyak	905	16,961	4,536	7,370
10 Takhtakupyr	2,067	16,615	7,153	5,330
11 Beruni	2,416	15,587	0	22,296
Total (1-11)	20,339	156,190	55,504	103,536

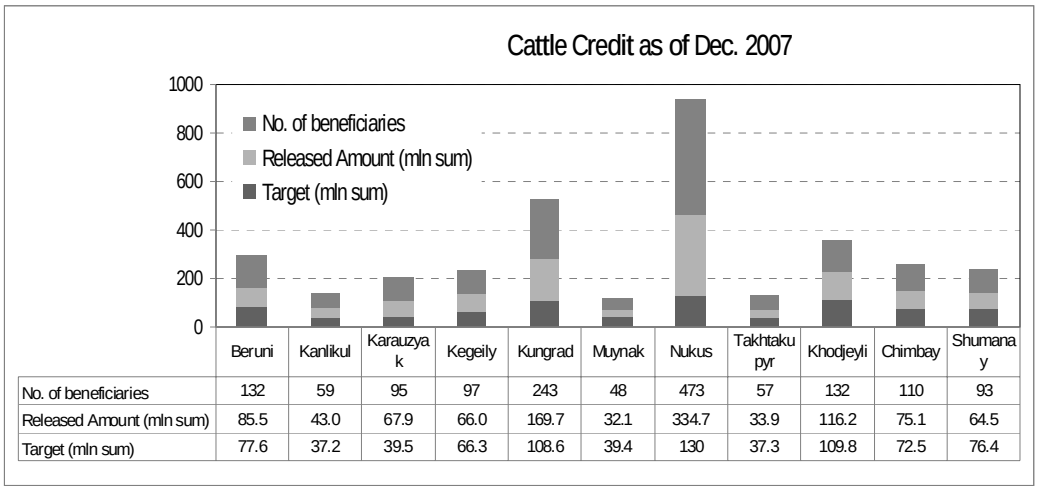
Note. * estimated by by-product ratio

6) Status of Artificial Insemination in the Study Area



	Beruni	Kanlikul	Karauzyak	Kegeily	Kungrad	Muynak	Nukus	Takhtakupyr	Khodjeyli	Chimbay	Shumanay
Accomplishment (%)	25.5	35.4	27.4	28.8	31.3	50.6	41.2	36.2	29.5	27.6	35.3

7) Status of Cattle Credit in the Study Area



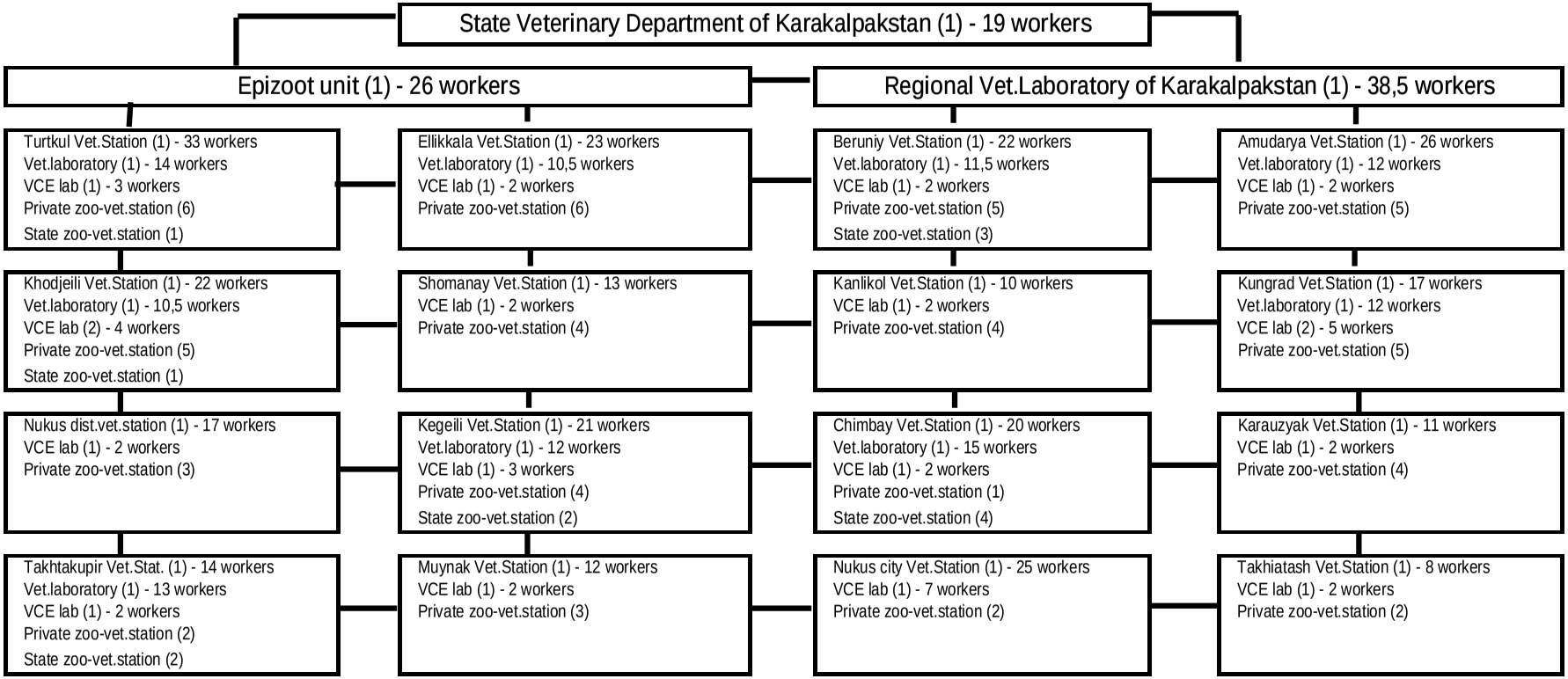
	Beruni	Kanlikul	Karauzyak	Kegeily	Kungrad	Muynak	Nukus	Takhtakupyr	Khodjeyli	Chimbay	Shumanay
No. of beneficiaries	132	59	95	97	243	48	473	57	132	110	93
Released Amount (mln sum)	85.5	43.0	67.9	66.0	169.7	32.1	334.7	33.9	116.2	75.1	64.5
Target (mln sum)	77.6	37.2	39.5	66.3	108.6	39.4	130	37.3	109.8	72.5	76.4

8) Existing Animal Products Processing Factories

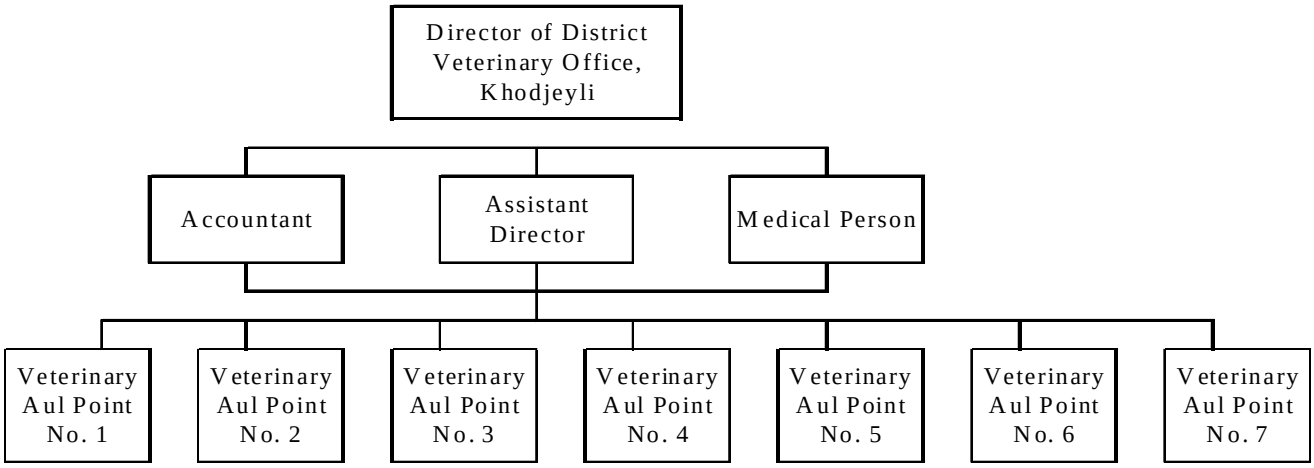
	Place	Capacity/day	Products	Refrigerator	Remarks
1 Milk factory	Nukus	5 to 10 ton	-	Equipped	Not operating, under reconstruction
2 Milk factory	Kohdjeyli	5 ton	Drinking milk, Butter, Yoghu	Equipped	Operating, 2 branch factories in Beruni and Kungrad
3 Meat factory	Nukus	5 to 10 ton	Sausage etc.	10 ton	Operating
4 Meat factory	Kohdjeyli	25 to 30 ton	Frozen meat	1,000 ton	Operating
5 Milk factory	Nukus	NA	Ice cream using powder milk	NA	Operating in small scale by rental basis

Source. Department of Animal Husbandry, The Republic of Karakalpakstan

9) Organization Chart of Veterinary Department of the Republic of Karakalpakstan MAWR



10) Veterinary Service System at District Level



11) Deployment of Veterinary Office and Veterinarian as of April 2008

District	Veterinary Department	Veterinary Laboratory	Veterinary Sanitary Expertise	Number of Veterinary Points
Amudarya	1	1	1	5
Beruni	1	1	1	8
Kanlikul	1	-	1	5
Karauzyak	1	-	1	4
Kegeily	1	1	3	7
Kungrad	1	1	2	6
Muynak	1	-	1	3
Nukus	1	-	1	3
Takhtakupyr	1	1	1	4
Turtkul	1	1	1	7
Khodjeyli	1	1	2	7
Chimbay	1	1	1	5
Shumanay	1	-	1	4
Ellikkala	1	1	1	6
Nukus city	1	-	2	2
Tahiatash city	1	-	1	2
Total	16	9	21	78
Study Area Total	12	6	17	58

Source. Department of Animal Husbandry

B.2 Comparison Analysis of Districts in The Study Area

B.2.1 Outputs of District Comparison Analysis at Kick-off Workshop on May 2, 2008

(1) Kick-off Workshop

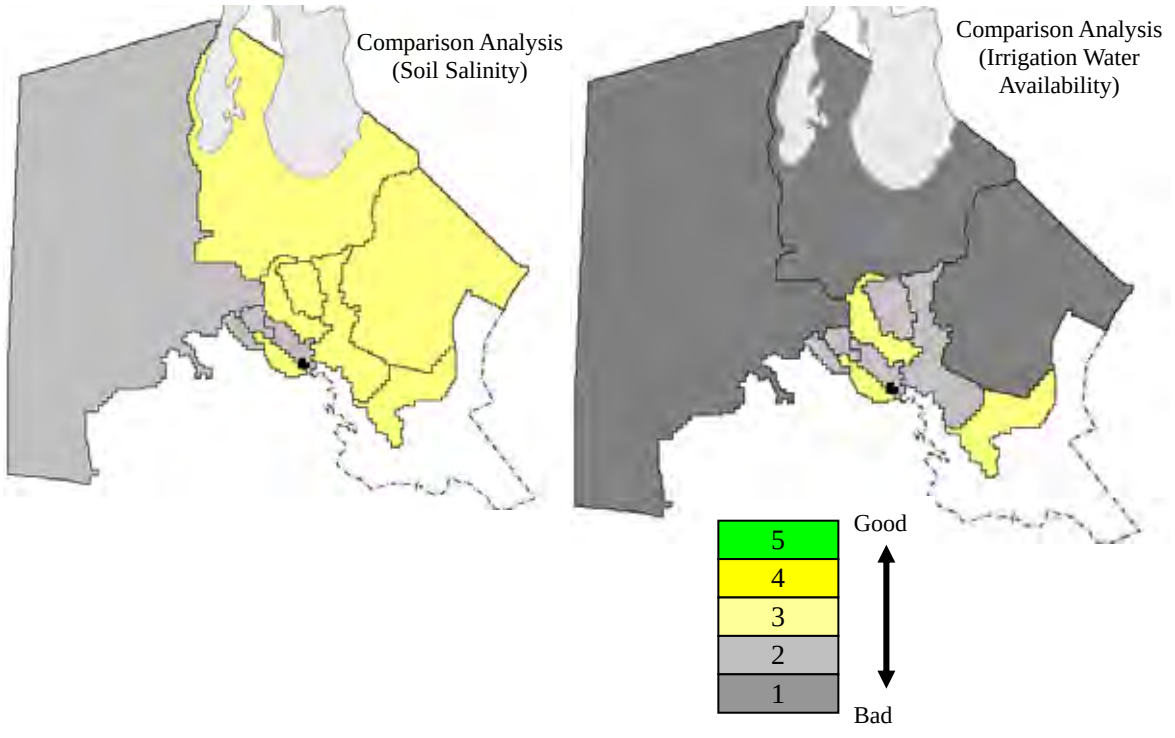
The kickoff workshop for government officials was held on May 2nd, 2008 at Nukus Agricultural Collage. A total 26 of the officers from target districts and representatives of relevant organizations participated in the workshop. Two (2) kinds of analyses, comparative analysis and problem analysis were made during the workshop.

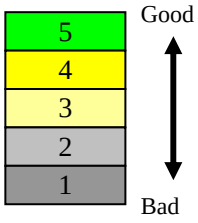
(2) Results of Comparison Analysis of Districts in the Study Area

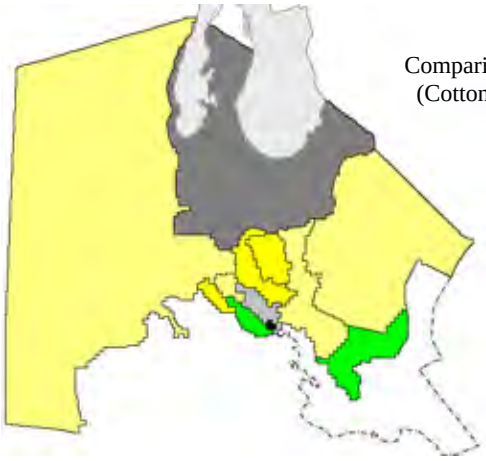
Comparative Analysis was made based on a matrix with the 11 target districts arranged horizontally, and selected 10 indicators; 1) Soil salinity, 2) Irrigation water availability, 3) Cotton production, 4) Cereals production, 5) Vegetables production, 6) Fruits production, 7) Livestock production, 8) Fishery (fish pond) production, 9) Road condition and 8) Living standard, arranged vertically. The participants were requested to evaluate the 11 districts for each indicator with comparative scores ranging from 1 to 5.

	Indicator	Target Districts										
		Kungrad	Muynak	Shummanay	Kanlikul	Kegeily	Chimbay	Khodjeyli	Nukus	Karauzyak	Takhtakupyr	Beruni
1	Soil salinity	2	3	2	2	3	3	3	2	3	3	3
2	Irrigation water availability	1	1	2	2	3	2	3	2	2	1	3
3	Cotton production	3	1	4	3	4	4	5	2	3	3	5
4	Cereals production	5	1	3	5	4	4	3	5	4	4	3
5	Vegetable production	4	1	3	3	3	4	4	4	2	2	5
6	Fruits production	3	1	2	3	3	2	4	5	2	2	5
7	Livestock production	5	3	4	3	5	4	4	3	3	4	5
8	Fishery (fish pond) production	3	5	2	1	4	4	2	3	3	5	4
9	Road condition	3	2	4	4	3	4	3	3	3	3	4
10	Living standard	5	2	2	3	3	4	5	3	3	3	5
	Total	34	20	28	29	35	35	36	32	28	30	42

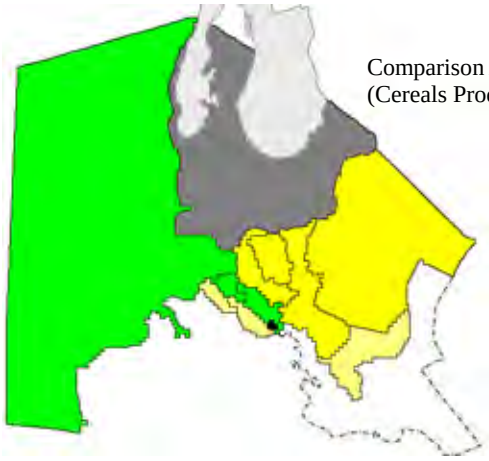
B.2.2 District Comparison Analysis on Agricultural Conditions



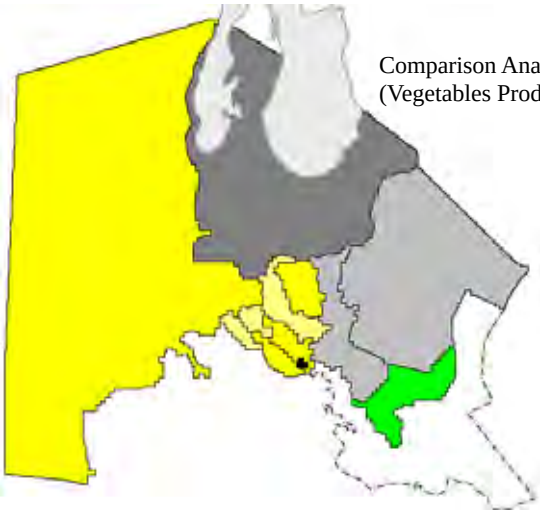




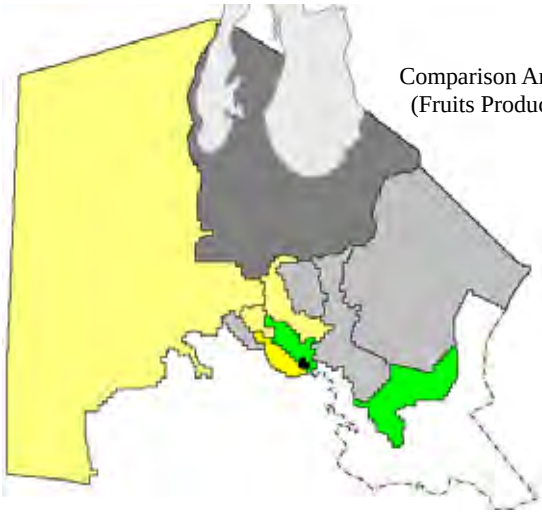
Comparison Analysis
(Cotton Production)



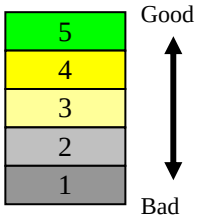
Comparison Analysis
(Cereals Production)

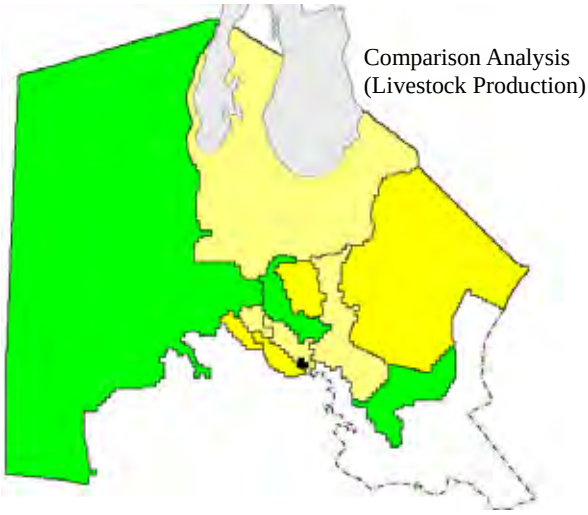


Comparison Analysis
(Vegetables Production)

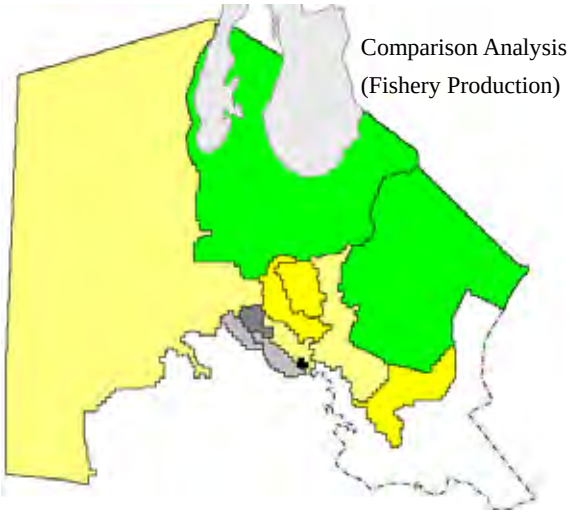


Comparison Analysis
(Fruits Production)

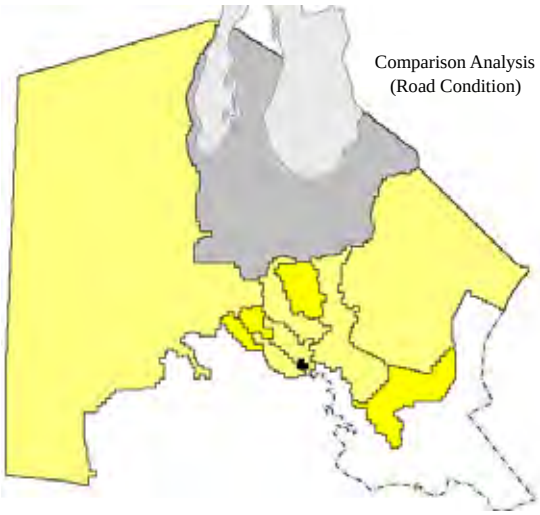




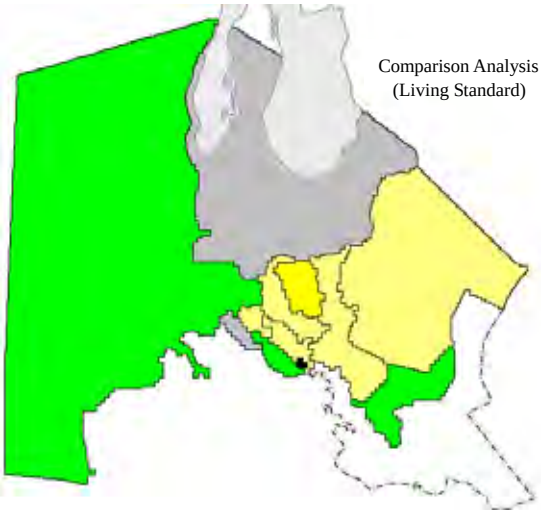
Comparison Analysis
(Livestock Production)



Comparison Analysis
(Fishery Production)

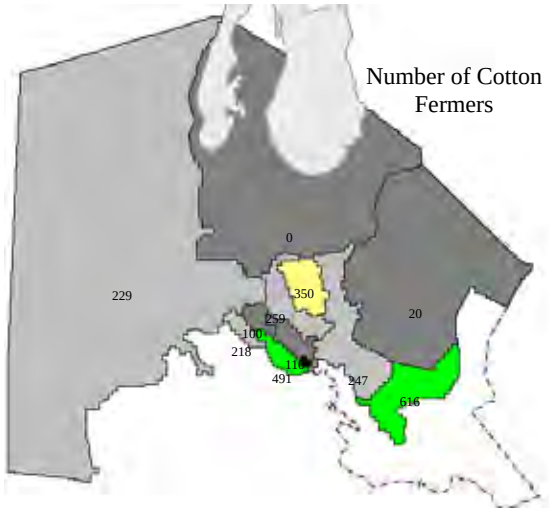


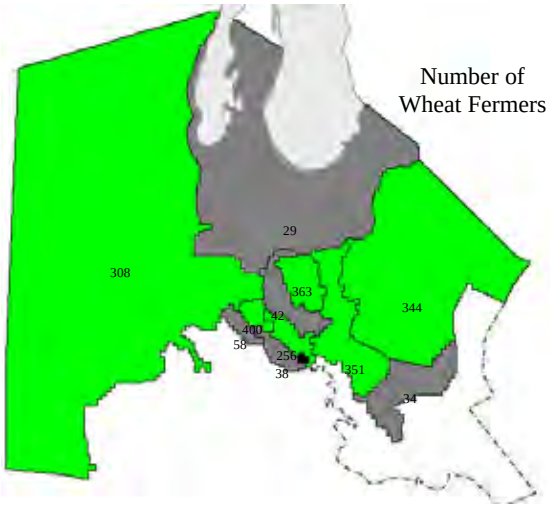
Comparison Analysis
(Road Condition)

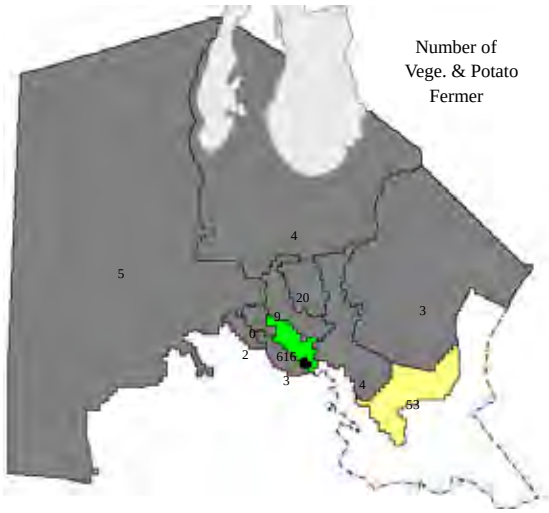


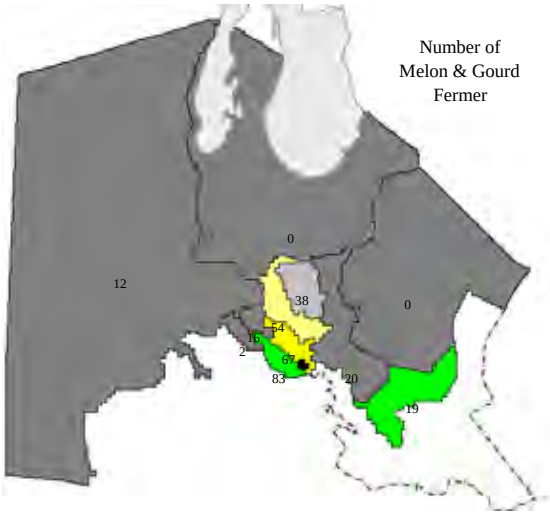
Comparison Analysis
(Living Standard)

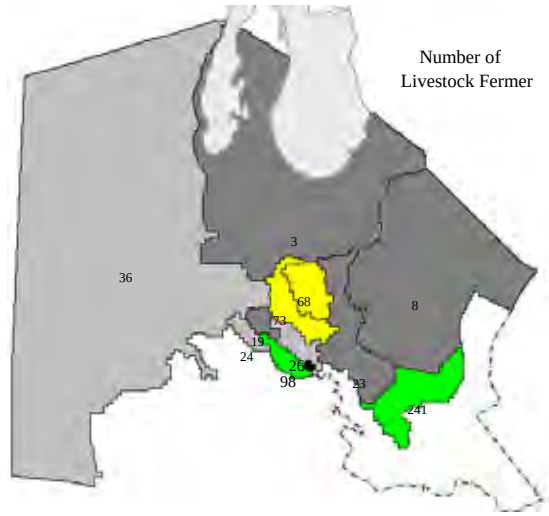
B.2.3 Number of Fermers by Type of Major Production

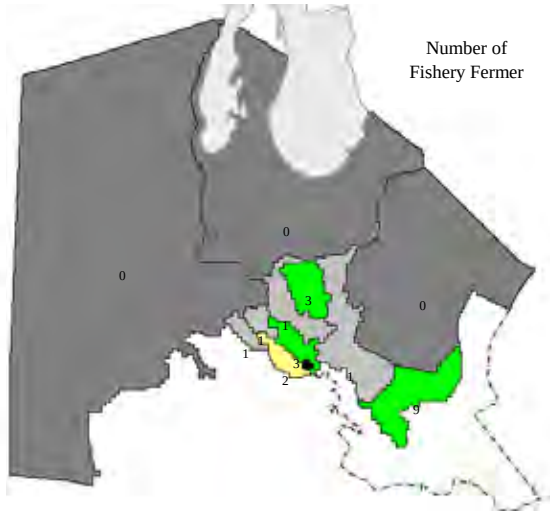




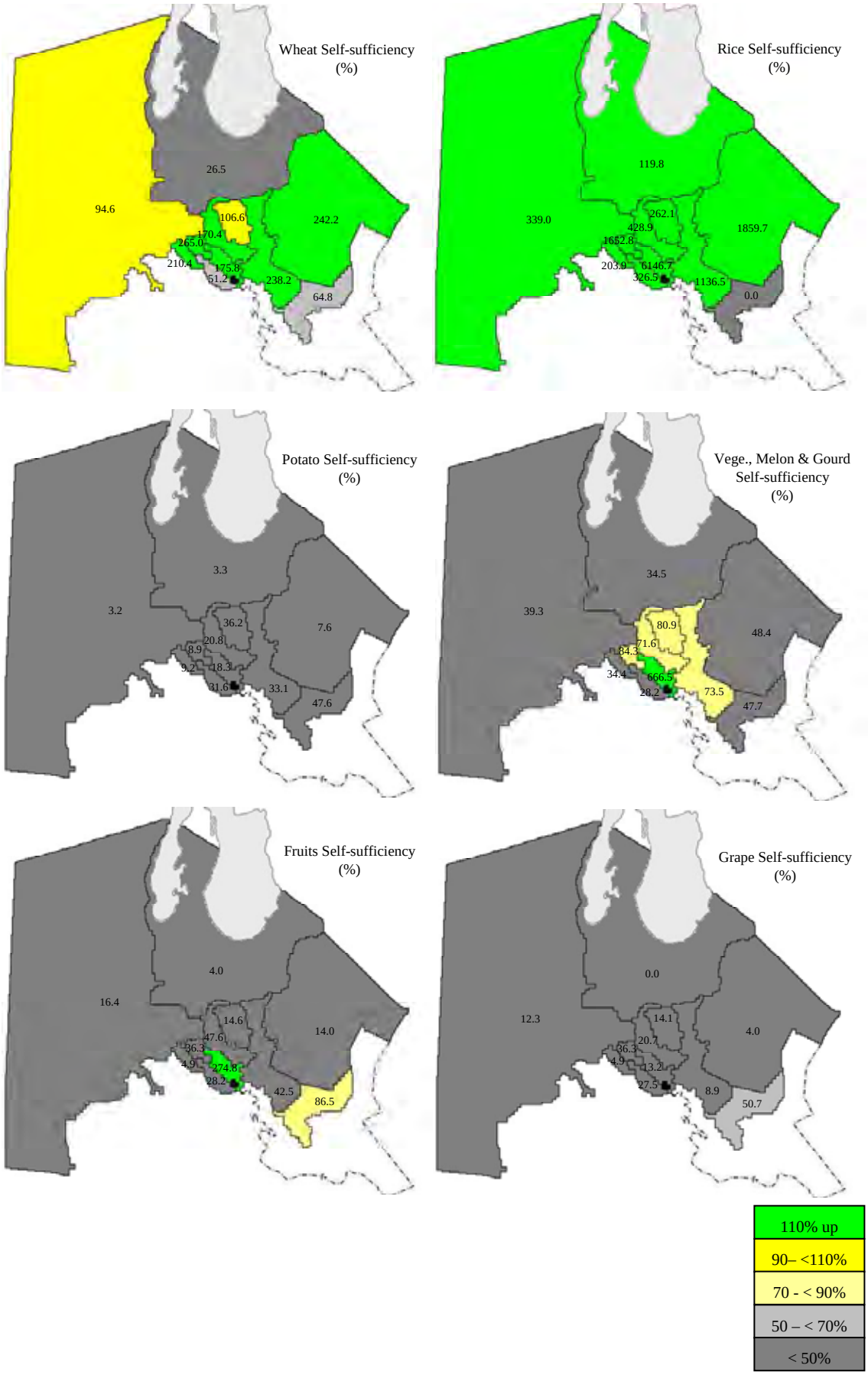


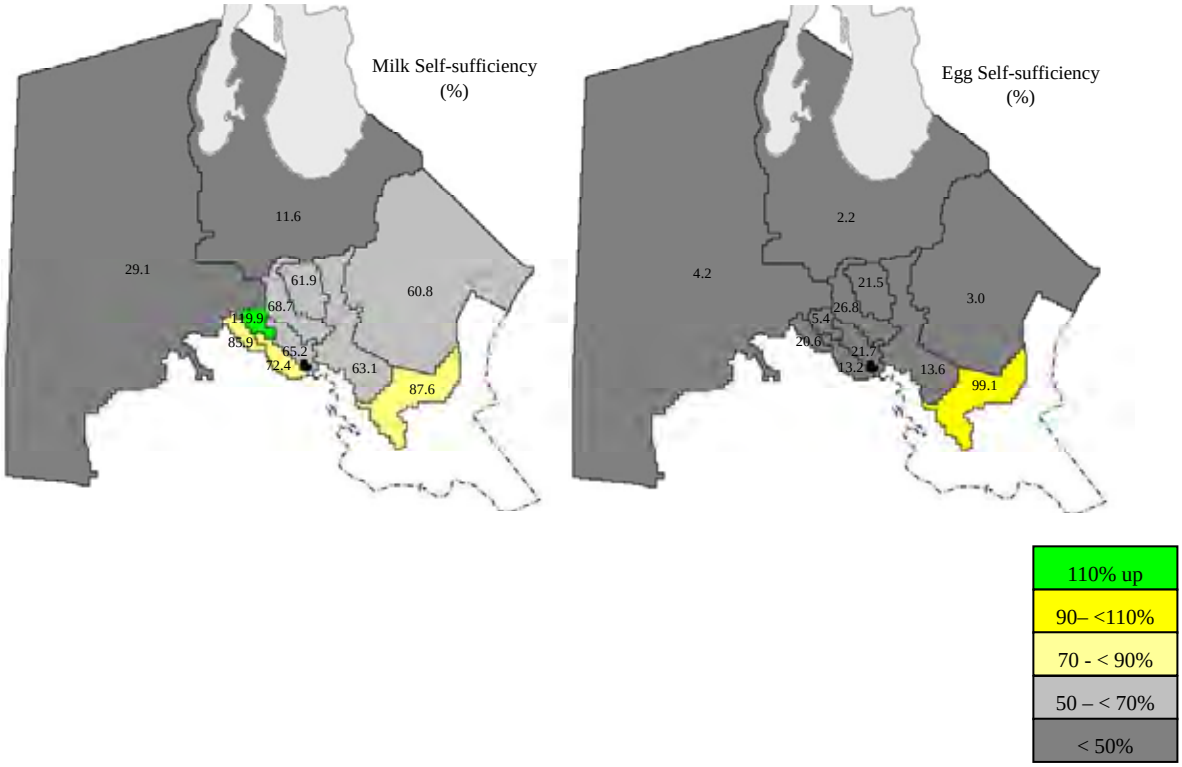






B.2.4 Self sufficienct of District by Products





B.3 Problem Analysis with Fermers and Dehkan in Distrcts

B.3.1 District Workshop with Fermers and Dehkans

In order to identify the present problems for the development agriculture in the Study Area, the Study Team conducted 15 workshops together with 303 participants of farmers and local government officials as shown in the table below.

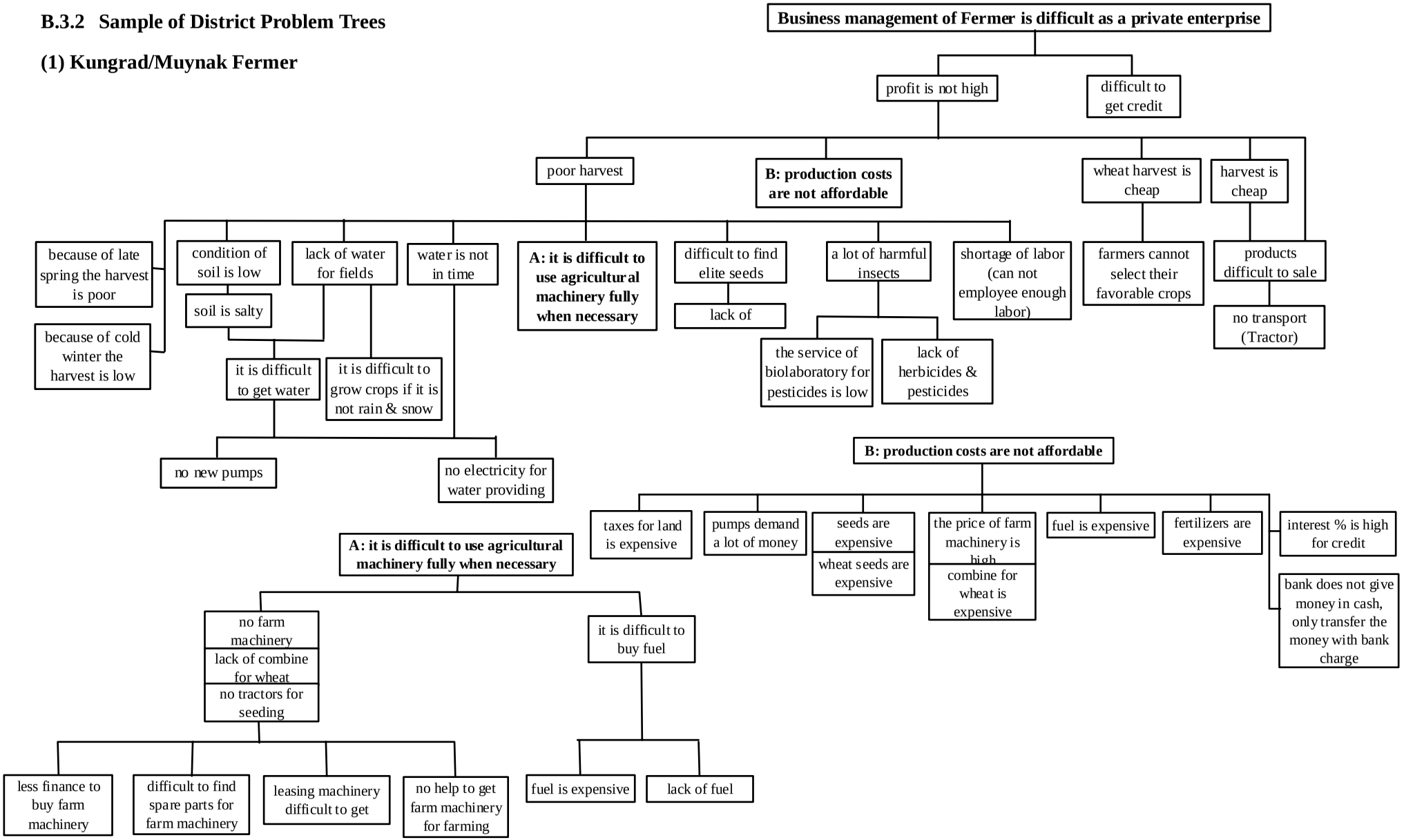
Problem Analysis Workshops with *Fermers* and *Dehkans*

	Beruni		Kungrad/ Muynak		Kanlikul		Karauzyak		Chimbay		Nukus		Shumanay		Kegeily	
Date; *Fermer* *Dehkan*	08/05/12 08/05/13		08/05/15 08/05/16		08/05/15 08/05/16		08/05/19 08/05/20		08/05/22 08/05/23		08/05/22 08/05/23		08/05/27 -		08/05/27 08/05/28	
Location	Beruni		Kungrad		Kanlikul		Karauzyak		Chimbay		Nukus		Shumanay		Kegeily	
Participants	F	D	F	D	F	D	F	D	F	D	F	D	F	D	F	D
-*Dehkan*		10		24		14		14		19	3	10	1			19
-*Fermer*	17	5	15	1	24	1	17		20		19	12	12		17	
-VCC	1	1	1			1										3
-FA			1					1								
-Hakimiyat	1		1		1	1	1	2			1	1			1	1
-Others	3	4			2		3	3	3						1	1
Total	**22**	**20**	**18**	**25**	**27**	**17**	**21**	**20**	**23**	**19**	**22**	**13**	**13**		**19**	**24**

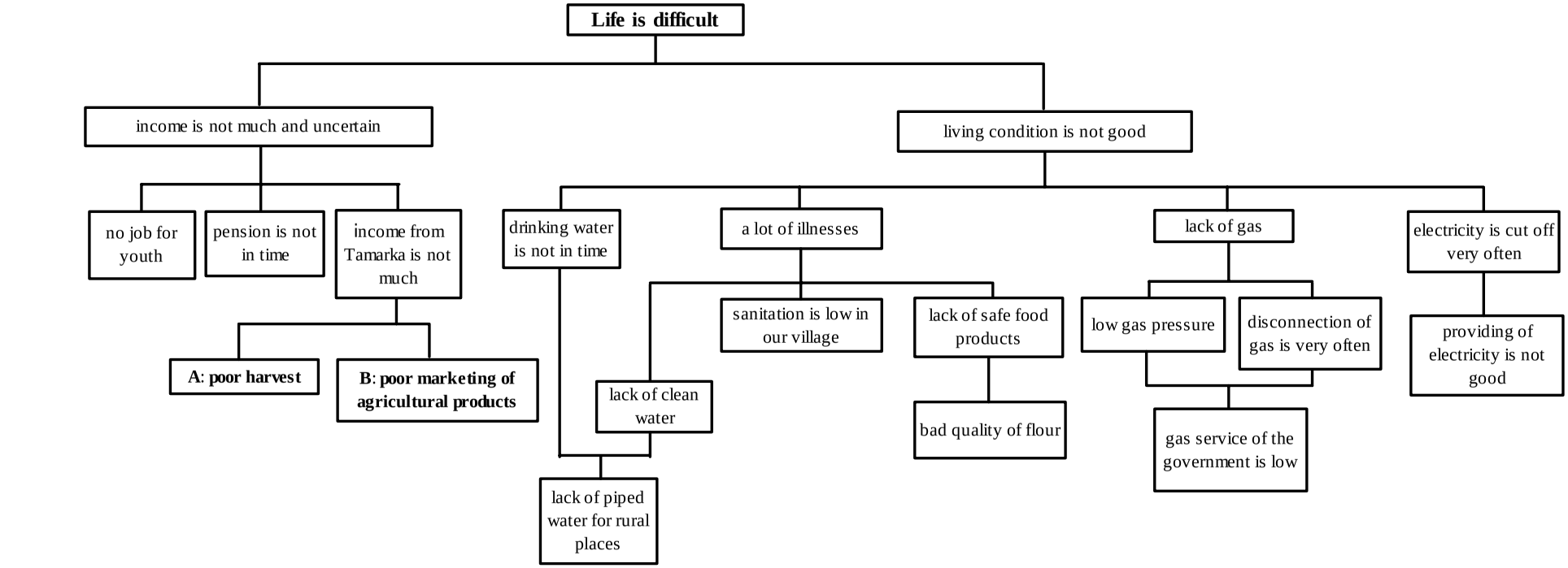
Results of district workshop are shown in Main Report Chapter 4, sample of the problem trees in the district workshop are shown hereinafter:

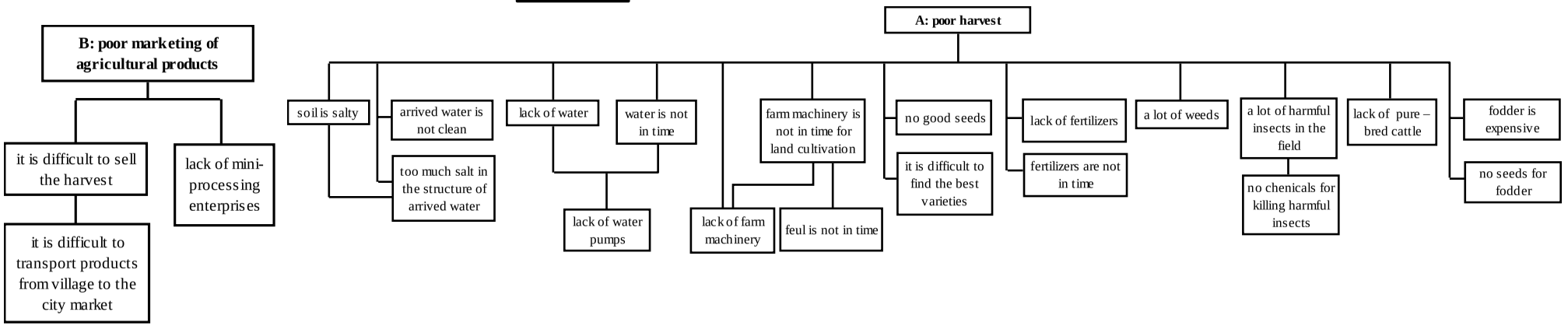
B.3.2 Sample of District Problem Trees

(1) Kungrad/Muynak Fermer

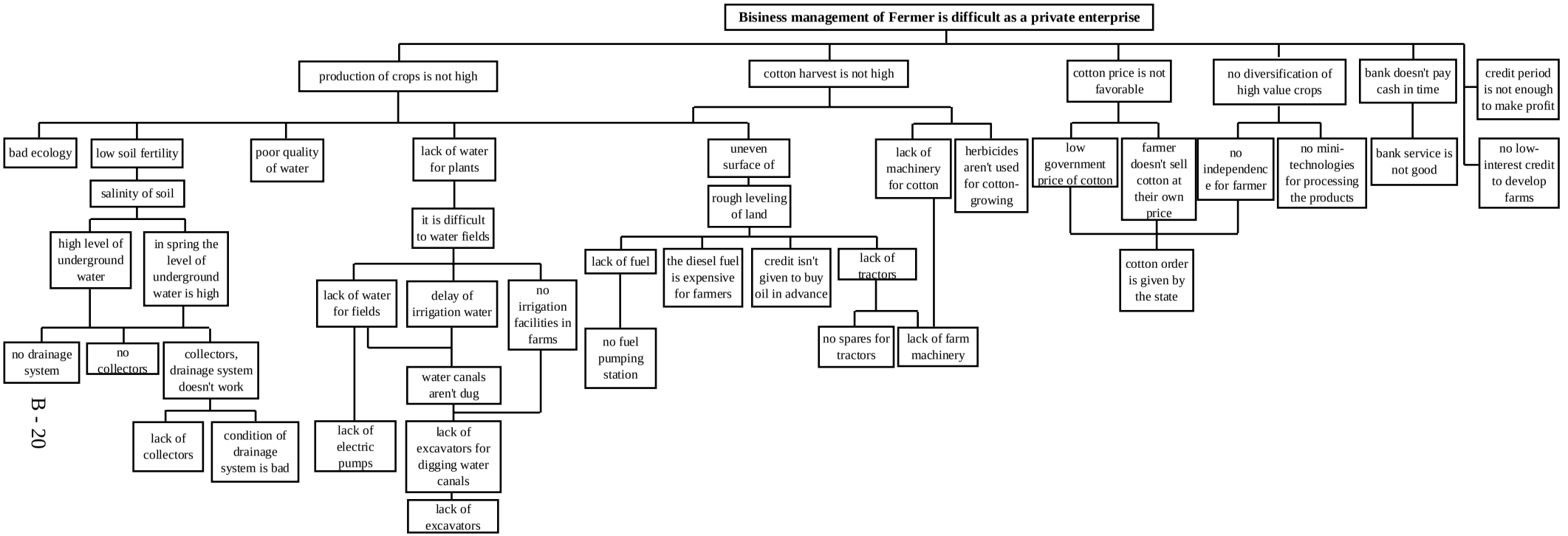


(2) Kungrad/Muynak Dehkans

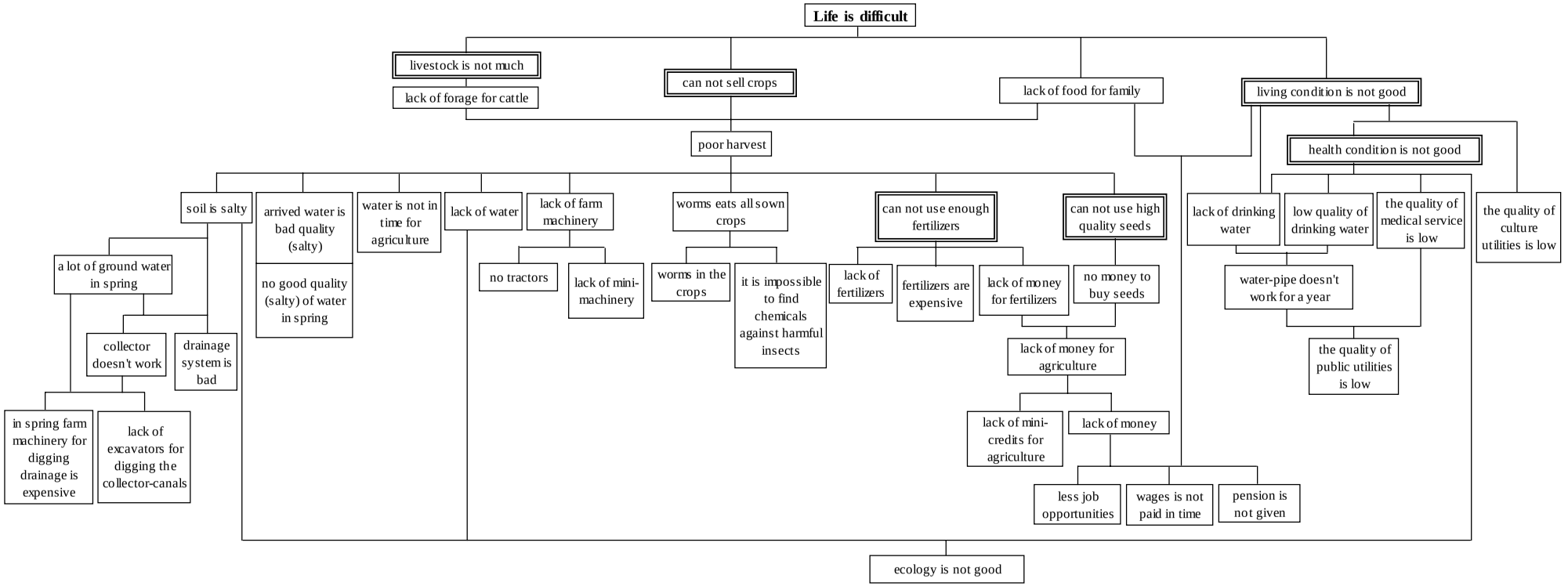




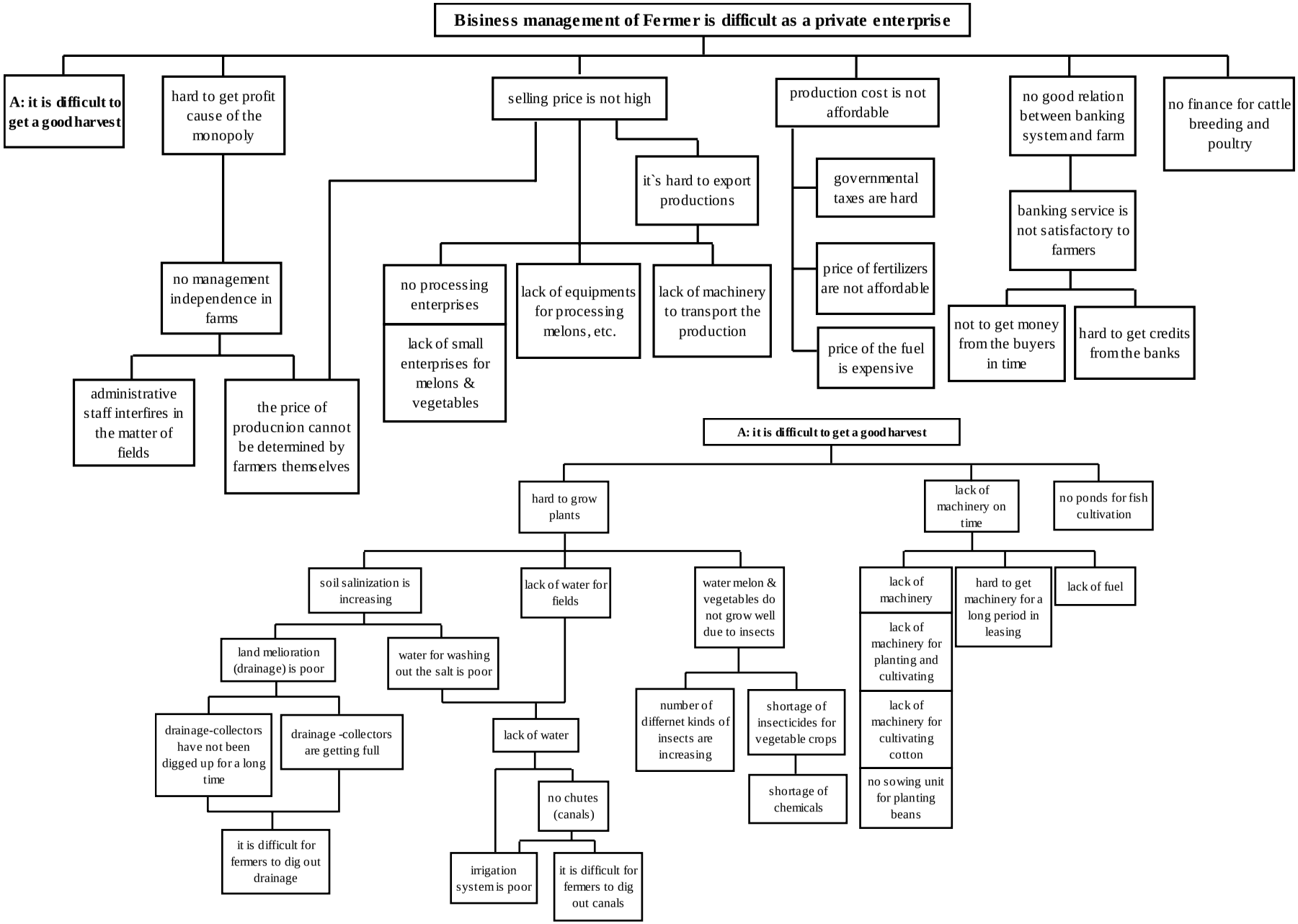
(3) Chimbay Fermers



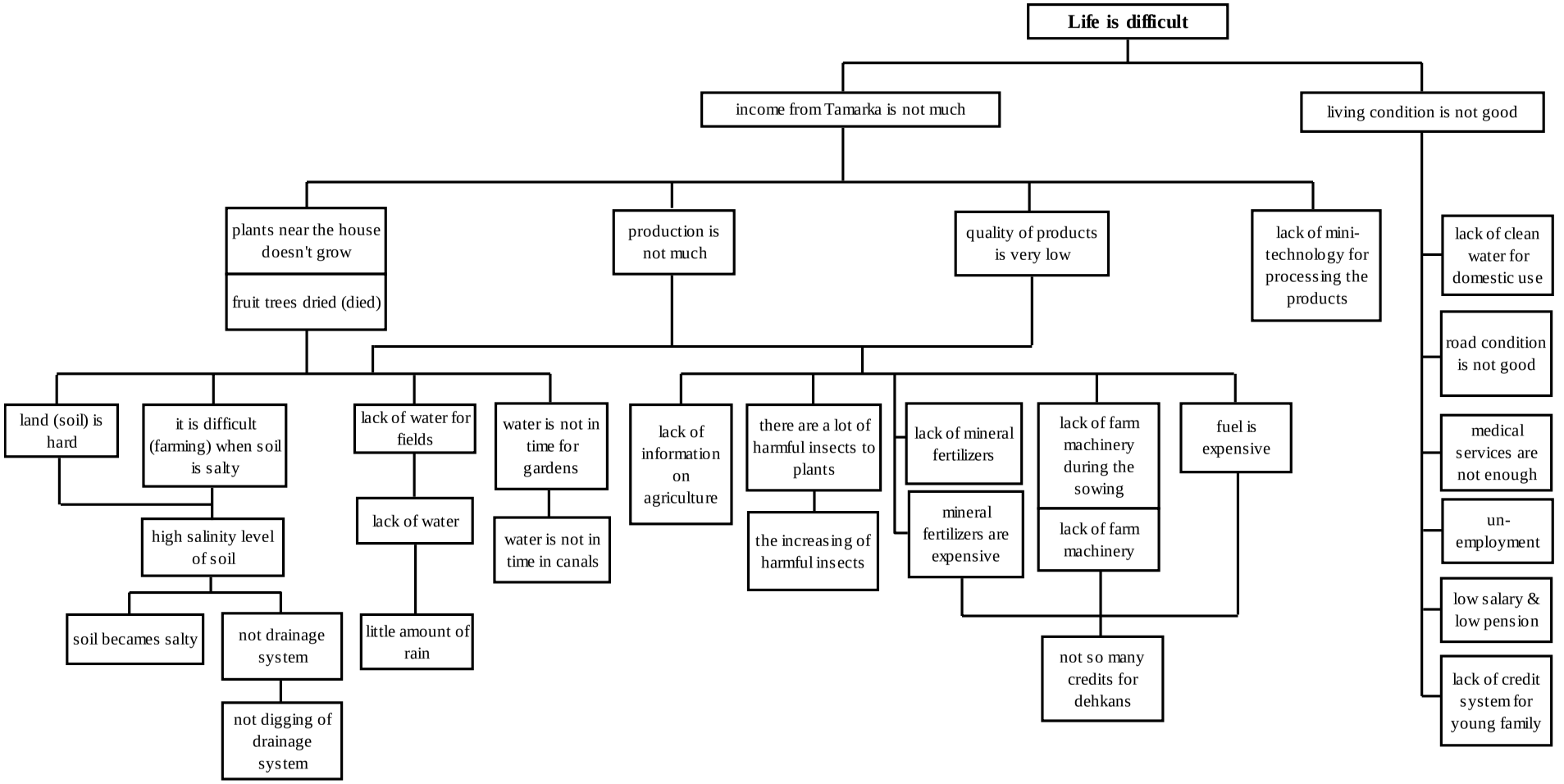
(4) Chimbay Dehkans



(5) Karauzyak Fermers



(6) Karauzyak Dehkans



ANNEX C AGRICULTURE SUBSECTOR

ANNEX C AGRICULTURE SUBSECTOR

C.1 Results of Farm Household Questionnaire Survey conducted in May 2008

C.1.1 General

(1) Objectives and Questionnaire

The Study needed to collect basic information and to understand the current situation of *Fermer* and *Dehkan* for the formulation of the Master Plan so the questionnaire survey was implemented the information. The survey mainly focused on the farm-business management and agriculture activities including livestock raising of *Fermer* and *Dehkan*, and importance of the activities for the livelihood of *Dehkan*.

The survey targeted two groups, *Fermer* and *Dehkan*, so two different questionnaires were prepared for the survey in Karakalpak language. The target districts were 11 districts as same as the target of the Study. The sample number of *Fermer* and *Dehkan* were 22 and 110 in the 11 districts.

Schedule of the survey is shown below. The survey was consisted of three works, preparatory, interview and reporting works and the total survey period was 40 days.

In preparatory works, trial interview survey to *Fermer* and *Dehkan* was carried out by enumerators to confirm the questionnaires and the procedures. After the trial survey, the result and lesson learned were feed buck to review the questionnaires and procedures. The sample *Fermers* and *Dehkans* were also selected in the preparatory works through cooperation and consultation with Hakimiyat based on the selection manner.

The interview works were carried out in 13 days for the 11 districts. The enumerators visited to the samples and interviewed the questionnaires in Karakalpak language and filled the answers in the questionnaire forms by themselves. It means that the survey was individual face to face interview with the sample. After the interview works, the data collected were inputted and analyzed for preparing the survey report.

Phase	Survey Period (40 days)							
Preparatory works	←	→						
Interview works			←		→			
Reporting works					←			→

(2) Questionnaire Survey to Fermer Farms

In the preparatory works, 2 *Fermers* in each district, total 22 *Fermers*, were selected based on the selection manner shown in Table 4.2.1 to select standard *Fermers* in each district. The *Fermers* should be a member of the Water Users Association (WUA) mentioned and also the natures of the *Fermer* like grain production oriented were fixed for each district. The ranges of land size of the *Fermer* were also instructed and the sample was selected within the land size.

In the interview works, the enumerators visited the sample *Fermers* and interviewed with them in Karakalpak language and filled the questionnaire form. Topics of the questionnaire to *Fermer* are shown in the table below. The each topic consisted of around 10 questions to collect necessary information. However the questionnaire targeted *Fermer* so the personal portion of the representative and the members were not included in the answers.

	Topics		Topics
A	General Information	B	Manager (Representative) of the *Fermer*
C	Present Member & Working Staff	D	Sales of the *Fermer* in 2007
E	Expenditure of the *Fermer* in 2007	F	Business Strategy of the *Fermer* for the Future Development
G	Land Use of the *Fermer*'s Land	H	Crop Production in 2007
I	Animal Raising of *Fermer* in 2007	J	Marketing of Farm Products in 2007
K	Irrigation in 2007	L	Application of Farm Inputs in 2007
M	Procurement of Farm inputs in 2007	N	Mechanization and Other Services Hired in 2007
O	Farm Machinery, Vehicles and Facility	P	Extension Services Experienced in 2007
Q	Group- Activities/Association in 2007	R	Evaluation of Farming/Animal Raising Factors
S	Your Interested New/Advanced Technologies		

(3) Questionnaire Survey to Dehkans

In the preparatory works, 10 *Dehkans* in each district, total 110 Dehkans, were selected based on the selection manner to select standard *Dehkans* in each district. The sample *Dehkans* should have *Tamarka* (entitled land) and live in surrounding of the sample *Fermer*. 5 Dehkans were selected from the surrounding of one sample *Fermer*. The ranges of land size of the sample *Dehkans* were instructed

to select standard *Dehkans* in each district. The land size is shown in the table below. Furthermore relation between the *Dehkans* and the *Fermer* was considered to select various kinds of *Dehkans* It was instructed that at least 2 Dehkans in the 5 sample *Dehkans* living in surrounding of one *Fermer* should not be employees of the *Fermer* and remaining 3 *Dehkans* were employees of the *Fermer*.

District	Land Size (ha)
Kungrad	0.05 - 0.25
Muynak	0.05 - 0.15
Shumanay	0.30 - 0.50
Kanlikul	0.10 - 0.30
Kegeily	0.15 - 0.35
Chimbay	0.15 - 0.35
Khodjeyli	0.20 - 0.40
Nukus	0.10 - 0.30
Karauzyak	0.20 - 0.40
Takhtakupyr	0.10 - 0.30
Beruni	0.10 - 0.30

In the interview works, the enumerators visited the sample *Dehkans* and interviewed with them in Karakalpak language and filled the questionnaire form. Topics of the questionnaire to Dehkan are shown in the table below. The each topic consisted of around 10 questions to collect necessary information.

	Topics		Topics
A	Personal Information	B	Present Family Members
C	Income Source of the Family in 2007	D	Expenditure of the Family in 2007
E	Strategy to Increase the Family's Living Standards in the Future	F	Land Use of Entitled Land to the Family
G	Crop Production in the Entitled Land in 2007	H	Animal Raising in 2007
I	Consumption of Farm Products in 2007	J	Home Demand & Production of Farm Products in 2007
K	Marketing of Farm Products in 2007	L	Irrigation to Entitled Land in 2007
M	Application of Agricultural and Livestock Inputs in 2007	N	Procurement of Farm inputs in 2007
O	Farm Machinery, Vehicles and Facility	P	Extension Services Experienced in 2007
Q	Group- Activities/Association in 2007	R	Evaluation of Farming/Animal Raising Factors
S	Your Interested New/Advanced Technologies		

C.1.2 Results of Questionnaire Survey to Fermer (22 samples)

(1) General

1) Out of 22 sample *fermers*, 13 were established after the year of 2004. There are two peaks of the establishment. One is 2000-01 and the other is 2004-06. The both peaks correspond to the time of Presidential Decrees on agricultural reforms. It implies that the establishment of *fermers* was promoted under the political leadership.

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Established	1	4	4	0	0	3	4	3	2	1

2) There are 19 crop *fermers* and 3 livestock *fermers*

3) 19 fermers have a membership of *Fermer* Association (FA). 3 non-FA member *fermers* are newly established ones, in 2005, 2007 and 2008

4) Average FA membership fee paid by the 19 member *fermers* in 2007 was 82,489 sum, while the paid amount much differed *fermer* to *fermer*.

(2) Manager of the Fermer

1) There are 20 male managers and 2 female managers.

2) Average age of the managers is 41.9 years old. Ages of 30s – 50s are the majority of them.

Age	10s	20s	30s	40s	50s	60s
Managers	1	2	6	6	5	2

3) Their ethnic origins are Karakalpak (12), Kazakh (5), Turkmen (3) and Uzbek (2).

4) The managers' educational backgrounds are relatively high, since all managers who answered are high-school graduated or more.

Education	Number	Share
1 Compulsoly or below	0	0.0%
2 High-school graduate	9	40.9%
3 Professional eduaciton after High-school	7	31.8%
4 University graduate of more	5	22.7%
5 Un-known	1	4.5%
Total	22	100.0%

5) 18 managers worked in agricultural sector before establishment of fermers. While 7 managers were farm laborers, 11 managers worked as management or technical staff in agricultural sector. There are few managers from non-agricultural sectors.

The most popular reason to start *fermer* business is "making profit", while "own interest/dream to manage a farm" and "contribution to local economy/people" are also the second popular reasons. "Suggestion from the Government" is not a popular reason, according to their answers.

Reason to Start *Fermer*	Strong	Some	None
1 Making profit	18	4	0
2 Social status/reputation	6	12	4
3 Own interest/dream to manage a farm	11	9	2
4 Suggestions from the Government	3	6	13
5 Contribution to the local economy development	12	10	0
6 Supporting local people by creating jobs	10	10	2

6) Out of 22 managers, only 3 have side-jobs. 2 of them are staff of the government / state-company/state-organizations and 1 of them manages own business. Most of the managers concentrate on fermer management.

	Previous Job	Number	Share
1	Management staff in agri-sector	7	32%
2	Technical staff/engineer/expert in agri-secotr	4	18%
3	Worker/labor in agri-sector	7	32%
4	Management staff in non agri-sector	1	5%
5	Technical staff/engineer/expert in non agri-secotr	0	0%
6	Worker/labor in non agri-sector	1	5%
7	Self-employed	0	0%
8	Others (job-less)	2	9%
	Total	22	100%

(3) Present Members and Working Staff

	Male	Female	Total
<Crop: 19 *fermers*>			
Family	1.9	0.9	2.9
Non Family	1.9	1.4	3.3
Total	3.9	2.3	6.2
<Livestock: 3 *fermers*>			
Family	3.7	2.0	5.7
Non Family	4.3	1.3	5.7
Total	8.0	3.3	11.3

1) Average number of crop-fermer members is about 6, while the number of livestock-fermer members is about 11. The difference may be due to their land size under management. The both types of fermers have almost same number of family and non-family members and the ratio of male and female is about 2 : 1.

2) Number of permanent management staff for the both types of fermers is about 2, while the number of working labors is about 5 for crop-fermers and about 6 for livestock-fermers.

3) The both types of fermers hired about 40 temporary or seasonal employees in 2007 and sex ratio of them are almost 1 : 1. However, the average employment days per employee are about 60 days for crop-fermers and about 80 days for livestock-fermers. Crop-fermers tend to employee male workers longer than female workers, while livestock-fermers employee the both sex equally.

4) Since fermers employee a large number of seasonal workers, they provide substantial job opportunities to rural society. It is estimated that almost 2 workers from every household are employed by fermers, if every fermer employees 40 seasonal workers (Fermer households may occupy about 5% of the total households). However, it seems that the employed people could not live on only the fermers' seasonal labor works as the employment period is limited to 2 – 3 months.

(4) Sales and Expenditure in 2007

1) Average annual sales of 16 crop-fermers who gave reliable answer on this question, was 14,427 thousand sum, while the average expenditure was 12,211 thousand sum in 2007. The average profits in 2007 was 2,215 thousand sum. Cotton dominated total sales (77.1%) and the next large sales commodity was wheat (18.5%). Sales of other commodities were very minimal.

   Among expenditures, farm inputs (30.8%), personnel expenses (23.0%) and energy & fuel (20.7%) are major items.

<Average Sales of 16 Crop-*fermer* in 2007>

	Sales	Average (sum)	(%)
1	Cotton	11,129,000	77.1
2	Wheat	2,675,813	18.5
3	Other grains including rice	146,875	1.0
4	Fodders	31,250	0.2
5	Vegetables/melons/gourds/potato	237,500	1.6
6	Fruits/grapes	50,000	0.3
7	Livestock	112,500	0.8
8	Livestock products	43,750	0.3
9	Other miscellaneous	0	0.0
	Total	14,426,688	100.0

<Average Expenditures of 16 Crop-*fermer* in 2007>

Expenditures	Average	(%)
1 Salary/wages & walfare costs of employ	2,806,250	23.0
2 Farm inputs	3,765,500	30.8
3 Farm-facility maintenance	907,875	7.4
4 Irrigation (water charge)	309,500	2.5
5 Energy & fuel	2,530,438	20.7
6 Transportation & communication	896,125	7.3
7 Land tax	412,188	3.4
8 Other tax & levies	564,750	4.6
9 Other miscellaneous	18,750	0.2
Total	12,211,375	100.0

2) Average annual sales of 3 livestock-fermers was 22,865 thousand sum, while the average expenditure was 20,780 thousand sum in 2007. The average profits in 2007 was 2,085 thousand sum. Although they are livestock-fermers, their sales much depended on cotton (72.2%) and wheat (22.0%) in 2007. Their sales of livestock and its products only occupied 4.7% of the total sales. Moreover, one of the livestock-fermers did not grow livestock and concentrated on cotton and wheat production. It is very interested that even livestock-fermers depend much on cotton and wheat for their sales.

Among expenditures, personnel expenses (29.0%), energy & fuel (21.7%) and farm inputs (19.2%) are major items.

<Average Sales of 3 Livestock-*fermer* in 2007>

Sales	Average (sum)	(%)
1 Cotton	16,510,333	72.2
2 Wheat	5,033,333	22.0
3 Other grains including rice	0	0.0
4 Fodders	0	0.0
5 Vegetables/melons/gourds/potatoe	0	0.0
6 Fruits/grapes	0	0.0
7 Livestock	1,066,667	4.7
8 Livestock products	20,833	0.1
9 Other miscellaneous	233,333	1.0
Total	22,864,500	100.0

<Average Expenditures of 3 Livestock-*fermer* in 2007>

Expenditures	Average (sum)	(%)
1 Salary/wages & walfare costs of employe	6,025,000	29.0
2 Farm inputs	3,995,667	19.2
3 Farm-facility maintenance	1,900,000	9.1
4 Irrigation (water charge)	1,146,667	5.5
5 Energy & fuel	4,500,000	21.7
6 Transportation & communication	433,333	2.1
7 Land tax	233,333	1.1
8 Other tax & levies	2,546,000	12.3
9 Other miscellaneous	0	0.0
Total	20,780,000	100.0

(5) Business Strategy

1) The both types of fermers give the highest priority to increased production of cotton and wheat in their business strategy, since even livestock-fermers depend much on cotton and wheat for their sales. Also, the both types of fermers give relatively higher priority to mechanization service business. It implies that there is a great demand for mechanization service among farmers.

2) Crop-fermers give also higher priority to increased production of other grains, while livestock-fermers give higher priority to increased production of livestock and fodder crops.

3) Many fermers are interested in promoting marketing and processing business, though they do not pay much attention to increased production of vegetables and fruits which must be commodities to be marketed or processed. Considering the present situation that production of those crops still cannot meet the regional demand at present and only 3 fermers out of the total 22 samples market those crops, the idea to promote marketing or processing might not be derived from their actual necessity.

Strategy		Crop Fermers			Livestock Fermers		
		Very Important	Important	Not important	Very Important	Important	Not important
1	To increase the production of Cotton	9	5	5	2	1	0
2	To increase the production of Wheat	9	6	4	2	0	1
3	To increase the production of other grains	6	10	3	0	1	2
4	To increase the production of fodder crops	1	4	14	2	0	1
5	To increase the production of vegetables, melons and gourds	2	8	9	0	3	0
6	To increase the production of fruits and grapes	2	3	14	0	1	2
7	To increase the number of livestock	4	4	11	2	1	0
8	To start/strengthen marketing business of the farm products	4	11	4	1	1	1
9	To start/strengthen processing business of the farm products	5	10	4	1	2	0
10	To start/strengthen farm mechanization service business	6	10	3	2	1	0

(6) Land Use in 2007

1) Average land area of crop-fermers is 57.9ha. Out of the land area, irrigated area occupies about 2/3 of the area. While almost irrigated area is used for farmland, no crop was planted in about 1/4 of the area (8.6ha) in 2007. Non-irrigated area mainly consists of salinity-problem land, pasture/grazing land and fallow land.

Land Use	Crop Fermer			Livestock Fermer		
	Average (ha)			Average (ha)		
	Irrigated	Non-irrigated	Total	Irrigated	Non-irrigated	Total
1 Farm Land	39.9	5.9	45.8	252.8	37.3	290.2
2 Out of 1, planted in 2007	32.0	0.0	32.0	202.6	0.0	202.6
3 Out of 1, salinity problem land	4.5	2.0	6.5	28.6	12.7	41.2
4 Orcharg/vineyard	0.0	0.0	0.0	0.2	0.0	0.2
5 Pasture/grazing land	0.0	6.9	6.9	0.0	43.6	43.6
6 Forest/woods	0.0	0.2	0.2	0.0	1.3	1.3
7 Housing compound	0.0	0.1	0.2	0.1	0.9	0.9
8 Other use & fallow	0.6	4.2	4.8	4.0	26.7	30.7
Total	40.6	17.3	57.9	257.1	109.8	366.9

2) Average land area of livestock-fermers is 247.8ha. The area is more than 4 times bigger than the area of crop-fermers. Out of the land area, irrigated area is 122.0ha, while non-irrigated area is 125.8ha. Non-irrigated area is bigger than irrigated area. Even the irrigated area, 27.3% or 33.3ha of the land is fallow. It is considered that the land for livestock-fermers might not be equipped with good irrigation system as compared to the land for crop-fermers. As a result, only 78.3ha or about 64% of the irrigated area was planted with crops in 2007. While pasture/grazing land occupies more than 84.5% of non–irrigated area, there is also a substantial farm land in the area. It seems that there is no clear difference between farm land in non-irrigated area and pasture/grazing land at field level, since no crop was planted in the farm land in 2007.

3) The both types of fermers claim that less irrigation water is the most serious reason of the existence of the un-planted farm land, and the second serious reasons are financial problem and salinity-damage. Some fermers also answer that lack of labor force/machinery is the reason. Livestock-fermers feel more concern about less irrigation water than crop-fermers.

Reason		Crop Fermer			Livestock Fermer		
		Serious	Some	Not	Serious	Some	Not
1	Less irrigation water	10	5	4	3	0	0
2	Lack of labor force/machinery	2	7	10	0	2	1
3	Lack of seeds/fertilizers/agro-chemica	0	6	13	0	0	3
4	Poor market access of the products	0	3	16	0	0	3
5	Financial problem	7	6	6	1	2	0
6	Salinity-damaged	6	10	3	0	3	0
7	Crop rotation for recovering soil ferti	1	5	13	0	1	2

(7) Crop Production in 2007

1) Crop-fermers grow mainly cotton and wheat. Among the both crops, planted area of cotton in 2007 is bigger than the planted area of wheat. Though some crop- fermers grow rice, sorghum, fodder crops, and melons/gourds, the production is very minimal as compared to cotton and wheat.

2) Livestock-fermers also grow mainly cotton and wheat and the average planted areas of the both crops are bigger than the areas of crop-fermers. Though fodder crops are other important crops for them, the average planted area is less than the area of cotton and wheat. Since it is reported that many fodder crops have been replaced by wheat due to the national policy to increase wheat production after independent, the present crop production of livestock-fermers may reflect the policy

Crop	Crop Fermers						Livestock Fermers					
	No. of fermer to grow	Average			Season		No. of fermer to grow	Average			Season	
		Planted area (ha)	Production (ton)	Yield (ton/ha)	Start (month)	Harvest (month)		Planted area (ha)	Production (ton)	Yield (ton/ha)	Start (month)	Harvest (month)
1 Cotton	15	19.4	33.9	1.75	4 - 5	9 - 11	3	27.7	57.3	2.07	4	9 - 10
2 Wheat (winter)	16	13.3	17.6	1.33	9 - 11	6 - 7	2	40.0	66.9	1.67	9	7
3 Wheat (spring)	0	0.0	0.0	na	na	na	0	0.0	0.0	na	na	na
4 Rice	3	7.0	15.0	2.14	5 - 6	10 - 11	0	0.0	0.0	na	na	na
5 Corn (grain)	1	2.0	1.5	0.75	5	10	0	0.0	0.0	na	na	na
6 Sorgum	6	2.8	2.4	0.85	4 - 7	9 - 11	1	2.0	2.0	1.00	5	9
7 Fodder crops	3	3.7	16.0	4.36	4 - 6	10	2	21.5	25.5	1.19	3 - 5	6 - 9
8 Melons & gourds	5	2.1	8.8	4.19	4 - 7	9 - 10	0	0.0	0.0	na	na	na
9 Tomato	1	0.5	5.0	10.00	5	9	0	0.0	0.0	na	na	na
10 Sesame	1	1.0	0.5	0.50	5	10	0	0.0	0.0	na	na	na

3) All sample fermers grow winter cotton only. None of them grow spring wheat.

4) While average yield of cotton of sample fermers is 1.82ton/ha, the yield is almost equal to the yield of Karakalpakstan in 2006

5) On the other hand, the average yield of wheat of sample fermers, which is 1.42ton/ha, is less than the half of the yield of Karakalpakstan in 2006, which was 3.30ton/ha. Even maximum yield of sample fermers, 2.50ton/ha, is far below of the yield of Karakalpakstan.

Crop	No. of contracted fermer	Average (ton)		Achieve (%)
		Contracted	Actual production	
1 Cotton	18	26.9	37.8	140.7
2 Wheat	17	26.3	23.2	88.2

6) While fermers grow cotton and wheat based on a contract with their processing companies, their production of cotton was more than the contracted amount in 2007. To the contrary, their production of wheat could not meet the contracted amount in 2007. This was because of no wheat harvest of 2 fermers in Takhtakupyr district.

	Cotton	Wheat
1 Can produce more	4	5
2 Reasonable level	11	8
3 Difficult	3	3
4 No contract	4	5
5 No answer	0	1

7) Number of fermer who made contract was 18 for cotton and 17 for wheat in 2007. Many of them consider that the contracted amount was below their production ability or reasonable level, while 3 fermers for each crop claim that their contracted amount was above their production ability.

(8) Livestock Production in 2007

1) Since only few crop-fermers grow small number of livestock, livestock do not contribute much to their business. It seems that many crop-fermers almost concentrate on cotton, wheat and several minor crops.

2) Out of 3 sample livestock-fermer, one fermer does not grow any livestock. Actually, this fermer must not be a livestock-fermer at present. In case of other 2 livestock-fermers, 1 fermer grows only cattle & cows, while the other grows many kinds of livestock.

Livestock	Crop Fermers				Livestock Fermers			
	Fermers to grow	Average (head)			Fermers to grow	Average 8head)		
		Adult	Child	Total		Adult	Child	Total
1 Cattle for meat	3	1.7	1.0	2.7	2	49.5	24.5	74.0
2 Cow for milk	5	3.2	5.4	8.6	2	18.5	18.5	37.0
3 Sheep	1	5.0	5.0	10.0	1	260.0	0.0	260.0
4 Goat	1	20.0	10.0	30.0	1	95.0	0.0	95.0
5 Horse & donkey	2	1.0	0.0	1.0	2	3.0	0.0	3.0
6 Pig	0	0.0	0.0	0.0	0	0.0	0.0	0.0
7 Poultry	4	13.8	10.0	23.8	1	20.0	10.0	30.0
8 Others	0	0.0	0.0	0.0	0	0.0	0.0	0.0

3) Only 6 sample fermers (4 crop-fermers and 2 livestock-fermers) answer that they have grazing land for their livestock. The average area of the grazing land is 113.8ha. Fermers in Shumanay, Muynak and Karauzyak which are located in remote area keep larger grazing land, while fermers in Khodjeyli and Kegeily which are located in suburb area keep smaller grazing land.

Grazing land (ha)	Fermer to have	Average (ha)
1 All fermer (22 fermers)	6	113.8
2 Crop fermer (19 fermers)	4	91.0
3 Livestock fermer (3 fermers)	2	159.5

4) Only one fermer answered that the grazing land belongs to community and the community manage the land. The other 5 fermers graze their livestock in their own land. It seems that joint management of grazing land is not a common practice among fermers.

	Governmen	Community	Fermer	Total
1 Property	0	1	5	6
2 Management	0	1	5	6

(9) Marketing of Farm Products in 2007

1) Many fermers sell cotton and wheat, which are their major products, to the government or the government agent at farm-gate, while several fermers sell them at some other place (may be collection depot). According to on-going system, cotton and wheat processing companies, whose majority shares are held by the Government, should provide means of transportation or bear actual transportation costs

Crop	No. of fermer to sell	Average			Buyers				Marketing Place			
		Marketed	unit	Price (sum/unit)	Govt./ agent	Whole-salers	Retail-ers	No answe r	Farm-gate	Ba-zaar	Other	No answer
1 Cotton	18	37.8	ton	322,565	18	0	0	0	11	0	4	3
2 Wheat	15	26.2	ton	147,200	14	0	0	1	9	0	4	2
3 Rice	3	15.0	ton	266,667	1	0	3	0	1	2	1	0
4 Corn (grain)	1	1.5	ton	300,000	0	1	0	0	0	1	0	0
5 Sorgum	3	1.4	ton	433,333	0	2	1	0	1	2	0	0
6 Fodder	1	15.0	ton	50,000	0	1	0	0	0	1	0	0
7 Melons & gourds	4	5.3	ton	86,250	0	4	0	0	0	3	0	1
8 Tomato	1	5.0	ton	100,000	0	1	0	0	0	1	0	0
9 Sesame	1	0.5	ton	1,500,000	0	0	1	0	0	1	0	0
10 Cocoon	2	0.3	ton	1,200,000	2	0	0	0	0	0	2	0
11 Beef meat	4	0.6	ton	2,725,000	1	0	2	1	1	2	0	1
12 Milk	4	2000.0	lit	275	1	0	3	0	1	3	0	0

2) Other crops are mostly sold at bazaar to wholesalers and retailers.

3) While fermers sell their crops other than cotton and wheat at bazaars located in the range of 10 – 25 km from their place, livestock and its products are marketed to more distant place. Fermers usually use public transportation or commercial transporter when they market products. They may choose one of them based on amount of the products.

Crop	Case	Distabce to market (km)	Opening days (days/month)	Information source of market price	Means of transportation
1 Rice	a	8	4	merchants/middlemen	public transportation
2 Corn (grain)	a	8	4	merchants/middlemen	public transportation
3 Sorgum	a	1	8	merchants/middlemen	commercial transporter
	b	25	30	merchants/middlemen	commercial transporter
4 Melons & gourds	a	15	8	merchants/middlemen	tractor/truck
	b	22	4	merchants/middlemen	self-carry
	c	12	8	merchants/middlemen	commercial transporter
5 Tomato	a	12	8	merchants/middlemen	commercial transporter
6 Beef meat	a	30	4	merchants/middlemen	commercial transporter
	b	25	30	merchants/middlemen	commercial transporter
7 Milk	a	56	30	merchants/middlemen	commercial transporter
	b	25	30	merchants/middlemen	commercial transporter

4) All fermers get information of market price from merchants or middlemen.

(10) Irrigation in 2007

1) Out of 22 sample fermers, 15 fermers use gravity irrigation system, while 7 fermers use pump irrigation system. The fermers who use pump irrigation system tend to grow various crops.

Type	Cotton/wheat		Other crops		Vege./melons/gourds		Fruits/grapes	
	(fermer)	(ha/fermer)	(fermer)	(ha/fermer)	(fermer)	(ha/fermer)	(fermer)	(ha/fermer)
1 Gravity	15	36.9	6	6.8	3	3.7	0	0.0
2 Sprinkler	0	0	0	0	0	0	0	0
3 Drip	0	0	0	0	0	0	0	0
4 Pump	7	20.7	3	3.7	2	2.5	1	0.5

2) There 12 fermers who answer to the question about energy source of irrigation pump. Out of the 12 fermers, 10 fermers answer electricity, while 2 fermers answer diesel.

3) Though most of sample fermers (20) get irrigation water directly from a distribution canal, 2 fermers get irrigation water through a canal managed by other fermer or silkat.

4) 7 fermers say that they can control timing and volume of irrigation water, while 15 fermers say that they can not

5) All sample fermers are members of WUA (Water Users Association). Their average annual membership fee in 2007 was 213,260sum. However, the amount much differs from fermers, Max: 800,000sum and Min. 20,000sum (2 fermers do not give an answer).

6) There are 12 fermers who pay water-charge while there are 6 fermers who do not pay it. And 4 fermers do not give an answer. Though average annual water-charge in 2007 of the 12 fermers was 127,655sum, 7 fermers of them answer the same amount of WUA membership fee.

7) While 9 fermers say that they get enough amount of water, 13 fermer say that they do not get.

8) About irrigation water quality, 12 fermers say that it is good or acceptable, while 10 fermers say that it is bad.

9) 9 fermers say that they are satisfied with the present irrigation system, while 12 say that they are not. One fermer does not give an answer to this question item. Out of 9 satisfied fermers, 7 fermers are satisfied with volume of irrigation water, and also same numbers of fermers are satisfied with irrigation water quality.

10) About the reason of dissatisfaction with the present irrigation system, water quality and salinity is the most serious reason. The next ones are lack of water and land location is in the end of irrigation network.

Reason	number
1 Lack of water	4
2 Water comes not on time	3
3 Water quality and salinity	5
4 Bad condition of irrigation canal	1
5 Higher elevation of farm land	2
6 End of irrigation network	4

(11) Application of Agricultural Inputs in 2007

1) Commercial seeds

All fermers who grow cotton and wheat use commercial seeds. Many *fermers* who grow rice and vegetables also use commercial seeds, while *fermers* who grow other grains and fodder crops tend to use non-commercial (own) seeds.

Crop	Use	No use	Not	Total
1 Cotton	18	0	4	22
2 Wheat	18	0	4	22
3 Rice	2	1	19	22
4 other grains	1	7	14	22
5 Fodder crops	2	3	17	22
6 Vegetables, melons& gourds	4	1	17	22

2) Organic manure

About a half of *fermers* who grow cotton, wheat, rice and vegetables use organic manure for the crops, while few *fermers* use organic manure for other grains and fodder crops.

Crop	Use	No use	Not	Total
1 Cotton	10	8	4	22
2 Wheat	7	11	4	22
3 Rice	2	1	19	22
4 other grains	1	7	14	22
5 Fodder crops	1	4	17	22
6 Vegetables, melons& gourds	3	2	17	22

3) Chemical fertilizers

All fermers who grow cotton and wheat apply chemical fertilizers to the crops, while few *fermers* apply chemical fertilizers to the other crops.

Crop	Use	No use	Not	Total
1 Cotton	18	0	4	22
2 Wheat	18	0	4	22
3 Rice	1	2	19	22
4 other grains	2	6	14	22
5 Fodder crops	1	4	17	22
6 Vegetables, melons& gourds	1	4	17	22

4) Fungicides, Insecticides and Herbicides

Limited *fermers* use agricultural chemicals to control pests and weeds.

Crop	<Fungicides>				<Insecticides>				Herbicides			
	Use	No use	Not grow	Total	Use	No use	Not grow	Total	Use	No use	Not grow	Total
1 Cotton	4	14	4	22	4	14	4	22	4	14	4	22
2 Wheat	4	14	4	22	4	14	4	22	3	15	4	22
3 Rice	1	2	19	22	1	2	19	22	1	2	19	22
4 other grains	1	7	14	22	1	7	14	22	0	8	14	22
5 Fodder crops	1	4	17	22	1	4	17	22	1	4	17	22
6 Vegetables, melons& gourds	1	4	17	22	1	4	17	22	1	4	17	22

5) Artificial insemination

None of sample *fermer* utilizes artificial insemination technology.

Livestock	Use	No use	Not	Total
1 Cattle & cow	0	7	15	22
2 Sheep & goat	0	3	19	22
3 Horse & donkey	0	4	18	22
4 Poultry	0	5	17	22

6) Commercial feeds

Only one sample *fermer* apply commercial feeds to cattle & cow, while all others do not use commercial feeds.

Livestock	Use	No use	Not	Total
1 Cattle & cow	1	6	15	22
2 Sheep & goat	0	3	19	22
3 Horse & donkey	0	4	18	22
4 Poultry	0	5	17	22

7) Vaccination and Medicine

Application of vaccination and medicine to cattle, cow, sheep and goat is common among sample *fermers*, while application of those to poultry is not.

Livestock		Vaccination				Medicine			
		Use	No use	Not	Total	Use	No use	Not	Total
1	Cattle & cow	6	1	15	22	5	2	15	22
2	Sheep & goat	2	1	19	22	3	0	19	22
3	Horse & donkey	2	2	18	22	2	2	18	22
4	Poultry	0	5	17	22	0	5	17	22

8) Hormones

Only one sample *fermer* apply hormones to cattle & cow, while all others do not use them.

Livestock	Use	No use	Not	Total
1 Cattle & cow	1	6	15	22
2 Sheep & goat	0	3	19	22
3 Horse & donkey	0	4	18	22
4 Poultry	0	5	17	22

9) Sample farmers procure almost agricultural inputs from government or state companies, except for seeds for other crops (may be vegetables). Private sector's activities are very limited in agricultural inputs supply business. Organic manures are mainly produced by themselves.

10) <for cotton & wheat>

from	Seeds (commer-cial)	Organic manure	Fertilizers	Chemicals for plant protection
1 No use	2	2	0	14
2 Self-production	—	17	—	—
3 Govt./state company	18	3	19	7
4 Research institute	1	0	3	1
5 Private/market	0	0	0	0
6 Neighbors/others	0	0	0	0
7 No answer	1	0	0	0
Total	22	22	22	22

11) <for other crops & livestock>

from	Seeds (commer-cial)	Organic manure	Fertilizers	Chemicals for plant protection	Artificial insemination	Feeds (commer-cial)	Vaccinatio n	Medicine/ hormone
1 No use	12	9	13	17	22	22	16	18
2 Self-production	—	11	—	—	—	—	—	—
3 Govt./state company	4	0	8	3	0	0	5	4
4 Research institute	0	0	0	0	0	0	1	0
5 Private/market	5	3	1	1	0	0	0	0
6 Neighbors/others	1	0	1	0	0	0	0	0
7 No answer	0	0	0	1	0	0	0	0
Total	22	23*	23*	22	22	22	22	22

(Note)* one *fermer* has 2 cases

The above tables imply that less use of agricultural inputs must be a major reason of low productivity of crops and livestock. Accessibility of growers to the inputs should be improved.

(12) Farm Machinery and Farm Mechanization Services in 2007

1) Out of 22 sample fermers, 13 fermers (about 60%) have agricultural tractors, while very limited number of fermers have other farm machinery

Item	Have	Not have	Total
1 Tractor	13	9	22
2 Harvester	1	21	22
3 Dryer (for grain)	0	22	22
4 Irrigation pump	1	21	22
5 Chemical sprayer	2	20	22
6 Green house	0	22	22
7 Grain storage	1	21	22
8 Cold storage (refrigerated)	0	22	22
9 Milking machine	1	21	22
10 Slaughter machine	1	21	22
11 Silo	0	22	22
12 Truck	2	20	22

2) Though about 60% of sample fermers have own tractors, many fermers depend on farm mechanization services.

Mechanization Services	Target crops					
	Cotton	Wheat	Other grains	Fodders	Vege., Melons & Gourds	Fruits & grapes
1 Plowing	18	15	4	2	0	0
2 Seeding	13	12	3	1	0	0
3 Fertilizer application	12	9	2	1	0	0
4 Plant protection	6	4	2	0	0	0
5 Harvesting	1	9	1	0	0	0
6 Mowing & baler	0	0	0	1	0	0
No. of growing fermer	18	18	10	5	5	0

The mechanization services are mostly used for cotton growing. Many *fermers* depend on the

services for plowing, seeding and fertilizers application to cotton. However, only one *fermers* use the services for harvesting cotton. Many *fermers* also depend on the services for wheat growing from plowing to harvesting. Unlike cotton, a half of sample *fermers* used the services for harvesting wheat. Utilization of the services for growing the other crops is limited.

3) Average cost of the each mechanization service is shown in the following table. But, the costs differ much from fermers.

Mechanization Services	Cost (sum/ha)	Service provider			
		Govt./ MTP/ Bio-labo.	Fermer Associa-tion	Private/ individual	others
1 Plowing	34,333	19	1	1	2
2 Seeding	18,503	14	0	1	2
3 Fertilizer application	8,321	12	0	0	1
4 Plant protection	15,667	6	0	0	0
5 Harvesting	33,382	9	0	0	0
6 Mowing & baler	8,750	0	0	1	0

MTPs including alternative-MTPs provide most of the mechanization services. Private sector's activities are very limited in agricultural mechanization business, too. All plant protection services may be provided from Bio-laboratories.

(13) Agricultural Extension in 2007

Almost no extension services for non-cotton/wheat crops are provided to sample *fermers*. Government agency and *Fermer* Association are major providers of the extension services. Even for cotton and wheat, many *fermers* may consider sowing campaigns of cotton and wheat provided from the government and *Fermer* Association as an extension service. The study team has confirmed that the government and *Fermer* Association do not have an actual body to handle agricultural extension on sustainable basis.

Sector	Yes	Service provider						No	No answer
		Govt. agency/ institute	Chamber of Enter-preneurs	Fermer Associa-tion	Private company	TV, radio & news papers	others		
1 Cotton	18	8	1	9	0	0	0	4	0
2 Wheat	20	9	2	8	0	1	0	2	0
3 Other crops	5	3	0	1	0	1	0	17	0
4 Vegetables	3	2	0	0	0	1	0	19	0
5 Fruits	1	0	0	0	0	1	0	21	0
6 Animal husbandry	1	0	0	0	0	1	0	21	0
7 Food processing	1	0	0	0	0	1	0	20	1

(14) Evaluation of Farming/Animal Raising Factors

1) Cotton and Wheat

"Salinity of land", "high cost of machinery/mechanization services", "low selling price", "low productivity of the crops" and "high inputs cost" are serious problems sample *fermers* for growing cotton and wheat. They also consider that "pests and diseases" is another serious problem, while most of them do not use chemicals to control pests and diseases. It implies that many *fermers* have not good access to the chemicals although they recognize damages of pests and diseases.

The *fermers* do not consider that "their skills and knowledge" is not a serious problem, though the productivity of cotton and wheat is not high in the study area (Probably, water and soil problem is too serious for them to judge their abilities calmly). Also, they consider that "man-power" and "access to good markets/buyers" are not big problems. Since cotton and wheat are produced on contract with processing companies, "access to good markets/buyers" must not be a problem.

The *fermers* give additional problems for "irrigation water" and "no free-hand to manage own earned money" Irrigation water issue is not included in the question since this is covered by the previous question. The later issue about the earned money implies that the government instructions to *fermers* cover not only from production to marketing, but also fund management.

Factor	Number of Fermer					Score (total points)
	No problem (0 point)	Slightly problem (1 point)	Very problem (2 points)	Not applicable	Total	
1 Productivity of crops	5	9	8	0	22	25
2 Technical information/services	12	9	1	0	22	11
3 Own skill & knowledge	20	2	0	0	22	2
4 Land size (need more land)	10	8	4	0	22	16
5 Land fertility	7	9	6	0	22	21
6 Salinity of land	1	8	13	0	22	34
7 Pests & deseases	5	10	7	0	22	24
8 Availability of inputs	8	7	7	0	22	21
9 Inputs costs	5	9	8	0	22	25
10 Man-power	18	3	1	0	22	5
11 Availability of machinery/mechanization services	8	9	5	0	22	19
12 Machinery/mechanization service costs	1	12	9	0	22	30
13 Storage facility	15	3	4	0	22	11
14 Means of transportation	8	6	8	0	22	22
15 Access to good markets/buyers	16	4	2	0	22	8
16 Selling price (low)	4	8	9	1	22	26
17 Market price stability	8	7	5	2	22	17
18 Access to credit	11	4	7	0	22	18
19 Others						
a Water			1			
b We can not use erned money by ourselves			1			

2) Other Crops

For crops other than cotton and wheat, “salinity of land” is also the most serious problem among sample *fermers*. It shows how the problem is serious in our study area. While the next serious problems are “land fertility” and “pests and diseases”, “land fertility” issue has close relation to salinity of land. As same as cotton and wheat, many *fermers* recognize that “pests and diseases” are big problem for growing crops. However, very limited *fermers* apply chemicals to control pests and diseases for non-cotton/wheat crops. It implies that many *fermers* have not good access to the chemicals with some reasons (distribution system, price, etc.).

In addition to the above mentioned problems, “availability of inputs and machinery/ mechanization services”, “high cost of machinery/mechanization services” and “access to credit” are also problems of *fermers*. Except the cost issue, those problems are not recognized for cotton and wheat. Under the present system, many *fermers* have difficulties to access to agricultural inputs, machinery and credit when they grow non-cotton/wheat crops.

As same as cotton and wheat, many *fermers* do not consider that “their skills and knowledge” is not a serious problem, though the productivity of crops is not high. Moreover, they do care much about “low productivity” of non-cotton/wheat crops. They also do not consider that problems of “man-power”, “access to good markets/buyers” and “storage facility” are serious for growing non-cotton/wheat crops.

Factor	Number of Fermer					Score (total points)
	No problem (0 point)	Slightly problem (1 point)	Very problem (2 points)	Not applicable	Total	
1 Productivity of crops	17	5	0	0	22	5
2 Technical information/services	8	6	1	7	22	8
3 Own skill & knowledge	14	1	0	7	22	1
4 Land size (need more land)	7	5	3	7	22	11
5 Land fertility	5	5	5	7	22	15
6 Salinity of land	5	3	7	7	22	17
7 Pests & deseases	6	3	6	7	22	15
8 Availability of inputs	7	4	4	7	22	12
9 Inputs costs	7	5	3	7	22	11
10 Man-power	12	2	1	7	22	4
11 Availability of machinery/mechanization services	5	8	2	7	22	12
12 Machinery/mechanization service costs	4	8	2	8	22	12
13 Storage facility	11	3	1	7	22	5
14 Means of transportation	7	4	3	8	22	10
15 Access to good markets/buyers	10	5	0	7	22	5
16 Selling price (low)	6	8	1	7	22	10
17 Market price stability	8	7	0	7	22	7
18 Access to credit	7	4	4	7	22	12

3) Livestock

For livestock, “low and unstable market price”, “access to credit”, “lack of technical information/survives” and “high input costs” are major problems of the *fermers*. Contrary to crops, *fermers* consider that marketing is their serious problem for growing livestock. Also, they are looking for technical information/survives.

Factor	Number of Fermer					Score (total points)
	No problem (0 point)	Slightly problem (1 point)	Very problem (2 points)	Not applicable	Total	
1 Technical information/services	4	2	2	14	22	6
2 Own skill & knowledge	6	1	1	14	22	3
3 Grazing land	7	1	0	14	22	1
4 Man-power	7	1	0	14	22	1
5 Availability of feeds	7	1	0	14	22	1
6 Price of feeds	5	2	1	14	22	4
7 Pests & deseases	5	3	0	14	22	3
8 Availability of inputs	5	2	1	14	22	4
9 Inputs costs	4	2	2	14	22	6
10 Access to good markets/buyers	5	3	0	14	22	3
11 Means of transportation	5	1	2	14	22	5
12 Selling price (low)	3	2	3	14	22	8
13 Market price stability	3	3	2	14	22	7
14 Access to credit	3	1	3	15	22	7

(15) Interested New/Advanced Technologies

1) The most interested technology by sample fermers is “water saving farming system/technology. It also shows that the most serious concern of the fermers is irrigation water.

2) Other technologies in which the fermers are interested are ”biological pest control of crops”, “food processing/preservation”, “green-house cultivation” and “organic fertilizer/manure production”.

Technology	Number of Fermer				Score (total points)
	Very high (2 points)	High (1 point)	No need (0 point)	Total	
1 Water saving farming system/facilities	9	9	4	22	27
2 Green-house cultivation	5	7	10	22	17
3 Organic fertilizer/manure production	3	10	9	22	16
4 Biological pest control of crops	4	10	8	22	18
5 Medical plant production	1	5	16	22	7
6 Floriculture	0	5	17	22	5
7 Sericulture	0	5	17	22	5
8 Silage of fodder crops	3	5	14	22	11
9 Underground storage system during winter	1	5	16	22	7
10 Cold storage system (for vege./fruits/mests)	0	4	18	22	4
11 Biogas production	0	4	18	22	4
12 Food processing/preservation technique	6	6	10	22	18
13 Packing including packing design	2	3	17	22	7
14 Hygiene for food processing	1	6	15	22	8
15 Others					
a Establishment of drainage network		1			
b Modern farm equipment	1				
c Machinery for cleaning fodder		1			
d Equipment for cotton processing		1			
e Processing of rice	1				

3) Additional technologies which are indicated by the fermers are;

- Modern farm equipment
- Rice processing（by a *ferm*er who grows 5ha of rice）
- Establishment of drainage network
- Machinery for cleaning fodder (by a livestock *fermer*)
- Equipment for cotton processing (Since *fermers* have to sell all produced cotton to a processing company, *fermers* do not need to equip cotton processing equipment. This answer is very strange or interesting)

C.1.3 Result of Questionnaire Survey of Dehkan (110 samples)

(1) Personal Information

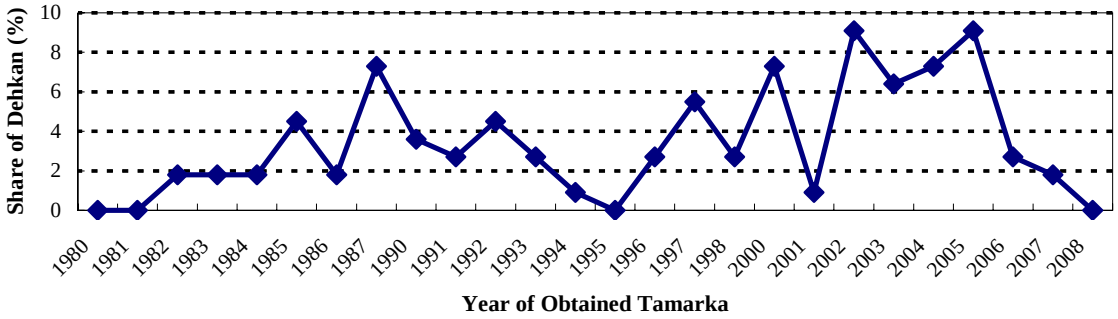
1) Ages of 110 sample dehkans vary from 19 to 88 years old. The average of the age is 49.7 years old. 50s years old is the most and 40s years old is the second.

Age	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89
Number of samples	1	3	19	27	40	12	7	1

2) Out of 110 sample dehkans, 59.1% is Karakalpak.

Karakalpak	Uzbek	Kazakh	Others	
			Turkmen	Kyrgyz
59.1%	18.2%	16.4%	5.5%	0.9%

3) Time when they received tamarka vary from 1982, before independent, to 2007. However comparatively many dehkans received tamarka before and after 1987 and from 2002 to 2005. Especially early 2000's might relate to president degree. The number of dehkans who received tamarka in a year is only several dehkans, less than 10 dehkans.



4) 2.7 % (3 dehkans) are member of Fermer Association and they paid 3,500sum/year for the membership fee.

5) 29.1% of sample dehkans were workers in silkat period, and percentage of engineers and drivers are also higher. Some of them were managers, teachers and so on and 10 % of sample dehkans were unemployed. This shows diversity of dehkans.

Worker	Engineer	Driver	Unemployed	Manager	Teacher	Military employee	Others
29.1%	16.4%	12.7%	10.0%	9.1%	7.3%	1.8%	13.6%

(2) Family Member

1) One family is composed of 3.6 males and 3.3 female, total 6.9 peoples. Composition of the age is 2.0 peoples in less than 15 years old, 4.6 peoples in 16 to 59 years old and 0.4 peoples in more than 60 years old. The ratio of sex is not dig difference in total and ages.

Age	Male	Female	Total
Less than 15 years old	0.9	1.0	2.0
16－59 years old	2.5	2.1	4.6
More than 60 years old	0.2	0.2	0.4
Total	3.6	3.3	6.9

2) Average numbers of permanent employees in one family are 0.9 males, 0.6 females and total 1.5 people. 76.4 % of families have permanent employees. Numbers of permanent employee in one family which have permanent employees are 1.4 males, 1.2 females and total 1.9 peoples.

3) Average numbers of temporary employees in one family are 0.6 males, 0.2 females and total 0.8 peoples. 40.0 % of families have temporary employees. Number of temporary employees in one family which have temporary employees is 2.0 people in total.

4) Average number of temporary or permanent employees in one family is 2.3 people. 88.2 % of families have temporary or permanent employees. 2.6 peoples have salaries in one family which have employees.

(3) Income Source of the Family in 2007

1) The most dehkans answered that salary and/or pension were principal or major income source.

2) There is no big difference between salary from “fermer/silkat” and “non-fermer/silkat”. However dehkans who have income source of salary or wage are 78.1 % in total. It means that the most dehkans depend on income of salary or wage.

3) On the other hand, many dehkans answered that sales of crops and livestock/milk were subsidiary. The dehkans who didn’t sell crops or livestock/milk products are 52.7 % and 57.3 %. The dehkans who didn’t sell both of crops and livestock/milk products are 38.2 %.

4) The dehkans who didn’t have income source of remittance are 73.6 %. However the percentage of dehkans who answered that remittance was principal (7.3 %) is high. It means that remittance is important income source for dehkans who received remittance although number of dehkans who received remittance is not so many.

5) More than 90 % of dehkan did not have income from own-business and sales of handicraft.

6) 31.8 % of dehkans answered that public support except pension was subsidiary.

7) Ratio of dehkans who got incomes and didn’t get incomes from income sources except own-business, sales of handicraft and remittance are about half. It shows that diversity of dehkans and one dehkan has several kinds of income sources.

8) Average income in 2007 was 2,016,142sum. Maximum was 8,100,000sum and minimum was 480,000sum.

	Income sources	Principal (%)	Major (%)	Subsidiary (%)	Very minor (%)	None (%)
1	Salary or wages from *fermer*/*silkat*	5.5	24.5	17.3	9.1	43.6
2	Salary or wages from non-*fermer*/*silkat*	9.1	24.5	13.6	0.9	51.8
3	Own-business	0.9	4.5	2.7	1.8	90.0
4	Sales of crops produced from *tamarka*	1.8	7.3	29.1	9.1	52.7
5	Sales of livestock/milk	0.0	10.9	20.9	10.9	57.3
6	Sales of handicraft	0.9	0.0	0.9	0.9	97.3
7	Pension	4.5	23.6	18.2	0.9	52.7
8	Remittance	7.3	7.3	7.3	4.5	73.6
9	Public supports	2.7	3.6	31.8	13.6	48.2
10	Other	0.0	0.9	1.8	0.0	97.3

(4) Expenditure of the Family in 2007

1) Percentage of major in “food & beverage” is the highest in all expenditure items and cloths is second.

2) None is higher in “electric appliances, furniture and durable goods” and “others”.

3) 10 % of dehkans answered none in expenditure of “agricultural inputs and management”.

4) It is interesting that percentages of major in expenditure of “public services” and “social relation” are higher.

5) Average expenditure in 2007 was 2,138,042sum. Maximum was 13,600,000sum and minimum was 480,000sum.

6) In compare with income in 2007, the balance was loss of 121,900sum in average. Balances of 20.9% of dehkans were loss and 10.0 % of dehkans had benefit.

	Items of expenditure	Major (%)	Minor (%)	Very minor (%)	None (%)
1	Foods & beverage	90.0	10.0	0.0	0.0
2	Cloths	37.3	49.1	12.7	0.9
3	Housing, home-consumables and fuel	4.5	36.4	28.2	30.9
4	Electric appliances, furniture and durable goods	1.8	20.0	14.5	63.6
5	Medical care & health	4.5	50.0	30.9	14.5
6	Education and recreation	9.1	49.1	20.9	20.9
7	Social relation	14.5	74.5	7.3	3.6
8	Public services	14.5	76.4	9.1	0.0
9	Agricultural inputs and management	10.0	59.1	20.9	10.0
10	Others	0.0	0.0	1.8	98.2

(5) Strategy for Enhancement of the Family's Living Standards in the Future

1) Percentages of very important are the highest in "increasing crop production" and also "educating children" and "increasing the number of livestock" are higher.

2) The most dehkans answered that "to go to other area/country for getting jobs" and "to find out a new job/business in the local area" are not so important. It shows that many dehkans are not so positive to go to other area for getting jobs.

3) In case of "to sell processed foods/products", the most dehkans answered not so important.

4) There is no big different among ages.

		Very important	Important	Not so important
1	To devote yourself	20.0	40.0	40.0
2	To find out a new good job/business in the local area	7.3	34.5	58.2
3	To go to other area/country for getting jobs	7.3	18.2	74.5
4	To educate children for getting good jobs	56.4	34.5	9.1
5	To increase crop production from the own-farmland	66.4	32.7	0.9
6	To increase the number of livestock	47.3	46.4	6.4
7	To sell processed foods/products	9.1	43.6	47.3
8	Other	2.7	0.0	0.0

5) Percentages of dehkan who answered that increasing crop production and number of livestock were very important are low in unemployed people in silkat period and also slightly low in engineer.

6) Percentages of dehkans who answered that increasing crop production was very important are higher in those who worked non-agriculture sector in silkat period.

7) Percentages of dehkans who answered that increasing the number of livestock was very important are higher in those who were manager and so on in silkat period.

	Former job	Crop production		Livestock		Total
		Very important	(%)	Very important	(%)	
1	Worker	23	71.9	16	50.0	32
2	Engineer	10	55.6	7	38.9	18
3	Driver	10	71.4	6	42.9	14
4	Military employee	1	50.0	1	50.0	2
5	Unemployed	4	36.4	2	18.2	11
6	Manager	6	60.0	7	70.0	10
7	Teacher	7	87.5	2	25.0	8
8	Other	12	80.0	10	66.7	15
	Total	73	66.4	52	47.3	110

(6) Land Use in 2007

1) Average area of tamarka is 0.32ha (irrigated land 0.27ha, non-irrigated land 0.05ha). Maximum is 0.88ha and minimum is 0.05ha. Out of 0.32ha, crop production and housing compound cover more than 90%.

2) Crop production covers largest area. It is 0.25 ha in average and almost all of the land is irrigated land. Maximum area for crop production is 0.76 ha. 2 dehkans didn't use their land for crop production and they used all land as housing compound (0.35 ha).

3) 26 dehkans use a part of their land for fruit production however the area is only 0.01 ha in average.

4) 2 dehkans use a part of their land for pasture however the area of one dehkan is 0.10ha in irrigated land and another uses 0.06 ha in non-irrigated land.

Land Use Type		Irrigated (ha)	Non- irrigated (ha)	Total (ha)
1	Farm yard	0.25	0.00	0.25
2	Orchard/Vineyard	0.01	0.00	0.01
3	Pasture	0.00	0.00	0.00
4	Housing compound	0.01	0.04	0.05
5	Other	0.00	0.00	0.00
6	Total	0.27	0.05	0.32

(7) Crop Production in Tamarka in 2007

1) Percentages of dehkans who cultivated crops varied with crops. In case of vegetables, about 50 % of dehkans grow and the percentage is the highest. It means that dehkans produced various crops and dehkans are various.

2) Many dehkans had livestock however dehkans who cultivate fodder crops are not so many.

3) Winter wheat is major crops and planted area of winter wheat is the largest. Average area of dehkan who cultivated winter wheat is 0.22 ha. It covers the most land used for cultivation (0.25 %).

4) Other grains and fodder crops are also larger area. Cultivated area of vegetables is only 0.07 ha and it is comparatively small. Fruit also covered almost same area as vegetables. Kinds of vegetables cultivated are mainly carrot, tomato, egg plant, cucumber and onion.

5) Cultivation period except wheat is concentrated from March to October.

Crop		Number of *Dehkan*	Planted Area (ha)	Sowing Time	Last Harvesting Time	Production (ton)	Yield (ton/ha)
1	Winter wheat	35	0.22	Sep.-Nov.	Jun.-Jul	0.68	3.32
2	Spring wheat	1	0.20	Mar.	Jun.	0.50	2.50
3	Corn (grain)	20	0.13	Mar.-May	Jul.-Oct	0.67	6.41
4	Other grains (sesame, rice, beans, sorghum)	42	0.17	Mar.-Jul.	Sep.-Nov.	0.40	2.93
5	Fodder crops (corn, alfalfa sorghum)	14	0.15	Mar.-May	Aug.-Nov.	1.85	13.21
6	Potato	43	0.05	Mar.-Jun.	Jul.-Oct.	0.31	10.16
7	Melons & Gourds	27	0.06	Mar.-Jun.	Aug.-Oct.	0.92	17.38
8	Vegetables (carrot, tomato, eggplant cucumber onion, radish, pepper)	58	0.07	Mar.-Jun.	Jul.-Nov.	0.52	12.38
9	Grape	21	0.03	—	Aug.-Oct.	0.27	11.30
10	Fruits (apple, apricot, plum, pomegranate, cherry)	25	0.06	—	Jun.-Oct.	0.36	8.20
11	Others (alfalfa)	0	—	—	—	0	0

6) Husband has main works on crop production and wife and other adults have the assistant works. Some parts of Children also have assistant works however old people tend not to work.

Crop	Works	Husband	Wife	Old people		Other adults		Children	
				male	female	male	female	male	female
1 Wheat and grain	No work	8.2	10.0	12.7	13.6	9.1	19.1	28.2	30.9
	Assistant works	5.5	56.4	6.4	9.1	34.5	40.9	21.8	19.1
	Main works	60.0	5.5	4.5	0.9	16.4	1.8	0.0	0.0
	Not applicable	26.4	28.2	76.4	76.4	40.0	38.2	50.0	50.0
2 Fodder crops	No work	7.3	10.9	8.2	9.1	6.4	11.8	15.5	16.4
	Assistant works	4.5	11.8	0.9	1.8	9.1	9.1	6.4	1.8
	Main works	13.6	1.8	2.7	0.0	4.5	0.0	0.0	0.0
	Not applicable	74.5	75.5	88.2	89.1	80.0	79.1	78.2	81.8
3 Vegetables, melons & gourds and potato	No work	3.6	6.4	7.3	10.0	5.5	12.7	20.9	24.5
	Assistant works	12.7	41.8	7.3	7.3	36.4	33.6	24.5	19.1
	Main works	50.0	16.4	4.5	0.9	10.9	6.4	0.0	0.9
	Not applicable	33.6	35.5	80.9	81.8	47.3	47.3	54.5	55.5
4 Fruits & Grape	No work	4.5	2.7	2.7	3.6	4.5	6.4	10.9	11.8
	Assistant works	5.5	22.7	7.3	6.4	19.1	20.9	11.8	12.7
	Main works	24.5	9.1	1.8	0.9	5.5	1.8	0.9	0.0
	Not applicable	65.5	65.5	88.2	89.1	70.9	70.9	76.4	74.5
5 Others	No work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Assistant works	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Main works	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Not applicable	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(8) Animal Raising in 2007

1) About 85 % of dehkans have cow. Average number of cow in the dehkans is 3. Except cow, livestock which many dehkans have are poultry (about 63 %, average 18.6 birds) and goat (about 49%, average 8.6 heads).

Livestock	Number of *dehkan*	Adult (head)	Young animals (head)	Total (head)
1 Cattle	26	0.6	0.8	1.4
2 Cow	93	1.5	1.5	3.0
3 Sheep	18	4.2	1.3	5.6
4 Goat	54	5.6	3.0	8.6
5 Horse & donkey	20	1.1	0.1	1.2
6 Pig	0	-	-	-
7 Poultry	69	12.3	6.2	18.6
8 Others	0	-	-	-

2) Husband has main works on cattle, cow, sheep and goat management and wife and other adults have the assistant works. Some parts of children also have the assistant works.

3) Wife has main works on poultry management and husband, other adults and children have the assistant works.

4) Old people tend not to work for all livestock as same as crop production.

Livestock	Works	Husband (%)	Wife (%)	Old people		Other adults		Children	
				Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
1 Cattle & cow	No work	7.3	3.6	18.2	14.5	12.7	13.6	33.6	40.9
	Assistant works	34.5	41.8	7.3	11.8	40.9	45.5	25.5	23.6
	Main works	41.8	38.2	3.6	0.9	17.3	12.7	0.9	0.0
	Not applicable	16.4	16.4	70.9	72.7	29.1	28.2	40.0	35.5
2 Sheep & goat	No work	4.5	4.5	12.7	10.0	6.4	7.3	20.0	24.5
	Assistant works	24.5	25.5	6.4	8.2	30.9	29.1	17.3	15.5
	Main works	25.5	23.6	2.7	1.8	9.1	9.1	0.9	0.0
	Not applicable	45.5	46.4	78.2	80.0	53.6	54.5	61.8	60.0
3 Horse & donkey	No work	10.0	12.7	10.9	10.0	6.4	9.1	10.9	12.7
	Assistant works	0.9	1.8	0.0	2.7	5.5	6.4	3.6	1.8
	Main works	9.1	3.6	1.8	0.0	6.4	1.8	0.9	0.0
	Not applicable	80.0	81.8	87.3	87.3	81.8	82.7	84.5	85.5

4	Pig	No work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Assistant works	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Main works	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Not applicable	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5	Poultry	No work	17.3	5.5	13.6	13.6	17.3	12.7	22.7	30.0
		Assistant works	35.5	6.4	4.5	5.5	30.0	20.0	22.7	20.9
		Main works	6.4	48.2	3.6	2.7	1.8	15.5	0.9	0.0
		Not applicable	40.9	40.0	78.2	78.2	50.9	51.8	53.6	49.1
6	Others	No work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Assistant works	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Main works	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Not applicable	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

5) Number of dehkans who use grazing land is 43 (39 %). The average area is 55.1 ha. Percentages of manager of the grazing land are that fermer is 42.9 % and local community is 35.7 %.

(9) Consumption of Agricultural and Livestock Products in 2007

1) Dehkans consume more than 80 % of crops and livestock production except beef meat, wool and hide/skin by themselves. The most part of remaining is sold.

2) Products which have high percentages of home-consumption are wheat (92.8 %), potato (91.4%), melons & gourds (91.1 %), chicken/poultry meat (98.8 %) and egg (92.7 %).

3) Percentages of sold portion of beef meat and wool are higher. However percentages of home-consumption of the products are low. Crops which had higher percentage of sold portion are fruits and grains except wheat.

4) Although percentage of dehkans who produce and sell crops and/or livestock is about 30 % in average, the percentages vary in products. Fodder, chicken/poultry meat and egg have lower percentages of seller in producers.

Products		Number of *dehkan*	Home - consumption (%)	Gift to neighbors (%)	Sold (%)	Percentage of seller in producer (%)
1	Wheat	32	92.8	3.1	4.1	12.5
2	Corn (grain)	21	77.6	0.0	22.4	40.0
3	Other grains	43	78.5	2.4	19.1	39.0
4	Fodder	21	93.8	0.2	6.0	9.5
5	Potato	40	91.4	0.5	8.1	15.0
6	Melons & Gourds	30	91.1	3.8	5.1	13.3
7	Vegetables	63	88.6	1.2	10.2	19.0
8	Grapes	25	85.8	2.4	11.8	24.0
9	Fruits	26	81.2	1.5	17.3	30.8
10	Other crops	0	-	-	-	-
11	Processed crop-originated products	14	89.3	0.7	10.0	28.6
12	Beef meat	13	47.7	0.0	52.3	80.0
13	Ram meat	8	80.0	1.3	18.8	28.6
14	Chicken/poultry meat	41	98.8	0.2	1.0	4.9
15	Pork meat	0	-	-	-	-
16	Milk	62	87.9	0.2	11.9	25.8
17	Egg	49	92.7	2.7	4.7	6.4
18	Wool	3	3.3	0.0	96.7	100.0
19	Hide/Skin	1	0.0	0.0	100.0	100.0
20	Other animal-originated products	0	-	-	-	

(10) Home Demand and Production of Agricultural and Livestock Products in 2007

1) There is no product which is produced more than home demand. And percentages of bought/gifted of the most products are higher than self-production.

2) In average, 30 % of home demand is produced by dehkans themselves and remaining is bought or gifted.

3) Products which have high percentage of self-production are milk (64.9 %), vegetables (52.9 %), egg (51.7 %) and fodder (50.9 %). Products which have low percentage of self-production are beef meat (4.6 %) and ram meat (10.8 %).

Products		Number of *dehkan*	Self-production (%)	Bought/gifted (%)
1	Wheat	106	21.7	78.3
2	Corn (grain)	83	27.8	72.2
3	Other grains	97	39.2	60.8
4	Fodder	89	50.9	49.1
5	Potato	106	34.5	65.5
6	Melon & Gourds	103	28.0	72.0
7	Vegetables	108	52.9	47.1
8	Grapes	104	22.8	77.2
9	Fruits	103	25.3	74.7
10	Other crop	15	6.7	93.3
11	Processed crop-originated products	44	39.9	60.1
12	Beef meat	107	4.6	95.4
13	Ram meat	84	10.8	89.2
14	Chicken/poultry meat	106	45.5	54.5
15	Pork meat	10	10.0	90.0
16	Milk	110	64.9	35.1
17	Egg	107	51.7	48.3
18	Wool	7	14.3	85.7
19	Hide/Skin	4	25.0	75.0
20	Other animal-originated products	0	-	-

(11) Marketing of Agricultural and Livestock Products in 2007

1) Although number of dehkans who sell crops or livestock products is low, numbers of dehkans who sell other grains, milk, vegetables and beef meat are comparatively higher.

2) Generally sales amounts are low. However sales amount of grapes and melon & gourds are 1.24 tons in average.

3) Sales price of meats are higher and sales price of ram meat is 4,000,000sum/ton.

Products		No.of seller	Sales amount	Sales price
1	Wheat	5	0.40ton	440,000sum/ton
2	Corn (grain)	6	0.23ton	233,333sum/ton
3	Other grains	18	0.62ton	381,944sum/ton
4	Fodder	0	-	-
5	Potato	6	0.48ton	308,333sum/ton
6	Melons & Gourds	5	1.24ton	216,000sum/ton
7	Vegetables	13	0.91ton	180,000sum/ton
8	Grape	4	1.24ton	487,500sum/ton
9	Fruits	7	0.33ton	210,714sum/ton
10	Other Crops	0	-	-
11	Crop-originated processed products	3	43.3liter	433sum/liter
12	Beef meat	11	0.25ton	3,690,909sum/ton
13	Ram meat	3	0.15ton	4,000,000sum/ton
14	Chicken/poultry for meat	2	0.05ton	2,000,000sum/ton
15	Pork meat	0	-	-
16	Milk	18	622liter	428sum/liter
17	Egg	4	362eggs	135sum/egg
18	Wool	1	0.02ton	1,700,000sum/ton
19	Hide/Skin	1	8pieces	20,000sum/pieces
20	Other animal-originated processed products	0	-	-

4) Main buyers of the crops and livestock products are retailers. However dehkans sell their products to wholesaler and consumers also.

Products		Government & its agents	Agro-firm/ association	Middle-men	Wholesaler	Retailer	Consumer
1	Wheat	0	0	0	1	2	2
2	Corn (grain)	0	0	0	1	4	1
3	Other grains	0	0	0	7	6	5
4	Fodder	-	-	-	-	-	-
5	Potato	0	0	0	0	2	3
6	Melons & Gourds	0	0	0	2	1	2
7	Vegetables	0	0	0	2	8	3
8	Grape	0	0	0	0	1	3
9	Fruits	0	0	0	2	3	2
10	Other crops	-	-	-	-	-	-
11	Crop-originated processed products	0	0	0	0	2	1
12	Beef meat	0	0	1	0	2	7
13	Ram meat	0	0	0	0	2	1
14	Chicken/poultry for meat	0	0	0	0	1	1
15	Pork meat	-	-	-	-	-	-
16	Milk	0	0	0	2	8	8
17	Egg	0	0	0	1	1	1
18	Wool	0	0	0	1	0	0
19	Hide/Skin	0	0	0	1	0	0
20	Other animal-originated processed products	-	-	-	-	-	-

5) 78 % of marketing places are bazaar/market. Distances to the bazaar/market are mainly from 10 to 20 km and 15.4 km in average.

6) Means of transportation for the products are mainly public transportation and commercial transportation.

7) Dehkans get information of the market price from merchants/middlemen.

Products		Marketing Place (Number of *dehkans*)			Distance to the bazaar/ market (km)
		At farm gate	At bazaar/market	Other	
1	Wheat	1	4	0	19.0
2	Corn (grain)	1	5	0	16.3
3	Other grains	3	15	0	17.2
4	Fodder	-	-	-	-
5	Potato	2	4	0	18.0
6	Melons & Gourds	0	5	0	20.0
7	Vegetables	2	11	0	7.8
8	Grape	0	4	0	7.0
9	Fruits	2	5	0	11.5
10	Other crops	-	-	-	-
11	Crop-originated processed products	0	2	0	7.5
12	Beef meat	1	9	0	19.6
13	Ram meat	0	3	0	20.0
14	Chicken/poultry for meat	1	1	0	25.0
15	Pig meat	-	-	-	-
16	Milk	6	12	0	15.2
17	Egg	2	2	0	11.5
18	Wool	1	0	0	-
19	Hide/Skin	1	0	0	-
20	Other animal-originated processed products	-	-	-	-

(12) Irrigation to Tamarka in 2007

1) Although the most dehkans use gravity irrigation, 24 dehkans use irrigation pump and the energy is electric. Irrigated area tended to be same as land use.

Type of Irrigation		Wheat		Other crops		Vegetables/ Melon/Gourds		Fruits/Grape	
		No. of *dehkan*	Area (ha)	No. of *dehkan*	Area (ha)	No. of *dehkan*	Area (ha)	No. of *dehkan*	Area (ha)
1 Gravity		31	0.22	58	0.19	65	0.11	29	0.06
2 Sprinkler		0	0	0	0	0	0	0	0
3 Drip		0	0	0	0	0	0	0	0
4 Other	Pump	1	0.09	6	0.19	4	0.18	4	0.06
	Rain	0	0	1	0.08	1	0.02	0	0

2) The most irrigation water come directly from distribution canal and 27 dehkans take irrigation water through fermers' canal.

3) 47 dehkans (43 %) answered that they could control timing and volume of irrigation for their tamarka by themselves.

4) 11.8 % of dehkans are member of water users association and they paid 5,891sum/year as the membership fee in average.

5) 46.4 % of dehkans answered that quantity of irrigation water is enough and 55.5 % of dehkans answered that quality of irrigation water is good or acceptable.

6) 55.5 % of dehkans are not satisfied irrigation. The major reasons are lack of water and quality of water.

(13) Application of Agricultural Inputs in 2007

1) Commercial Seeds

About half of *dehkans* who grow crops except fodder crops and fruits & grape use commercial seeds. About 50 % is high percentage although it is not clear that half of *dehkans* use commercial seeds every season or the most *dehkans* buy commercial seeds once in 2 seasons.

Crops	Number of *dehkan*			% of use
	Use	No use	Not grow	
1 Wheat	18	17	75	51.4
2 Other grains	26	37	47	41.3
3 Fodder crops	3	13	94	18.8
4 Potato	22	21	67	51.2
5 Vegetables/Melon/Gourds	36	31	43	53.7
6 Fruits/Grape	2	23	85	8.0
7 Others	0	0	110	-

2) Organic Manure

About half of *dehkans* who grow crops except fodder crops use organic manure.

Crops	Number of *dehkan*			% of use
	Use	No use	Not grow	
1 Wheat	17	18	75	48.6
2 Other grains	31	32	47	49.2
3 Fodder crops	3	13	94	18.8
4 Potato	19	24	67	44.2
5 Vegetables/Melon/Gourds	34	33	43	50.7
6 Fruits/Grape	14	11	85	56.0
7 Others	0	0	110	-

3) Chemical Fertilizers

57.1 % of *dehkans* who grow wheat use chemical fertilizers. In case of other crops, about 30 % of crop growers use chemical fertilizers.

Crops	Number of *dehkan*			% of use
	Use	No use	Not grow	
1 Wheat	20	15	75	57.1
2 Other grains	19	44	47	30.2
3 Fodder crops	0	16	94	0.0
4 Potato	12	31	67	27.9
5 Vegetables/Melon/Gourds	18	49	43	26.9
6 Fruits/Grape	4	21	85	16.0
7 Others	0	0	110	-

Number of *dehkans* who applied only organic manure, only chemical fertilizers and both were counted. In case of wheat growers, number of *dehkans* who apply both of chemical fertilizers and organic manure is the most. However in case of other crops, number of *dehkans* who apply only organic manure is the most.

Crops	Number of *dehkan*		
	Only organic manure applied	Only chemical fertilizers applied	Both applied
1 Wheat	6	9	11
2 Other grains	20	8	11
3 Fodder crops	3	0	0
4 Potato	12	5	7
5 Vegetables/Melon/Gourds	24	8	10
6 Fruits/Grape	11	1	3

Application amount of fertilizers including organic manure may low and it may be one of reason of low yield.

4) Fungicide, Insecticide and Herbicide

The most *dehkans* don't use fungicide, insecticide and herbicide.

Crops	Fungicide				Insecticide				Herbicide			
	Number of *dehkan*			% of use	Number of *dehkan*			% of use	Number of *dehkan*			% of use
	Use	No use	Not grow		Use	No use	Not grow		Use	No use	Not grow	
1 Wheat	2	33	75	5.7	2	33	75	5.7	4	31	75	11.4
2 Other grains	0	63	47	0.0	0	63	47	0.0	2	61	47	3.2
3 Fodder crops	0	16	94	0.0	0	16	94	0.0	0	16	94	0.0
4 Potato	2	41	67	4.7	1	42	67	2.3	2	41	67	4.7
5 Vegetables/Melon/Gourds	3	64	43	4.5	2	65	43	3.0	4	63	43	6.0
6 Fruits/Grape	1	24	85	4.0	0	25	85	0.0	0	25	85	0.0
7 Others	0	0	110	-	0	0	110	-	0	0	110	-

5) Agricultural Machinery

Percentage of *dehkans* who use agricultural machinery including the service is low. It may be major reason that agricultural lands of *dehkans* are small.

Crops	Number of *dehkan*			% of use
	Use	No use	Not grow	
1 Wheat	12	23	75	34.3
2 Other grains	20	43	47	31.7
3 Fodder crops	3	13	94	18.8
4 Potato	15	28	67	34.9
5 Vegetables/Melon/Gourds	18	49	43	26.9
6 Fruits/Grape	2	23	85	8.0
7 Others	0	0	110	-

6) Artificial insemination

The most *dehkans* don't use artificial insemination.

Crops		Number of *dehkan*			% of use
		Use	No use	Not grow	
1	Cattle/cow	3	93	14	3.1
2	Sheep/goat	1	55	54	1.8
3	Horse/donkey	0	20	90	0.0
4	Pig	0	0	110	-
5	Poultry	1	68	41	1.4
6	Others	0	0	110	-

7) Commercial feeds

39.6 % of dehkans who raise cattle/cow and 33.9 % of dehkans who raise sheep/goat use commercial feeds.

Crops		Number of *dehkan*			% of use
		Use	No use	Not grow	
1	Cattle/cow	38	58	14	39.6
2	Sheep/goat	19	37	54	33.9
3	Horse/donkey	1	19	90	5.0
4	Pig	0	0	110	-
5	Poultry	18	51	41	26.1
6	Others	0	0	110	-

8) Vaccination

Vaccination is comparatively extended and 60.4 % of *dehkans* who have cattle/cow use vaccination.

Crops		Number of dehkan			% of use
		Use	No use	Not grow	
1	Cattle/cow	58	38	14	60.4
2	Sheep/goat	30	26	54	53.6
3	Horse/donkey	3	17	90	15.0
4	Pig	0	0	110	-
5	Poultry	25	44	41	36.2
6	Others	0	0	110	-

9) Medicine

Although percentage of use of medicine is lower than vaccination, 56.3 % of *dehkans* who have cattle/cow use medicine.

Crops		Number of dehkan			% of use
		Use	No use	Not grow	
1	Cattle/cow	54	42	14	56.3
2	Sheep/goat	37	19	54	66.1
3	Horse/donkey	4	16	90	20.0
4	Pig	0	0	110	-
5	Poultry	30	39	41	43.5
6	Others	-	-	110	-

10) Hormone

Use of hormone is very limited.

Crops		Number of dehkan			% of use
		Use	No use	Not grow	
1	Cattle/cow	5	91	14	5.2
2	Sheep/goat	2	54	54	3.6
3	Horse/donkey	0	20	90	0.0
4	Pig	0	0	110	-
5	Poultry	2	67	41	2.9
6	Others	0	0	110	-

(14) Procurement of Agricultural Inputs in 2007

1) Commercial seeds

Dehkans procure commercial seeds mainly from private/market and a few *dehkans* procure them from neighbors.

2) Organic manure

Many dehkans produce organic manure by themselves and some dehkans procure them from private/market.

3) Chemical fertilizers

Although the most dehkans don't use chemical fertilizers, procuring them from private/market is major when they use it. Some dehkans procure them from government or state company.

4) Pesticide/herbicide

As same as chemical fertilizers, dehkans who use pesticide/herbicide procure mainly from private/market.

5) Mechanization services

The most dehkans who use mechanization services procure it from private/market.

	Commercial seeds (%)	Organic manure (%)	Chemical fertilizers (%)	Pesticide /herbicide (%)	Mechanization services (%)
No use	33.6	7.3	65.5	88.2	54.5
Self production	-	78.2	-	-	-
Government (state company)	0.0	0.0	14.5	4.5	5.5
Research institute	0.9	1.8	0.0	0.0	0.0
Private/market	50.9	10.0	19.1	7.3	34.5
Neighbors	1.8	2.7	0.9	0.0	2.7
Others	0.9	0.0	0.0	0.0	2.7

6) Artificial insemination

Although only few dehkans use artificial insemination, they procure the service from government and private.

7) Commercial feeds

The most dehkans who use commercial feeds procure them from private/market. Procuring from neighbors is very rare.

8) Vaccination/Medicine/Hormone

Although dehkans procure them mainly from government, 10 to 20 % of dehkans procure them from private/market.

	Artificial insemination (%)	Commercial feeds (%)	Vaccination service (%)	Medicine/ hormone (%)
No sue	97.3	38.2	38.2	34.5
Self production	-	-	-	-
Government (state company)	0.9	1.8	47.3	45.5
Research institute	0.0	0.0	2.7	0.9
Private/market	0.9	37.3	11.8	19.1
Neighbors	0.9	0.9	0.0	0.0
Other	0.0	0.0	0.0	0.0

9) Agricultural Machinery

Although lands of *dehkans* are small, 9.1 % of *dehkans* have tractor. The most *dehkans* don't have other machineries.

		Have (%)	Not have (%)
1	Tractor	9.1	90.9
2	Harvester	0.9	99.1
3	Dryer (for grain)	0.9	99.1
4	Irrigation pump	1.8	98.2
5	Chemical sprayer	1.8	98.2
6	Green house	0.9	99.1
7	Milking machine	0.0	100.0
8	Truck	0.0	100.0
9	Other, Mill	0.9	99.1

10) Agricultural Extension in 2007

Although 20 to 30 % of dehkans in each sector are provided agricultural extension service, the most dehkans are provided it through TV, radio and news papers. Only few dehkans are provided the service directly from government agency. This result shows that agricultural extension activities for dehkans are very limited.

Sector		Yes	Service provider							No
			Government agency /institute	Chamber of Enter-preneurs	*Fermer* association	Private company	TY, Radio, Newspapers	Others	No answer	
1	Crop production	37	7	0	2	2	23	2	1	73
2	Vegetable production	27	4	0	2	1	19	1	0	83
3	Fruits production	18	1	0	0	1	14	2	0	92
4	Animal husbandry	23	4	0	0	0	19	1	0	87
5	Food processing	21	1	0	0	1	18	0	1	89

(15) Evaluation of Agriculture/Animal Raising Factors

1) Crop Production

"Salinity of land" is the most serious problem for *dehkans*. The second serious problems are "pests & disease" and "land fertility". "Productivity of crops" and "machinery/mechanization service costs" also have higher scores. On the other hand, "own skill & knowledge", "man-power", "storage facility", "access to good market/buyers" and "technical information /services" are not recognized as serious problem. And also selling price and marketing may not be so serious problem in their mind.

Factors		Number of *dehkan*					Score (total points)
		No problem (0 point)	Slightly problem (1 point)	Very problem (2 points)	Not applicable	Total	
1	Productivity of crops	28	63	16	3	110	95
2	Technical information/services	76	26	6	2	110	38
3	Own skill & knowledge	94	13	1	2	110	15
4	Land size (need more land)	41	49	18	2	110	85
5	Land fertility	28	57	23	2	110	103
6	Salinity of land	13	49	45	3	110	139
7	Pests & disease	21	70	17	2	110	104
8	Availability of inputs	49	44	13	4	110	70
9	Inputs costs	50	45	12	3	110	69
10	Man-power	89	16	3	2	110	22
11	Availability of machinery/ mechanization service	56	38	14	2	110	66
12	Machinery/mechanization service costs	37	51	19	3	110	89
13	Storage facility	89	14	5	2	110	24
14	Means of transportation	61	34	12	3	110	58
15	Access to good markets/buyers	80	25	3	2	110	31
16	Selling price (low)	63	37	8	2	110	53
17	Market price stability	59	41	8	2	110	57
18	Access to credit	61	24	21	4	110	66
19	Others	0	0	0	110	110	0

2) Animal Raising

"Price of feeds" and "grazing land" are recognized as the most serious problems for *dehkans*. "Pests & disease" and "access to credit" have also higher scores. On the other hand, "own skill & knowledge",

"man-power" and "access to good market/buyers" are not recognized as serious problem. As well as crop production, lack of skill and knowledge, selling price and marketing are not recognized as big problem.

Factors	Number of *dehkan*					Score (total point)
	No problem (0 point)	Slightly problem (1 point)	Very problem (2 points)	Not applicable	Total	
1 Technical information/services	72	24	5	9	110	34
2 Own skill & knowledge	94	9	1	6	110	11
3 Grazing land	51	36	20	3	110	76
4 Man-power	92	12	2	4	110	16
5 Availability of feeds	56	39	10	5	110	59
6 Price of feeds	40	53	12	5	110	77
7 Pests & disease	42	55	8	5	110	71
8 Availability of inputs	46	45	11	8	110	67
9 Inputs cost	45	50	8	7	110	66
10 Access to good market/buyer	82	19	2	7	110	23
11 Means of transportation	61	33	11	5	110	55
12 Selling price (low)	59	40	4	7	110	48
13 Market price stability	48	52	4	6	110	60
14 Access to credit	50	33	19	8	110	71
15 Others	0	0	0	110	110	0

3) Interested New/Advanced Technologies

"Water saving farming system/facility" has the highest score. It may show that irrigation water is the most serous problem for *dehkans*. *Dehkans* are secondly interested in "food processing/preservation technique", "hygiene for food processing", "greenhouse cultivation" and "biological pest control of crops". They are same as *fermers*. In consideration with production which is less than their home demand and no recognition of big problem on marketing, higher interesting in "food processing/preservation technique" may be for self consumption.

Technology	Number of *dehkan*				Score (total points)
	Very high (2 points)	High (1 point)	No need (0 point)	Total	
1 Water saving farming system/facility	18	50	42	110	86
2 Greenhouse cultivation	7	44	59	110	58
3 Organic fertilizer/manure production	3	37	70	110	43
4 Biological pest control of crops	5	46	59	110	56
5 Medical plants production	2	18	90	110	22
6 Floriculture	6	37	67	110	49
7 Sericulture	0	7	103	110	7
8 Silage of fodder crops	4	30	76	110	38
9 Underground storage system during winter	2	30	78	110	34
10 Cold storage system (for vegetables/fruits/meat)	1	37	72	110	39
11 Biogas production	0	8	102	110	8
12 Food processing/preservation technique	8	44	58	110	60
13 Packing including packing design	4	24	82	110	32
14 Hygiene for food processing	6	45	59	110	57
15 Others	1				

Attachment C.1 Questionnaire Sheets of Farm Household Survey for Fermer

QUESTIONNAIRE (*Fermer*)

QUESTIONNAIRE

Code No.	Date of interview
	/ /

A Personal Information

A-1	Name of *Fermer*:
A-2	Location (District/Hokimiyat/Village/Aul):
A-3	Tel No. / A-4 Established year
A-5	Type of *Fermer*: (1) Crop□ (2)Livestock□ (3)Others□_____
A-6	Membership of the *Fermer* association: (1) No□ (2)Yes□ (3)Membership fee Sum_____/year
A-7	Name of *Silkat* where your land belonged before:

B Manager (Representative) of the *Fermer*

B-1 Name:_____

B-2 Age:_____ B-3 Sex: (1) Male□ (2) Female□

B-4 Ethnic Origin: (1) Karakalpak□ (2)Uzbek□ (3)Kazakh□ (4)others□_____

B-5 Educational background:
(1) University graduate or more□ (2) Professional education after graduate high-school□
(3) High-school graduate□ (4) Compulsory education or less□

B-6 Previous job before establishing the *Fermer*:
(1) Management staff in agriculture sector□ (2) Technical staff/engineer/expert in agriculture sector□
(3) Worker/labor in agriculture sector□ (4) Management staff in non-agriculture sector□
(5) Technical staff/engineer/expert in non-agriculture sector□ (6) Worker/labor in non-agriculture sector□
(7) Self-employed□ (8) Others _____

B-7 Reasons to start *Fermer* business (see footnote and put the appropriate number)

Reason	
(1) Making profit	
(2) Social status/reputation	
(3) Own interest /dream to manage a farm	
(4) Suggestion from the Government	
(5) Contribution to the local economy development	
(6) Supporting local people by creating jobs	
(7) Other_____	

(Note) 0: none 1: to some extent 2: very strong

B-8 Side-job: (1) Yes□ (2)No□

B-9 If "Yes; what is the side-job
(1) Staff of the Government/State-company/State-organization□ (2) Politician□
(3) Experts (Doctor/Lawyer/Professor/Engineer etc.) □ (4) Business/Self-employed□
(5) Other_____□

C Present Members & Working Staff

C-1 Members of the *Fermer* (not counting the manager)

Age	(a) Male	(b) Female	(c)Total
(1) Family member			
(2) Non-family member			
(3) Total			

C-2 Number of permanent employees (management staff)
(1) Male _____ (2) Female _____

C-3 Number of permanent employees (working labor)
(1) Male _____ (2) Female _____

C-4 Total number of temporary employees in 2007
(1) Male _____man/day (2) Female _____man/day

D Sales of the *Fermer* in 2007

Item	Amount (Sum)
D-1 Sales of cotton	
D-2 Sales of wheat	
D-3 Sales of other grains including rice	
D-4 Sales of fodders	
D-5 Sales of vegetables/melons/gourd/potato	
D-6 Sales of fruits/grape	
D-7 Sales of livestock	
D-8 Sales of livestock products	
D-9 Other miscellaneous (Major items:)	
D-10 Total	

E Expenditure of the *Fermer* in 2007

Item	Amount (Sum)
E-1 Salary/wages & welfare costs of employees	
E-2 Farm inputs	
E-3 Farm-facility maintenance	
E-4 Irrigation (water charge)	
E-5 Energy & fuel	
E-6 Transportation & communication	
E-7 Land charge	
E-8 Tax & levies	
E-9 Other miscellaneous (Major items:)	
E-10 Total	

F Business Strategy of the *Fermer* for the Future Development

F-1 To increase the production of Cotton
(2) Very important□ (1) Important□ (0) Not so important□

F-2 To increase the production of Wheat
(2) Very important□ (1) Important□ (0) Not so important□

F-3 To increase the production of other grains
(2) Very important□ (1) Important□ (0) Not so important□

F-4 To increase the production of fodder crops
(2) Very important□ (1) Important□ (0) Not so important□

F-5 To increase the production of vegetables, melons and gourds
(2)Very important□ (1) Important□ (0) Not so important□

F-6 To increase the production of fruits and grape
(2)Very important□ (1) Important□ (0) Not so important□

F-7 To increase the number of livestock
(2)Very important□ (1) Important□ (0) Not so important□

F-8 To start/strengthen marketing business of the farm products
(2)Very important□ (1) Important□ (0) Not so important□

F-9 To start/strengthen processing business the farm products
(2)Very important□ (1) Important□ (0) Not so important□
F-10 To start/strengthen farm mechanization service business
(2)Very important□ (1) Important□ (0) Not so important□
F-11 Other (_____)
(2)Very important□ (1) Important□ (0) Not so important□

G Land Use

Land Use Type	Area (ha)		
	(1)Irrigated	(2)Rainfed	(3)Total
G-1 Farm land (planted in 2007)			
G-2 Out of G-1, salinity problem land			
G-3 Farm land (not planted in 2007)			
G-4 Out of G-3, salinity problem land			
G-5 Orchard/Vineyard			
G-6 Pasture/Grazing land			
G-7 Forest/Woods			
G-8 Housing compound			
G-9 Other use & Fallow			
G-10 Total			

G-8: The reason why the existence of the un-planted farm land?
(see footnote and put the appropriate number)

Reasons	Score
(1) Less irrigation water	
(2) Lack of labor force/machinery	
(3) Lack of seeds/fertilizers/agro-chemicals	
(4) Poor market access of the products	
(5) Financial problem	
(6) Salinity-damaged	
(7) Crop rotation for recovering soil fertility	
(8) Other _____	

(Note) 2:yes, serious 1:yes, but to some extent 0:not applicable

H Crop Production in 2007

Irrigated land

	(1) Name of Crop	(2) Planted Area (ha)	(3)Month of Sowing & the Last Harvesting (crop season)	(4) Production (ton)	(5) Yield (ton/ha)
H-1	Cotton		~		
H-2	Wheat (Spring)		~		
H-3	Wheat (Winter)		~		
H-4	Rice		~		
H-5	Corn (grain)		~		
H-6	Other grains		~		
	(6)Crops' name:				
H-7	Fodder crops		~		
	(6)Crops' name:				
H-8	Potato		~		
H-9	Melons& Gourds		~		
H-10	Vegetables		~		
	(6)Crops' name:				
H-11	Grape		Harvesting:		
H-12	Fruits		Harvesting:		
	(6)Crops' name:				
H-13	Others		~		
	(6)Crops' name:				

Rain-fed land

	(1) Name of Crop	(2) Planted Area (ha)	(3)Month of Sowing & the Last Harvesting (crop season)	(4) Production (ton)	(5) Yield (ton/ha)
H-14	Cotton		~		
H-15	Wheat (Spring)		~		
H-16	Wheat (Winter)		~		
H-17	Corn (grain)		~		
H-18	Other grains		~		
	(6)Crops' name:				
H-19	Fodder crops		~		
	(6)Crops' name:				
H-20	Potato		~		
H-21	Melons & Gourds		~		
H-22	Vegetables		~		
	(6)Crops' name:				
H-23	Grape		Harvesting:		
H-24	Fruits		Harvesting:		
	(6)Crops' name:				
H-25	Others		~		
	(6)Crops' name:				

Cotton & Wheat production

H-26 Government order in 2007: (1) Cotton_____ton (2) Wheat_____ton
H-27 Your achievement in 2007: (1) Cotton_____ton (2) Wheat_____ton
H-28 The government order for cotton in consideration of your production capacity:
(1) I can produce more□ (2) Reasonable level□ (3) It is difficult to achieve□ (4) No order comes□
H-29 The government order for wheat in consideration of your production capacity:
(1) I can produce more□ (2) Reasonable level□ (3) It is difficult to achieve□ (4) No order comes□

I Animal Raising in 2007

Livestock \ Number	(1)Adult	(2)Young animals (Calf/Lamb/ Pony/Chick)	(3)Total
I-1 Cattle			
I-2 Cow			
I-3 Sheep			
I-4 Goat			
I-5 Horse & donkey			
I-6 Pig			

I-7	Poultry			
I-8	Other (_____)			

I-8 Area of grazing-land where your animals are usually grazed:_____ha

I-9 Whose property of the grazing-land?
(1)Government□ (2)Local community/association□ (3)Private company/individuals□
(4)the *Farmer* itself□ (5)other_____□

I-10 Who is managing the grazing-land?
(1)Government□ (2)Local community/association□ (3)Private company/individuals□
(4) the *Farmer* itself□ (5)other_____□

J Marketing of Farm Products in 2007

Farm Products	(1) Marketed Amount	(2) Unit	(3) Average Sold Price (sum/unit)	(4) Major Buyers (see footnote and put the applicable number(s))	(5) Major Marketing Place		
					At farm-gate (a)	At bazar/ market (b)	Other (c)
J-1 Cotton							
J-2 Wheat							
J-3 Rice							
J-4 Corn (grain)							
J-5 Other grains							
J-6 Fodder							
J-7 Potato							
J-8 Melons & Gourds							
J-9 Vegetables							
J-10 Grape							
J-11 Fruits							
J-12 Other crop (_____)							
J-13 Crop-originated processed products (_____)							
J-14 Beef meat							
J-15 Ram meat							
J-16 Chicken/poultry for meat							
J-17 Pork meat							
J-18 Milk							
J-19 Egg							
J-20 Wool							
J-21 Hide/Skin							
J-22 Other animal-originated processed products (_____)							

(Note) 1. Government & its agents 2. Agro-firm/association 3. Exporters 4. Middlemen
5. Wholesalers 6. Retailers 7. Consumers

(If you market the farm products at bazaar/market)

Farm Products	(6) Distance to the bazar/market (km)	(7) Opening days of the bazar/market (days/month)	(8) Information source of the market price (see footnote and put the applicable number(s))	(9) Means of transportation (see footnote and put the applicable number(s))
J-23 Cotton				
J-24 Wheat				
J-25 Rice				
J-26 Corn (grain)				
J-27 Other grains				
J-28 Fodder				
J-29 Potato				
J-30 Melons & Gourds				
J-31 Vegetables				
J-32 Grape				
J-33 Fruits				
J-34 Other crop(_____)				
J-35 Crop-originated processed products (_____)				
J-36 Beef meat				
J-37 Ram meat				
J-38 Chicken/poultry for meat				
J-39 Pork meat				
J-40 Milk				
J-41 Egg				
J-42 Wool				
J-43 Hide/Skin				
J-44 Other animal-originated processed products (_____)				

(Note) (8) 1.Merchants/middlemen 2.Other farmers/relatives 3.TV/Radio/Newspapers/Magazines 4.Others
(9) 1.Self-carry 2.Animal cart 3.Tractor/truck 3. Public transportation 4.Commercial transporter 5.Others

K Irrigation in 2007

Type of Irrigation	Area (ha)			
	(1) Cotton/ Wheat	(2) Other crops	(3)Vegetables/ Melon/Gourd	(4) Fruits/ Grape
K-1 Furrow				
K-2 Basin				
K-3 Sprinkler				
K-4 Drip				
K-5 Others (_____)				
K-6 Energy for Irrigation Pump	(1)No use□ (2)Electric□ (3)Diesel□ (4)Other□_____			
K-7 Intake of irrigation water	(1)direct from distribution canal□ (2)through other *Farmer's /Sikat*'s canal□ (3)Other□_____			
K-8 Can you decide timing & volume of irrigation by yourself?	(1) Yes□ (2) No□			
K-9 Membership of WUA(Water Users Association)	(1) Yes□ (2) No□			
K-10 Membership fee	Sum_____(year)			
K-11 Irrigation charge	(1) Pay□ (0) Not pay□			
K-12 Amount of irrigation Charge	Sum_____(unit:_____)			
K-13 Quantity of Water for Irrigation?	(1) Enough□ (0)Not Enough□			
K-14 Quality of Water for Irrigation?	(1) Good□ (0)Bad□			
K-15 Are you satisfied with the irrigation?	(1) Yes□ (0) No□			
K-16 If "NO", why?_____				

L Application of Farm Inputs in 2007

Crops (see footnote and put the applicable number)

Crop	(1) Commercial seeds	(2) Organic manure	(3) Chemical fertilizers	(4) Fungicide	(5) Insecticide	(6) Herbicide	(7) Farm machinery
L-1 Cotton							
L-2 Wheat							
L-3 Rice							
L-4 Other grains							
L-5 Fodder crops							
L-6 Potato							
L-7 Vegetables, melons & gourds							
L-8 Fruits & grape							
L-9 Others							

(Note) 1.Yes 0. No

Livestock (see footnote and put the applicable number)

Livestock	(1) Artificial Insemination	(2) Commercial feeds	(3) Vaccination	(4) Medicine	(5) Hormone
L-10 Cattle & cow					
L-11 Sheep & goat					
L-12 Horse & donkey					
L-13 Pig					
L-14 Poultry					
L-15 Others					

(Note) 1.Yes 0. No

M Procurement of Farm Inputs in 2007

for Cotton & Wheat

M-1 Commercial seeds: (1) No use□ ~~(2) Self-production/management~~□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

M-2 Organic manure: (1) No use□ (2) Self-production/management□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

M-3 Chemical fertilizers: (1) No use□ ~~(2) Self-production/management~~□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

M-4 Pesticide/herbicide: (1) No use□ ~~(2) Self-production/management~~□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

for other Crops & Livestock

M-5 Commercial seeds: (1) No use□ ~~(2) Self-production/management~~□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

M-7 Organic manure: (1) No use□ (2) Self-production/management□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

M-8 Chemical fertilizers: (1) No use□ ~~(2) Self-production/management~~□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

M-9 Pesticide/herbicide: (1) No use□ ~~(2) Self-production/management~~□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

M-10 Artificial insemination: (1) No use□ ~~(2) Self-production/management~~□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

M-11 Commercial feeds: (1) No use□ ~~(2) Self-production/management~~□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

M-12 Vaccination service: (1) No use□ ~~(2) Self-production/management~~□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

M-13 Medicine/hormone: (1) No use□ ~~(2) Self-production/management~~□
(3) from Govt.(state company)□ (4) from research institutes□
(5) from private/market□ (6) from neighbors□ (7) from other_____

N Mechanization Services Hired in 2007

Service	Target Crop(s)	Cost		(3) Service provider (see footnote and put the applicable number(s))
		(1) Sum	(2) Unit	
N-1 Plowing (Tractor)				
N-2 Seeding				
N-3 Fertilizer application				
N-4 Chemical splaying				
N-5 Harvesting (Harvester)				
N-6 Mowing & Baler				
N-7 Other (_____)				

(Note) 1.Govt. agency/company 2.*Farmer* Association 3.Private firm/individuals 4.other_____

O Farm Machinery, Vehicles and Facilities

O-1 Tractor: (1) Have□ (0) Not have□
O-2 Harvester: (1) Have□ (0) Not have□
O-3 Dryer (for grains): (1) Have□ (0) Not have□
O-4 Irrigation Pump: (1) Have□ (0) Not have□
O-5 Chemical sprayer: (1) Have□ (0) Not have□
Q-6 Green house: (1) Have□ (0) Not have□
Q-7 Grain/crop storage/warehouse (1) Have□ (0) Not have□
Q-8 Cold storage (refrigerated) (1) Have□ (0) Not have□
O-9 Milking machine: (1) Have□ (0) Not have□
O-10 Slaughter machine: (1) Have□ (0) Not have□
Q-11 Silo: (1) Have□ (0) Not have□
O-12 Truck: (1) Have□ (0) Not have□
O-13 Others ( ): (1) Have□ (0) Not have□

P Extension Services in 2007

Availability

Sector	(0) No/ No idea	(1) Yes	(2) Service provider (see footnote and put the applicable number(s))
P-1 Cotton production			
P-2 Wheat production			
P-3 Other crop production			
P-4 Vegetable production			
P-5 Fruits production			

P-6 Animal husbandry			
P-7 Food processing			
P-8 Other (_____)			

(Note) 1. Min. of Agriculture & Water Resources 2. Chamber of Entrepreneurs 3. *Farmer* Association
4. Information & Consulting Centre 5. Mahalla & Village's Citizen Committees
6. TV, Radio & Newspapers 7. other_____

Experience

Sector	(0) No	(1) Yes	(2) Service provider (see footnote and put the applicable number(s))
P-9 Cotton production			
P-10 Wheat production			
P-11 Other crop production			
P-12 Vegetable production			
P-13 Fruits production			
P-14 Animal husbandry			
P-15 Food processing			
P-16 Other (_____)			

(Note) 1. Min. of Agriculture & Water Resources 2. Chamber of Entrepreneurs 3. *Farmer* Association
4. Information & Consulting Centre 5. Mahalla & Village's Citizen Committees
6. TV, Radio & Newspapers 7. other_____

Q Group-Activities/Association in 2007 (see footnote and put the applicable number)

Sector	Availability		Membership		Participation	
	(1) Govt./ Public	(2) Non-Govt./ Voluntary	(3) Govt./ Public	(4) Non-Govt./ Voluntary	(3) Govt./ Public	(4) Non-Govt./ Voluntary
Q-1 Farming						
Q-2 Grazing						
Q-3 Irrigation						
Q-4 Mechanization service						
Q-5 Agro-processing						
Q-6 Marketing						
Q-7 Credit						
Q-8 other(_____)						

(Note) 0. No 1.Yes

Q-9 Membership fee

Name of organization you have membership	Fee	
	Amount (Sum)	unit
(1)		
(2)		
(3)		
(4)		
(5)		
(6)		
(7)		
(8)		

R Evaluation of Farming/Animal Raising Factors

(see footnote and mark the applicable number)

Cotton & Wheat farming

R-1 Productivity of crops	(0) □	(1) □	(2) □	R-2 Technical information/ services	(0) □	(1) □	(2) □
R-3 Own skill & knowledge	(0) □	(1) □	(2) □	R-4 Land size (need land)	(0) □	(1) □	(2) □
R-5 Land fertility	(0) □	(1) □	(2) □	R-6 Salinity of land	(0) □	(1) □	(2) □
R-7 Availability of inputs	(0) □	(1) □	(2) □	R-8 Inputs costs	(0) □	(1) □	(2) □
R-9 Availability of machinery /mechanization service	(0) □	(1) □	(2) □	R-10 Machinery/mechanization service costs	(0) □	(1) □	(2) □
R-11 Storage facility	(0) □	(1) □	(2) □	R-12 Means of transportation	(0) □	(1) □	(2) □
R-13 Access to good markets/buyers	(0) □	(1) □	(2) □	R-14 Selling price (low)	(0) □	(1) □	(2) □
R-15 Market price stability	(0) □	(1) □	(2) □	R-16 Access to credit	(0) □	(1) □	(2) □
R-17 Man-power	(0) □	(1) □	(2) □	R-18 Other (_____)	(0) □	(1) □	(2) □

Other crops farming

R-19 Productivity of crops	(0) □	(1) □	(2) □	R-20 Technical information/ services	(0) □	(1) □	(2) □
R-21 Own skill & knowledge	(0) □	(1) □	(2) □	R-22 Land size (need land)	(0) □	(1) □	(2) □
R-23 Land fertility	(0) □	(1) □	(2) □	R-24 Salinity of land	(0) □	(1) □	(2) □
R-25 Availability of inputs	(0) □	(1) □	(2) □	R-26 Inputs costs	(0) □	(1) □	(2) □
R-27 Availability of machinery /mechanization service	(0) □	(1) □	(2) □	R-28 Machinery/mechanization service costs	(0) □	(1) □	(2) □
R-29 Storage facility	(0) □	(1) □	(2) □	R-30 Means of transportation	(0) □	(1) □	(2) □
R-31 Access to good markets/buyers	(0) □	(1) □	(2) □	R-32 Selling price (low)	(0) □	(1) □	(2) □
R-33 Market price stability	(0) □	(1) □	(2) □	R-34 Access to credit	(0) □	(1) □	(2) □
R-35 Man-power	(0) □	(1) □	(2) □	R-36 Other (_____)	(0) □	(1) □	(2) □

Animal raising

R-37 Technical information/services	(0) □	(1) □	(2) □	R-38 Own skill & knowledge	(0) □	(1) □	(2) □
R-39 Grazing ground	(0) □	(1) □	(2) □	R-40 Man-power	(0) □	(1) □	(2) □
R-41 Availability of feeds	(0) □	(1) □	(2) □	R-42 Price of feeds	(0) □	(1) □	(2) □
R-43 Availability of inputs	(0) □	(1) □	(2) □	R-44 Inputs costs	(0) □	(1) □	(2) □
R-45 Access to good markets/buyers	(0) □	(1) □	(2) □	R-46 Means of transportation	(0) □	(1) □	(2) □
R-47 Selling price (low)	(0) □	(1) □	(2) □	R-48 Market price stability	(0) □	(1) □	(2) □
R-49 Access to credit	(0) □	(1) □	(2) □	R-50 Other (_____)	(0) □	(1) □	(2) □

(Note) (0) – no problem (1) – slightly problem (2) – very problem

S Your Interested New/Advanced Technologies

S-1	Water saving farming system/facility	(2) Very high□	(1) High□	(0) No need□
S-2	Organic fertilizer/manure production	(2) Very high□	(1) High□	(0) No need□
S-3	Biological pest control of crops	(2) Very high□	(1) High□	(0) No need□
S-4	Medical plants production	(2) Very high□	(1) High□	(0) No need□
S-5	Floriculture	(2) Very high□	(1) High□	(0) No need□
S-6	Sericulture	(2) Very high□	(1) High□	(0) No need□
S-7	Silage of fodder crops	(2) Very high□	(1) High□	(0) No need□
S-8	Underground storage system during winter	(2) Very high□	(1) High□	(0) No need□
S-9	Cold storage system (e.g. for vegetables/fruits/meat)	(2) Very high□	(1) High□	(0) No need□
S-10	Biogas production	(2) Very high□	(1) High□	(0) No need□
S-11	Food processing/preservation technique	(2) Very high□	(1) High□	(0) No need□
S-12	Packing including packing design	(2) Very high□	(1) High□	(0) No need□
S-13	Hygiene for food processing	(2) Very high□	(1) High□	(0) No need□
S-14	Other (_____)	(2) Very high□	(1) High□	(0) No need□

Attachment C.2 Questionnaire Sheets of Farm Household Survey for Dehkan

QUESTIONNAIRE (*Dehkan*)

QUESTIONNAIRE

Code No.	Date of interview
	/ /

A Personal Information

A-1	Name:	
A-2	Address (District/Hokimiyat/Village/Aul):	
A-3	Name of Local Community (Mahalla) belong to:	
A-4	Age:	A-5 Contact Tel No.: ( )
A-6	Ethnic Origin: (1) Karakalpak□ (2)Uzbek□ (3)Kazakh□ (4)Other□_____	
A-7	When have you received the "entitled land" as a *Dehkan*? : Year _____	
A-8	Membership of the *Fermer* association: (1) No□ (2)Yes□ (3)Membership fee Sum_____/year	
A-9	Name of *Silkat*/organization you belonged to (before receiving the land):	
A-10	Your job and position in the *Silkat*/organization at that time:	

B Present Family Members (who live together & share livelihood)

B-1 Number of family members

Age	(a)Male	(b)Female	(c)Total
(1) under 15			
(2) 16– 60			
(3) Over 61			
(4) Total			

B-2 Number of permanent employees (1) Male _____ (2) Female _____
(including self-employed)

B-3 Number of temporary employees (1) Male _____ (2) Female _____
(excluding pupil/students)

B-4 Number of pupil/students (1) Male _____ (2) Female _____

C Income Source of the Family in 2007

C-1 Salary or wages from *Fermer/Silkat*: (4)Principal□ (3)Major□ (2)Subsidiary□ (1)Very minor□ (0)None□

C-2 Salary or wages from non-*Fermer/Silkat*: (4)Principal□ (3)Major□ (2)Subsidiary□ (1)Very minor□ (0)None□

C-3 Own-business(self-employed): (4)Principal□ (3)Major□ (2)Subsidiary□ (1)Very minor□ (0)None□

C-4 Sales of crops produced from own-backyard (including processed products & by-products):
(4)Principal□ (3)Major□ (2)Subsidiary□ (1)Very minor□ (0)None□

C-5 Sales of livestock /milk (including processed products & by-products):
(4)Principal□ (3)Major□ (2)Subsidiary□ (1)Very minor□ (0)None□

C-6 Sales of handi craft: (4)Principal□ (3)Major□ (2)Subsidiary□ (1)Very minor□ (0)None□

C-7 Pension of family member(s): (4)Principal□ (3)Major□ (2)Subsidiary□ (1)Very minor□ (0)None□

C-7 Remittance: (4)Principal□ (3) Major□ (2)Subsidiary□ (1)Very minor□ (0)None□

C-8 Public supports (Governments): (4)Principal□ (3)Major□ (2)Subsidiary□ (1)Very minor□ (0)None□

C-9 Other (_____):
(4)Principal□ (3)Major□ (2)Subsidiary□ (1)Very minor□ (0)None□

C-10 Total family income in 2007: Sum_____

D Expenditure of the Family in 2007

D-1 Foods & beverage: (3) Major□ (2)Minor□ (1)Very minor□ (0) None□

D-2 Clothes: (3) Major□ (2)Minor□ (1)Very minor□ (0) None□

D-3 Housing (maintenance, rent, etc.), home-consumables and fuel
(3) Major□ (2)Minor□ (1)Very minor□ (0) None□

D-4 Electric appliances, furniture and durable goods: (3) Major□ (2)Minor□ (1)Very minor□ (0) None□

D-5 Medical care & health: (3) Major□ (2)Minor□ (1)Very minor□ (0) None□

D-6 Education and recreation: (3) Major□ (2)Minor□ (1)Very minor□ (0) None□

D-7 Social relation: (3) Major□ (2)Minor□ (1)Very minor□ (0) None□

D-8 Public services (water, electricity, telephone, etc.): (3) Major□ (2)Minor□ (1)Very minor□ (0) None□

D-9 Farm (crop, livestock and fishery) inputs and management (hired-services, irrigation, etc.):
(3) Major□ (2)Minor□ (1)Very minor□ (0) None□

D-10 Other (_____): (3) Major□ (2)Minor□ (1)Very minor□ (0) None□

D-11 Total family expenditure in 2007: Sum_____

E Strategy to Increase the Family's Living Standards in the Future

E-1 To devote yourself (you and/or your family-members) to the present job/business
(2) Very important□ (1) Important□ (0) Not so important□

E-2 To find out a new good job/business in the local area (you and/or your family-members)
(2) Very important□ (1) Important□ (0) Not so important□

E-3 To go to other area/country for getting jobs (you and/or your family-members)
(2) Very important□ (1) Important□ (0) Not so important□

E-4 To educate children for getting good jobs
(2) Very important□ (1) Important□ (0) Not so important□

E-5 To increase crop production from the own-farmland
(2)Very important□ (1) Important□ (0) Not so important□

E-6 To increase the number of livestock
(2)Very important□ (1) Important□ (0) Not so important□

E-7 To sell processed foods/products
(2)Very important□ (1) Important□ (0) Not so important□

E-8 Other (_____)
(2)Very important□ (1) Important□ (0) Not so important□

F Land Use of Entitled Land to the Family

Land Use Type	Area (ha)		
	(1)Irrigated	(2)Rainfed	(3)Total
F-1 Farm yard (crop production)			
F-2 Orchard/Vineyard			
F-3 Pasture			
F-4 Housing compound			
F-5 Others			
F-6 Total			

G Crop Production in the Entitled Land in 2007

Irrigated land

	(1) Name of Crop	(2) Planted Area (ha)	(3)Month of Sowing & the Last Harvesting (crop season)	(4) Production (ton)	(5) Yield (ton/ha)
G-1	Wheat (Spring)		~		
G-2	Wheat (Winter)		~		
G-3	Corn (grain)		~		
G-4	Other grains		~		
	(6)Crops' name:				
G-5	Fodder crops		~		
	(6)Crops' name:				
G-6	Potato		~		
G-7	Melons& Gourds		~		
G-8	Vegetables		~		
	(6)Crops' name:				
G-9	Grape		Harvesting:		
G-10	Fruits		Harvesting:		
	(6)Crops' name:				
G-11	Others		~		
	(6)Crops' name:				

Rain-fed land

	(1) Name of Crop	(2) Planted Area (ha)	(3)Month of Sowing & the Last Harvesting (crop season)	(4) Production (ton)	(5) Yield (ton/ha)
G-12	Wheat (Spring)		~		
G-13	Wheat (Winter)		~		
G-14	Corn (grain)		~		
G-15	Other grains		~		
	(6)Crops' name:				
G-16	Fodder crops		~		
	(6)Crops' name:				
G-17	Potato		~		
G-18	Melons & Gourds		~		
G-19	Vegetables		~		
	(6)Crops' name:				
G-20	Grape		Harvesting:		
G-21	Fruits		Harvesting:		
	(6)Crops' name:				
G-22	Others		~		
	(6)Crops' name:				

Management of crops (see footnote and put the applicable number)

Crop	(1) Husband	(2) Wife	Old people (3) male	Old people (4) female	Other adults (5) male	Other adults (6) female	Children (7) male	Children (8) female
G-23 Wheat and grains								
G-24 Fodder crops								
G-25 Vegetables, melons & gourds and potato								
G-26 Fruits & grape								
G-27 Others								

(Note) 0. No work 1. Assistant works 2. Main works

H Animal Raising in 2007

Number of Livestock

Livestock \ Number	(1)Adult	(2)Young animals (Calf/Lamb/ Pony/Chick)	(3)Total
H-1 Cattle			
H-2 Cow			
H-3 Sheep			
H-4 Goat			
H-5 Horse & donkey			
H-6 Pig			
H-7 Poultry			
H-8 Other (_____)			

Management of livestock (see footnote and put the applicable number)

Livestock	(1) Husband	(2) Wife	Old people (3) male	Old people (4) female	Other adults (5) male	Other adults (6) female	Children (7) male	Children (8) female
H-8 Cattle & cow								
H-9 Sheep & goat								
H-10 Horse & donkey								
H-11 Pig								
H-12 Poultry								
H-13 Others								

(Note) 0. No work 1. Assistant works 2. Main works

H-14 Area of grazing-land where your animals are usually grazed:_____ha

H-15 Whose property of the grazing-land?

(1)Government□ (2)Local community/association□ (3)Private company/individuals□ (4)other_____□

H-16 Who is managing the grazing-land?

(1)Government□ (2)Local community/association□ (3)Private company/individuals□ (4)other_____□

I Production & Consumption of Farm Products in 2007

(%)

Farm Products	Self-Production	(1) Home consumption	(2) Gift to neighbors	(3) Sold (marketed)
I-1 Wheat	100			
I-2 Corn (grain)	100			
I-3 Other grains	100			
I-4 Fodder	100			
I-5 Potato	100			

I-6	Melons & Gourds	100			
I-7	Vegetables	100			
I-8	Grape	100			
I-9	Fruits	100			
I-10	Other crop(_____)	100			
I-11	Processed crop-originated products (_____)	100			
I-12	Beef meat	100			
I-13	Ram meat	100			
I-14	Chicken/poultry meat	100			
I-15	Pork meat	100			
I-16	Milk	100			
I-17	Egg	100			
I-18	Wool	100			
I-19	Hide/Skin	100			
I-20	Other animal-originated products (_____)	100			

J Home Demand & Production of Farm Products in 2007

(%)

Farm Products		Home demand	(1) Self-production	(2) Bought/gifted
J-1	Wheat	100		
J-2	Corn (grain)	100		
J-3	Other grains	100		
J-4	Fodder	100		
J-5	Potato	100		
J-6	Melons & Gourds	100		
J-7	Vegetables	100		
J-8	Grape	100		
J-9	Fruits	100		
J-10	Other crop(_____)	100		
J-11	Processed crop-originated products (_____)	100		
J-12	Beef meat	100		
J-13	Ram meat	100		
J-14	Chicken/poultry meat	100		
J-15	Pork meat	100		
J-16	Milk	100		
J-17	Egg	100		
J-18	Wool	100		
J-19	Hide/Skin	100		
J-20	Other animal-originated products (_____)	100		

K Marketing of Farm Products in 2007

Farm Products		(1) Marketed Amount	(2) Unit	(3) Average Sold Price (rmb/unit)	(4) Major Buyers (see footnote and put the applicable number(s))	(5) Major Marketing Place		
						At farm-gate (a)	At bazar/ market (b)	Other (c)
K-1	Wheat							
K-2	Corn (grain)							
K-3	Other grains							
K-4	Fodder							
K-5	Potato							
K-6	Melons & Gourds							
K-7	Vegetables							
K-8	Grape							
K-9	Fruits							
K-10	Other crop(_____)							
K-11	Crop-originated processed products (_____)							
K-12	Beef meat							
K-13	Ram meat							
K-14	Chicken/poultry for meat							
K-15	Pork meat							
K-16	Milk							
K-17	Egg							
K-18	Wool							
K-19	Hide/Skin							
K-20	Other animal-originated processed products (_____)							

(Note) 1. Government & its agents 2. Agro-firm/association 3. Middlemen
4. Wholesalers 5. Retailers 6. Consumers

(If you market the farm products at bazaar/market)

Farm Products		(6) Distance to the bazar/market (km)	(7) Opening days of the bazar/market (days/month)	(8) Information source of the market price (see footnote and put the applicable number(s))	(9) Means of transportation (see footnote and put the applicable number(s))
K-21	Wheat				
K-22	Corn (grain)				
K-23	Other grains				
K-24	Fodder				
K-25	Potato				
K-26	Melons & Gourds				
K-27	Vegetables				
K-28	Grape				
K-29	Fruits				
K-30	Other crop(_____)				
K-31	Crop-originated processed products (_____)				
K-32	Beef meat				
K-33	Ram meat				
K-34	Chicken/poultry for meat				
K-35	Pork meat				
K-36	Milk				
K-37	Egg				
K-38	Wool				
K-39	Hide/Skin				
K-40	Other animal-originated processed products (_____)				

(Note) (8) 1.Merchants/middlemen 2.Other farmers/relatives 3.TV/Radio/Newspapers/Magazines 4.Others
(9) 1.Self-carry 2.Animal cart 3.Tractor/truck 3. Public transportation 4.Commercial transporter 5.Others

L Irrigation to the Entitled Land in 2007

Type of Irrigation	Area (ha)			
	(1) Wheat	(2) Other crops	(3)Vegetables/ Melon/Gourd	(4) Fruits/ Grape
L-1 Furrow				
L-2 Basin				
L-3 Sprinkler				
L-4 Drip				
L-5 Others (_____)				
L-6 Energy for Irrigation Pump	(1)No use□ (2)Electric□ (3)Diesel□ (4)Other□_____			
L-7 Intake of irrigation water	(1)direct from distribution canal□ (2)through *Farmer's* canal□ (3)Other□_____			
L-8 Can you decide timing & volume of irrigation by yourself?	(1) Yes□ (2) No□			
L-9 Membership of WUA(Water Users Association)	(1) Yes□ (2) No□			
L-10 Membership fee	Sum_____(year)			
L-11 Irrigation charge	(1) Pay□ (0) Not pay□			
L-12 Amount of irrigation Charge	Sum_____(unit:_____)			
L-13 Quantity of Water for Irrigation?	(1) Enough□ (0)Not Enough□			
L-14 Quality of Water for Irrigation?	(1) Good□ (0)Bad□			
L-15 Are you satisfied with the irrigation?	(1) Yes□ (0) No□			
L-16 If "NO", why?_____				

M Application of Farm Inputs in 2007

Crops (see footnote and put the applicable number)

Crop	(1) Commercial seeds	(2) Organic manure	(3) Chemical fertilizers	(4) Fungicide	(5) Insecticide	(6) Herbicide	(7) Farm machinery
M-1 Wheat							
M-2 Other grains							
M-3 Fodder crops							
M-4 Potato							
M-5 Vegetables, melons & gourds							
M-6 Fruits & grape							
M-7 Others							

(Note) 1.Yes 0. No

Livestock (see footnote and put the applicable number)

Livestock	(1) Artificial Insemination	(2) Commercial feeds	(3) Vaccination	(4) Medicine	(5) Hormone
M-8 Cattle & cow					
M-9 Sheep & goat					
M-10 Horse & donkey					
M-11 Pig					
M-12 Poultry					
M-13 Others					

(Note) 1.Yes 0. No

N Procurement of Farm Inputs in 2007

N-1 Commercial seeds: (1) No use□ ~~(2) Self-production/management~~□ (3) from Govt.(state company)□ (4) from research institutes□ (5) from private/market□ (6) from neighbors□ (7) from other_____

N-2 Organic manure: (1) No use□ (2) Self-production/management□ (3) from Govt.(state company)□ (4) from research institutes□ (5) from private/market□ (6) from neighbors□ (7) from other_____

N-3 Chemical fertilizers: (1) No use□ ~~(2) Self-production/management~~□ (3) from Govt.(state company)□ (4) from research institutes□ (5) from private/market□ (6) from neighbors□ (7) from other_____

N-4 Pesticide/herbicide: (1) No use□ ~~(2) Self-production/management~~□ (3) from Govt.(state company)□ (4) from research institutes□ (5) from private/market□ (6) from neighbors□ (7) from other_____

N-5 Artificial insemination: (1) No use□ ~~(2) Self-production/management~~□ (3) from Govt.(state company)□ (4) from research institutes□ (5) from private/market□ (6) from neighbors□ (7) from other_____

N-6 Commercial feeds: (1) No use□ ~~(2) Self-production/management~~□ (3) from Govt.(state company)□ (4) from research institutes□ (5) from private/market□ (6) from neighbors□ (7) from other_____

N-7 Vaccination service: (1) No use□ ~~(2) Self-production/management~~□ (3) from Govt.(state company)□ (4) from research institutes□ (5) from private/market□ (6) from neighbors□ (7) from other_____

N-8 Medicine/hormone: (1) No use□ ~~(2) Self-production/management~~□ (3) from Govt.(state company)□ (4) from research institutes□ (5) from private/market□ (6) from neighbors□ (7) from other_____

N-9 Mechanization service: (1) No use□ (2) Self-production/management□ (3) from Govt.(state company)□ (4) from research institutes□ (5) from private/market□ (6) from neighbors□ (7) from other_____

O Farm Machinery, Vehicles and Facility

O-1 Tractor: (1) Have□ (0) Not have□
O-2 Harvestor: (1) Have□ (0) Not have□
O-3 Dryer (for grains): (1) Have□ (0) Not have□
O-4 Irrigation pump: (1) Have□ (0) Not have□
O-5 Chemical sprayer: (1) Have□ (0) Not have□
Q-6 Green house: (1) Have□ (0) Not have□
O-7 Milking machine: (1) Have□ (0) Not have□
O-8 Truck: (1) Have□ (0) Not have□
O-9 Others (_____) (1) Have□ (0) Not have□

P Extension Services in 2007

Availability

Sector	(0) No/ No idea	(1) Yes	(2) Service provider (see footnote and put the applicable number(s))
P-1 Crop production			
P-2 Vegetable production			
P-3 Fruits production			
P-4 Animal husbandry			
P-5 Food processing			
P-6 Other (_____)			

(Note) 1. Min. of Agriculture & Water Resources 2. Chamber of Entrepreneurs 3. *Farmer* Association 4. Information & Consulting Centre 5. Mahalla & Village's Citizen Committees 6. TV, Radio & Newspapers 7. other_____

Experience

Sector	(0) No	(1) Yes	(2) Service provider (see footnote and put the applicable number(s))
P-7 Crop production			
P-8 Vegetable production			
P-9 Fruits production			
P-10 Animal husbandry			
P-11 Food processing			
P-12 Other (_____)			

(Note) 1. Min. of Agriculture & Water Resources 2. Chamber of Entrepreneurs 3. *Farmer* Association
4. Information & Consulting Centre 5. Mahalla & Village's Citizen Committees
6. TV, Radio & Newspapers 7. other_____

Q Group-Activities/Association in 2007 (see footnote and put the applicable number)

Sector	Availability		Membership		Participation	
	(1) Govt./ Public	(2) Non-Govt./ Voluntary	(3) Govt./ Public	(4) Non-Govt./ Voluntary	(3) Govt./ Public	(4) Non-Govt./ Voluntary
Q-1 Farming						
Q-2 Grazing						
Q-3 Irrigation						
Q-4 Mechanization service						
Q-5 Agro-processing						
Q-6 Marketing						
Q-7 Credit						
Q-8 Religion						
Q-9 Social welfare						
Q-10 other(_____)						

(Note) 0. No 1.Yes

Q-11 Membership fee

Name of organization you have membership	Fee	
	Amount (Sum)	unit
(1)		
(2)		
(3)		
(4)		
(5)		
(6)		
(7)		
(8)		

R Evaluation of Farming/Animal Raising Factors

(see footnote and mark the applicable number)

Crop farming

R-1 Productivity of crops	(0) □	(1) □	(2) □	R-2 Technical information/ services	(0) □	(1) □	(2) □
R-3 Own skill & knowledge	(0) □	(1) □	(2) □	R-4 Land size (need land)	(0) □	(1) □	(2) □
R-5 Land fertility	(0) □	(1) □	(2) □	R-6 Salinity of land	(0) □	(1) □	(2) □
R-7 Availability of inputs	(0) □	(1) □	(2) □	R-8 Inputs costs	(0) □	(1) □	(2) □
R-9 Availability of machinery /mechanization service	(0) □	(1) □	(2) □	R-10 Machinery/mechanization service costs	(0) □	(1) □	(2) □
R-11 Storage facility	(0) □	(1) □	(2) □	R-12 Means of transportation	(0) □	(1) □	(2) □
R-13 Access to good markets/buyers	(0) □	(1) □	(2) □	R-14 Selling price (low)	(0) □	(1) □	(2) □
R-15 Market price stability	(0) □	(1) □	(2) □	R-16 Access to credit	(0) □	(1) □	(2) □
R-17 Man-power	(0) □	(1) □	(2) □	R-18 Other (_____)	(0) □	(1) □	(2) □

Animal raising

R-19 Technical information/services	(0) □	(1) □	(2) □	R-20 Own skill & knowledge	(0) □	(1) □	(2) □
R-21 Grazing ground	(0) □	(1) □	(2) □	R-22 Man-power	(0) □	(1) □	(2) □
R-23 Availability of feeds	(0) □	(1) □	(2) □	R-24 Price of feeds	(0) □	(1) □	(2) □
R-25 Availability of inputs	(0) □	(1) □	(2) □	R-26 Inputs costs	(0) □	(1) □	(2) □
R-27 Access to good markets/buyers	(0) □	(1) □	(2) □	R-28 Means of transportation	(0) □	(1) □	(2) □
R-29 Selling price (low)	(0) □	(1) □	(2) □	R-30 Market price stability	(0) □	(1) □	(2) □
R-31 Access to credit	(0) □	(1) □	(2) □	R-32 Other (_____)	(0) □	(1) □	(2) □

(Note) (0) – no problem (1) – slightly problem (2) – very problem

S Your Interested New/Advanced Technologies

S-1	Water saving farming system/facility	(2) Very high□	(1) High□	(0) No need□
S-2	Organic fertilizer/manure production	(2) Very high□	(1) High□	(0) No need□
S-3	Biological pest control of crops	(2) Very high□	(1) High□	(0) No need□
S-4	Medical plants production	(2) Very high□	(1) High□	(0) No need□
S-5	Floriculture	(2) Very high□	(1) High□	(0) No need□
S-6	Sericulture	(2) Very high□	(1) High□	(0) No need□
S-7	Silage of fodder crops	(2) Very high□	(1) High□	(0) No need□
S-8	Underground storage system during winter	(2) Very high□	(1) High□	(0) No need□
S-9	Cold storage system (e.g. for vegetables/fruits/meat)	(2) Very high□	(1) High□	(0) No need□
S-10	Biogas production	(2) Very high□	(1) High□	(0) No need□
S-11	Food processing/preservation technique	(2) Very high□	(1) High□	(0) No need□
S-12	Packing including packing design	(2) Very high□	(1) High□	(0) No need□
S-13	Hygiene for food processing	(2) Very high□	(1) High□	(0) No need□
S-14	Other (_____)	(2) Very high□	(1) High□	(0) No need□

C.2 Evaluation of Technical Manual Program based on Questionnaire Survey to *Fermer* in May 2010

C.2.1 Questionnaire Survey to *Fermer* on Technical Manual Distributed

(1) Average Farm Size of Sample *Fermers*

The average farm size of 111 sample *fermers* is 169.2ha (Max: 1,996ha, Min. 6.0ha). Out of the total farm size, irrigated land is 88.3ha while, rain-fed land is 80.8ha. According to the result of baseline survey which was taken in the beginning of this master plan study, the average farm size was 61.0ha for crop-*fermers* and 293.8ha for livestock-*fermers*. Considering the small percentage of livestock-*fermer*, the average size of baseline survey could be less than 169.2ha. It is considered that the average farm size is getting large due to the optimization policy of the Government.

Table-C.2.1 Average Farm Size of Sample *Fermers*

Farm Land	Area (ha)	(%)
Irrigated	88.3	52.2
Rain-fed	80.8	47.8
Total	169.2	100.0

(2) Education Background of Sample Fermers

All sample fermers graduated high-school, and almost a half of them even graduated university or higher educational institutions. Education background level of fermers is relatively high as similar to the result of baseline survey.

Table-C.2.2 Education back Ground of Sample *Fermers*

Education	%
Compulsory or less	0.0
High-school or more	17.3
Vocational education	33.6
after high-school	
University or more	49.1

(3) Distribution of the Technical Manual

94 fermers out of 111 sample fermers (84.7%) have received the technical manual. It is considered that almost fermers have received the manual. However, the actual figure might be less than 84.7%, since a part of sample fermers was selected at an intentional suggestion of district MAWR offices, according to enumerators.

Kungrad district shows very low performance, as some routine works had piled up due to the change of the chairman of district MAWR office. Karakalpakstan MAWR office has confirmed that the manual has already distributed to fermers in the district in accordance with the original plan after this questionnaire survey.

Table-C.2.3 Distribution of the Manual

District	Number of Sample *Fermers*	
	Total	Received
Kungrad	10	1
Muynak	10	10
Shumanay	10	10
Kanlikul	11	11
Kegeily	10	9
Chimbay	10	7
Khodjeyli	10	10
Nukus	10	10
Karauzyak	10	8
Takhtakupyr	10	8
Beruni	10	10
Total	111	94

(4) Understanding the Manual (Self-evaluation of Fermers)

Self-evaluation result about understanding the manual shows higher score (Very well or fair) in all subjects of the manual (see Table C.2.4). The result implies that the manual is prepared according to farmers' technical ability. Since there is a certain percentage of fermers who do not read the contents for every subject, many fermers read only selective subjects based on their own interest. There are 6 sample fermers who do not read the manual at all.

It seems that the degree of understanding could be influenced by the fermers' interest, since the subject with less understanding degree as shown in Table-4 has the higher % fermers who do not read it. For example, the subjects of "Advantage of using mulch for vegetables", "How to grow Onion" and "How to grow Cabbage" have more than 30% of higher non-read %, while the subjects of "How to improve and maintain soil fertility for growing vegetables, including compost making", "How to grow Potato", "How to grow Melon" and "How to grow Water-melon" have less non-read %, 10 – 20 %.

Table C.2.4 Understanding the Technical Manual

Subject	% of sample *fermer*				
	Very well	Fair	Some	Not well	Not read
How to improve and maintain soil fertility for growing vegetables, including compost making	50.0	33.0	2.0	0.0	14.9
How to grow healthy seedlings under natural and protected conditions	49.5	23.2	1.1	2.1	24.2
Advantage of using mulch for vegetables	27.7	28.7	4.3	7.4	31.9
How to grow Tomato	54.7	25.3	0.0	0.0	20.0
How to grow Eggplant	38.3	34.0	0.0	0.0	27.7
How to grow Cucumber	48.9	27.7	0.0	1.1	22.3
How to grow Potato	55.3	29.8	1.1	1.1	12.8
How to grow Carrot	40.4	29.8	1.1	0.0	28.7
How to grow Onion	30.9	33.0	0.0	2.1	34.0
How to grow Cabbage	26.6	33.0	1.0	6.4	33.0
How to grow Melon	56.4	20.2	1.1	4.3	18.1
How to grow Water-melon	58.1	23.7	1.1	1.1	16.1
How to grow Pumpkin	47.9	26.6	0.0	1.1	24.5

(5) Finding New Technologies or Ideas in the Manual

More than 50% of fermers find new technologies/ideas "Very much" or "Much" in every subject of the manual (see Table-5). It implies that the technical manual stimulates many fermers' technical interest in farming. The subjects that have more than 10% of fermers finding none or almost none of new technologies/ideas are the same subjects having more than 30% of non-read fermers. As well as, the subjects that have less than 5% of fermers finding none or almost none of new technologies/ideas are the same subjects having 10 - 20% of non-read fermers. It seems that the degree of finding new technologies/ideas is also influenced by the fermers' interest.

Table C.2.5 Finding New Technologies or Ideas in the Manual

Subject	% of sample *fermer*			
	Very much	Much	Some	Few/None
How to improve and maintain soil fertility for growing vegetables, including compost making	13.1	52.4	29.8	4.8
How to grow healthy seedlings under natural and protected conditions	13.2	52.6	26.3	7.9
Advantage of using mulch for vegetables	7.1	47.1	27.1	18.6
How to grow Tomato	11.8	57.6	22.4	7.9
How to grow Eggplant	7.0	52.1	33.8	7.0
How to grow Cucumber	7.9	53.3	28.9	7.9
How to grow Potato	16.7	59.5	20.2	3.6
How to grow Carrot	8.5	52.1	32.4	7.0
How to grow Onion	5.7	45.7	37.1	11.4
How to grow Cabbage	10.3	44.1	36.3	10.3
How to grow Melon	12.3	53.1	29.6	4.9
How to grow Water-melon	13.4	54.9	28.0	3.7
How to grow Pumpkin	10.8	51.4	32.4	5.4

(6) Usefulness/Applicability of Technologies in the Manual

More than 50% of fermers answer that technologies described in the manual are "Very much" or "Much" useful/applicable in most subjects. It is, therefore, evaluated that technical level of the manual almost meets the fermers' ability. The subject which gets the positive answer ("Very much" or "Much") less than 50% are only the subjects of "Advantage of using mulch for vegetables" and "How

to grow Onion". The two subjects have also higher % of non-read fermers. It seems that fermers' evaluation on applicability of described technologies in the manual is also influenced by the fermers' interest.

Table C.2.6 Usefulness/Applicability of Technologies in the Manual

Subject	% of sample *fermer*			
	Very much	Much	Some	Few/None
How to improve and maintain soil fertility for growing vegetables, including compost making	11.1	45.7	38.3	4.9
How to grow healthy seedlings under natural and protected conditions	13.3	46.7	30.7	9.3
Advantage of using mulch for vegetables	7.5	29.9	43.3	19.4
How to grow Tomato	19.5	45.5	31.2	3.9
How to grow Eggplant	15.3	41.7	40.3	2.8
How to grow Cucumber	13.5	50.0	35.1	1.4
How to grow Potato	14.5	47.0	38.6	0.0
How to grow Carrot	11.1	45.8	38.9	4.2
How to grow Onion	4.5	43.3	47.8	4.5
How to grow Cabbage	7.7	44.6	46.2	1.5
How to grow Melon	12.7	53.2	31.6	2.5
How to grow Water-melon	14.8	51.9	30.9	2.5
How to grow Pumpkin	14.7	46.7	36.0	2.7

(7) Interesting Subject to Fermers

The subject which the fermers are interested in the most is "How to grow Potato". This year's government potato promotion campaign must have a great influence on the result. Subjects on popular crops among Karakalpakstan fermers', i.e. tomato, melon and water-melon, have a higher score of fermers' interest as shown in Table C.2.7. The degree of interest rises in proportion to a rise in popularity. As well as, the subject having higher degree of fermers' interest has the lower % of non-read fermers.

Table C.2.7 Interesting Subject to *Fermers*

Subject	*Fermers*' Interest	
	Score	Ranking
How to improve and maintain soil fertility for growing vegetables, including compost making	6.1	4
How to grow healthy seedlings under natural and protected conditions	7.6	7
Advantage of using mulch for vegetables	11.0	11
How to grow Tomato	4.1	2
How to grow Eggplant	8.4	8
How to grow Cucumber	6.3	5
How to grow Potato	2.9	1
How to grow Carrot	6.8	6
How to grow Onion	8.6	9
How to grow Cabbage	9.4	10
How to grow Melon	5.8	3
How to grow Water-melon	6.1	4
How to grow Pumpkin	7.6	7

（Note）The lower score represents the higher interest

(8) Fermers' Comments on the Manual

Many fermers are asking to introduce more advanced technology, academic information and scientific data, as well as they are asking to introduce more simple and technologies applicable to the local condition. It seems that they are greedy for the contents of the manual. Many fermers also comment that the manual should be written with easier terminology understandable to fermers and be attached more pictures, drawings, figures, tables, etc. for easy understanding. Though the manual was prepared on visually oriented principle for easy understanding, many fermers actually demand easier description and editing. Many fermers appreciate that the manual is written in Karakalpak, since this is the first full-scale technical manual on agriculture written in the local language. On the other hand, 36.0% of fermers ask Russian or Uzbek one instead of Karakalpak one. Since there are various ethnic

groups in Karakalpakstan, it is difficult to satisfy everyone by using only one language. While the manual is about 100 pages, only a few fermers ask to reduce the volume.

Table C.2.8 *Fermers'* Comments on the Manual

Comment	% of sample *fermer*		
	Necessary	Not necessary	No idea
To introduce more advanced technology, academic information and scientific data	84.3	14.6	1.1
To introduce more simple and easy technology applicable to the local farming condition	83.1	15.7	1.1
To write in more academic style and tone	28.4	69.3	2.3
To use easier terminology understandable to *fermer*	78.7	21.3	0.0
To use more pictures, drawings, figures, tables, etc. for easy understanding	76.4	23.6	0.0
To write in Russian or Uzbek, not in Karakalpak	36.0	62.9	1.1
To reduce the volume (number of pages)	9.0	88.8	2.2

Other fermers' comments are dominated by positive one, e,g. "They want to apply the introduced technology to their actual farming", "They want to have the similar manual on other topics, such as pests and diseases control wheat and cotton, livestock, etc. based on their interest". It is recommended that Karakalpakstan Government should continue to publish the similar technical manual for improving fermers' technical ability. Though there are very few fermers, they don't appreciate the manual because they have already been familiar with every idea or technology in the manual.

(9) Price

Out of 89 fermers who answered properly, 87 fermers (97.8%) say that they want to buy a manual if the similar one is available in the market. According to the 87 fermers, 3,233 sum/copy is the average affordable price of the manual (Max: 10,000 sum, Min: 1,000 sum). The manual is actually sold to fermers in some districts, though this information is not confirmed yet.

Attachment C.3 Questionnaire to Fermers about the Technical Manual Distributed

No. _____

Questionnaire to *Fermers* about the Technical Manual Distributed

I. General

1. Name of the *Fermer* :
2. Aul, VCC and District:
3. Telephone Number:
4. Farmland Acreage: ha (Irrigated land: ha) (Rain-fed land: ha)
5. Fermer's Educational Background:
   a. Compulsory education or less ☐ b. High-school graduate ☐
   c. Vocational education after graduate high-school ☐ d. University graduate or more ☐

II. Technical Manual

1. Have you received the Manual? a. Yes ☐
(Continue to answer the questions of 2. - 7.)
b. No ☐
(Finish this questionnaire)

2. How much do you understand contents of the Manual ?

(1) How to improve and maintain soil fertility for growing vegetables, including compost making
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(2) How to grow healthy seedlings under natural and protected conditions
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(3) Advantage of using mulch for vegetables
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(4) How to grow Tomato
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(5) How to grow Eggplant
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(6) How to grow Cucumber
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(7) How to grow Potato
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(8) How to grow Carrot
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(9) How to grow Onion
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(10) How to grow Cabbage
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(11) How to grow Melon
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(12) How to grow Water-melon
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

(13) How to grow Pumpkin
a. Very well ☐ b. Fair ☐ c. To some extent ☐
d. Not well ☐ e. I don't read it ☐

3. How much do you find new technologies or ideas in the Manual?

(1) How to improve and maintain soil fertility for growing vegetables, including compost making
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(2) How to grow healthy seedlings under natural and protected conditions
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(3) Advantage of using mulch for vegetables
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(4) How to grow Tomato
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(5) How to grow Eggplant
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(6) How to grow Cucumber
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(7) How to grow Potato
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(8) How to grow Carrot
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(9) How to grow Onion
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(10) How to grow Cabbage
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(11) How to grow Melon
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(12) How to grow Water-melon
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

(13) How to grow Pumpkin
a. Very much ☐ b. Much ☐
c. Some ☐ d. Few/Nothing ☐

4. How much technologies described in the Manual are useful or applicable to your farming?

(1) How to improve and maintain soil fertility for growing vegetables, including compost making
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(2) How to grow healthy seedlings under natural and protected conditions
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(3) Advantage of using mulch for vegetables
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(4) How to grow Tomato
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(5) How to grow Eggplant
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(6) How to grow Cucumber
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(7) How to grow Potato
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(8) How to grow Carrot
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(9) How to grow Onion
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(10) How to grow Cabbage
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(11) How to grow Melon
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(12) How to grow Water-melon
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

(13) How to grow Pumpkin
- a. Very much ☐ b. Much ☐
- c. To some extent ☐ d. Few/Nothing ☐

5. Please put the orderly number from 1 to 13 in accordance with your interest in the subjects of the Manua
The most interesting subject is "1" and the most not interesting subject is "13".

No.	Subject	Interest Order
(1)	How to improve and maintain soil fertility for growing vegetables, including compost making	
(2)	How to grow healthy seedlings under natural and protected conditions	
(3)	Advantage of using mulch for vegetables	
(4)	How to grow Tomato	
(5)	How to grow Eggplant	
(6)	How to grow Cucumber	
(7)	How to grow Potato	
(8)	How to grow Carrot	
(9)	How to grow Onion	
(10)	How to grow Cabbage	
(11)	How to grow Melon	
(12)	How to grow Water-melon	
(13)	How to grow Pumpkin	

6. Your suggestions for further improvement of the Manual

(1) To introduce more advanced technology, academic information and scientific data
- a. Yes, necessary ☐ b. Not necessary ☐ c. I have no idea ☐

(2) To introduce more simple and easy technologies applicable to the local farming condition
- a. Yes, necessary ☐ b. Not necessary ☐ c. I have no idea ☐

(3) To write in more academic style and tone
- a. Yes, necessary ☐ b. Not necessary ☐ c. I have no idea ☐

(4) To use easier terminology understandable to *fermer*
- a. Yes, necessary ☐ b. Not necessary ☐ c. I have no idea ☐

(5) To use more pictures, drawings, figures, tables, etc. for easy understanding
- a. Yes, necessary ☐ b. Not necessary ☐ c. I have no idea ☐

(6) To write in Russian or Uzbek, not in Karakalpak
- a. Yes, necessary ☐ b. Not necessary ☐ c. I have no idea ☐

(7) To reduce the volume (number of pages)
- a. Yes, necessary ☐ b. Not necessary ☐ c. I have no idea ☐

(8) Others (free description)

7. Price

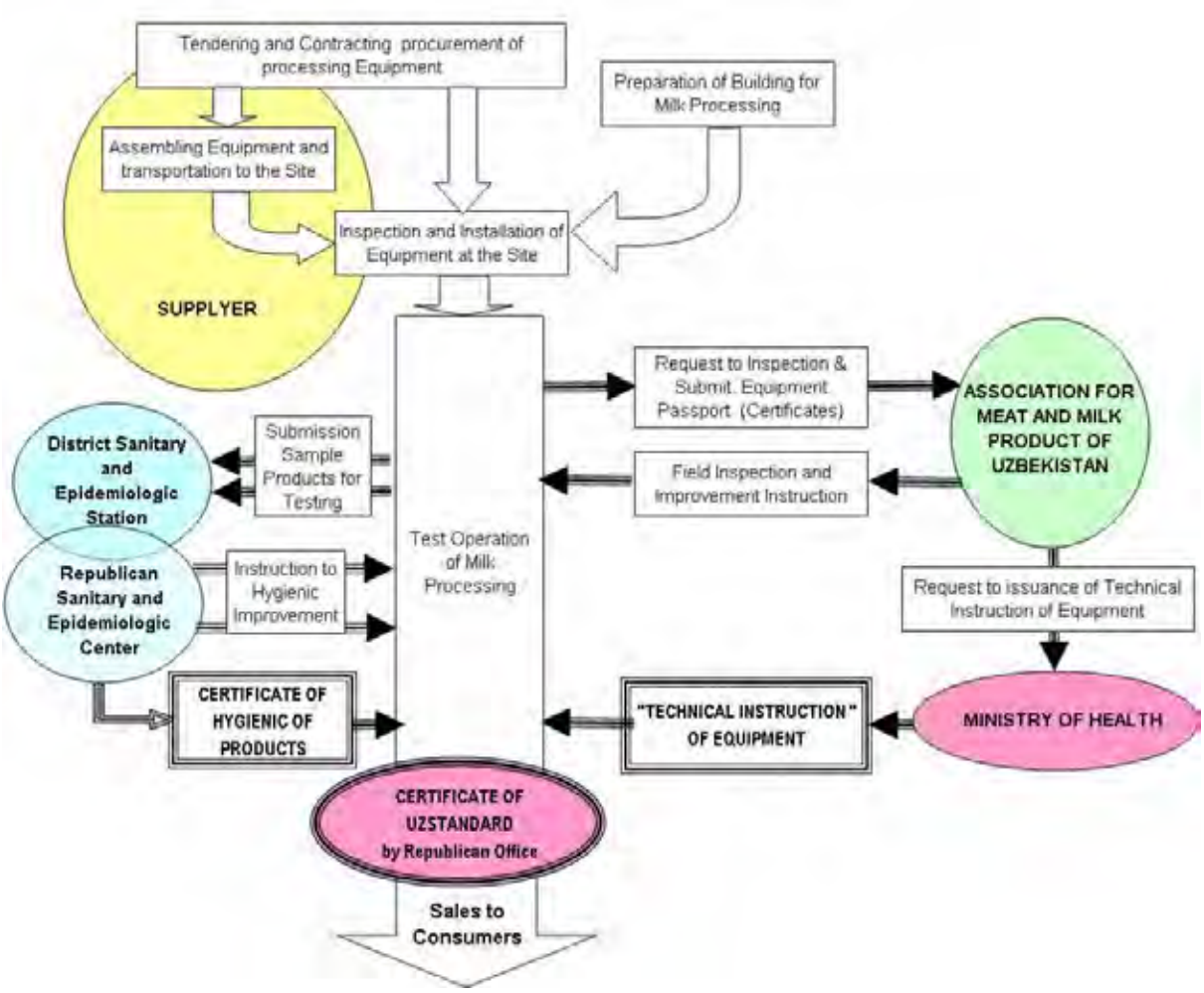
(1) Do you want to buy similar manuals, if they will be available in the market?
- a. Yes, I want to buy ☐ b. No. I don't want to buy ☐

(2) If, Yes;
How much is your affordable price for one copy?
Sum: _____ /copy

APPENDIX D LIVESTOCK

D.1 Process to Registration Uzstandard for Milk Processing

Process for the sale of pasteurized milk in the market in Uzbekistan, the certificate of Uzbekistan Standard (Uzstandard) which issued by the Uzstandard Karakalpakstan Office after obtaining 1) the "**Technical Instrument**" inspected by Association of Meat and Milk Producers of Uzbekistan and concurred by Ministry of Health of Uzbekistan Government and 2) the "**Certificate of .Hygienic of Milk Products**" inspected and tested the nutrimental analysis and bacteria testing of produced milk products as shown below:



Notes:

1) Passport of Equipments show the specification and certificates of products and Sr. No. of equipment

2) For the "Technical Instruction", not only equipment but also packing material for 0ne year production are requested to be stocked with material the hygienic certificates issued by the Ministry of Health

3) Sanitary and hygienic tests are conducted not only the processed products but also quality of water, sanitation conditions sounding processing building, health certificate of cows and operators,

4) After start sales of milk products, sample of products shall be submitted every operation days for sanitary and epidemiology testing.

Certificate of Uzstandard for Pasteurized Milk Processing

НАЦИОНАЛЬНАЯ СИСТЕМА СЕРТИФИКАЦИИ РЕСПУБЛИКИ УЗБЕКИСТАН

ГП Каракалпакский Центр испытаний и сертификации

Республика Каракалпакстан г. Нукус ул. Гарезсизлик 57(Uz.AMT.06.MAI.269)

(Наименование органа по сертификации, адрес, № в Гос. реестре)

№ 0965232

СЕРТИФИКАТ СООТВЕТСТВИЯ

Зарегистрирован в Государственном реестре

" 02 " февраля 20 11 г.

№ Uz.SMT. 01.269.1076520-11

Действителен до " 02 " февраля 20 14 г.

Код ОКП _____ (по желанию)

Код ТН ВЭД _____ (по желанию)

Республика Каракалпакстан, Ф/Х «Коныратбай Мехри»

(предприятие, фирма, страна-изготовитель)

Настоящий сертификат удостоверяет, что идентифицированная должным образом продукция:

Молоко коровье пастеризованное с жирностью 3,2 %

упаковано в полиэтиленовых пакетах и в потребительских тарах

(наименование, тип, вид, марка)

Серийное производства

(количество или серийное производство)

соответствует требованиям нормативной документации

UzDSt 1083:2005, СанПиН 0253-10, СанПиН 0093-99

Схема сертификации: **Схема №4**

Заявитель (изготовитель, продавец) **Ф/Х «Коныратбай Мехри»**

(адрес)

Республика Каракалпакстан, Нукусский район ССГ «Кердер»

ИНН: 205011064

Сертификат выдан на основании:

а) документов **Гигиенический сертификат № 237043 от 19.01.2011г.**

Прот. испытаний РЦ ГСЭН РК № 22,№ 23 от 11.01.2011г. № 12/11,№ 13/12 от 12.01.2011г

№ 13-5,,№ 14-5 от 18.01.2011г. Протокол испытаний ГП ККЦИС № 179 от 29.01.2011г.

б) испытания образцов **Проводилось в аккредитованных испытательных лабораториях**

ГСЭН РК (Uz.AMT. 07.MAI. 663) и ГП КК ЦИС (Uz.AMT. 07.MAI. 037)

в) акта проверки производства **Акт обследования от 02.02.2011г.**

Инспекционный контроль осуществляет **ГП ККЦИС**

с периодичностью: **Не реже одного раза в год**

Особые отметки: **Сертификат действителен при соблюдении условия технологического процесса транспортировки и при наличии сопроводительных документов.**

Знак соответствия (представляется)

Срок реализации в розничной торговой сети молока пастеризованного не более 5 суток.

Примечание: Копии сертификата соответствия действительна только после заверения печатью органом по сертификации или держателем подлинника

Руководитель органа по сертификации _____ (подпись) **П.Абдинасаров** (Ф.И.О.)

Эксперт _____ (подпись) **Ж.Палуанова** (Ф.И.О.)

D.2 Business Plan of Pasteurized Milk Production at the Qoniratobay-Mehri Livestock Farm

Name of the Farm	Qoniratobay-Mehri Livestock Farm
Name of Representative	Aytmuratov Esenbay
Address	Kerder VCC, Nukus District, Karakalpakstan
Phone	920-0863(mobile, Mr. Aytmuratov Esenbay)

D.2.1 Summary

(1) Site: The site of the milk processing project under the Dairy Promotion Package Pilot Project is located at the Qoniratobay-Mehri Livestock Farm, Kerder VCC, Nukus, Republic of Karakalpakstan distant about 40 minutes drive to northwest from the center of the Nukus City.

(2) Capacity of the milk plant:500 lit/day (15,000 lit/month)

(3) Working group members participating: The working group operating and managing the small-scale milk plant under the pilot project of JICA was established on April 10 2009, which is composed of 25 members of dehkan and fermer. Final 18 member of the committee si shown in Attachment D-1.

(4) Products: Pasteurized milk and pasteurized cream

(5) Purchasing price of raw milk:700 to 800 sum/lit

(6) Selling price of pasteurized milk: 1,120 to 1,230 sum/pack of 1 liter depending on purchasing price of raw milk

(7) Production cost of pasteurized milk:1,013 to 1,113sum/lit depending on purchasing price of raw milk

(8) Net profit: 106.35 to 116.35 sum/lit depending on purchasing price of raw milk

(9) Expected markets: Kindergarten, Hospital, Orphan home, Dehkan Bazaar in Nukus

(10) Total cost of equipment: about 80,637,716 sum (only equipment)

(11) Ownership of the plant: JICA at the beginning 2 years

(12) Future plans: After the termination of the pilot project, the working group members shall discuss and decide strategies on marketing, processing commodities and profit distribution etc.

D.2.2 Profile of the Qoniratobay-Mehri Livestock Farm

The farm was established in 2004. Farm regulations are registered in Hakimiyat, Nukus district, by # 250(22.04.2004). The regulations describe the farm activity sphere like cattle breeding, diversified agricultural production and all types of commercial business that is not contradicting with law. Number of employed people in farm is composed of 30 people by 1/04/2009. Farm value in 2004 was 94,297thousand sum and 171,950 thousand sum by Jan 1, 2009 which shows increase to 77,652 thousand sum. Farm has buildings such as livestock for cattle breeding house, insemination house, repair workshop, storage etc. The farm has 701 hectare, out of it 312 ha are upland for corn, rice, alfalfa etc, and the rest (389 ha) are pasture.

According to farm bookkeeping 42,752 liters of milk were produced and for the 1st quarter of 2009 – 11,080 liters.

Farm income is mainly from meat and milk. Meat income in 2008 is 124,977 thousand sum, and income from milk–32,975 thousand sum, corn– 793.8 sum as well.

D.2.3 Profile of the Milk Processing Activity by the Working Group

(1) Mission/ Goals

[Mission Statement]

Recently people's demand for safe foods has been increasing in the Republic of Karakalpakstan. Milk production has been practiced popularly but only small amount of milk is marketed without any quality control. The Government of Uzbekistan plans to promote establishment of new enterprise by using mini-technologies and compact equipment for processing milk and meat in the Presidential Resolution 26.012009, N IIII-1047. Under the condition, pasteurized milk production in rural area will contribute to improve living standard of rural people and employment creation as a new small scale enterprise. This business plan aims to verify validity of those plans and ideas mentioned above.

[Sort-term Goal]
- to promote small scale milk industry in rural area by rural people,
- to improve living standard and employment status in rural area and
- to encourage safe pasteurized milk production.

[Long-term Goal]
- to expand production of safe pasteurized milk production for people,
- to create more employment opportunity through the small-scale milk processing development, and,
- to contribute to improve regional economy of the Republic of Karakalpakstan through development of small-scale milk processing in collaboration with dairy promotion strategy.

(2) Outline of the Milk Processing Activity

1) Outline

Name of Farm	Qoniratobay-Mehri Livestock Farm	Type of Farm	Private Fermer
Representative	Mr. Aytmuratov Esenbay	Capital Fund:	Not available
Address	Kerder VCC, Nukus District, Karakalpakstan, Republic of Uzbekistan		
Tel:	920-0863(mobile, Mr. Aytmuratov Esenbay)	Fax:	None
Date of Foundation	2003	Number of Members	18 to 25 persons
Type of Business	Small-scale milk processing	Type of Products	Drinking milk etc
Activities	Manufacturing of safe pasteurized milk		

2) Contribution to Capital Fund

Name of Contributor	Amount of Contribution	Remarks
Mr. Aytmuratov Esenbay	Not available	As of end of September, 2010

3) Board of Management (organization of the committee is shown in Attachment D-2)

Position	Name of Board Member	Role/ Assignment
Chairman	Aytmuratov Esenbay	Responsible for coordination with working group in order to manage the milk plant and other concerning activities.
Deputy chairman	Aymuratov Rosumbay	To support the chairman for effective and good management of the group activities.
Accountant	Najimov Sadik	To record and keep all the accounting data, and inform it regularly to the members for auditing.

4) Properties

Type of Property	Economic Value (in Sums)	Specification
Small-scale milk plant (ownership by JICA Study Team at the initial 2 years)	About 80,637,716	Milk Processing 500 lit /day
Milk processing building	n.a.	Building and plan of equipment are shown in Attachment D-3

D.2.4 Products

(1) Name of Products

Name of Products	Description (processing method)
Pasteurized milk	Pasteurized milk is processed in the small-scale milk plant being constructed by Pilot Project. Fresh raw milk collected from member of working group is tested its quality, and then measured. Then milk is stored and chilled in bulk cooler. After the purifying and pasteurizing milk, packing is done, and then milk product is tested to inspect quality.

Name of Products	Raw Materials	Suppliers	Purchasing Volume (lit)	Purchasing Price of Raw Milk	Method of Payment
Pasteurized milk	Cow milk	Mainly working group members of Fermer/Dehkan	About 500 lit/day	700 to 800 sum//lit	Remittance to bank

(2) Flow Diagram of Processing Process

Milk quality test→Weighing→Storage→Cooling→Purifying→ Pasteurizing→Packing→Quality test→Transportation to a market

Note. As to drawing of flow chart of milk processing, refer to Attachment D-3.

(3) Processing Equipment (Refer to Attachment D-4)

Name of Equipment	Assets Value	Durable Years	Specification
Weighing and filtering unit	9,800,000	10	Above 5,000 lit./hr
Bulk cooler	11,100,000	10	Above 500 lit. capacity
Sterilizing tank	14,000,000	10	95 ^{o}C
Surge tank	2,100,000	10	Above 200 lit. capacity
Separator	7,200,000	10	Above 1,000 lit/hr capacity
Pump	1,500,000	10	6.3qm/hr
Pump	2,720,000	10	2.0qm/hr
Milk packing machine	10,900,000	10	600 bags/hr
Electric balance	362,000	10	6kg capacity
Milk quality test kit	4,800,000	10	Milk fat etc
Refrigerator	4,350,000	10	1,400 lit. cooling -2 to +7 ^{o}C
Generator	5,030,000	10	5 to 10KVA
Transformer	5,030,000	10	80KVA

(4) Price Setting of the Product(s)

Name of Products	Price Idea	Basis of Price Setting
Pasteurized milk	800 sum/lit	Refer to Attachment D-5: Business Plan of Milk Processing
	750 sum/lit	
	700 sum/lit	

D.2.5 Marketing Plan

(1) Marketing strategies

1) To serve safe milk for consumers to meet their demand for safe foods,
2) To make advertizing at the beginning of the operation of milk processing through radio, TV and newspapers,
3) To make 5 to 8 agreement (contract) for permanent delivering between big mini-markets of Nukus and milk producing workshop,
4) To have permanent sales outlets, opening at least 3-4 shops in Nukus city, one in central market,
5) To set selling prices for pasteurized milk at 5 to 10% lower than competitors production,
6) To have permanent trade representative in Nukus in order to learn market demand, to make agreements, and
7) To design milk processing to make it attractive to consumers. For the purpose, .
   Fermer Association of Republic of Karakalpakstan will assist and fulfill all of the marketing arrangements in present Business plan.

(2) Target Markets/ Customers

1) Dehkan Bazaar, Nukus city
2) Hospital(s)
3) Kindergarten(s)
4) Orphan homes
5) Soda factory in Khodjeyli etc.

(3) Market/ Customer Profile

Market/ Customers	Profile of the Customers
Dehkan Bazaar	Consuming public
Hospital	Patients
Kindergarten	Children
Orphan home	Children
Soda Factory in Khodjeyli	Employees (1,000 persons)

(4) Marketing Channel

[Marketing Channel]
Milk producers → Milk plant → Processing into pasteurized milk → Individual markets contracted

[Type of Contract]
With milk producers: Contract for milk and meat production (refer to Attachment D-7)
With each buyer: Contract for food (refer to Attachment D-6)

[Transportation Means]
Milk producer → milk plant by 25 to 30 lit-milk tank on Damas
Milk plant → Markets by Damas

(5) Marketing Plan

Name of Products	Market/ Customer	Transportation Means	Volume of Sales	Date of Delivery
Pasteurized milk	Dehkan Bazaar	Damas (van)	200 lit/day	Every day
	Hospital	Damas (van)	50	Every day
	Kindergarten	Damas (van)	50	Every day
	Orphan home	Damas (van)	100	Every day
	Soda factory	Damas (van)	100	Every day

(6) Strategic Alliance/ Institutional Support

Institution	Detail of Support
Local Hakimiyat	Introduction of promising selling points, and permission
Fermer Association	Market development in cooperation with local Hakimiyat etc, and strengthening working group for marketing activity
MAWR	Support for the working group
Council of Ministers, Karakalpakstan	Support for the working group
Central and Commercial Banks	Support for the working group in financing arrangement
Ministry of Finance	Support for the working group in financing arrangement

(7) Sales Promotion/ Advertising

Tasting event at each promising market or selling point shall be organized to advertize produced safe pasteurized milk products in cooperation with Council of Minister, MAWR, and Fermer Association etc. Mass Medias might be involved for advertizing.

(8) Competition

[Competitors Profile]

As of October, 2010, there is no competitor in the production of pasteurized milk production in Karakalpakstan.

[Competitive Advantage of the pasteurized milk]

The milk bottled just raw milk in plastic bottle (per bottle) selling and consuming in Karakalpakstan is not processed in hygienic condition. Under the increasing demand for safe food, pasteurized milk will be accepted by consumers who are interesting in safe milk products in comparison with the milk bottled non-pasteurized milk. It is expected that demand for safe and quality milk will be increasing. Therefore, pasteurized milk produced in the small-scale milk plant under JICA's Pilot Project will be advantageous.

(9) Risk

- Generally speaking, consumers have tendency to purchase cheap commodities to save expenses. So price setting will be the point to make consumers accept safe pasteurized milk though it is a little bit higher than those of non-pasteurized milk.
- Sustainable supporting for the working group by local Hakimiyat, MAWR, Council of Ministers etc, to promote small-scale milk processing industries as a local industry.

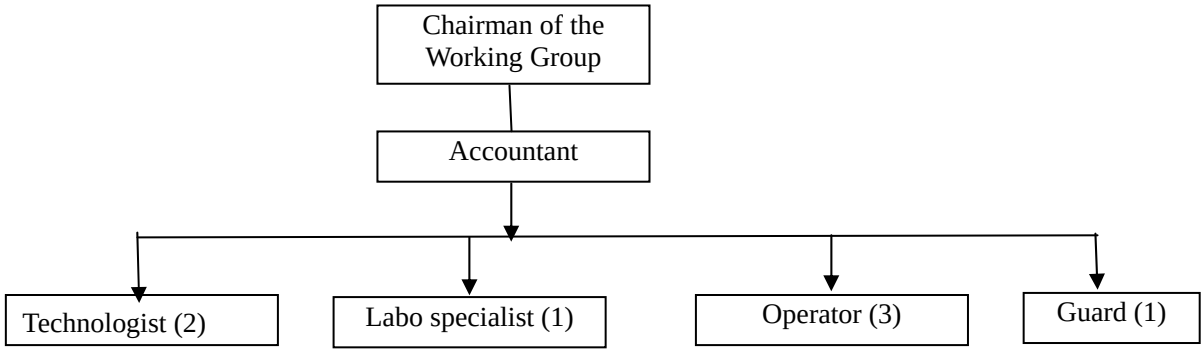
(10) Cash Flow Projection –

Cash flows were prepared for 3 cases taking into consideration purchasing prices of raw milk. (refer to attachment)

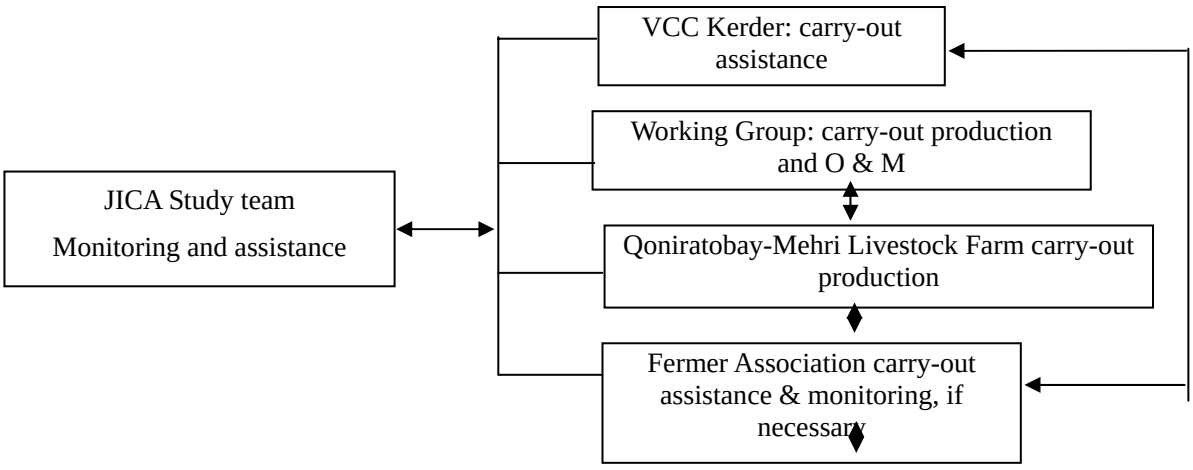
Attachment D-1 Member List of the Working Group（April 10 2009）

	Name	Title	Remarks
1	Atmuratov Karamatdin	Farmer	
2	Atashov Baxit	Farmer	
3	Baltonov Orazali	Farmer	
4	Nasurillaev Tileubay	Farmer	
5	Seitmuratov Dawletbay	Farmer	
6	Seilkhanov Turdibay	Farmer	
7	Satulaev Aman	Farmer	
8	Aytimbetov Yosup	Farmer	
9	Primbetov M.	Farmer	
10	Berdimuratov Perdebay	Farmer	
11	Erejepov Torewbay	Farmer	
12	Jumamuratov Bisen	Farmer	
13	Erbaev Abdikamal	Farmer	
14	Aytmuratov Esenbay	Farmer	
15	Xajaivetov Juzimbek	Dehkan	
16	Kosibaev P.	Dehkan	
17	Mambetnazarov B.	Dehkan	
18	Aymurzaev K.	Dehkan	

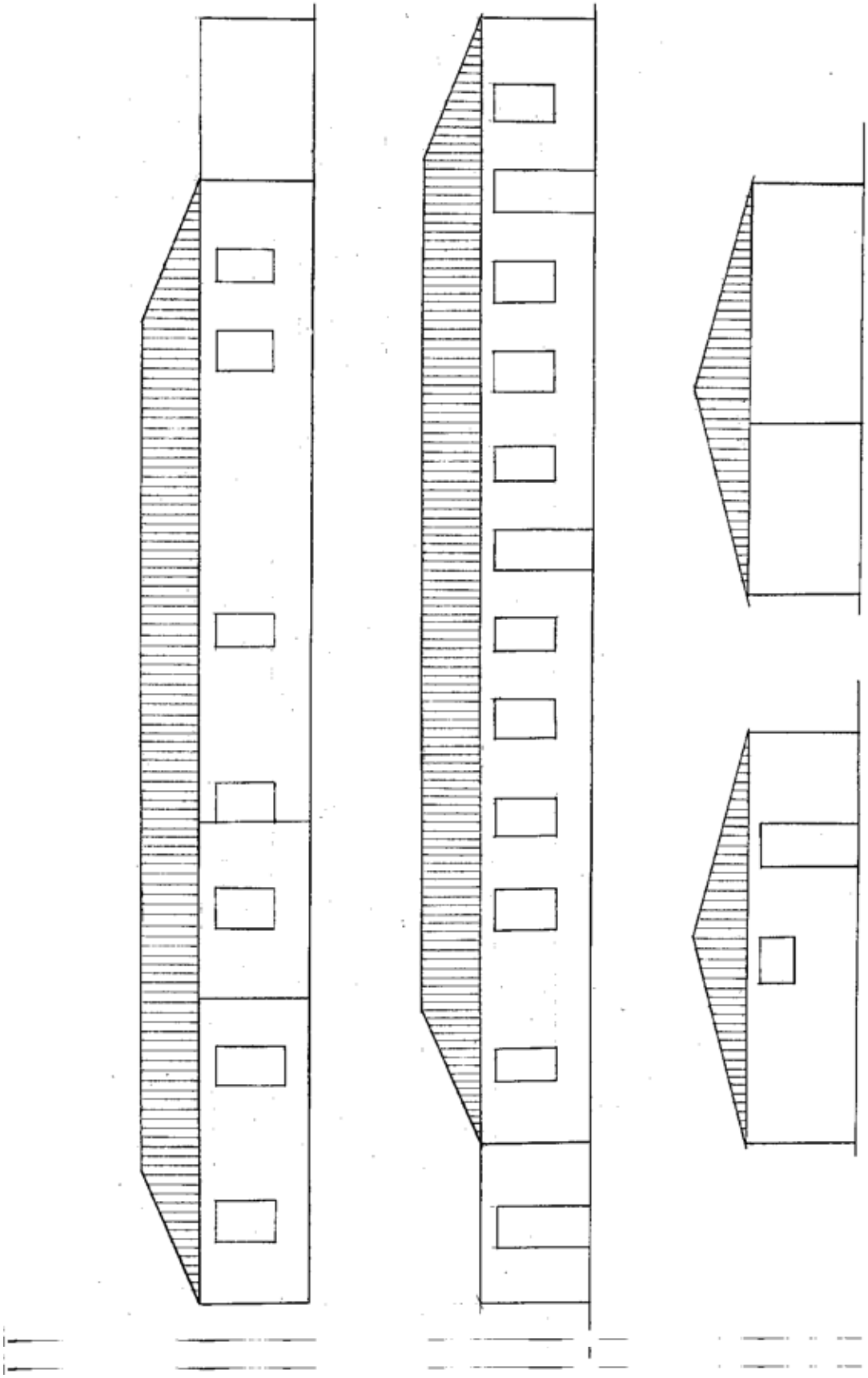
Attachment D-2 Organization Structure of the Pilot Project



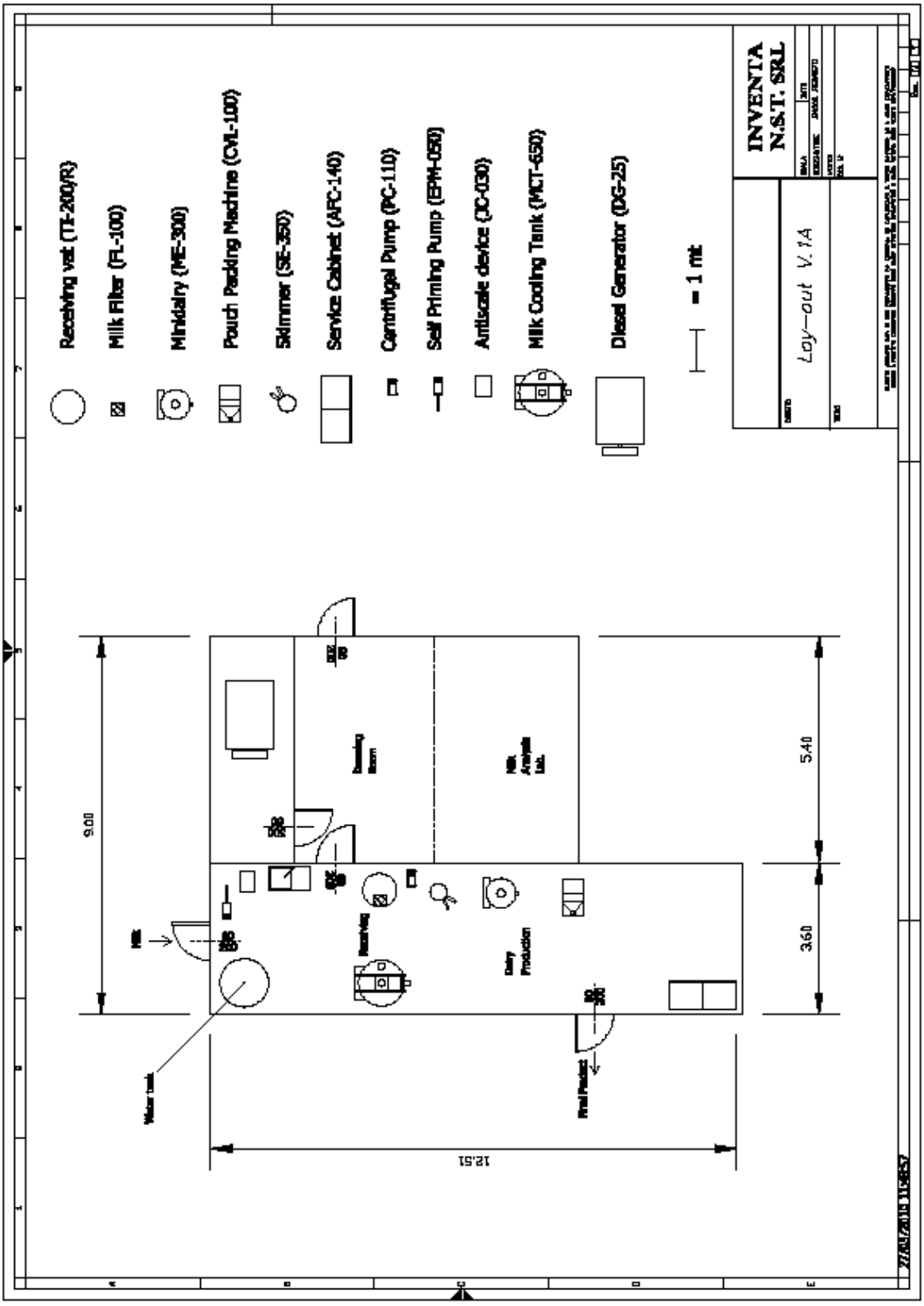
(Organization Structure of the Pilot Project Implementation as of October 2010)



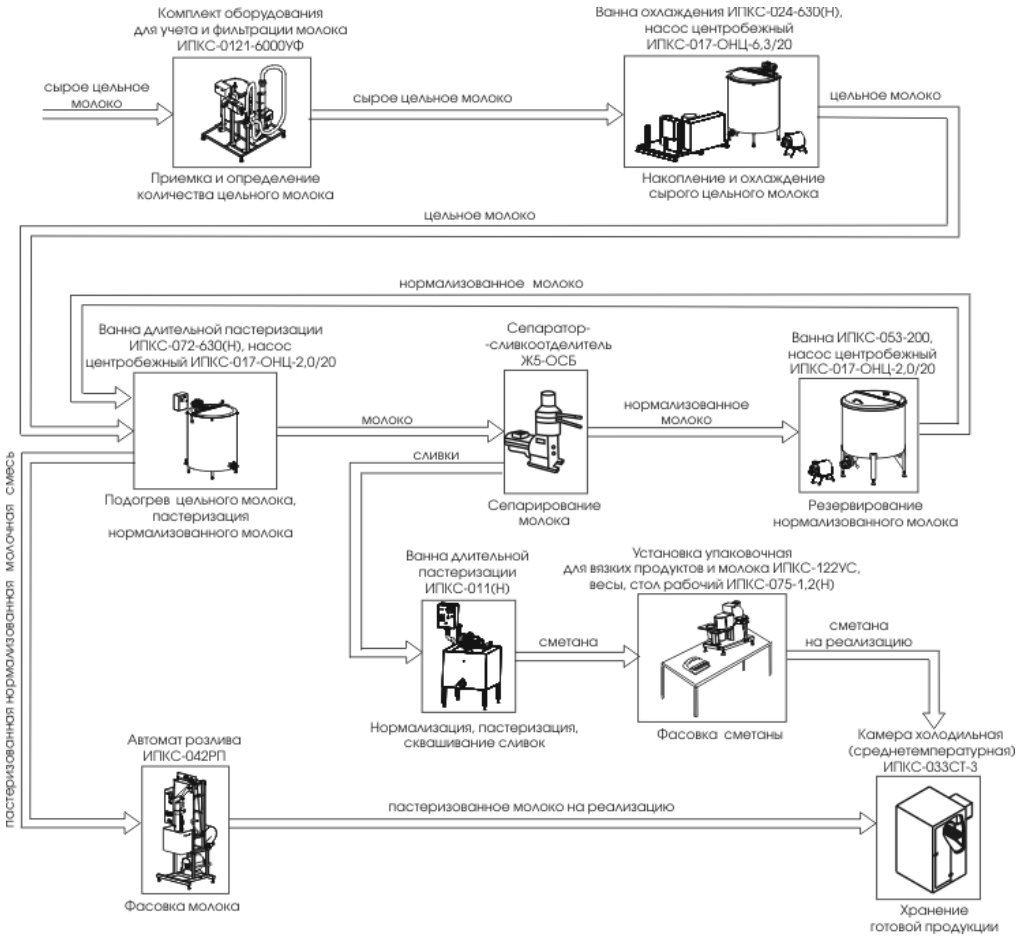
Attachment D-3 Milk Processing Factory, (1) Out view of the Building



Attachment D-3 Milk Processing Factory, (2) Plan of Milk Processing Equipment



Attachment D-4 Flow Chart of Milk Processing



Attachment D-5 List of Milk Processing Equipment

Equipment: Milk Mini-Plant	Q'ty : 1 lot

Purpose of Use:
To produce pasteurized and packaged drinking milk to meet the Government Standard of Uzbekistan "Tsh 49-230-2009"

Contents of Equipment*:

Milk Mini-Plant shall be consisted of the following equipment:-

Item No. 1	Milk Filter	1 piece
Item No. 2	Stainless Steel Vat	1 unit
Item No. 3	Centrifugal Electric Pump	1 unit
Item No. 4	Alimentary Hose	10 meters
Item No. 5	Refrigerated Milk Tank	1 unit
Item No. 6	Milk Pasteurizer	1 unit
Item No. 7	Self-priming Electric Pump	1 unit
Item No. 8	Alimentary Hose	10 meters
Item No. 9	Ultrasonic Milk Analyzer	1 unit
Item No.10	pH Probe + Temperature Probe	1 unit
Item No.11	Electric Milk Skimmer (Separator)	1 unit
Item No.12	Automatic Packing Machine	1 unit
Item No.13	Ultraviolet Lamp	1 unit
Item No.14	Stamp Mechanism	1 unit
Item No.15	Refrigerated Cabinet	1 unit
Item No.16	Milk Packaging Material	200 kg
Item No.17	Diesel Generator, with Automatic Voltage Regulator (AVR)	1 set
Item No.18	Anti Scale Device	1 unit
Item No.19	Spare Parts Kit	1 set

General Specifications:

1. Input of Raw Milk:	500 liters per cycle
2. Package Volume:	1 liter per package
3. Fat Contents of Milk:	3.2 – 3.7 % of Classical Milk
4. Pasteurizing Method:	80ºC for 30 seconds
5. Total Power Consumption:	20 kW in full operation
6. Power Source:	Operable on 3-phase, 380 V and 50 Hz or 1-phase, 220 V and 50 Hz

Note:
All necessary materials for installation such as power cables, stainless pipes, bolts and nuts shall be provided.
Test run and final inspection shall be conducted at the site.
Training materials such as instruction manuals in Russian shall be provided.
Spare parts can be provided for 2 years operation at least.

**Due to tight time requested for the project management (contracting & delivery), Inventa keeps the right to change the Brand and/or Model of offered equipment with equivalent items having same or superior characteristics.*

Item No. 1	**Milk Filter**	**Q'ty : 1 piece**
Country of Origin: Italy	**Manufacturer and Model: InventAgri, FL-100**	
Purpose of Use: To remove impurities in raw milk		
Technical Specifications:		
1. Type:	Open Type	
2. Dimension:	300×350mm	
3. Material:	Made of stainless steel	

Item No. 2	**Stainless Steel Vat**	**Q'ty : 1 unit**
Country of Origin: Italy	**Manufacturer and Model: InventAgri, TI-200/R**	
Purpose of Use: To storage raw milk temporally		
Technical Specifications:		
1. Working Capacity of Tank:	200 liter	
2. Material:	Made of stainless steel AISI 304	
3. Body Construction:	Furnished with inclined bottom connected to the unloading tap, 2" butterfly valve, stainless cover and graduated volume indicator	
4. Overall Dimension:	ϕ 700xh1000 mm	
5. Weight:	50 kg	

Item No. 3	**Centrifugal Electric Pump**	**Q'ty : 1 unit**
Country of Origin: Italy	**Manufacturer and Model: Fluxinos, LT-200 – PC 110 (S/N 393524)**	
Purpose of Use: To deliver raw milk from Stainless Vat to Refrigerated Milk Tank		
Technical Specifications:		
1. Capacity of Delivery:	110 liter at 0m head	
2. Power Output:	0.26kW	
3. Nominal Diameter:	DIN30	
4. Overall Dimension:	300x400x400mm	
5. Weight:	13kg	
6. Body Construction:	Equipped with tank, valve and cover	
7. Material:	Made of stainless steel	
8. Connector:	Supplied with 2 pieces of nylon connectors for ϕ 30mm hose	

Item No. 4	**Alimentary Hose**	**Q'ty : 10 meters**
Country of Origin: Italy	**Manufacturer and Model: ARMOVIN, TA-030 – TA -030**	
Purpose of Use: To deliver pressurized raw milk		
Technical Specifications:		
1. Temperature:	-20 - 65^{o}C	
2. Hose Diameter:	ϕ 30mm	
3. Material:	atoxic PVC + stainless steel spiral	

Item No. 5	Refrigerated Milk Tank	Q'ty : 1 unit
Country of Origin: Slovenia	Manufacturer and Model: Plevnik, HNP 650 2M – MCT-650 (s/n 2711200912)	

Purpose of Use:
To cool raw milk at suitable temperature

Technical Specifications:

1. Working Capacity:	650 liters
2. Cooling Performance:	130-145 lit/hr from +35^{o}C to +4^{o}C of milk temperature at 32^{o}C ambient temperature
3. Type:	Cylindrical vertical type with direct expansion
4. Stirrer:	Programmable, rotated at 30rpm
5. Vessel:	Inclined mechanism for emptying
6. Vat:	Using ecological irreproachable polyurethane form
7. Cover:	Equipped with spring for easy opening
8. Controller:	Operable for cooling unit, mixer, temperature of milk to set and hold, periodical mixing during holding temperature
9. Power Consumption:	1.5 kW and 5045W for cooling power
10. Power Supply:	3 ϕ , 380V, 50Hz
11. Overall Dimension:	1960×1218×1125mm (Height is adjustable.)
12. Weight:	250kg
13. Body Construction:	Equipped with honeycomb evaporating plate, electrical thermostat with display, exterior pulley plug, DN 50 stainless steel tap and refrigerating unit outside of tank
14. Material:	Made of AISI 304 stainless steel
15. Coolant:	R404A

Item No. 6	Milk Pasteurizer	Q'ty : 1 unit
Country of Origin: Italy	Manufacturer and Model: InventAgri, ME-300 (s/n: 0911308)	

Purpose of Use:
To pasteurize raw milk and cool milk

Technical Specifications:

1. Working Capacity :	60 – 300 liters
2. Basin:	Triple wall in stainless steel and fulfilled water in inner space of wall for flow of hot and cold water
3. Heating Method:	By electric resistance
4. Cooling Method:	By water though heat exchanger
5. Required Time:	90min from +4^{o}C to +82^{o}C – 30min from 82°C to 55 °C
6. Water Capacity:	5% of working capacity of milk
7. Controller:	Equipped with 4 control programs for thermal processes in both manual and automatic modes
8. Automatic Operation:	Programmable for heating, cooling, pausing and maintaining
9. Rotating Speed of Agitator:	Fixed at 22 rpm driven by motor
10. Discharge:	DN50 and equipped with flap valve and tilting devices for easy discharge
11. Cover:	Made of stainless steel and furnished with hinge and spring for easy opening
12. Circulation of Water:	Composed of pump, heat exchanger, electric heater, electro-valves and safety devices (expansion vase, over-pressure valve)
13. Power Consumption:	15.5 kW
14. Power Source:	Operable on 3 ϕ , 380V and 50Hz
15. Overall Dimension:	968×1100×1340mm
16. Weight:	200kg
17. Accessories:	IN/OUT hose, 2 pieces

Item No. 7	**Self-priming Electric Pump**	**Q'ty : 1 unit**
Country of Origin: Italy	**Manufacturer and Model: Liverani, EP Junior – EPM-050**	
Purpose of Use: To transfer liquid milk		
Technical Specifications:		
1. Discharge Capacity :	58 liter/min at 0m head, 47 liter/min at 5m head	
2. Leakage Protection:	Provided with mechanical seal durable by 90°C liquid temperature without leakage	
3. Outlet Diameter:	ϕ 30mm	
4. Rotating Speed:	2800rpm	
5. Trolley:	Provided with stainless steel trolley with handle and 2 wheels	
6. Power Consumption:	0.45 kW	
7. Power Source:	Operable on 1 ϕ , 220V and 50Hz	
8. Overall Dimension:	300x400x400 mm	
9. Weight:	13kg	
10. Material:	Made of AISI 316 stainless steel	
11. Connector:	Supplied with 2 pieces of nylon connectors for ϕ 30mm hose	

Item No. 8	**Alimentary Hose**	**Q'ty : 10 meters**
Country of Origin: Italy	**Manufacturer and Model: ARMOVIN, TA-030 – TA-030**	
Purpose of Use: To transfer liquid milk		
Technical Specifications:		
1. Applicable Temperature of Liquid:	-20 - 65°C	
2. Hose Diameter:	ϕ 30mm	
3. Material:	a toxic PVC + stainless steel spiral	

Item No. 9	**Ultrasonic Milk Analyzer**	**Q'ty : 1 unit**
Country of Origin: Bulgaria	**Manufacturer and Model: EONBG - EKOMILK Standard – ALU-015 (s/n: 125403)**	
Purpose of Use: To measure fat, pH of milk and other parameters in milk for quality control		
Technical Specifications:		
1. Measuring Parameters:	Fat: 0.5 – 9% ± 0.1% Solids Non Fat: 6 – 12% ± 0.2% Milk Density: 1.026 g/cm^3 – 1.033 g/cm^3 ± 0.0005 g/cm^3 Protein: 2 – 6% ± 0.2% Added Water: 0 – 60% pH: 0 – 14 ± 0.002pH at 0 – 50°C ± 0.1°C using Item No. 10 pH Probe	
2. Required Time:	180 seconds	
3. Feature:	Portable, quick response, simple calibration, none-use of chemicals, small quantity of sampled milk and automatic washing	
4. Environmental Condition:	Ambient Air Temperature: 15 – 35°C Milk Temperature: 15 – 30°C Relative Humidity: 30 – 80%	
5. Power Source:	DC 12V and AC 220V, 50Hz	
6. Power Consumption:	30 W	
7. Overall Dimension:	95×300×250mm	
8. Weight:	4 kg	
9. Material:	Made of aluminum and equipped with probes	
10. Accessories:	Car power adapter, 1 piece Milk samplers, 2 pieces 220V AC Power Supply, 1 piece	

Item No. 10	pH Probe + Temperature Probe	Q'ty : 1 unit
Country of Origin: Bulgaria	Manufacturer and Model: EONBG - EKOMILK pH – ALU-xxx/pH	

Purpose of Use:

To measure pH and temperature of milk for quality control by means of attaching on Item No. 9 Ultrasonic Milk Analyzer

Technical Specifications:

1. Measuring Parameters:	pH: 0 – 14 ± 0.002pH Temperature: 0 – 50^{o}C ± 0.1^{o}C
2. Required Time:	180 seconds
3. Kit Composition:	pH and temperature probe, pH calibrating solutions at pH4, 7 and 10

Item No. 11	Electric Milk Skimmer (Separator)	Q'ty : 1 unit
Country of Origin: Italy	Manufacturer and Model: InventAgri, SE-350 (s/n: 503154)	

Purpose of Use:

To separate milk cream and drinking milk

Technical Specifications:

1. Milk Production Capacity:	350 liters/hr
2. Receiving Bowl:	50 liters
3. Construction:	Easily dismounted mechanism for cleaning
4. Power Source:	400 W
5. Power Consumption:	Operable on 1 ϕ , 220V and 50Hz
6. Overall Dimension:	250x250x500 mm
7. Weight:	12kg
8. Material:	Made of stainless steel AISI 304 and anti-corrosive aluminium for contacting parts with milk

Item No. 12	Automatic Packing Machine	Q'ty : 1 unit
Country of Origin: Italy	Manufacturer and Model: Progex, Waterpack, CVL-100 (s/n: WP/BCOS/11/015/09)	

Purpose of Use:

To package pasteurized milk by the fixed volume into printed polyethylene bags

Technical Specifications:

1. Packaging Capacity:	4-5 bags/min with 1 liter bags
2. Material of Film Bag:	Polyethylene (PE) – 70 -100 µm
3. Unit Packaging Volume:	From 100cc to 1 liter
4. Accuracy of Dosing:	± 2%
5. Mechanism:	Mechanically droved by rotating shaft with following phases: (1) date printing +vertically and horizontally sealing and cutting + welding pause (2) filling phase (timer droved) + cooling phase (by pump) (3) Film sliding (encoder controlled) + Cycle pause
6. Compressed Air:	Not used
7. Bag Size:	150 mm in width x 50 – 250 mm in length
8. Power Consumption:	0.7 kW
9. Power Source:	Operable on 1 ϕ , 220V and 50Hz
10. Overall Dimension:	880×490×1500mm
11. Weight:	90kg
12. Material:	Made of stainless steel AISI 304 & 302

Item No. 13	Ultraviolet Lamp	Q'ty : 1 unit
Country of Origin: Italy	Manufacturer and Model: Osram, CVL-100/5	

Purpose of Use:
To sterilize polyethylene film before bag forming and milk filling.
Mounted on Item No. 12 Automatic Packing Machine

Technical Specifications:

1. Wave Length:	260 nm
2. Energy	150Jm^2
3. Size:	L=400 mm
4. Power Consumption:	25Wx2
5. Power Source:	Operable on 1 ϕ , 220V and 50Hz

Item No. 14	Stamp Mechanism	Q'ty : 1 unit
Country of Origin: Italy	Manufacturer and Model: InventAgri, CVL-100/1	

Purpose of Use:
To stamp production date on polyethylene bags for milk.
Mounted on Item No. 12 Automatic Packing Machine

Technical Specifications:

1. Number of Digit:	8 digits (dd/mm/yyyy) on single line
2. Digit Dimension:	5x3 mm
3. Ink:	Quick drying ink
4. Mechanism:	Electro mechanic

Item No. 15	Refrigerated Cabinet	Q'ty : 1 unit
Country of Origin: Italy	Manufacturer and Model: Afinox, 8R140INC7A001 – AFC-140 (s/n: 301296407)	

Purpose of Use: To store packaged milk products in low temperature

Technical Specifications:

1. Storing Capacity:	1400 liters
2. Cooling Temperature:	-2 – +7^{o}C
3. Isolation:	By 70mm thickness polyurethane
4. Coolant:	R-404A (HFC-125/143a/134a in the proportion of 44:52:4)
5. Door:	Double blind doors with magnetic contacts and locks
6. Function:	Equipped with automatic defrost device
7. Power Consumption:	568 kW
8. Power Source:	Operable on 1 ϕ , 220V and 50Hz
9. Overall Dimension:	1463×803×2090mm
10. Weight:	235kg
11. Material:	Made of AISI 304 stainless steel for internal and external cabinet
12. Accessories:	Shelves, 6 pieces Cord with Plug, 3m, 1 piece

Item No. 16	Milk Packaging Material	Q'ty : 200 kg
Country of Origin: Uzbekistan	Manufacturer and Model: Orzu-Plastic JV, MPM-200	

Purpose of Use: To package final product of pasteurized milk in 1 liter

Technical Specifications:

1. Roll Dimensions:	Width: 350 mm External diameter: 250 mm (max.) Internal diameter: 76 mm
2. Material:	Polyethylene 100 µm film (harmful chemicals are not used)
3. Print Design:	Order by the Study Team
4. Number of Colors:	4 colors

Item No. 17	**Diesel Generator with Automatic Voltage Regulator (AVR)**	**Q'ty : 1 set**
Country of Origin: China	**Manufacturer and Model: Weifang Yuxing Power Co. Ltd. 30GF-DG-30**	

Purpose of Use:

To supply power to motors and heaters for Milk Mini-Plant during blackout of commercial power source

Technical Specifications:

1. Rated Voltage:	400/230 V
2. Ampere:	54.1 A
3. Frequency:	50 Hz
4. Rated Output:	30 kW (37.5 KVA)
5. Maximum Output:	33 kW (41 KVA)
6. Rated Rotating Speed:	1500 rpm
7. Phase:	3 ϕ
8. Power Factor:	0.8
9. Insulation Class:	F
10. Type of Generator:	Silent
11. Control System:	Four-stroke, water-cooled, in-line, swri combustion chamber
12. Fuel Consumption Rate:	Less than 258.4
13. Noise:	7m 85 dB
14. Overall Dimension:	1760×760×1500mm
15. Weight:	950kg
16. Engine:	K4100D
17-1. Type:	Four-stroke, water-cooled, in-line, swri combustion chamber
17-2. Engine Oil:	SAE (Society of Automotive Engineers) 10W30
17-3. Engine Oil Capacity:	9 liter
17-4. Cylinder Number-Bore x Stroke:	4 -100 mm×115 mm
17-5. Total Displacement of Piston:	3.61
17-6. Rated Output:	30 KW
17-7. Compression Ratio:	19 : 1
17-8. Engine Starting System:	Electronic
17-9. Cooling System	Forced water cooling
18. Accessories:	Fully Filled with Engine Oil SAE 10W30

Item No. 18	**Anti Scale Device**	**Q'ty : 1 unit**
Country of Origin: Italy	**Manufacturer and Model: ATLAS, Jupiter CAB 30 ATL-ALU 030 (s/n: A/09/582)**	

Purpose of Use:

To remove scale and soften total hardness of underground water for water circulation to Item No. 12 Pasteurization Tank

Technical Specifications:

1. Size of Inlet/Outlet:	1"
2. Resin Volume:	30 liters
3. Cycle Capacity:	180 $^{O}Fr/m^{3}$
4. Salinity Removing Capacity:	6kg
5. Water Flow Rate:	1900 liters/hr
6. Power Consumption:	3 W
7. Power Source:	Operable on 1 ϕ , 220V and 50Hz
8. Overall Dimension:	1130×320×480mm
9. Weight:	40kg
10. Accessories:	Washable Filter In/out hose, 2 pieces Discharge hoses, 2 pieces

Item No. 19	**Spare Parts Kit**	**Q'ty : 1 set**
Country of Origin: Italy	**Manufacturer and Model: Inventa, SPK-002**	

Technical Specifications:

(For Item No. 12 Automatic Packing Machine CVL-100)

1. Ink pad	13 pieces
2. Ink (bottle)	1 piece
3. Ink Solvent (bottle)	1 piece
4. Cutting Blade Starter for UV lamps	2 pieces
5. UV lamp	1 piece
6. Starter for UV lamp	5 meters
7. Heating ribbon plate (4mm)	1 piece
8. Cooling pump	10 meters
9. Self adhesive Teflon tape(thin type)	10 meters
10. Self adhesive Teflon tape (thick type)	
11. Rubber tape	3 meters
12. Traction wheel (_30x22mm)	2 pieces
13. Proximity sensor	1 piece
14. Fuses(box)	1 piece

(For Item No. 6 Milk Pasteurizer ME-300)

15. Fuses	1 piece
16. Electric Heater 9KW	1 piece
17. Electric Heater 6 KW	1 piece
18. Temperature probe Eliwell	1 piece
19. Temperature probe PT100	1 piece

(for Item No.5 : Refrigerated Milk Tank)

20. Temperature prove Eliwell	1 piece

Attachment D--6 Financial Analysis of the Plant (3 cases)

Cash flow

Five-Year cash Flow Projection Analysis with 3% anticiapted Business Growth Rate

(1) Incase of 800 sum/lit

Item		Year-1	Year-2	Year-3	Year-4	Year-5
A. Capital Investment						
1	Milk filter	220,500	0	0	0	0
2	Staineless Steel Vat	1,782,000	0	0	0	0
3	Centrifugal electric pump	2,052,000	0	0	0	0
4	Alimentary hose	141,000	0	0	0	0
5	Regrigerated milk tank	8,728,500	0	0	0	0
6	Pasteurizer (mini-dairy)	19,779,000	0	0	0	0
7	Electric pump	891,000	0	0	0	0
8	Alimetary hose	141,000	0	0	0	0
9	Milk analyzer	1,912,500	0	0	0	0
10	PH calibration kit	631,500	0	0	0	0
11	Electric skimmer	6,966,000	0	0	0	0
12	automatic packing machine	19,479,000	0	0	0	0
13	UV Lamp	3,783,000	0	0	0	0
14	Stamp mechnizm	2,418,000	0	0	0	0
15	Compressor	1,335,000	0	0	0	0
16	Refrigerator	5,464,500	0	0	0	0
17	Packing material	1,830,000	0	0	0	0
18	Dieasel generator	7,912,500	0	0	0	0
19	Antscale device	1,210,500	0	0	0	0
20	Spare parts	1,000,500	0	0	0	0
	Sub-total	87,678,000	0	0	0	0
B. Gross Income						
1	Sale of pasteurized milk	219,000,000	225,570,000	232,337,100	239,307,213	246,486,429
c. Transaction and Operation Cost						
1	Salary	6,360,000	6,550,800	6,747,324	6,949,744	7,158,236
2	Depriciation cost for building	1,550,000	1,596,500	1,644,395	1,693,727	1,744,539
3	Purchasing cost of raw milk	146,000,000	150,380,000	154,891,400	159,538,142	164,324,286
4	Depriciation cost for equipment	8,767,800	9,030,834	9,301,759	9,580,812	9,868,236
5	Trasnportation cost	12,775,000	13,158,250	13,552,998	13,959,587	14,378,375
6	Packing materials	13,383,333	13,784,833	14,198,378	14,624,330	15,063,060
7	Electricity	2,315,706	2,385,177	2,456,732	2,530,434	2,606,348
8	Water	133,590	137,598	141,726	145,977	150,357
9	Marketing service	239,075	246,247	253,635	261,244	269,081
10	Tax	1,094,424	1,127,257	1,161,074	1,195,907	1,231,784
11	Gas or stove fuel	165,345	170,305	175,415	180,677	186,097
	Sub-total	192,784,273	198,567,802	204,524,836	210,660,581	216,980,398
D. Net profit		26,215,727	27,002,198	27,812,264	28,646,632	29,506,031
E. Cash Flow Total		-61,462,273	27,002,198	27,812,264	28,646,632	29,506,031
	Discount Value Factor (@10%)	0.9000	0.8100	0.7290	0.6561	0.5905
F. Present Value		-55,316,046	21,871,781	20,275,141	18,795,055	17,423,016
	Discounted Benefit	197,100,000	182,711,700	169,373,746	157,009,462	145,547,772
	Discounted Cost	252,416,046	160,839,919	149,098,605	138,214,407	128,124,755

FIRR =	29%
B/C =	1.03
NPV =	23,048,947

Cash flow

Five-Year cash Flow Projection Analysis with 3% anticiapted Business Growth Rate

(2) In case of 750 sum/lit for raw milk purchasing

Item		Year-1	Year-2	Year-3	Year-4	Year-5
A. Capital Investment						
1	Milk filter	220,500	0	0	0	0
2	Staineless Steel Vat	1,782,000	0	0	0	0
3	Centrifugal electric pump	2,052,000	0	0	0	0
4	Alimentary hose	141,000	0	0	0	0
5	Regrigerated milk tank	8,728,500	0	0	0	0
6	Pasteurizer (mini-dairy)	19,779,000	0	0	0	0
7	Electric pump	891,000	0	0	0	0
8	Alimetary hose	141,000	0	0	0	0
9	Milk analyzer	1,912,500	0	0	0	0
10	PH calibration kit	631,500	0	0	0	0
11	Electric skimmer	6,966,000	0	0	0	0
12	automatic packing machine	19,479,000	0	0	0	0
13	UV Lamp	3,783,000	0	0	0	0
14	Stamp mechnizm	2,418,000	0	0	0	0
15	Compressor	1,335,000	0	0	0	0
16	Refrigerator	5,464,500	0	0	0	0
17	Packing material	1,830,000	0	0	0	0
18	Dieasel generator	7,912,500	0	0	0	0
19	Antscale device	1,210,500	0	0	0	0
20	Spare parts	1,000,500	0	0	0	0
	Sub-total	87,678,000	0	0	0	0
B. Gross Income						
1	Sale of pasteurized milk	219,000,000	225,570,000	232,337,100	239,307,213	246,486,429
c. Transaction and Operation Cost						
1	Salary	6,360,000	6,550,800	6,747,324	6,949,744	7,158,236
2	Depriciation cost for building	1,550,000	1,596,500	1,644,395	1,693,727	1,744,539
3	Purchasing cost of raw milk	136,875,000	140,981,250	145,210,688	149,567,008	154,054,018
4	Depriciation cost for equipment	8,767,800	9,030,834	9,301,759	9,580,812	9,868,236
5	Trasnportation cost	12,775,000	13,158,250	13,552,998	13,959,587	14,378,375
6	Packing materials	13,383,333	13,784,833	14,198,378	14,624,330	15,063,060
7	Electricity	2,315,706	2,385,177	2,456,732	2,530,434	2,606,348
8	Water	133,590	137,598	141,726	145,977	150,357
9	Marketing service	239,075	246,247	253,635	261,244	269,081
10	Tax	1,094,424	1,127,257	1,161,074	1,195,907	1,231,784
11	Gas or stove fuel	165,345	170,305	175,415	180,677	186,097
	Sub-total	183,659,273	189,169,052	194,844,123	200,689,447	206,710,130
D. Net profit		35,340,727	36,400,948	37,492,977	38,617,766	39,776,299
E. Cash Flow Total		-52,337,273	36,400,948	37,492,977	38,617,766	39,776,299
	Discount Value Factor (@10%)	0.9000	0.8100	0.7290	0.6561	0.5905
F. Present Value		-47,103,546	29,484,768	27,332,380	25,337,116	23,487,507
	Discounted Benefit	197,100,000	182,711,700	169,373,746	157,009,462	145,547,772
	Discounted Cost	244,203,546	153,226,932	142,041,366	131,672,346	122,060,265

FIRR =	61%
B/C =	1.07
NPV =	58,538,226

Cash flow

Five-Year cash Flow Projection Analysis with 3% anticiapted Business Growth Rate

(3) Incase of 700 sum/lit

Item		Year-1	Year-2	Year-3	Year-4	Year-5
A. Capital Investment						
1	Milk filter	220,500	0	0	0	0
2	Staineless Steel Vat	1,782,000	0	0	0	0
3	Centrifugal electric pump	2,052,000	0	0	0	0
4	Alimentary hose	141,000	0	0	0	0
5	Regrigerated milk tank	8,728,500	0	0	0	0
6	Pasteurizer (mini-dairy)	19,779,000	0	0	0	0
7	Electric pump	891,000	0	0	0	0
8	Alimetary hose	141,000	0	0	0	0
9	Milk analyzer	1,912,500	0	0	0	0
10	PH calibration kit	631,500	0	0	0	0
11	Electric skimmer	6,966,000	0	0	0	0
12	automatic packing machine	19,479,000	0	0	0	0
13	UV Lamp	3,783,000	0	0	0	0
14	Stamp mechnizm	2,418,000	0	0	0	0
15	Compressor	1,335,000	0	0	0	0
16	Refrigerator	5,464,500	0	0	0	0
17	Packing material	1,830,000	0	0	0	0
18	Dieasel generator	7,912,500	0	0	0	0
19	Antscale device	1,210,500	0	0	0	0
20	Spare parts	1,000,500	0	0	0	0
	Sub-total	87,678,000	0	0	0	0
B. Gross Income						
1	Sale of pasteurized milk	219,000,000	225,570,000	232,337,100	239,307,213	246,486,429
c. Transaction and Operation Cost						
1	Salary	6,360,000	6,550,800	6,747,324	6,949,744	7,158,236
2	Depriciation cost for building	1,550,000	1,596,500	1,644,395	1,693,727	1,744,539
3	Purchasing cost of raw milk	127,750,000	131,582,500	135,529,975	139,595,874	143,783,750
4	Depriciation cost for equipmen	8,767,800	9,030,834	9,301,759	9,580,812	9,868,236
5	Trasnportation cost	12,775,000	13,158,250	13,552,998	13,959,587	14,378,375
6	Packing materials	13,383,333	13,784,833	14,198,378	14,624,330	15,063,060
7	Electricity	2,315,706	2,385,177	2,456,732	2,530,434	2,606,348
8	Water	133,590	137,598	141,726	145,977	150,357
9	Marketing service	239,075	246,247	253,635	261,244	269,081
10	Tax	1,094,424	1,127,257	1,161,074	1,195,907	1,231,784
11	Gas or stove fuel	165,345	170,305	175,415	180,677	186,097
	Sub-total	174,534,273	179,770,302	185,163,411	190,718,313	196,439,862
D. Net profit		44,465,727	45,799,698	47,173,689	48,588,900	50,046,567
E. Cash Flow Total		-43,212,273	45,799,698	47,173,689	48,588,900	50,046,567
	Discount Value Factor (@10%	0.9000	0.8100	0.7290	0.6561	0.5905
F. Present Value		-38,891,046	37,097,756	34,389,620	31,879,177	29,551,997
	Discounted Benefit	197,100,000	182,711,700	169,373,746	157,009,462	145,547,772
	Discounted Cost	235,991,046	145,613,944	134,984,126	125,130,285	115,995,774

FIRR =	102%
B/C =	1.12
NPV =	94,027,504

Attachment D-7 Sample of Sales Contract for Food

The contract for Food № _____

Xodjeyli city. “___” _____ 200____y

_____

Hereinafter referred to as "Seller" in the face to _____ is_____ Basis on the one hand, and _____

Hereinafter referred to as "Seller" in the face to _____

_____ Basis on the other hand, and _____ collectively as "Parties" This contract is concluded as follows;

D.1 Subject of Contract

1.1 The seller undertakes to deliver food, and the buyer accepted and pay for them within the time limit established by this treaty.

1.2 The name of the range, quantity and price of food commodities are agreed by the parties and specified in the appendix № 1 which is integral part of this contract.

II. Term and order deliver of goods

2.1 The buyer undertakes to make timely removal of the food money. This allowed the export of goods by the buyer before the money is received for the goods to the account of Seller.

2.2 The seller is obliged to release food for days from the date of receipt of payment to the account.

III. The compensation

3.1 The total amount of goods under this contract is _____Sum.

3.2 The buyers agrees to make an advance payment in the amount of _____%, within banking days from the date of signature of this contract.

3.3. When a partial prepayment final payments made by Seller to Buyer within ___ days from receipt of goods, according to cost estimates for the Buyer.

3.4 Form of payment cashless payment money order.

IV. The quality of goods

4.1 The quality must correspond to the current standard for this product.

4.2 The seller must replace the poor quality of the goods within 20 days of warning of the existence of the marriage.

V. Parties Responsibilities

5.1 In the late payment of the goods shall pay Seller a penalty in the amount of 0,4 percent of the amount overdue payment for each day of delay, but not more than 50 percent of the amount overdue payment. The amount of fines caused by the failure of treaty obligations is paid from the extra budgetary account of the buyer.

5.2 In case of delay of delivery, short of goods, Seller shall pay Buyer a penalty in the amount of interest 0,5 percent unexecuted part of the obligation for each day for delay, but the total penalty shall not exceed 50 percent of the value of goods shortfall. Payment of the fine doesn’t relieve the party in

breach of contractual obligations from the payment of damages caused by delayed deliveries, and short supplies.

VI. Obligations of Parties

6.1 In the event of default or improper performance of obligations under this contract. The parties bear responsibility in accordance with the laws of the Republic of Uzbekistan.

VII. The validity of the contract

7.1 This agreement shall enter force upon its signing and is valid until "____" _____ 2009 year.

VIII. Other conditions

8.1 All changes and addition to the contract made in writing form and must be signed by both Parties.

IX. Addresses and other details of the parties.

Seller:	Buyer:
_____	_____
_____	_____
TIN (Taxpayer Identification Number)	TIN (Taxpayer Identification Number)
_____	_____
Address	Address
_____	_____
Tel/fax	Tel/fax
Current account	Current account
_____	_____
Bank	Bank

Appendix№1

To contract № ____
From "__" _____200 y.
Specification

№	Name of goods	Unit	Quantity	Price	Amount
1					
2					
3					
	Total				

Parties signature

Seller: Buyer: