

**Azerbaijan Amelioration and Water Farm
Open Joint Stock Company**

THE REPUBLIC OF AZERBAIJAN

**THE PROJECT ON
STRENGTHENING EQUIPMENT SUPPLY
IN MELIORATION AND IRRIGATION
(PHASE 2)**

PREPARATORY SURVEY REPORT

February 2013

**JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)**

**KATAHIRA & ENGINEERS INTERNATIONAL
NTC INTERNATIONAL**

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PREFACE

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey on the Project on Strengthening Equipment Supply in Melioration and Irrigation (Phase 2) in the Republic of Azerbaijan and entrust the survey to Katahira & Engineers International and NTC International.

From November 21 to December 20, 2012, the survey team held a series of discussions with the officials concerned in the Government of Azerbaijan, and conducted field investigations at the project area. As a result of further studies in Japan, the present report was finalized.

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

Finally, I wish to express my sincere appreciation to the officials concerned in the Government of Azerbaijan for their close cooperation extended to the survey team.

February, 2013

Teruyoshi Kumashiro
Director General
Rural Development Department
Japan International Cooperation Agency

SUMMARY

1. Outline of the Country

The Republic of Azerbaijan (hereinafter referred to as Azerbaijan) has a population of about 9.17 million (2011 WB statistics) and is located on the southern side of the eastern Caucasus Great Mountains, which stretch from the Black Sea to the Caspian Sea, and on the western coast of the Caspian Sea, bordering Russia to the north, Iran to the south, and Georgia and Armenia to the west. The total land area is 86,600 km² (about a quarter of the size of Japan). The topography is complex and varied with elevations ranging from 27 meters below sea level on the Caspian shore to over 4,000 meters in the northern mountainous regions. 60% of the whole land is mountainous. The country encompasses high altitude mountains, as well as lowlands and flatlands in the lower reaches of the Kura and Aras Rivers.

Azerbaijan became an independent state in December 1991 when the former Soviet Union was dissolved. Heydar Aliyev became the President in October 1993, and the country's political situation stabilized after the adoption of the new constitution and the parliamentary elections in November 1995.

Azerbaijan's economy suffered greatly due to prolonged wars with Armenia and a series of political upheavals. It took an upward turn in the mid-1990s pushed by an investment boom in the Caspian region. The economy maintained a high annual growth rate of around 10% for a while, exceeded 30% in 2006, but has since been slowing down due to the global recession. The ACG (Azeri-Chirag-Guneshli) oilfield complex (in which Japanese firms hold a 15.3% interest) in the Caspian Sea is the major driver of Azerbaijan's economy, and oil produced from these oilfields is sent to the Mediterranean Sea via the BTC (Baku-Tbilisi-Ceyhan) pipeline (in which Japanese firms hold a 5.9% interest) and then exported to various European countries by oil tankers, etc. Natural gas from the Shah Deniz field in the Caspian Sea, which began production at the end of 2006, is currently being exported to four countries, namely, Turkey, Georgia, Iran, and Russia, mainly via the SCP (South Caspian Pipeline).

GDP growth rates in 2006 and 2007 were high, at 34.5% and 25.1%, respectively, but declined to 10.8% in 2008 and 9.3% in 2009 due to the impact of the global financial crisis. Development of non-petroleum sectors and the mitigation of regional disparity remain as challenges to the country, and the Azerbaijan Government is soliciting foreign investment in the agriculture, light industry, transportation, and other sectors while enhancing the investment environment by developing such infrastructure as power supply and roads. The economic growth rate in 2011 was 1.0% (2011 WB), and the nominal GDP per capita was 6,916 US\$ (2011 WB).

2. Background and Outline of the Project

In response to the request for Grant Aid by the Government of Azerbaijan in 1999, the Government of Japan implemented "The Project on Strengthening Equipment Supply in Melioration and Irrigation (2004 – 2005)" (hereinafter referred to as "Phase 1") in 2004 for the five southeastern districts (Sabirabad, Saatly, Salyan, Nefchala, and Shirvan) and provided excavators for dredging canals, as well as equipment and tools necessary for their maintenance. The ex-post evaluation in 2009 confirmed the

high effectiveness of Phase 1, stating that it was properly implemented in all of the above five districts, created socio-economic benefits, and has been adequately operating and maintaining the donated equipment.

Improvement of irrigation facilities is considered a high priority agenda in Azerbaijan. A land amelioration (mainly improvement of drainage) and agricultural water supply program for 2007- 2015 was formulated under the 2006 Presidential Decree and is to be implemented by the Azerbaijan Amelioration and Water Farm Open Joint Stock Company (AWF). However, there still remain many areas throughout the country, except the five southeastern districts, that are in need of improved irrigation and drainage systems and are suffering equipment shortages.

Under these circumstances, the Government of Azerbaijan requested Japan's Grant Aid in 2009 for procuring equipment, etc., necessary for maintaining the irrigation/drainage canals in high priority areas consisting of five northern districts (Balakan, Zagatala, Gakh, Shaki, and Gabala), which are suffering serious damage from floods and salt water intrusion due to heavy sedimentation in the irrigation/drainage canals, and four southern districts (Aghjabadi, Imishli, Baylagan, and Fuzuli).

In response to the request, and in observing some uncertainties concerning the capacity of the Azerbaijan executing agency, which had been reorganized after the implementation of the Grand Aid project in 2004, to operate and maintain the project, as well as in regards to the relevance of irrigation/drainage development projects in relation to Azerbaijan's present national plan and agricultural/water-resource programs, JICA conducted a Preparatory Survey for the Salinity Flood Control Plan in Azerbaijan (Phase 2) (hereinafter referred to as "Preliminary Survey") from November to December 2010.

The Preliminary Survey confirmed that the executing agency has been properly using, maintaining, and managing the equipment procured under Phase 1 and has the capacity to operate and maintain the canal facilities and equipment without major difficulties.

The relevance of the proposed irrigation project to the current national plan and the government policies in the agricultural/water-resource sectors was also verified based on the fact that improvement of irrigation/drainage systems is placed among the high priority issues in the agricultural sector reform under the National Socio-Economic Development Program (2009 – 2013), which, of particular note, intends to improve water supply and ameliorate land in the arable areas of the southern region under the regional action plan.

As for the flood control equipment requested for the five northern districts, it was deemed that the provision of maintenance equipment alone would not be effective unless other control measures, such as the construction of river banks, as well as sedimentation and erosion control facilities in the upper reaches, were set in place. Thus, it was agreed with the Azerbaijan side to exclude these districts from the proposed Project.

This Survey was conducted based on the results of the Preliminary Survey for the purpose of verifying and analyzing the irrigation/drainage projects in Azerbaijan, examining the contents and scope of the proposed Project that are appropriate for Grant Aid in order to draft an outline design and estimate an approximate cost of the Project.

3. The Result of the Survey and Contents of the Project

At the request of the Government of Azerbaijan, the Government of Japan decided to implement the Preparatory Survey on the Project on Strengthening Equipment Supply in Melioration and Irrigation (Phase 2) and dispatched via JICA a Survey Team to Azerbaijan to conduct a field survey for 30 days from November 21 to December 20, 2011.

The Survey confirmed that the equipment procured through Japan's assistance under Phase 1 was operated and maintained properly and working effectively in upgrading the capacity to dredge sedimentation in irrigation/drainage canals. Also, the relevance of the Project was verified, as the Project will support and facilitate the implementation of the National Socio-Economic Development Program as part of the overall goal, as well as significantly expand the dredging capacity of each management office through the procurement of necessary equipment for maintaining the irrigation/drainage canals.

The area of farming land in 4 southern regions, the target area of the project, is 193 000 ha, which is 12% of country's area. Grain crops are mainly grown in these area, 40% of which is a wheat. The total length of the irrigation canals in those regions is about 9,000 km, which, according to the rules, must be dredged once in every three years on average. In reality, however, AWF is able to complete only 34% (60% on average including outsourcing) of the required work using its own equipment due to the insufficient dredging capacity of each office. This has led to insufficient water supply and drainage to and from arable land in the target areas, affecting the crop types and yields.

The objective of this Project is to contribute to the improvement of irrigation and drainage system capacity in the arable land by providing equipments to AWF regional offices (9 offices) and the Shirvan Construction Equipment Center, located in 4 southern regions (Aghjabadi, Imishli, Baylagan, Fuzuli). Items to be procured by the Project are listed below.

List of Equipment to be procured

Name of equipment	Technical specifications	Quantity
Excavator	Weight: 20-ton class Bucket capacity: 0.8 m ³ class Wheel type	30 units
Bulldozer	Weight: 20-ton class Straight tilt blade	4 units
Maintenance equipment	Maintenance equipment for chassis, engines, electrical components, hydraulic components, tires, brakes, and mechanical components; welding/sheet metal work equipment; car wash equipment; warehouse equipment	1 set
Mobile workshop van	4 x 4 WD, aluminum van, 2.8-ton-class crane, loaded with repair tools and instruments	1 unit
Refueling truck	4 x 4WD, aluminum van, oil/grease drum cans, fueling/grease pumps	1 unit
Truck trailer	Max. loading capacity: 40-ton class Low flatbed	1 unit

Spare parts	Spare parts necessary for periodic replacement and wear and tear necessary to enable 3,000 hours of operation for construction equipment and 80,000 km of run for automobiles.	1 set
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4. Timeframe of the Project

If the Project is to be implemented under Japan's Grant Aid scheme, the estimated time period required to prepare detailed design and procure equipment will be 4.0 months and 13.0 months, respectively.

5. Project Evaluation

(1) Relevance

- ① The beneficiaries of the Project are rural residents, including the poor, which account for 70% (about 286,000 people) of the population (about 403,000 people) of the target areas.
- ② The Project aims to contribute to the development and vitalization of local regions, where the socio-economic disparity is vast compared to the metropolitan area, and increase the income of war-displaced people, many of whom are engaged in farming. This is in alignment with the policies of Grant Aid concerning security, providing basic human needs, education, and capacity building.
- ③ The Project can be operated and maintained by the Azerbaijan side within the financial and human resources of AWF without requiring excessively sophisticated skills.
- ④ The Project will contribute to the achievement of one of the objectives of Azerbaijan's National Socio-Economic Development Program (2009 - 2013) that aims to develop and vitalize rural areas that are suffering from socio-economic disparity compared to the metropolitan area.
- ⑤ Among Japan's aid policies and guidelines toward Azerbaijan established in June 2011 are "development of the agricultural sector (improving productivity, raising the food self-sufficiency ratio, and strengthening the production capacity of agricultural products for export)" and "continuance of assistance for mitigating poverty through economic development to redress the disparity in living standards and income between urban and rural areas," which are consistent with the objectives of the Project.
- ⑥ Probable result of the global warming is a deminution of useful water resources in Azerbaijan. The countermeasure to the issue should be the improving of melioration canals to decrease soil salination level and increase efficiency of irrigation system.

(2) Effectiveness

1) Quantitative Effects

The direct effects of the Project can be measured by how much sedimentation will be removed from the irrigation/drainage canals by providing the equipment necessary for the operation and maintenance of the canals.

Index	Baseline (2011)	Target value (by 2017) 【3 years after the project completion】
Excavation volume (m ³ / year)	3,240,000 m ³ / year	5,640,000 m ³ / year
Equipment sufficiency ratio (%)※	34	58

※ ratio of excavation capacity of the excavators in possession to the annual excavation volume

2) Qualitative Effects

For the evaluation of the qualitative effects of the Project, we established the following indicators that can be grasped as numerical values or by interviewing the people in some parts of the target areas of the Project.

- ① Improvement of agricultural productivity by stable water supply
- ② Conservation of fortified soil by prevention of salinization
- ③ Claims from farmers concerning irrigation/drainage canals decrease.

After the completion of the project, the model area, where the excavation is planned for the next 3 years, should be selected. Above indicators will be compared before and after excavation works in this model area.

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Location Map: Project Area

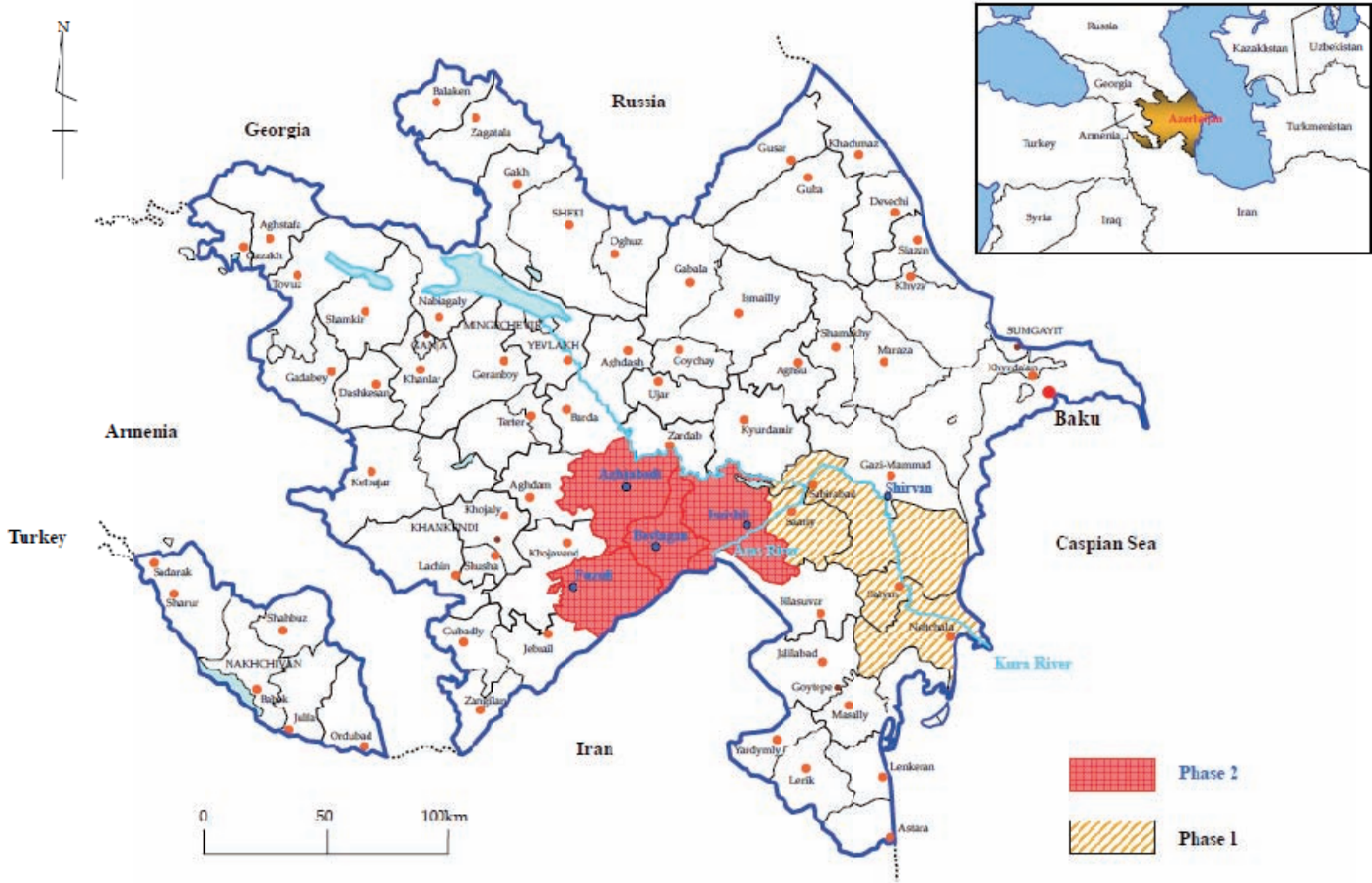


Image Photo of the Equipment



1. Wheel-type excavator



2. Bulldozer



3. Maintenance equipment



(Inside)

4. Mobile workshop van



(Oil/grease drum cans)

5. Refueling truck



6. Truck trailer

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ABBREVIATIONS

ADB	Asian Development Bank
AWF	Azerbaijan Amelioration and Water Farm Open Joint Stock Company
B/A	Banking Arrangements
EBRD	European Bank for Reconstruction and Development and Development
E/N	Exchange of Notes
EU	European Union
G/A	Grant Agreement
GDP	Gross Domestic Project
GNI	Gross National Income
GOJ	Government of Japan
IDB	Islamic Development Bank
IDP	Internally Displaced Person
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
M/D	Minutes of Discussions
ODA	Official Development Assistance
T/N	Tender Notice
V/C	Verification of Contract
WB	World Bank

CHAPTER 1. BACKGROUND OF THE PROJECT

1-1 Background and Outline of the Request

At the request for Grant Aid by the Government of Azerbaijan in 1999, the Government of Japan implemented “The Project on Strengthening Equipment Supply in Melioration and Irrigation (2004 – 2005)” (hereinafter referred to as “Phase 1”) in 2004 for the five southeastern districts (Sabirabad, Saatly, Salyan, Nefchala, and Shirvan) and provided excavators for dredging canals, as well as equipment and tools necessary for their maintenance. The ex-post evaluation in 2009 confirmed the high effectiveness of Phase 1, stating that it was properly implemented in all of the above five districts, created socio-economic benefits, and has been adequately operating and maintaining the donated equipment.

Improvement of irrigation facilities is considered a high priority agenda in Azerbaijan. A land amelioration (mainly improvement of drainage) and agricultural water supply program for 2007- 2015 was formulated under the 2006 Presidential Decree and is to be implemented by the Azerbaijan Amelioration and Water Farm Open Joint Stock Company (AWF). However, there still remain many areas throughout the country, except the five southeastern districts, that are in need of improved irrigation and drainage systems and are suffering equipment shortages.

Under these circumstances, the Government of Azerbaijan requested Japan’s Grant Aid in 2009 for procuring equipment, etc., necessary for maintaining the irrigation/drainage canals in high priority areas consisting of five northern districts (Balakan, Zagatala, Gakh, Shaki, and Gabala) and four southern districts (Aghjabadi, Imishli, Baylagan, and Fuzuli), which are suffering serious damage from floods and salt water intrusion due to heavy sedimentation in the irrigation/drainage canals.

In response to the request and in observing some uncertainties concerning the capacity of the Azerbaijan executing agency, which had been reorganized after the implementation of the Grant Aid project in 2004, to operate and maintain the project, as well as in regards to the relevance of irrigation/drainage development projects in relation to Azerbaijan’s present national plan and agricultural/water-resource programs, JICA conducted a Preparatory Survey for the Salinity Flood Control Plan in Azerbaijan (Phase 2) (hereinafter referred to as the “Preliminary Survey”) from November to December 2010.

As a result of the Preliminary Survey, it was confirmed that the executing agency has been properly using, maintaining, and managing the equipment procured under Phase 1 and has the capacity to operate and maintain the canal facilities and equipment without major difficulties.

The relevance of the proposed drainage improvement project to the current national plan and the government policies for the agricultural/water-resource sectors was also verified based on the fact that improvement of irrigation/drainage systems is placed among the high priority issues in the agricultural sector reform under the National Socio-Economic Development Program (2009 – 2013), which, of particular note, intends to improve water supply and ameliorate land in the arable areas of the southern region under the regional action plan.

As for the flood control equipment requested for the five northern districts, it was deemed that

provision of maintenance equipment alone would not be effective unless other control measures, such as construction of river banks, as well as sedimentation and erosion control facilities in the upper reaches, were set in place. Thus, it was agreed with the Azerbaijan side to exclude these districts from the proposed Project.

This Survey was conducted based on the results of the Preliminary Survey for the purpose of verifying and analyzing the irrigation/drainage projects in Azerbaijan, examining the contents and scope of the proposed Project that are appropriate for Grant Aid in order to draft an outline design and estimate an approximate cost of the Project.

The equipment items that were initially requested and those that were finally agreed upon are shown in Table-1 below.

Table- 1 List of Requested Equipment

Model Type	Qty. Requested		Remarks
	Initial	Final	
Bulldozer, 20-ton	4 units	4 units	1 for each district
Wheel-type excavator, 20-ton	30 units	32 units	As per additional request
Truck trailer	1 unit	1 unit	
Mobile workshop van, 13-ton	1 unit	1 unit	
Refueling truck	0 unit	1 unit	As per additional request
Workshop equipment and tools	1 set	1 set	For the machinery workshop in Shirvan
Spare parts	1 set	1 set	

1-2 Project Site and Surrounding Conditions

1-2-1 Condition of Related Infrastructure

Within the scope of the project, maintenance equipment will be installed into the existing workshop building at the Shirvan Construction Equipment Center. Workshop building is old, and re-flooring, installation of windows, lighting equipment, electrical outlets, and water supply facilities should be renewed. AWF is considering to implement these renovation works until the delivery of equipment.

Access roads have been constructed to the Shirvan Construction Equipment Center, creating no obstacles for transporting equipment to the site.

1-2-2 Natural Conditions

Azerbaijan is located on the southern side of the eastern Great Caucasus Mountains, which stretch from the Black Sea to the Caspian, and on the western coast of the Caspian Sea, bordering Russia to the north, Iran to the south, and Georgia and Armenia to the west.

The total land area is 86,600 km² (about a quarter of the size of Japan). The topography is complex and varied with elevations ranging from 27 meters below sea level on the Caspian shore to over 4,000 meters in the northern mountainous regions, and three fifths of the whole land is mountainous. The country encompasses high altitude mountains, as well as lowlands and flatlands in the lower reaches of the Kura and Araks Rivers.

The country's climate is diverse. 9 out of 12 existing climate zones, from tundra to subtropical, are present in Azerbaijan. The climatic conditions of the four target districts of this Project are shown in Table-2. The altitudes of the target districts range from 0 m (Imishli) to 440 m (Fuzuli).

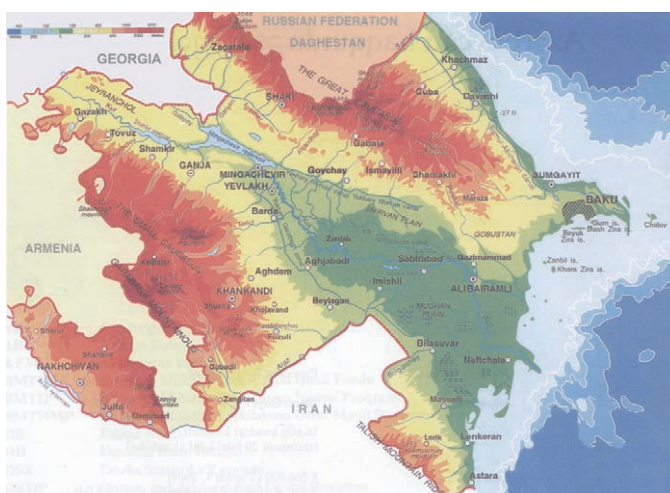


Figure- 1 Topographic Map of Azerbaijan

The country's climate is diverse. 9 out of 12 existing climate zones, from tundra to subtropical, are present in Azerbaijan. The climatic conditions of the four target districts of this Project are shown in Table-2. The altitudes of the target districts range from 0 m (Imishli) to 440 m (Fuzuli).

Table- 1 Climatic Conditions of Target Districts

Name of Districts	Average low temp. (January)	Average high temp. (July)	Annual precipitation
Aghjabadi	0~2°C	25~30°C	300~500mm
Imishli	-1~2°C	20~26°C	100~200mm
Baylagan	-10~-5°C	25~35°C	350~400mm
Fuzuli	-8~-6°C	30~38°C	200~300mm

Source: data compiled by Survey Team

1-2-3 Social Environmental Considerations

This Project is about procuring equipment for dredging sedimentation in existing irrigation/drainage canals. It is classified as “Category C” according to JICA’s guidelines for environmental and social considerations, and it is considered to have no adverse impact on the environment and society.

While there are no strict regulations or restrictions on construction equipment or automobile emissions in Azerbaijan, vehicles generally comply with Euro-2 equivalent standards. Taking into account the quality of fuel available in Azerbaijan, as well as the types of vehicles that are popular in the neighboring countries, we will consider applying Euro-2 or Euro-3 equivalent emission standards.

1-3 Other Issues (Global Issues)

According to the report of Azerbaijan Government to UN Framework Convention on Climate Change, the air temperature will be increasing by 2C° to 4.5C°, river water resources will decrease by 15% to 20% until 2100 year. Even nowadays, the balance of reserved and disposed water is negative. Countermeasures to the issue should be an introduction of water economy methods in irrigation system and increase of efficiency of facilities. Moreover, as a result of global warming, the water evaporation rate will reach to 30% to 35%, leading to even more decrease of river water resources. As a countermeasure, salination level of the farmland should be decreased by improving melioration facilities and increasing efficiency of the water supply.

During COP15 held in December, 2009, Japan announced about commitment to support developing countries actively introducing countermeasures against climate changes until 2013 (about 3 years). Measures against climate changes is one of the an important components of international cooperation for Japan.

This project will be implemented to support this sector of economy as a Grant project for supporting adaptation to the environment and climate changes.

CHAPTER 2. CONTENTS OF THE PROJECT

2-1 Outline of the Project

Although Azerbaijan's climatic conditions vary greatly from region to region, precipitation is generally low, requiring irrigation in most parts of the country. Nearly 90% of the agricultural crops are produced by irrigation. However, the flow volumes of the irrigation and drainage canals are decreasing due to large amounts of accumulated sediments, which are causing insufficient water supply and salt intrusion to crop fields. While each local office of AWF is responsible for maintaining and controlling the canals, their dredging capacity is lagging behind the speed of sediment accumulation due to lack of equipment.

The Azerbaijan Government lists river dredging, rehabilitation of riverbanks, rehabilitation of irrigation and drainage canals, improvement of water supply to arable areas through irrigation, and other agendas for the four target districts as part of the regional action plan for the amelioration and irrigation sector under the "National Socio-Economic Development Program (2009 – 2013)." Of these agendas, this Project aims to contribute to the improvement of irrigation and drainage system capacity in the arable land by providing equipments to AWF regional offices (9 offices) and the Shirvan Construction Equipment Center, located in 4 southern regions (Aghjabadi, Imishli, Baylagan, Fuzuli).

2-2 Outline Design of the Japanese Assistance

2-2-1 Design Policy

(1) Basic Policy

AWF is maintaining and controlling the irrigation and drainage canals in the four target districts of this Project. Assistance through this Project will be extended in the form of procuring construction equipment necessary for dredging the canals (mostly Categories 1 through 3) managed by each local office of AWF (irrigation, drainage, and weirs) in the four districts, along with maintenance and transportation equipment necessary for the proper operation and maintenance of the construction machinery.

We will examine the types and specifications of the equipment items in terms of their appropriateness for the cross sections of the canals, topography, and types of work to be performed, as well as based on the use status of the existing equipment units, including those procured under Phase 1. For maintenance, we will consider items that can properly carry out daily maintenance of items to be procured under this Project and also handle the Phase-1 equipment that will need to be overhauled in the near future.

The quantity of each item will be determined to create an appropriate dredging capacity along with the existing equipment for the target canals.

(2) Policy Concerning Natural Conditions

Geographical conditions of the target areas are as follows:

- Temperature: -10 °C - 40 °C
- Altitude: 0 - 440 m

- Precipitation: Approx. 100 - 500 mm/year
- Soil type: Silty soil

There are no particular geographical characteristics that need to be taken into account in determining the equipment specifications.

(3) Policy Concerning the Maintenance Capacity of the Implementing Organization

Each AWF office is performing canal-dredging work according to their own schedule, and the operators are well versed in dredging operations. Since the equipment items to be procured by this Project are similar to the existing ones, the executing organization is deemed to have a sufficient capacity to carry out the dredging work after the introduction of the additional equipment.

No major problems are found in the skill capacity of the operators to operate and maintain on a daily basis the basic components and systems of the newly procured items, which are similar to those of the existing equipment. However, they seem to lack knowledge on some systems (engine, hydraulic, electrical, etc.) that are unique to the new equipment. Therefore, at the eager request of the executing agency, we will consider conducting 1 week or so training by expert engineers to provide technical guidance for initial and ongoing operations, as was the case at the handover of Phase 1.

Maintenance equipment to be provided for the Shirvan Construction Equipment Center will have a purpose to repair medium-to-large-scale breakage that cannot be dealt with by periodic maintenance or on site. Since the Shirvan Center staff is not experienced in using most of the equipment items to be procured, they will need ample guidance on initial and ongoing operations. Since how to operate and use the equipment needs to be taught using the actual equipment, it would be appropriate to give such training by using the Phase-1 items, as they have exceeded 10,000 hours of operation and are in need of overhaul. The duration of the training will be around one month.

(4) Policy Concerning Setting the Grades of Equipment

In determining the basic specifications and grades of the equipment, we will take into consideration their practical operation and maintenance and refer to the specifications of commonly used equipment in Azerbaijan as well as the existing equipment, including Phase-1 items, with which the AWF staff are familiar, while examining the appropriateness of the strength or capacity of each item for the required work and finding balance among different items within an equipment configuration.

Japanese equipment procured under Phase 1 is superior in terms of performance and quality compared to other countries' products owned by AWF, and are effective in carrying out the required work efficiently. AWF is eagerly requesting equipment with similar performance and quality to that of Phase 1. Therefore, we will set the performance/quality grades of the equipment of this Project to match that of Japanese products.

While there are no strict regulations or restrictions on construction equipment or automobile emissions in Azerbaijan, vehicles generally comply with Euro-2 equivalent standards. Taking into account the quality of fuel available in Azerbaijan, as well as the types of vehicles that are popular in neighboring countries, we will consider applying Euro-2 or Euro-3 equivalent emission standards.

(5) Matters Concerning Procurement Methods

Equipment to be procured under this Project can be roughly divided into three groups: 1) construction machinery, 2) transport vehicles, and 3) maintenance equipment. If the equipment items are to be divided into lots in the tender process, items of the same group and of the same manufacturer should preferably be put in the same lot to make it easier to maintain the equipment and order spare parts after the procurement work.

The production periods of different equipment items vary from 6 to 10 months, which could create a time lag of up to 4 months in their delivery to the destination if they were shipped as they are produced. To avoid this, we will try to coordinate the timing of lading so that all the items will be delivered and handed over at the same time as much as possible.

(6) Policy Concerning the Countries of Procurement

The equipment for this Project will be procured mostly from Japan in order to ensure the kind of performance and quality that are equivalent to those of Japanese products according to “(4) Policy Concerning Setting the Grades of Equipment” and because of the availability of follow-up services by the manufacturers’ local dealerships in Azerbaijan. As for wheel-type excavators, which are produced by only one manufacturer in Japan, we will consider sourcing from Germany and France, where the Japanese manufacturer has production bases.

(7) Policy Concerning the Procurement of Spare Parts

We will consider procuring mostly periodic replacement parts and expendables that are needed for initial stages of operation in order to increase operating rates of the equipment by conducting initial maintenance properly and smoothly. In this Project, we set the annual operation at 1,500 hours for the construction equipment and 40,000 km for the vehicles and consider procuring two years’ worth (3,000 hours of operation or 80,000 km of mileage) of replacement parts and expendable supplies. After the two-year period and according to the stock status of the spare parts and supplies, the Azerbaijan side will procure these items on their own from the dealership of each equipment manufacturer.

2-2-2 Basic Plan (Equipment Planning)

(1) Overall Plan

The equipment to be procured under this Project will carry out the following works: (1) dredging (excavation of sediments accumulated in the irrigation/drainage canals and leveling of the disposed sediments), (2) maintenance of the equipment to ensure smooth operation, and (3) transportation of the equipment.

1) Dredging Work

① Removal of sediments accumulated in the canals

- Travel to worksite → Dredge → Dispose sediments → Dredge → (repeat)

We examined the appropriate excavator model by taking note of the appropriate boom/arm length

for the canal shape/size, optimum bucket capacity for efficient work, and the appropriate weight of the (hydraulic) excavator for these specifications. We selected wheel-type because of the relatively short distances between worksites. While the basic model type is the same as that of Phase 1, we chose the basic bucket capacity (vehicle weight) of 0.8.m³ (20 tons) by taking into account the work efficiency and versatility. As optional equipment, each excavator will be attached with a grading blade on the front and an outrigger on the back to add stability during operation.

② Spreading of disposed sediments

- Travel to worksite → Spread disposed sediments and level the ground

We examined the appropriate bulldozer model by taking note of the output that can sufficiently spread chunks of sediments dredged by the excavator and a blade attachment that can create guideways for the excavators. We set the basic weight at 20 tons by taking into account the work efficiency and versatility. It will be equipped with a straight tilt blade, as the angle dozer chosen in Phase I was for grading purposes only and not suitable for multiple other purposes.

2) Equipment Maintenance

① Moderate-to-major repair and periodic overhaul

We examined the appropriate maintenance equipment and tools that can perform moderate repair and handle periodic overhaul on the existing equipment.

② Minor on-site repair and periodic maintenance work

We examined an appropriate mobile workshop van installed with equipment and tools that can perform minor on-site repair and periodic maintenance. We also examined a refueling truck that can replace engine and hydraulic oils, and grease up various equipment parts on site as part of daily maintenance.

Both the mobile workshop van and the refueling truck will be equipped with 4WD, as they need to travel on rough roads.

3) Equipment Transport

① Transport of heavy equipment between worksites

We examined an appropriate truck trailer model that can safely accommodate and carry the maximum size and weight of the heavy equipment described above, as well as the dragline of each district office for the Shirvan Construction Equipment Center.

(2) Determining the Equipment Content

Table - 3 lists the equipment needed for the above-mentioned work.

Table- 2 Equipment Configuration by Work Type

Type of work	Equipment configuration
Dredging	Excavator Bulldozer
Equipment maintenance	Maintenance equipment Mobile workshop van Refueling truck
Equipment transport	Truck trailer

(3) Basic Specification of Each Equipment Item

We examined the basic specifications of the equipment based on the design policy and the standard specifications provided under the civil works estimation system of the Ministry of Land, Infrastructure, Transport and Tourism, while taking into account the model types commonly used for dredging irrigation/drainage canals in Azerbaijan, as well as the types and scales of the works that were found to be necessary by the field survey. The basic specifications that were deemed appropriate as a result of the foregoing examination are shown in Table-4.

Table- 3 Basic Specifications of Equipment (tentative)

Equipment		Applicable work	Basic specification (tentative)
		Reason for selection	
1	Excavator	Dredging of sedimentation in canals.	Weight: 20-ton class Bucket capacity: 0.8 m ³ class Wheel type
		Suitable for the canal size and sedimentation volume. Popular model type in Azerbaijan.	
2	Bulldozer	Spreading sediments and leveling the ground.	Weight: 20-ton class Straight tilt blade
		Suitable for the volume of disposed sediments. Popular model type in Azerbaijan.	
3	Maintenance equipment	Equipment maintenance at the Construction Equipment Center.	For chassis, engines, electrical/ hydraulic/mechanical components, tires, brakes, welding/sheet metal work, etc.
		Suitable for moderate repair and overhaul.	
4	Mobile workshop van	On-site equipment maintenance	4x4WD, aluminum van, crane, loaded with repair tools and instruments
		Suitable for on-site minor repair and daily maintenance.	
5	Refueling truck	On-site equipment maintenance	4x4WD, aluminum van, oil/grease drum cans, fueling/grease pumps
		Suitable for on-site engine/hydraulic oil replacement and parts greasing.	
6	Truck trailer	Transport of heavy equipment	Max. loading capacity: 40-ton class, low flatbed
		Max. weight: approx. 36 tons (dragline)	

(4) Determining the Quantity of Equipment Needed

1) Excavator

Excavators are needed to scoop out sediments accumulated in the canals. Taking into account the canal size, operating conditions, and the model type used by AWF, we chose a wheel-type 20-ton-class excavator with a bucket capacity of 0.8 m³.

- Present dredging capacity:

Aggregate of the capacities, ranging from 0.25 m³ to 1.2 m³, of the excavators owned by AWF offices. The Headworks Offices (2 offices) were excluded, as their canal widths are too large for a 0.25 m³ bucket.

- Capacity of excavator to be procured:

80,000 m³/unit/year (\approx yearly operating days (265 days) x dredging capacity per day (300 m³/day)

Each management office is currently operating at an equipment fill rate (the percentage of actual work capacity in relation to the required work load) of 34% and entrusting 20 – 40% of the work to outside contractors to complete around 60% of the required dredging work. We determined the appropriate quantity of equipment by aiming to achieve a 50% equipment fill rate for each office without relying on outside contractors, or 80% together with outside contractors. By procuring equipment for each office in the quantity shown in the table below, each office will have over a 50% equipment sufficiency rate, or 58% on average. If combined with 26% (average) filled by outsourcing, each office will have about an 84% sufficiency rate on average.

At present, farm fields, where dredging works were not carried out for many years, turned to pastureland. The part of these fields will be used as pastureland. These pastureland are considered low priority compared to crop fields in terms of irrigation/drainage system development. AWF estimates the canals in such areas are about 10% of the total dredging work. This means that the equipment to be procured by this Project will cover most of the required dredging work in high priority areas.

Table- 4 Rationale for Determining the Quantity of Excavators

		Yearly sedimentation 1,000m ³ /yr	Current capacity 1,000m ³ /yr	Equipment fill rate %	Qty. to procure unit	Dredging capacity after procurement 1,000m ³ /yr	Equipment fill rate %	Outsourcing ratio %	Total fill rate %
1	Aghjabadi Irrigation System Office	1,618	605	37	4	925	57	33	90
2	Aghjabadi Drainage System Office	1,453	355	24	6	835	57	25	82
3	Bafram-Tepe Headworks Office	530	160	30	2	320	60	33	93
4	Imishli Irrigation System Office	1,522	655	43	3	895	59	21	80
5	Central Mugan Drainage System Office	836	385	46	2	545	65	23	87
6	Baylagan Irrigation System Office	1,108	425	38	3	665	60	22	88
7	Baylagan Drainage System Office	1,145	225	20	5	625	55	19	74
8	Mil-Mugan Headworks Office	378	65	17	2	225	60	34	94
9	Fuzuli Irrigation System Office	1,057	365	35	3	605	57	26	83
	Total	9,647	3,240	34	30	5,640	58	26	84

Table- 5 Quantity of Excavators

Equipment	Specification	Quantity
Excavator	Bucket capacity: 0.8 m ³ class, 20-ton class	30 units

2) Bulldozer

Bulldozers are needed to spread sediments scooped out by the excavators and level the ground so that the excavators can move without difficulties. Based on the estimated volume of sediments to be dredged, and taking into account the model type widely used by AWF, we chose 20-ton-class straight blade dozers.

Although each office will have newly procured excavators through this Project and therefore will need a bulldozer, grading does not have to be done at the same time as dredging work. Presently, grading work is done when dredging of an entire canal system is complete. This means that offices within the same district, between which transport of equipment is relatively easy, can share a bulldozer. Therefore, we decided to procure four bulldozers to provide one for each of the four districts.

Table- 6 Quantity of Bulldozers

Equipment	Specification	Quantity
Bulldozer	Straight tilt blade, 20-ton class	4 units

3) Maintenance Equipment

Maintenance equipment is needed at the Shirvan Construction Equipment Center to perform moderate to major repair and periodic overhaul. The equipment will be stored in the existing building, in which the recipient side is responsible for installing concrete floor, windows, and electrical/lighting facilities at its own account.

One set of maintenance equipment will be procured for the Shirvan Construction Equipment Center.

Table- 7 Quantity of Maintenance Equipment

Equipment	Specification	Quantity
Maintenance equipment	Maintenance equipment for chassis, engines, electrical components, hydraulic components, tires, brakes, and mechanical components; welding/sheet metal work equipment; car wash equipment; warehouse equipment	1 set

4) Mobile Workshop Van

A mobile workshop van is needed to perform minor repair and daily maintenance at work sites. The Shirvan Construction Equipment Center will be provided with one mobile workshop van that will travel around the four districts to perform such tasks.

Table- 8 Quantity of Mobile Workshop Vans

Equipment	Specification	Quantity
Mobile workshop van	4x4WD, aluminum van, 2.8-ton-class crane, loaded with repair tools and instruments	1 unit

5) Refueling Truck

A refueling truck is needed to replace engine/hydraulic oils and grease up equipment parts as part of on-site daily maintenance.

The Shirvan Construction Equipment Center will be provided with one refueling truck that will travel around the four districts to perform such tasks.

Table- 9 Quantity of Refueling Trucks

Equipment	Specification	Quantity
Refueling truck	4x4WD, aluminum van, oil/grease drum cans, fueling/grease pumps	1 unit

6) Truck Trailer

A truck trailer is needed to transport the equipment to be procured by this Project, as well as the dragline (36-ton) owned by each office. In order to accommodate the largest weight and size, which in this case is those of the dragline, we chose a truck trailer with 40-ton maximum loading capacity.

The Shirvan Construction Equipment Center will be provided with one truck trailer to transport equipment within the four districts.

Table- 10 Quantity of Truck trailers

Equipment	Specification	Quantity
Truck trailer	Max loading capacity: 40 tons, low flatbed	1 unit

7) Spare Parts

A set of replacement parts and expendable supplies necessary for periodic maintenance during the initial operation phase for about two years (3,000 hours of operation for construction equipment, and 80,000 km of mileage for vehicles) will be procured.

Table- 11 Spare Parts to Procure (tentative)

Item		Quantity
Periodic replacement parts	Fuel filter	Appropriate quantity differs from product to product and from manufacturer to manufacturer, and therefore will be examined after obtaining the product specifications from the manufacturers.
	Air filter	
	Engine oil filter	
	Hydraulic oil filter	
Expendables	Bucket suit	
	Cutting edge	
	Tire	
	Brake shoe	
	V-belt	
Other	Head lamp	
	Brake lamp	
	Fuse	
	Hydraulic hose	
	Other items recommended by manufacturers	

(5) Equipment to be Procured

Based on the above considerations, the equipment items and their specifications and quantities (tentative) to be procured by this Project are shown in Table-13 below.

Table- 12 List of Equipment to Procure

Equipment	Specification	Quantity
Excavator	Weight: 20-ton class Bucket capacity: 0.8 m ³ class Wheel type	30 units
Bulldozer	Weight: 20-ton class Straight tilt blade	4 units
Maintenance equipment	Maintenance equipment for chassis, engines, electrical components, hydraulic components, tires, brakes, and mechanical components; welding/sheet metal work equipment; car wash equipment; warehouse equipment	1 set
Mobile workshop van	4x4WD, aluminum van, 2.8-ton-class crane, loaded with repair tools and instruments	1 unit
Refueling truck	4x4WD, aluminum van, oil/grease drum cans, fueling/grease pumps	1 unit
Truck trailer	Max loading capacity: 40 tons Low flatbed	1 unit
Spare parts	Periodic replacement parts and expendables required for 3,000 hours of operation for construction equipment and 80,000 km of mileage for vehicles.	1 set

2-2-3 Implementation Plan

2-2-3-1 Implementation Policy

(1) Project Implementation Structure

Figure-2 below shows how the organizations in Japan and Azerbaijan related to one another when this Project was implemented according to the framework of Japan’s Grant Aid.

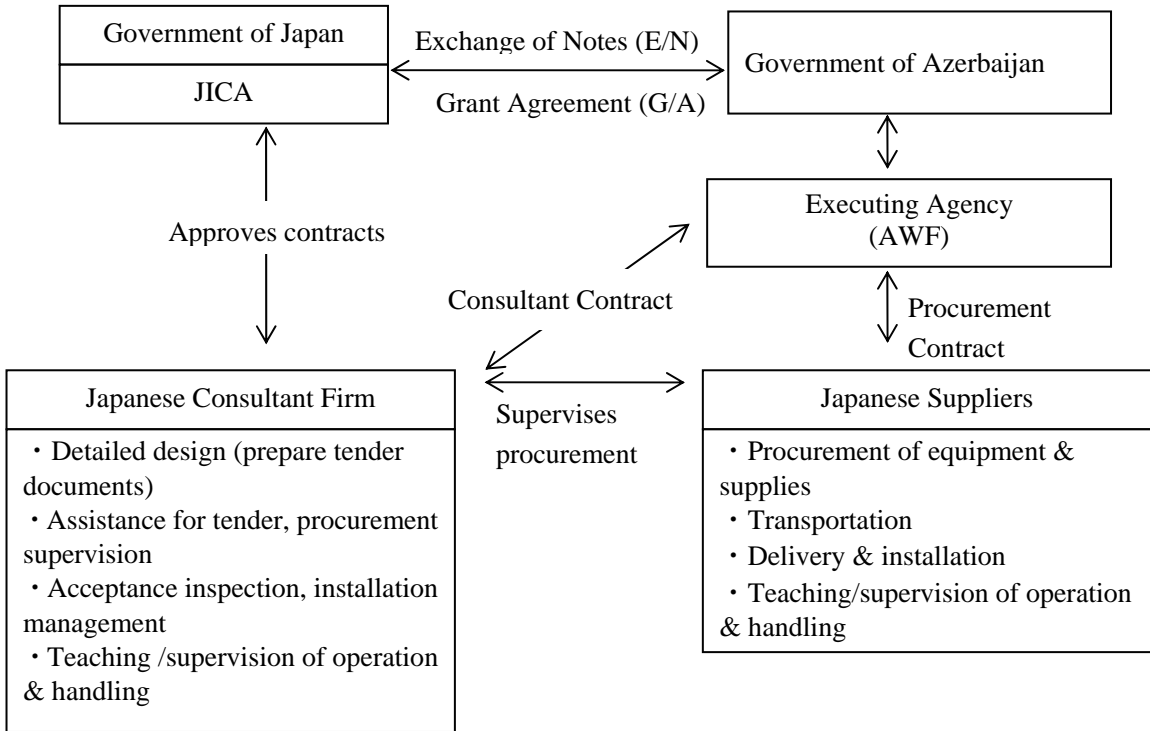


Figure- 2 Relationships of Organizations Engaged in Project Implementation

In accordance with the Grant Aid framework of the Japanese Government, a Japanese consulting firm will take charge of the detailed design and supervision of the procurement process, and equipment will be procured from Japanese corporations.

(2) Azerbaijan Side

The executing agency of this Project on the Azerbaijan side is the Azerbaijan Amelioration and Water Farm Open Joint Stock Company (AWF). Each district office and the Shirvan Construction Machinery Center are responsible for operating and maintaining the procured equipment under the supervision of AWF. The responsible organizations on the Azerbaijan side for each implementation stage of the Project are shown in Table-14.

Table- 13 Responsible Organizations on the Azerbaijan Side at Each Stage

Project Stage	Responsible Organization
Exchange of Notes (E/N), Grant Agreement (G/A)	Cabinet of Ministers
Procurement, delivery, and installation of equipment	AWF, each district office, Shirvan Construction Machinery Center
Dredging work of irrigation/drainage canals	AWF, each district office, Shirvan Construction Machinery Center

(3) Consultant

After the signing of E/N and G/A, AWF will immediately conclude a consultant contract with a Japanese consulting firm. The contracted consultant will be responsible for providing engineering services with regard to the preparation of detailed design and tender documents, assistance for the tender procedure, and supervision of procurement until the handover of equipment under this Project.

(4) Equipment Supplier

Successful bidders that meet the criteria for quality and specifications in an open competitive tender for pre-qualified suppliers will sign a contract with Cabinet of Ministers with regard to the supply of equipment selected for this Project.

2-2-3-2 Implementation Conditions

The procured equipment will be shipped from Japan via ocean freight, discharged at the Port of Poti in neighboring Georgia, transported on land to Baku or Shirvan for customs clearance procedure, and then delivered to the Shirvan Construction Machinery Center.

Upon delivery of the equipment to the designated designation, the equipment supplier will test operate each and every item delivered and hand them over to the executing agency after verifying that they work properly. Immediately after the handover, the equipment supplier will provide guidance for the executing agency with regard to the operation, handling, inspection, and repair of the equipment.

2-2-3-3 Scope of Works

All the costs associated with the procurement of equipment, including the transportation cost to the destination and discharge fees, will be borne by the Japanese side. The Azerbaijan side is responsible for exempting all taxes and duties applicable to the imported equipment. Table-15 shows the division of responsibilities between the two countries.

Table- 14 Division of Responsibilities between the Two Governments

Contents of work		Responsible Side		Remarks
		Japan	Azerbaijan	
Procurement/delivery/installation of equipment	Procurement of dredging/maintenance/transport equipment	○		
	Ocean freight	○		
	Freight discharge	○		
	Land transportation	○		
	Tax exemption/customs clearance procedure		○	At Baku or Shirvan, Azerbaijan
	Inland transportation	○		To Shirvan Construction Equipment Center
	Installation of maintenance equipment	○		
Dredging work	Dredging of irrigation/drainage canals		○	
	Maintenance of equipment		○	

2-2-3-4 Consultant Supervision Plan

(1) Basic Policy

After the signing of E/N and G/A, the Japanese Consultant will conclude a consulting contract with the Azerbaijan Government and supervise the procurement work according to the framework of Japan's Grant Aid and within the scope stipulated in E/N. It is important for the Consultant to perform its duties based on a thorough understanding of the background of this Project, as well as how and why the content of the basic design was determined.

(2) Procurement Supervision

The procurement supervision work consists mainly of the following:

- Discussion and confirmation with the Azerbaijan side
- Review of equipment specifications
- Preparation of tender documents
- Explanation and approval by the Azerbaijan side on the tender documents
- Assistance for tendering (public announcement, provision of tender document, execution of tender, evaluation of tender)
- Assistance for contract (negotiation, witness of contract, verification of contract)
- Confirmation of the issuance of order sheets for the equipment
- Factory inspection, inspection before delivery
- Pre-shipment inspection (committed to the third party)
- Discussion with the Azerbaijan side (delivery/installation schedule, customs clearance, initial instruction procedure)
- Inspection of delivered equipment and handover
- Witness of instruction of operation and inspection/maintenance
- Preparation of the completion report

2-2-3-5 Quality Control Plan

In order to verify if the equipment to be procured is meeting the quality standards and specifications set forth in the contract, the following inspections will be conducted at each stage of the procurement work:

- Confirmation of contents of equipment order sheets issued by the supplier
- Factory inspection and inspection before delivery in the manufacturing plant
- Pre-shipping inspection
- Inspection at handover of equipment

2-2-3-6 Procurement Plan

(1) Spare Parts and Guarantees

We considered procuring a set of periodic replacement parts and expendable supplies for about two years of initial equipment operation. We will establish a procurement system, in which, after the two-year period, AWF can order these parts directly from the local distributors of the manufacturers based on the replacement frequencies of these parts during the two years.

In order to cope with initial failure and breakage caused by normal use of the procured products, we will attach a manufacturer's warranty to each product for one year after the handover.

(2) Country of Origin

The Japanese products procured under Phase 1 are proven to be superior in terms of performance and quality to other countries' products owned by AWF, and are effective in carrying out the required work efficiently. AWF is also eagerly requesting similar performance and quality to those of Phase-1 equipment. Therefore, we applied Japanese standards to the performance and quality of the equipment to be procured under this Project.

In order to ensure the kind of performance and quality similar to those of Japanese products, and because of the availability of follow-up services by the manufacturers' local dealerships in Azerbaijan, most of the equipment will be procured from Japan. As for wheel-type excavators, which are produced by only one manufacturer in Japan, we will consider sourcing from Germany and France, where the Japanese manufacturer has production bases. The possible manufacturers and countries of origin of each equipment item are as follows:

Table- 15 Possible Countries of Origin

Equipment	Manufacturer	Country
Wheel-type excavator, 20-ton	Hitachi Construction Machinery	Japan
	Komatsu	Germany
	Caterpillar Japan	France
Bulldozer, 20-ton	Komatsu	Japan
	Caterpillar Japan	Japan
Truck trailer	Isuzu	Japan
Mobile workshop van, 13-ton	Mitsubishi Fuso Truck & Bus	Japan
Refueling truck	UD Trucks	Japan

Maintenance Equipment	Maruma Technica Co.	Japan
	Banzai	Japan
	Iyasaka	Japan

(3) Delivery Route

The best route to transport Japanese products in terms of safety, speed, and cost, is to ship them via the ocean and unload them at the Port of Poti in neighboring Georgia and deliver them to Azerbaijan on land. Transportation using this route will take about 60 to 70 days.

Products made in Europe (Germany and France) will be shipped by rail via Georgia to Azerbaijan, which will take about two weeks.

2-2-3-7 Initial Operational Guidance Plan

(1) Plan for Test Run and Adjustment

The equipment suppliers will dispatch engineers to the project site at the time of delivery to adjust and test-run the equipment to ensure that they operate properly. While many different model types (5 models of construction equipment and vehicles, and dozens of types of maintenance equipment) will be procured under this Project, we will design a personnel plan in such a way that guidance on initial and ongoing operations will be provided by 3 to 4 engineers, each taking charge of multiple equipment types.

(2) Guidance Plan for Initial and On-going Operation, etc.

The engineers will teach how to operate the equipment and conduct daily inspections as part of the training on initial and ongoing operations.

For the operation of excavators and bulldozers, 1-week training will be given by an experienced engineer. For the maintenance equipment, 30 days training will be given by overhauling the existing equipment procured under Phase 1. The duration of the operational training for each piece of equipment is shown in the table below.

Table- 16 Duration of Initial/Ongoing Operation Training

Equipment	Qty. (tentative)	Duration
Excavator	30 units	7 days
Bulldozer	4 units	7 days
Maintenance equipment	1 set	30 days
Mobile workshop van	1 unit	3 days
Refueling truck	1 unit	3 days
Truck trailer	1 unit	2 days

The total length of the initial/ongoing operation training will be 30 days, as the above training programs are conducted concurrently and their durations overlap within the 30-day period.

2-2-3-8 Soft Component (Technical Assistance) Plan

No soft component will be implemented in this Project.

2-2-3-9 Implementation Schedule

This Project will be implemented in accordance with the Grant Aid framework of the Japanese Government in the schedule shown in Table-18 below.

Table- 17 Project Implementation Schedule

Item	Duration (no. of months)												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Detailed Design	Confirmation of final contents of project	■											
	Review of equipment specifications, etc.	□											
	Preparation of tender documents	□											
	Approval of tender documents		■										
	Tender Notice (T/N)		▽										
	Distribution of drawings, briefing		□										
	Tender				▼								
	Evaluation of tenders				■								
	Contractor agreement, verification of contract (V/C)					●							
										Total: 4.0 months			
Procurement Process	Production of equipment												
	Ex-factory inspection												
	Pre-shipment inspection against shipping documents												
	Ocean/inland transportation												
	Guidance on initial/ongoing operation												
	Acceptance inspection, hand over												
											Total: 13.0 months		

2-3 Obligations of Recipient Country

If this Project is implemented through Japan's Grant Aid, the Government of Azerbaijan will be responsible for the following matters:

(1) Matters to be Borne Concerning Procurement of Equipment

- To bear commissions to the Japanese foreign exchange bank for its banking services, based upon the Banking Arrangement (B/A).
- To provide facilities for Japanese personnel in entering and staying in Azerbaijan and visiting relevant government agencies to perform their duties under the Project.
- To exempt Japanese nationals and corporations engaged in the Project from custom duties and other internal taxes.
- To ensure exemption of preparation documents needed for customs clearance for the equipment under the Project.
- Making arrangements for budgets related to custom duties concerning procurement of equipment
- To secure the necessary personnel and obligations at the execution of the guidance for initial operation, inspection and maintenance.
- To bear all expenses, other than those covered by Japan's Grant Aid, necessary for the Project.

(2) Matters to be Borne Concerning Events after the Procurement

- Carry out the irrigation/drainage canal dredging operation and allocate sufficient budget and personnel required for the operation.

- Make appropriate and effective use of, as well as maintain and manage, the equipment to be procured.

(3) Renovation of Existing Workshop

- Re-flooring; installation of windows, lighting equipment, electrical outlets, and water supply facilities

2-4 Project Operation Plan

If the equipment is to be procured through this Project, the Azerbaijan side will need to deploy sufficient personnel in time for the delivery of the equipment to the designated places so that they can learn how to operate and maintain each equipment model from the engineers dispatched from Japan at the time of operational training.

In order for the procured equipment to be utilized to carry out the dredging work, sufficient budget and personnel need to be appropriated, to which the executing agency has agreed.

2-5 Project Cost Estimation

2-5-1 Project Implementation Cost Estimation

The Project will be implemented in accordance with the Japan's Grant Aid scheme and the cost will be determined before concluding the Exchange of Note (E/N) for the Project.

(1) Cost Borne by the Government of Azerbaijan

Cost item	Amount	
	Thousand manat	Million yen
B/A fees	89	0.9
Renovation of existing workshop	584	5.9
Total	673	6.8

The total cost to be borne by the Azerbaijan side in implementing this Project is 673 thousand manat.

(2) Parameters of Cost Estimation

- Date of cost estimate: November 2011
- Exchange rate: 79.11JPY/USD
101.0JPY/Azerbaijan Manat
- Procurement period: Implementing design and procurement of equipment will be as shown in implementing schedules.
- Others: This plan will be put into execution in accordance with the grant aid scheme of the Government of Japan

2-5-2 Operation and Maintenance Cost

The fuel/oil cost required for operating the equipment after its introduction is estimated at 247,000 manat (about 24.91 million yen) per year as shown in Table-19. The annual maintenance/repair cost is estimated at 220,000 manat (about 22.21 million yen) as shown in Table-20. Around 50 persons in total of additional drivers, operators, and workers will need to be hired to operate the newly procured equipment, and their personnel cost is estimated at 76,000 manat (about 7.64 million yen).

Based on the above, the estimated operations and maintenance cost associated with the procurement of the equipment under this Project is 543,000 manat (about 54.76 million yen) in total, which is about 3.1% of AWF's total annual budget. Considering that AWF's budget is increasing last 5 years at an annual rate of 5 to 72%, AWF will be more than able to cover the operations and maintenance cost.

Table- 18 Estimated Fuel and Oil Cost (newly required cost)

No.	Equipment	Spec. (kw)	Qt.	Operating hours	Fuel consumption		
				(hrs/yr)	(liter/hr/unit)	(liter/yr/unit)	(liter/yr)
1	Excavator	122.0	30	680	21.6	14,688.0	440,640.0
2	Bulldozer	136.0	4	760	24.0	18,240.0	72,960.0
3	Maintenance equipment	62.0	1	660	3.1	2,046.0	2,046.0
4	Mobile workshop van	154.0	1	660	7.7	5,082.0	5,082.0
5	Refueling truck	98.0	1	660	4.9	3,234.0	3,234.0
6	Truck trailer	382.0	1	640	29.0	18,560.0	18,560.0
	Total						542,522.0
Parameters of estimation:							
Fuel consumption: as per the "Hire Calculation Table of Construction Machines, etc." (Japan Construction Machinery and Construction Association)							
Diesel fuel price: 0.45 manat/liter = 45.45 yen/liter							
Oil cost: 1% of fuel price							
Exchange rate: 1 manat = 101.0 yen							
Fuel cost (annual)	$542,522L \times 0.45AZN/liter = 244,135AZN$				Approx. 24.66 million yen		
Oil cost (annual)	$244,135AZN \times 1\% = 2,441AZN$				Approx. 250,000 yen		
Total	246,576AZN				Approx. 24.91 million yen		

Table- 19 Estimated Maintenance/Repair Cost

No.	Equipment	Spec. (kw)	Qty	Maintenance rate (%)	Service life (yrs)	Standard use period in AZE (yrs)	Annual maintenance rate (%)	Maintenance and repair cost /yr/unit (10,000 yen)	Maintenance and repair cost /yr (10,000 yen)
1	Excavator	122.0	30	45%	9.0	13.5	3.3%	58.7	1,760.0
2	Bulldozer	136.0	4	55%	11.0	16.5	3.3%	84.7	338.7
3	Maintenance equipment	62.0	1	45%	10.0	15.0	3.0%	10.5	10.5
4	Mobile workshop van	154.0	1	45%	12.0	18.0	2.5%	41.5	41.5
5	Refueling truck	106.0	1	45%	12.0	18.0	2.5%	28.0	28.0
6	Truck trailer	382.0	1	35%	12.0	18.0	1.9%	42.8	42.8
	Total								2,221.4
Parameters of estimation: As per the "Hire Calculation Table of Construction Machines, etc." (Japan Construction Machinery and Construction Association) Equipment price: base price or quoted price (CIF) Standard use period in Azerbaijan = "Service life" x 1.5 Annual maintenance/repair rate = Maintenance/repair rate ÷ Standard use period in Azerbaijan Annual maintenance/repair cost = Equipment price x annual, maintenance/repair rate Exchange rate: 1 manat = 101.0 yen									
Annual Maintenance and Repair Cost		219,941AZN				22.21 million yen			

CHAPTER 3. PROJECT EVALUATION

3-1 Preconditions for the Project Implementation

The Azerbaijan side will perform, without omission or delay, its obligations as the recipient country of this Project (customs clearance procedure, tax exemption, and preparation of B/A fees).

3-2 Necessary Inputs by Recipient Country

The inputs the recipient country needs to make are the costs for fuels and oils, equipment maintenance, and personnel such as operators and workers, as described in Section 3-5-2.

3-3 Important Assumptions

The external condition for the Project to achieve its overall goal is that “Economic and political conditions in Azerbaijan do not deteriorate extremely”.

3-4 Project Evaluation

3-4-1 Relevance

- ① The beneficiaries of the Project are rural residents, including the poor, which account for 70% (about 286,000 people) of the population (about 403,000 people) of the target areas.
- ② The Project aims to contribute to the development and vitalization of local regions, where the socio-economic disparity is vast compared to the metropolitan area, and increase the income of war-displaced people, many of whom are engaged in farming. This is in alignment with the policies of Grant Aid concerning the protection of security, providing basic human needs, education, and capacity building.
- ③ The Project can be operated and maintained by the Azerbaijan side within the financial and human resources of AWF without requiring excessively sophisticated skills.
- ④ The Project will contribute to the achievement of one of the objectives of Azerbaijan’s National Socio-Economic Development Program (2009-2013) that aims to develop and vitalize rural areas that are suffering from socio-economic disparity compared to the metropolitan area.
- ⑤ Among Japan’s aid policies and guidelines toward Azerbaijan established in June 2011 are “development of the agricultural sector (improving productivity, raising the food self-sufficiency ratio, and strengthening the production capacity of agricultural products for export)” and “continuance of assistance for mitigating poverty through economic development to redress the disparity in living standards and income between urban and rural areas,” which are consistent with the objectives of the Project.
- ⑥ Probable result of the global warming is a decrease of useful water resources in Azerbaijan. The countermeasure to the issue should be the improving of melioration canals to decrease soil salination level and increasing efficiency of irrigation system.

3-4-2 Effectiveness

(1) Quantitative Effect

The direct effects of the Project can be measured by how much sedimentation will be removed from the irrigation/drainage canals by providing the equipment necessary for the operation and maintenance of the canals.

Index	Baseline (2011)	Target value (by 2017) 【3 years after the project completion】
Excavation volume (m ³ / year)	3,240,000 m ³ / year	5,640,000 m ³ / year
Equipment sufficiency ratio (%)※	34	58

※ ratio of excavation capacity of the excavators in possession to the annual excavation volume

(2) Qualitative Effect

For the evaluation of the qualitative effects of the Project, we established the following indicators that can be grasped as numerical values or by interviewing the people in some parts of the target areas of the Project.

- ① Improvement of agricultural productivity by stable water supply
- ② Conservation of fortified soil by prevention of salinization
- ③ Claims from farmers concerning irrigation/drainage canals decrease.

After the completion of the project, the model area, where the excavation is planned for the next 3 years, should be selected. Above indicators will be compared before and after excavation works in this area.

APPENDICES

- 1 . Member List of the Survey Team
- 2 . Survey Schedule
- 3 . List of Parties Concerned in the Recipient Country
- 4 . Minutes of Discussions (M/D)
- 5 . Reference Materials

APPENDIX 1 Member List of the Survey Team

1. Member List of the Survey Team

(1) Site survey (21.11.2011~20.12.2011)

	Name	Position	Organization
1	Mr. Nakasone Kunihiro	Leader of Preparatory Survey Team	Director of Planning and Coordination Division, Rural Development Department, JICA
2	Mr. Nishiyama Kentaro	Planning and Coordination	First Division of Water Irrigation Rural Development Department, JICA
3	Mr. Kobayashi Kiyohito	Chief consultant /Operation and Maintenance plan	Katahira & Engineers International
4	Mr. Ishizaka Kuniyoshi	Deputy chief consultant /Irrigation and amelioration plan	NTC International
5	Mr. Baba Hideaki	Equipment planning	Katahira & Engineers International
6	Mr. Abdukadirov Rasulbek	Delivery conditions/cost estimation	Katahira & Engineers International

(2) Preparatory Survey Report (Draft) explanatory survey (15.09.2012~22.09.2012)

	Name	Position	Organization
1	Mr. Ejiri Yukihiro	Leader of Preparatory Survey Team	Chief Representative of JICA Uzbekistan Office
2	Mr. Kobayashi Kiyohito	Chief consultant /Operation and Maintenance plan	Katahira & Engineers International
3	Mr. Ishizaka Kuniyoshi	Deputy chief consultant /Irrigation and amelioration planning	NTC International
4	Mr. Baba Hideaki	Equipment planning	Katahira & Engineers International
5	Mr. Abdukadirov Rasulbek	Delivery conditions/cost estimation	Katahira & Engineers International

APPENDIX 2 Survey Schedule

2. Survey Schedule

(1) Site survey

Number of days	Month	Days	Week Days	JICA Head office		Consultants				Place
				Nakasone Kunihiro (Leader of Preparatory Survey Team)	Nishiyama Kentaro (Planning and Coordination)	Kobayashi Kiyohito (Chief consultant/ Operation&Maintenance plan)	Ishizaka Kuniyoshi (Deputy chief consultant /Irrigation and amelioration plan)	Baba Hideaki (Equipment planning)	Abdukadirov Rasulbek (Delivery conditions/cost estimation)	
1	11	21	Mon	/		20:15 Haneda Airport NH147 → 21:30 Kansai Airport 23:30 TK047 →				In the plane
2	11	22	Tue			05:55 Istanbul 07:50 TK332 → 12:30 Baku Discussion within Team, Meeting with JICA office members				Baku
3	11	23	Wed			AM: Visiting AWF, Discussions, PM: Shirvan Equipment Maintenance Center, Discussions, Site Survey ⇒ move to Sarb				Sarband
4	11	24	Thu			Sarband Flood Prevention Office, Site Survey at Sarband Region (Phase I site) Saarli Irrigation Office, Site survey at Saarli Region (Phase I site) ⇒ move to Agjabedi Irrigation Office, Discussions				Zardab
5	11	25	Fri			Site Survey Agjabedi region, Discussions at Irrigation Office, Melioration Office				Zardab
6	11	26	Sat			Site Survey Agjabedi region ⇒ move to Baku				Baku
7	11	27	Sun			Studying materials, Discussion within Team				Baku
8	11	28	Mon	14:40 Tokyo TK051→20:00 Istanbul 23:30 TK338→		Discussions at AWF, Information from Ministry of Agriculture				Baku
9	11	29	Tue	→04:10Baku		Discussion within Team ⇒ 14:00 Courtesy visit to Japanese Embassy ⇒ Visiting AWF, Discussions				Baku
10	11	30	Wed	AM: Courtesy visiting Prime Minister, Visiting Ministry of Agriculture, Discussions at AWF, PM: Site survey at Shirvan Equipment Maintenance Center, Discussions		Sarband				
11	11	1	Thu			Move to Imishli region, Site Survey, Discussions at Irrigation Office				Imishli
12	11	2	Fri			Move to Beylagan region, Site Survey, Discussions at Irrigation Office				Beylagan
13	11	3	Sat			Move to Fizuli region, Site Survey, Discussions at Irrigation Office ⇒ move to Baku				Baku
14	11	4	Sun			Discussion within Team, Studying materials, Drafting Minutes of Discussions				Baku
15	11	5	Mon			Discussing Minutes of Discussions at AWF				Baku
16	11	6	Tue			Minutes of Discussions, Signing ceremony				Baku
17	12	7	Wed	Report to Japanese Embassy Baku → Istanbul →		Discussions at AWF		Equipment Dealers Shop Survey, Studying materials		Baku
18	12	8	Thu	Kansai Airport → Haneda Airport		Studying Materials, additional survey		Equipment Dealers Survey, Studying materials		Baku
19	12	9	Fri			Studying Materials, additional survey		Equipment Dealers Survey, Studying materials		Baku
20	12	10	Sat			Studying Materials, additional survey				Baku
21	12	11	Sun			Studying Materials, additional survey				Baku
22	12	12	Mon			Studying Materials, additional survey				Baku
23	12	13	Tue			Studying Materials, additional survey				Baku
24	12	14	Wed			Studying Materials, additional survey				Baku
25	12	15	Thu			Drafting Survey Report				Baku
26	12	16	Fri			Drafting Survey Report				Baku
27	12	17	Sat			Drafting Survey Report				Baku
28	12	18	Sun			Drafting Survey Report				Baku
29	12	19	Mon			Report to Japanese Embassy 13:30 Baku TK333 → 14:30 Istanbul 18:40 TK050 →				In the plane
30	12	20	Tue			→13:10 Tokyo				

(2) Preparatory Survey Report (Draft) explanatory survey

Number of days	Month and days	Week Days	JICA Uzbekistan Office		Consultants				Place
			Ejri Yukihiro (Leader of Preparatory Survey Team)		Kobayashi Kiyohito (Chief consultant/ Operation&Maintenance plan)	Ishizaka Kuniyoshi (Deputy chief consultant /Irrigation and amelioration plan)	Baba Hideaki (Equipment planning)	Abdukadirov Rasulbek (Delivery conditions/cost estimation)	
1	9 / 15	Sat	/		Tokyo 11:55 → 18:00 Istanbul 20:30 →				In the plane
2	9 / 16	Sun			→01:15 Baku				Baku
3	9 / 17	Mon	→10:25 Arriving to Baku PM: Joining Survey Team		Summary explanation, additional information				Baku
4	9 / 18	Tue	Site Survey: Loan projects		Shirvan Equipment Maintenance Center: Site Survey, Summary explanation, additional information				Baku
5	9 / 19	Wed	AM: Minutes of Discussions PM: Visiting Ministry of Agriculture						Baku
6	9 / 20	Thu	AM: Minutes of Discussions, Signing Ceremony						Baku
7	9 / 21	Fri	AM: Report to Japanese Embassy						In the plane
			PM: Baku 16:25 → Tashkent		Baku 14:45 → 15:50 Istanbul 17:25 →				
8	9 / 22	Sat			10:40 Tokyo				

APPENDIX 3 List of Parties Concerned
in the Recipient Country

3. List of Parties Concerned in the Recipient Country

(1) Azerbaijan Amelioration and Water Farm Open Joint Stock Company (AWF)

(Head Office)

Mr.Ahmedzade Ahmed Djuma	Chairman
Mr.Kuliev Mamedsadik Zulgernein	First Deputy Chairman
Mr.Nasibov Fakhriddin Baxish	Head of Construction Equipment, Industry and Irrigation Service Department
Mr.Kuliev Matlab Gusein	Head of Irrigation Works and Water Association Department

(Shirvan Equipment Maintenance Center)

Mr.Ibrahimov Rafet Almursal	Centre Head
Mr.Gachaev Aliagha	Chief Engineer
Mr.Pirgulu Yaver Izzatullo	Chief Engineer, Engineering Department

(Aghjabedi Irrigation Office)

Mr.Aliev Ali Karyagdi	Office Head
Mr.Azadov Eldar Gachai	Chief Engineer

(Aghjabedi Melioration Office)

Mr.Quliyev Mursal Azay	Chief Engineer
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(Imishli Irrigation Office)

Mr.Badirov M. Abdulrahman	Office Head
Mr.Mamedov Adem Iman	Chief Engineer

(Central Mugam Melioration Office)

Mr.Gasimov Gasim Alibala	Office Head
Mr.Pashaev Alsafa Surhai	Chief Engineer

(Bahram Tepe Water Supply Office)

Mr.Mirishov Mirgoja Mirfuda	Office Head
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(Beilagan Irrigation Office)

Mr.Mammadkuliev Alamshah Bailer	Office Head
Mr.Karimov Azim Jamal	Chief Engineer

(Beilagan Melioration Office)

Mr.Aliev Nader Lankaran	Office Head
Mr.Safarov Yasin Safar	Chief Engineer

(Fizuli Irrigation Office)

Mr.Askerov Ahmed Jamil	Office Head
Mr.Kuliev Jalal Alim	Chief Engineer

(Mil Mugam Water Supply Office)

Mr.Behbudov Aliabbas Veisal	Office Head
Mr.Geidarov Israil Dunyamali	Chief Engineer

- (2) Ministry of Agriculture, Azerbaijan
- | | |
|-----------------------|---|
| Mr.Aliyev Bakhran | Deputy minister |
| Mr.Guseynov Gursan | Head of Environment Protection and Water Resources Department |
| Mr.Shikhlinski Orkhen | Chief advisor, International Cooperation Department |
- (3) Japanese Embassy in Azerbaijan
- | | |
|----------------|-------------------------------------|
| Muto Toshikazu | Council |
| Ono Hideko | Council |
| Imanishi Takao | Second Secretary, Economic Division |
- (4) Private sector
- (Itochu Trading Co., Baku office)
- | | |
|-------------------|----------------------|
| Yamasaki Norio | Office Director |
| Mr.Novruzov Rufat | Deputy Director |
| Mr.Askerov Elchin | Marketing Specialist |
- (BORUSAN MAKINA: CATERPILLAR DEALER)
- | | |
|----------------|------------------------------|
| Mr.Yazan Murat | Head of Marketing Department |
|----------------|------------------------------|
- (A TRADING: KOMATSU DEALER)
- | | |
|-------------------|--|
| Mr.Volkan Kilicer | Head of Construction Equipment Department) |
|-------------------|--|
- (AGRO INTER: HITACHI DEALER)
- | | |
|--------------------|--|
| Mrs.Babai Svetlana | Head of Project Development Department |
|--------------------|--|
- (AZAUTO LLC: ISUZU DEALER)
- | | |
|---------------------|-------------------|
| Mr.Faradj Rasulzade | Company president |
|---------------------|-------------------|
- (M&M Transport logistics services Baku office: Transportation company)
- | | |
|-------------------|---|
| Mr.Shabanly Nijat | Head of Road Transport and Quality Control Department |
|-------------------|---|

APPENDIX 4 Minutes of Discussions

4. Minutes of Discussions (M/D)

(1) Site survey

Minutes of Discussions
on
the Preparatory Survey (for Outline Design)
on
the Project on Strengthening Equipment Supply in Melioration and Irrigation (Phase 2)
in the Republic of Azerbaijan

Based on the results of the preparatory survey which was conducted on December, 2010,
The Government of Japan decided to conduct a Preparatory Survey (for Outline Design) on
the Project on Strengthening Equipment Supply in Melioration and Irrigation (Phase 2) (hereinafter
referred to as "the Project") and entrusted the survey to the Japan International Cooperation Agency
(hereinafter referred to as "JICA").

JICA sent to the Republic of Azerbaijan (hereinafter referred to as "Azerbaijan") the
Preparatory Survey Team(hereinafter referred to as "the Team"), headed by Mr. Kunihiro
Nakasone, Director of Planning and Coordination Division, Rural Development Department, JICA.
It is scheduled to stay in the country from 22th November to 19th December, 2011.

The Team held discussions with the officials concerned of the Government of Azerbaijan and
conducted field survey.

In the courses of discussions and field survey, both sides have confirmed items described in
the attached sheet. The team will proceed to further works and prepare the draft report.

Baku, 6th December, 2011

仲泉根 邦宏

Mr. Kunihiro Nakasone
Leader
Preparatory Survey Team
Japan International Cooperation Agency
(JICA)



Mr. Mammad-Sadikh Guliyev
1st Deputy Chairman
Azerbaijan Amelioration and Water Farm Open
Joint Stock Company
The Republic of Azerbaijan



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ATTACHMENT

1. Objective of the Project

The objectives of the Project are:

- a) To restore the function of irrigation and drainage systems in the project sites to meet the needs of farming system for the promotion of food self-sufficiency and security.
- b) To improve agricultural productivity by controlling and reducing salinization in the project sites.

2. Project Sites

The project sites will be selected based on the result of the survey from the following sites as requested by Azerbaijan. The location map is shown ANNEX-1.

There are 9 management maintenance offices in the project sites. Those offices have been implementing maintenance of irrigation and drainage canals in project sites.

- a) Target area
Belagan district, Imishli district, Fizuli district, Aghjabedi district
- b) Target offices
4 irrigation maintenance offices, 3 melioration offices, 2 headwork maintenance offices and Shirvan mechanical and repair center

3. Responsible and implementing agencies

- a) The Responsible Agency is the Cabinet of Ministers, which oversees the implementation of the Project.
- b) The Implementing Agency is the Azerbaijan Amelioration and Water Farm Open Joint Stock Company (hereinafter referred to as "AAWF"), together with the Cabinet of Ministers, will jointly take charge of the implementation of the Project.

4. Items requested by the Government of Azerbaijan

After the discussion, the items which were finally requested by Azerbaijan are shown ANNEX-2. JICA will assess the appropriateness of the request with necessary adjustments after discussions between both sides and recommend to the Government of Japan for approval.

5. Japan's Grant Aid Scheme

The Azerbaijan side understands that the Japan's Grand Aid Scheme and the necessary measures taken by the Azerbaijan Government as explained by the Team and described on the Minutes of Discussion signed by the Preparatory Survey Team and the Azerbaijan side on 17th December, 2010.

6. Other relevant

(1) Adaptation for the climate change

In Azerbaijan, it is predicted that water shortage and salinization will be aggravated by climate change in the future.

The project which can contribute to the solving of those problems will be considered as adaptation project of climate change.

(2) Target canal

The category of canal in Azerbaijan is classified as follows based on discharge capacity of canal. The project will be considered for category2 and category3 canal mainly.

However some main and category1 canal which have trouble in maintenance management will be taken into consideration also.

Main canal	: more than 10 m ³ /s
Category1 canal	: 1 - 10m ³ /s
Category2 canal	: 0.3 - 1.0 m ³ /s
Category3 canal	: no more than 0.3 m ³ /s

(3) Planning of the machinery and equipment

The planning of the machinery and equipment will be considered for the nine offices and one center described at "2. Project Sites".

Suitable specification and quantity of machinery will be selected in consideration of the situation of target canals, such as section on canal, geographical feature in the field site, the situation of sediment deposit.

(4) Annual report and monitoring data

JICA requested Azerbaijan side to cooperate to do monitoring the outputs of the Project.

AAWF agreed to cooperate to collect the monitoring data which are useful to evaluate the outputs of the Project and will submit the report (ANNEX-3) and the monitoring data (ANNEX-4) to JICA Office once a year after the Project implementing.

ANNEX-4 is tentative material; it will be completed through the survey.

(5) Schedule of the survey

- a) The Team will proceed to further survey in Azerbaijan until December 19.
- b) JICA will prepare the draft report in Russian and dispatch a mission to Azerbaijan to explain its contents around May, 2012.
- c) In case that the contents of the report is accepted in principle by the Azerbaijan Government, JICA will complete the final report and send it to the Azerbaijan Government by August, 2012.

ANNEX

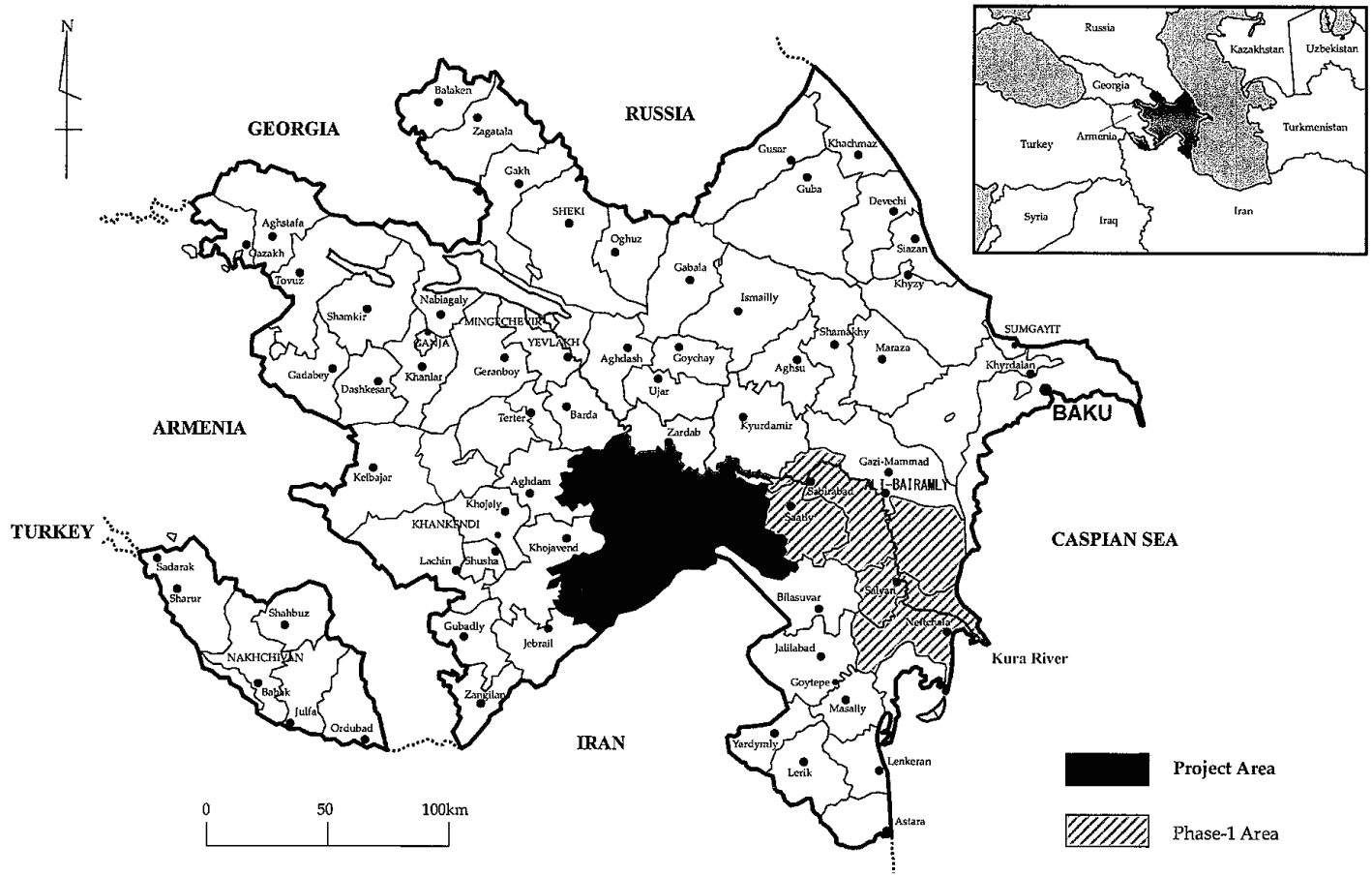
ANNEX-1 : Location Map

ANNEX-2 : Items requested by the Government of Azerbaijan

ANNEX-3 : Annual report sheet

ANNEX-4 : Monitoring data sheet (tentative)

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Republic of Azerbaijan Location Map

A4-4

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ANNEX-1

Items requested by the Government of Azerbaijan

No	Items requested	Main Specs	Q'ty	Purpose
1	Wheel Excavator	20 ton, 145 Hp	32	To excavate sedimentary soil in canal
2	Bulldozer	20 ton, 180 Hp	4	To remove the dredged soil
3	Tractor Head with Trailer	Payload 40 ton	1	To transport Excavator and Bulldozer.
4	Mobile Workshop	GVW 13 ton, 4x4	1	To make field service at job site
5	Lubrication track	4x4	1	To supply hydraulic oil and engine oil at job site
6	<p style="text-align: center;">Workshop Equipment</p> Chassis repair shop Engine repair shop Electrical and battery service Hydraulic and power train repair Tire and brake service tools Machine shop Welding and fabrication Cleaning equipment Tool room Material for parts warehouse		1	To repair the machinery
7	<p style="text-align: center;">Spare Part</p> Parts for periodical maintenance(for 3 years) - Fuel filter, oil filter, bucket tooth, others		1	To maintain the machinery



Annual report sheet

Annual Report on the Use of Japan's Grant Assistance (submitted on ○○○)

1. Outline of the Project

(1) Name of Country:

(2) Name of the Project:

(3) Date of the Grant Agreement:

(4) Name of the Executing Organization:

2. General Situation (how the facilities and/or equipments are used in general)

Facilities and/or equipments:	How they are being used:	In case they haven't been used as planned	
		Reason for it: (Please specify the reason such as budgetary problems and problems in employing appropriate staffs etc.)	Measures to be taken to redress the situation:

3. Detailed Explanation

4. Photos (please attach photos of the facilities and/or equipments)

A4-6

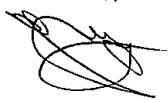
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Monitoring Data Sheet
for Irrigation maintenance office (tentative)

Project site: ex:Imishli
Office name : Irrigation maintenance office

◇ Basic Information		
canal length	km	
main canal	km	
category1 canal	km	
category2 canal	km	
category3 canal	km	
benefited area	ha	
benefited farmer	n	
◇ Situation in 2012 (before the project is implimented)		
dredged canal length	km	
dredged soil	m3	
claim from famers	n	
main contens of claim		
Equipment		
Wheel Excavator	n	
Bulldozer	n	
◇ Project plan for 3 years (after equipment is provided)		
dredged soil	m3	
canal length	km	
Equipment		
Wheel Excavator (total)	n	
Bulldozer (total)	n	
◇ Monitoring Data (each year)		
◇ office total		
dredged canal length	km	
dredged soil	m3	
irrigation water efficiency *		
claim from famers	n	
main contens of claim		
◇ monitoring canal1		
Monitoring cannal name :		If the effect is not confirmed, research constraints, continue monitoring until the constraints are removed
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m3	
discharge (before)	m3/s	
discharge (after)	m3/s	
◇ monitoring canal2		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m3	
discharge (before)	m3/s	
discharge (after)	m3/s	
◇ monitoring canal3		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m3	
discharge (before)	m3/s	
discharge (after)	m3/s	

*ex:
(quantity of irrigation water which farmers used) / (quantity of total irrigation water supply)



nk

Monitoring Data Sheet
for Headwork maintenance office (tentative)

Project site: ex:Imishli
Office name : Headwork maintenance office

◇ Basic Information			
canal length	km		
main canal	km		
category1 canal	km		
benefited area	ha		
benefited farmer	n		
◇ Situation in 2012 (before the project is implimented)			
dredged canal length	km		
dredged soil	m3		
claim from famers	n		
main contens of claim			
Equipment			
Wheel Excavator	n		
Bulldozer	n		
◇ Project plan for 3 years (after equipment is provided)			
dredged soil	m3		
canal length	km		
Equipment			
Wheel Excavator (total)	n		
Bulldozer (total)	n		
◇ Monitoring Data (each year)			
◇ office total			
dredged canal length	km		
dredged soil	m3		
irrigation water efficency *			
claim from famers	n		
main contens of claim			
◇ monitoring canal1			
Monitoring cannal name :			
cannal class			
canal length	km		
benefited area	ha	If the effect is not confirmed, research constraints, continue monitoring until the constraints are removed	
benefited farmer	n		
dredged canal length	km		
dredged soil	m3		
discharge (before)	m3/s		
discharge (after)	m3/s		
◇ monitoring canal2			
Monitoring cannal name :			
cannal class			
canal length	km		
benefited area	ha		
benefited farmer	n		
dredged canal length	km		
dredged soil	m3		
discharge (before)	m3/s		
discharge (after)	m3/s		
◇ monitoring canal3			
Monitoring cannal name :			
cannal class			
canal length	km		
benefited area	ha		
benefited farmer	n		
dredged canal length	km		
dredged soil	m3		
discharge (before)	m3/s		
discharge (after)	m3/s		

*ex:
(quantity of irrigation water which farmers used) / (quantity of total irrigation water supply)

JVK

**Monitoring Data Sheet
for Melioration maintenance office (tentative)**

Project site: ex:Imishli

Office name : Melioration maintenance office

◇ Basic Information		
canal length	km	
main canal	km	
category1 canal	km	
category2 canal	km	
category3 canal	km	
benefited area	ha	
benefited farmer	n	
◇ Situation in 2012 (before the project is implimented)		
dredged canal length	km	
dredged soil	m ³	
grandwater level (0-1.0m)	%	
grandwater level (1.0-2.0m)	%	
grandwater level (2.0-3.0m)	%	
grandwater level (<3.0m)	%	
claim from famers	n	
main contens of claim		
Equipment		
Wheel Excavator	n	
Bulldozer	n	
◇ Project plan for 3 years (after equipment is provided)		
dredged soil	m ³	
dredged canal length	km	
Equipment		
Wheel Excavator (total)	n	
Bulldozer (total)	n	
◇ Monitoring Data (each year)		
◇ office total		
dredged canal length	km	
dredged soil	m ³	
grandwater level (0-1.0m)	%	
grandwater level (1.0-2.0m)	%	
grandwater level (2.0-3.0m)	%	
grandwater level (<3.0m)	%	
claim from famers	n	
main contens of claim		
◇ monitoring canal1		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m ³	
gradwater level (before)	m	
gradwater level (after)	m	
		*If groundwater level is not dropped quickly, monitoring may continue for several years.
◇ monitoring canal2		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m ³	
gradwater level (before)	m	
gradwater level (after)	m	
◇ monitoring canal3		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m ³	
gradwater level (before)	m	
gradwater level (after)	m	

NK

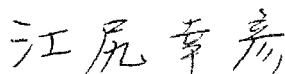
**MINUTES OF DISCUSSIONS
ON
THE PREPARATORY SURVEY
ON
THE PROJECT FOR STRENGTHENING EQUIPMENT SUPPLY
IN MELIORATION AND IRRIGATION (PHASE 2)
IN THE REPUBLIC OF AZERBAIJAN
(EXPLANATION OF DRAFT REPORT)**

In December 2011, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Survey Team on the Project on Strengthening Equipment Supply in Melioration and Irrigation (Phase 2) (hereinafter referred to as "the Project") to the Republic of Azerbaijan (hereinafter referred to as "Azerbaijan"), and through discussions, field survey and technical examination of the results in Japan, JICA prepared the draft report of the survey.

In order to explain and to discuss with the concerned officials of the Government of Azerbaijan on the components of the draft report, JICA sent the Preparatory Survey Team (hereinafter referred to as "the Team"), from September 16 to September 21, 2012 headed by Mr. Yukihiro Ejiri, Chief Representative of JICA Uzbekistan Office to Azerbaijan.

As a result of discussions, both sides confirmed the main items described in the attached sheets.

Baku, September 20, 2012



Mr. Yukihiro Ejiri
Leader
Preparatory Survey Team
Japan International Cooperation Agency
(JICA)



Mr. Mammad-Sadikh Guliyev
1st Deputy Chairman
Azerbaijan Amelioration and Water Farm Open
Joint Stock Company
The Republic of Azerbaijan

ATTACHMENT

1. Components of the Draft Report

The Azerbaijan side agreed and accepted in principle the components of the draft report explained by the Team.

2. Japan's Grant Aid Scheme

The Azerbaijan side understood the Japan's Grant Aid scheme and necessary measures to be taken by Azerbaijan side as explained by the Team.

3. Schedule of the Survey

JICA will complete the final report in accordance with the confirmed items and send it to Azerbaijan by February, 2013.

4. Cost Estimation

4-1. The Team explained the cost estimation of the Project as described in Annex-1.

4-2. Both sides agreed that the Project Cost Estimation as attached in Annex-1 should never be duplicated or released to any third parties before the signing of all the Contract(s) for the Project.

4-3. The Azerbaijan side understood that the Project cost estimation described in Annex-1 is a provisional one as a result of the Study and could be subject to change according to further examination by the Government of Japan.

5. Other relevant issues

5-1. Adaptation for the climate change

The Azerbaijan side understood that the project is expected to contribute to adaptation for climate change since, in Azerbaijan, it is predicted that water shortage and salinization will be aggravated by climate change in the future.

5-2. Arrangement of Personnel

Both sides confirmed that the Azerbaijan side assigns necessary number of operators, mechanics, technicians and drivers to fully utilize the procured machinery in the operation works of the Project.

5-3. Annual report and monitoring data

The Azerbaijan side agreed to cooperate to collect the monitoring data which are useful to evaluate the outputs of the Project and will submit the report (Annex-2) and the monitoring data (Annex-3) to JICA Office once a year after the Project implementing.

ANNEXES:

Annex-1: Project Cost Estimation

Annex-2: Annual Report Sheet

Annex-3: Monitoring Data Sheet

<Confidential>

This Page is closed due to the confidentiality.





Annual report sheet

Annual Report on the Use of Japan's Grant Assistance (submitted on ○ ○ ○)

1. Outline of the Project

(1) Name of Country:

(2) Name of the Project:

(3) Date of the Grant Agreement:

(4) Name of the Executing Organization:

Facilities and/or equipments;	How they are being used;	In case they haven't been used as planned	
		Reason for it; (Please specify the reason such as budgetary problems and problems in employing appropriate staffs etc.)	Measures to be taken to redress the situation;

2. General Situation (how the facilities and/or equipments are used in general)

3. Detailed Explanation

4. Photos (please attach photos of the facilities and/or equipments)



Project site: ex:Belagan
Office name : Irrigation maintenace office

◇ Basic Information		
canal length	km	
main canal	km	
category1 canal	km	
category2 canal	km	
category3 canal	km	
benefited area	ha	
benefited farmer	n	
◇ Situation in 2011 (before the project is implimented)		
dredged canal length	km	
dredged soil	m3	
claim from famers	n	
main contens of claim		
Equipment		
Wheel Excavator	n	
Bulldozer	n	
◇ Project plan for 3 years (after equipment is provided)		
dredged soil	m3	
canal length	km	
Equipment		
Wheel Excavator (total)	n	
Bulldozer (total)	n	
◇ Monitoring Data (each year)		
◇ office total		
dredged canal length	km	
dredged soil	m3	
irrigation water efficiency *		
claim from famers	n	
main contens of claim		
◇ monitoring canal1		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	If amelioration is not achieved, research constraints, continue monitoring until the constraints are removed
benefited farmer	n	
dredged canal length	km	
dredged soil	m3	
discharge (before)	m3/s	
discharge (after)	m3/s	
◇ monitoring canal2		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m3	
discharge (before)	m3/s	
discharge (after)	m3/s	
◇ monitoring canal3		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m3	
discharge (before)	m3/s	
discharge (after)	m3/s	

*ex:
(quantity of irrigation water which farmers used) / (quantity of total irrigation water supply)

Project site: ex:Belagan
Office name : Headwork maintenace office

◇ Basic Information			
canal length	km		
main canal	km		
category1 canal	km		
benefited area	ha		
benefited farmer	n		
◇ Situation in 2011 (before the project is implimented)			
dredged canal length	km		
dredged soil	m3		
claim from famers	n		
main contens of claim			
Equipment			
Wheel Excavator	n		
Bulldozer	n		
◇ Project plan for 3 years (after equipment is provoded)			
dredged soil	m3		
canal length	km		
Equipment			
Wheel Excavator (total)	n		
Bulldozer (total)	n		
◇ Monitoring Data (each year)			
◇ office total			
dredged canal length	km		
dredged soil	m3		
irrigation water efficiency *			
claim from famers	n		
main contens of claim			
◇ monitoring canal1			
Monitoring cannal name :			
cannal class			
canal length	km		
benefited area	ha	If amelioration is not achieved, research constraints, continue monitoring until the constraints are removed	
benefited farmer	n		
dredged canal length	km		
dredged soil	m3		
discharge (before)	m3/s		
discharge (after)	m3/s		
◇ monitoring canal2			
Monitoring cannal name :			
cannal class			
canal length	km		
benefited area	ha		
benefited farmer	n		
dredged canal length	km		
dredged soil	m3		
discharge (before)	m3/s		
discharge (after)	m3/s		
◇ monitoring canal3			
Monitoring cannal name :			
cannal class			
canal length	km		
benefited area	ha		
benefited farmer	n		
dredged canal length	km		
dredged soil	m3		
discharge (before)	m3/s		
discharge (after)	m3/s		

*ex:
(quantity of irrigation water which farmers used) / (quantity of total irrigation water supply)

Project site: ex:Belagan

Office name : Melioration maintenace office

◇ Basic Information		
canal length	km	
main canal	km	
category1 canal	km	
category2 canal	km	
category3 canal	km	
benefited area	ha	
benefited farmer	n	
◇ Situation in 2011 (before the project is implimented)		
dredged canal length	km	
dredged soil	m3	
grandwater level (0-1.0m)	%	
grandwater level (1.0-2.0m)	%	
grandwater level (2.0-3.0m)	%	
grandwater level (<3.0m)	%	
claim from famers	n	
main contens of claim		
Equipment		
Wheel Excavator	n	
Bulldozer	n	
◇ Project plan for 3 years (after equipment is provoded)		
dredged soil	m3	
dredged canal length	km	
Equipment		
Wheel Excavator (total)	n	
Bulldozer (total)	n	
◇ Monitoring Data (each year)		
◇ office total		
dredged canal length	km	
dredged soil	m3	
grandwater level (0-1.0m)	%	
grandwater level (1.0-2.0m)	%	
grandwater level (2.0-3.0m)	%	
grandwater level (<3.0m)	%	
claim from famers	n	
main contens of claim		
◇ monitoring canal1		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m3	
gradwater level (before)	m	
gradwater level (after)	m	
*If groundwater level is not dropped quickly, monitoring may continue for several years.		
◇ monitoring canal2		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m3	
gradwater level (before)	m	
gradwater level (after)	m	
◇ monitoring canal3		
Monitoring cannal name :		
cannal class		
canal length	km	
benefited area	ha	
benefited farmer	n	
dredged canal length	km	
dredged soil	m3	
gradwater level (before)	m	
gradwater level (after)	m	

APPENDIX 5 Reference Materials

5. Acquired Materials

#	Title	Document form	Original/copy	Issuing Entity	Edition Year
1	The Agriculture of Azerbaijan	Printed document	Original	State Statistical Committee	2011
2	Statistical Yearbook Of Azerbaijan	Printed document	Original	State Statistical Committee	2011
3	Agjabedi irrigation and melioration canals structure map	Map	Copy	World Bank	2006
4	Imishli irrigation and melioration canals structure map	Map	Copy	World Bank	2006
5	Beylagan irrigation and melioration canals structure map	Map	Copy	World Bank	2006
6	Fizuli irrigation and melioration canals structure map	Map	Copy	AWF	2010