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2. 署名ミニッツ
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1. 要請書

045-0021F0010 045:モンゴル ダルハン市給水施設改善計画
無償資金協力プロジェクト

GOVERNMENT OF MONGOLIA

APPLICATION FORM FOR
JAPAN'S GRANT AID
FOR
DARKHAN CITY WATER SUPPLY SYSTEM
DEVELOPMENT AND IMPROVEMENT
PROJECT

May, 2006

Ministry of Construction and Urban Development
Ulaanbaatar, Mongolia

配付先	国内部 <input type="checkbox"/>	国際協力人材部 <input type="checkbox"/>
	総務部 <input checked="" type="checkbox"/>	社会開発部 <input type="checkbox"/>
	JOCV <input type="checkbox"/>	
	人間開発部 <input type="checkbox"/>	地球環境部 <input type="checkbox"/>
	農村開発部 <input type="checkbox"/>	経済開発部 <input type="checkbox"/>

コピー 9/5

**APPLICATION FORM FOR JAPAN'S GRANT AID
GENERAL AND FISHERIES**

1. **Date of entry:** Month of May, Year of 2006
2. **Applicant:** Ministry of Construction and Urban Development, The Government of Mongolia
3. **Project title:** Darkhan City Water Supply System Development and Improvement Project
4. **Sector:** Water Supply and Sanitation Sector
5. **Project type:** Construction of facilities with provision of necessary equipment
6. **Target site:** (province/country name): Darkhan Province
(city/town/village): Darkhan City

The map indicating the site location to reach from Ulaanbaatar City and the map covering the intended project site area are shown in the Attached Fig.-1

- | | | | |
|-----------------------------|---------------|------------------------------------|------------------------------|
| | | <u>Main Project</u> | <u>Pilot Project</u> |
| 7. Requested amount: | Darkhan City: | 810,000 (JPY10 ³) | 45,000 (JPY10 ³) |
| | <u>Total</u> | <u>855,000 (JPY10³)</u> | |
8. **Desired fiscal year (FY) of implementation:**
Basic Design: FY2007 to 2008
Implementation: FY2008 to 2010

9. **Implementing agency:**

- A: Ministry of Construction and Urban Development
- B: To be managed and operated by the Darkhan Water and Sewage Public Corporation
- C: The name of the person for contact: Mr. Gombo MYAGMAR, Director,
Construction, Housing, Public Utility, Policy and
Coordination Department (HCUD), Ministry of
Construction and Urban Development

10. **Outlines of the implementing agency**

Describe in detail the position in the government, authorities, data on principal projects, annual budget, staff members, etc., and attach its organizational chart in a separate sheet.

The Ministry of Construction and Urban Development (MOCUD) is one of the 13 ministries of the Government of Mongolia, which was restructured in October 2004. The former Ministry of Infrastructure in charge of infrastructure and energy development was divided into three new Ministries to create MOCUD; as well as the Ministry of Fuels and Energy and the Ministry of Transport and Tourism. The organization chart of MOCUD is specified in the Attachment-1.

The water supply system for Darkhan City is managed and operated by the Water Supply and Sewerage Public Corporation (WSSC) of the respective city as autonomous implementing agency. The WSSC of Darkhan City has been managed with operational profits in the past three years. The WSSC of Darkhan City has 239 staff members. The

WSSC does not have sufficient financial capacity enough to renovate old facilities and expand the capacity, and financial supports from the Central Government have been sought in vein.

11. Background of the request

Provide detailed information on the importance, necessity and urgency of the requested project in terms of the current situations of and problems found in the target sector. The current situations of and problems found in intended sites of the requested projects etc. by referring to related statistics and data.

Infrastructures such as water facilities were developed with assistance from the former Soviet Union. Due to economic turmoil after the collapse of the Soviet Union, it became difficult to operate and maintain these facilities properly because it was increasingly difficult to obtain the components required for operation and maintenance. This led to a significant decline in the functions of water facilities. Water demand is expected to increase because more people will likely move from rural areas to Ger areas. Water is supplied directly to apartments via water pipes. However, there are many problems with the water supply system: (1) water quality is poor due to buildup of rust inside the pipes (Sukhbaatar), (2) water availability is low in Ger areas because water is supplied from a water tank, and sewer treatment facilities are in extremely poor condition; and (3) there is a risk of waterborne infectious diseases because unsanitary water such as well water and spring water are used in some areas. Other problems stem from the fact that many water were made in the former Soviet Union. : (4)For example, facilities are aging, (e.g., pump stations, monitoring panels, water quality control sets), efficiency is low, operational costs are comparatively high, and water supply is unstable due to difficulties in obtaining components required for operation and maintenance.

After the collapse of the Soviet Union in December 1991, Mongolia shifted to a parliamentary democracy, market economy, and bold liberalization and structural reforms have been implemented with the guidance of the IMF and economic assistance from Japan and other countries. Although the economy has been moving toward stabilization since 1994, there are still many issues to be addressed, such as a persistently weak economic resilience and trade and financial deficits, both caused by underdeveloped private sectors and the taxation system.

The Water Supply Systems exist in the capital city of Ulaanbaatar and 21 provincial capitals in Mongolia, covering some 40% of the total urban population. The rest of urban people and some rural inhabitants rely on water supply trucks serving at kiosks. The infection rates for water-borne diseases are high particularly among nomadic people as they rely on water of poor quality. The water supply in Mongolia suffers from the common problems such as: (1) degraded quality of piped water due to rust and other problems, (2) limited supply capacity especially of water tanks in the Ger areas, (3) risk of water-borne diseases caused by water of dubious quality, and (4) old and overage facilities causing unstable and costly water supply operation, that cannot be improved due to difficulty in obtaining parts and materials for repair.

The water supply systems for Darkhan City share the same problems as listed above. The piped water supply for Darkham City using groundwater suffers from a trouble with its chlorination equipment as well as treatment facilities in general. Old water pumps cannot be renewed due to limited financial area. The water supply systems for Darkhan city cover some 60% of the urban population in Darkhan.

Darkhan city is located at the northern local area, close to the border with Russia, and strategically important for the socioeconomic development of Mongolia. Darkhan City is the industrial center of the Darkhan Province with food processing, construction materials, mines industry and other light industries. The water demand is expected to increase as more industrial industries are scheduled to be located in the city, eventually resulting in increase of the population.

The development and improvement of the water supply systems for Darkhan city is critically important for the balanced socioeconomic development of Mongolia. Darkhan City is considered to be the capital of the Northern Region as a whole in the central development plan of Mongolia.

12. Relation with the government's development plan and other factors

(1) Relation with the government's national development plan

Name of the plan: The Master Plan for Settlement and Development of the Population of Mongolia

Period: Year 2001-

The position occupied by the requested project/sector in the above-mentioned plan

The Master Plan for Settlement and Development of the Population of Mongolia has been prepared with the support of the World Bank as the basic policy for the national land development. In accordance with it, the National Assembly passed an ordinance in 2001 to establish four regions for the development plan by region together with the special status for Ulaanbaatar. The city is located in the Northern Region, and Darkhan City is designated as the regional capital.

(2) Relation with the sector comprehensive / overall program

Name of the Plan: The Action Plan of the Government of Mongolia for 2000 to 2004 and Good Governance for Human Security Programmes and The Economic Growth Support and Poverty Reduction Strategy

Period: Year 2000-

The position occupied by the requested project/sector in the above-mentioned plan

According to the comprehensive development plan for the Central Region up to the year 2020, Darkhan City is expected to be developed as an environmentally friendly model city for production and business as well as inhabitants and tourists. The city population is projected to increase from 74,294 in 2004 to 115,000 in 2020. The water supply capacity needs to be increased by 50% for domestic and industrial uses. The expansion of the water supply network is planned while the same water sources continue to be used. The expansion of the sewerage system is also expected with the sewerage treatment capacity increased by 30%.

Basic Policies: There are four basic policies in the Action Plan: deepen legal reforms in the economic sphere, educate citizens who respect education and culture, improve living standards and social welfare by distributing income more efficiently, and implement a regional development concept.

Policy by sectors: Related "Economic Policy," presents regional infrastructure development. The "Urban Development, Regional, and Rural Policies" presents development plans for five regions. The "Environmental Policy" states that the

government will implement ecologically oriented economic policies.

13. Objective (Itemize as concretely as possible)

The project aims to attain the following objectives in the short run:

- (1) To improve the water supply services for people in the city including the Ger areas through: renewal of old and overage facilities, installation of water meters, and improvement of water quality for safe drinking water with chlorination and reduction of rust and other problems;
- (2) To contribute to the improvement of financial conditions of the Water Supply and Sewerage Public Corporation (WSSC) of Darkhan city through the reduction of operation and maintenance costs with the renewed facilities, and the better collection of water charges with the installation of more water meters; and
- (3) To support the upgrading of technical skills for water quality management and other works by training with renewed water quality test and other equipment, and the institutional and organizational development for better operation and management of the respective water supply and sewerage systems

The development and improvement of the water supply systems for Darkhan city would contribute to the socioeconomic development of the strategically important cities in the Northern Region, and in turn, to the more balanced development of the national land and socioeconomy. The improvement of financial conditions of the WSSC would allow further improvement and expansion of the respective systems to induce industrial and housing development. The medium to long-term objective of the project is to contribute to the improved welfare of people and poverty reduction in the area including the Ger areas. In other words, The project aims for: 1) emergency maintenance of the existing facilities which are severely deteriorated with aging; 2) alleviation of the financial burden by replacing old energy-inefficient pumps and associated electrical equipment; 3) installation of bio-toilets in the Ger areas; 4) training of staff in the operation and maintenance of facilities;

14. Outlines of the project and request (Itemize as concretely as possible)

(1) Facilities constructed

a. In the case of facilities construction project

Outlines of requested facilities (such as the name and address of the project site, site-selecting criteria, supporting photographs, design drawings with dimensions and area, number of requested facilities, and desired materials to be used).

The project is to improve the existing water supply systems in Darkhan city in the target year of 2010. The design concept is specified in Fig.-2 attached herein. Main facilities to be constructed/improved are as follows.

Darkhan City

- Installation of new and additional water pumps
- Improvement/renovation of electrical and mechanical facilities
- Renewal of chlorination equipment (with the capacity 30,000m³/day, 300ℓ/sec.)
- Expansion of water distribution pipes with additional kiosks
- Provision of additional water meters
- Provision of water quality test equipment

- Construction of a new management office building
- Pilot Project in GER area as shown in the Attachment-3.

b. Methods to operate, manage and maintain the facilities or equipment

Expected number of persons to be secured, together with their technical levels and prospect to secure necessary budget

1. The project will improve the existing water supply system for Darkhan city, and as a result, the existing staff and future increased staff by 10 % of the WSSC will operate, manage and maintain the improved systems respectively. Improved facilities and additional equipment would allow the staff of WSSC to improve their performance with respect to financial conditions, water quality management, and the system operation and management. The improved financial management would allow WSSC to secure the budget necessary for continued operation and maintenance, and further improvement of the system
2. Cooperation with other donor agencies:
International institutions such as the World Bank, UNICEF, and WHO, and other donor countries such as France and the United States have been implementing water sector and local development projects, and have knowledge of hardware and software (organization and human resource development, management and administration). Staff from the city are to visit such donors and benefit from their knowledge. JICA is to discuss and exchange information/data with other donors about improving the development and management of local waterworks and see to efficient and effective implementation of the project in the target city. JICA must discuss with other donors as necessary possible shared project implementation and seek effective project implementation.
3. Responsibilities of counterpart government:
At the implementation of cooperation, a clear agreement should be made by both parties of the range of responsibilities of the counterpart government in addition to general issues, for example, the acquisition of project land. The extent of possible expansion of water distribution/supply must be clarified and established. The number of intended beneficiaries depends on the plan.
4. Basis of development plan of waterworks:
The water law enacted by the Mongolian government in July 2004 is the basis for the plan.
5. For technical appropriateness and sustainability after project implementation, the following points, in particular, need special attention.
 - (i) Improvement of the ability for inspection and maintenance of facilities, including mechanical equipment, water quality experiment equipment, and others
 - (ii) Appropriate assignment in quality and quantity of personnel, and encouragement to stay at the present office of the waterworks bureau, a counterpart agency of the Mongolian government
 - (iii) Improvement of the technical expertise nationwide through technology transfer on waterworks in the hardware sector, such as facilities, and in the software components, such as the charge collection system by water volume meter and the improvement of water quality test accuracy

6. Necessity of organizational management improvement

The necessity of improving organizational management for the waterworks has been recognized. The staff of the WSSC have strong, challenging spirits to identify and solve problems to achieve the clarified goals. They are willing to develop their ability in order to acquire the knowledge necessary for their task and increase their technical proficiency. Positive staff attitudes are related to morale boosting and vitalization of their workplace.

7. Furthermore, the guidance system of subordinates is well established. The traditional subordinate training system is functioning, as seen in the strong self-reliance toward the assigned organizational goal. These are the good points that management and the organization should sustain. Improvement measures should be sought in maintaining these points.

c. Financial source for management and maintenance after completion of the requested project

The project will contribute to increase the collection of user charges with the installation of additional water meters as well as the expansion of water supply capacity. Also, the operation and maintenance costs will decrease since the facilities are renewed/improved. The improved financial conditions would bring about more autonomous management and maintenance of the water supply systems after the project completion.

(2) Breakdown of total amount of the facilities and equipment and supporting data

Darkhan City		Unit : ¥		
Item	Unit	Quantity	Unit Cost	Total Cost
A. Direct Cost for Construction and Equipment				
1 Chlorination Plant				
Equipment	Ls	1		100,000,000
2 Water Pumping Facility				
Water Pump	no.	4	35,000,000	140,000,000
Monitoring & Control equipment	Ls	1		50,000,000
3 KIOSK in GER Area				
Building	no.	26	2,000,000	52,000,000
Distribution Pipe	m	17,500	4,000	70,000,000
4 Water meter	no.	20,000	3,500	70,000,000
5 Equipment of Water quality test	Ls			100,000,000
Sub Total				582,000,000
Indirect Cost 30 %	Ls			175,000,000
Construction Cost (A)				757,000,000
B. Cost of Consult Engineering (B/D, D/D, Supervision)				
				53,000,000
Grand Total				810,000,000

Investment Required for Target PILOTS at GERS

1 US\$ = ¥110.0

Item	Number of Plots	Number of Households	Unit	Quantity	Unit Cost	Total Cost
1. Facilities						
Water Supply	10	15	Ls	1		10,000,000
Sewerage	10	15	Ls	1		30,000,000
Heating	10	15	Ls	1		36,000,000
Electricity	10	15	Ls	1		6,500,000
Total (¥)						82,500,000
Total (US\$)						750,000
2. Engineering Network						
Water Supply			m	260	40,000	10,400,000
Sewerage			m	300	24,000	7,200,000
Heating			m	260	14,000	3,640,000
Electricity			m	150	10,000	1,500,000
Total (¥)						22,740,000
Total (US\$)						206,727
3. Infrastructure						
Pedestrian Path	10	15	m2	410	5,000	2,050,000
Roads	10	15	m2	530	15,000	7,950,000
Adjusting existing fenced plots	10	15	m2	800	5,000	4,000,000
Grasses	10	15	m2	2100	3,500	7,350,000
Trees	10	15	no.	20	10,000	200,000
Total (¥)						21,550,000
Total (US\$)						195,909
Sub-Total (1+2+3)	(US\$)					1,152,636
4. Feasibility Study	(US\$)					3,775
5. Supervision	(US\$)					56,660
6. Design Work	(US\$)					11,325
7. Investment per Household (US\$)						14,000
Total	(US\$)					1,238,396
						¥136,223,600
Investment of PILOT Cost per City					US\$	412,798.79
					Yen	¥45,000,000

(3) Additional information

a. Current situations of existing facilities plan specification supporting photographs materials used

The existing water supply system for Darkham City consists of water intakes with 18 wells to extract 20,000 m³/day from groundwater of the Haraa river basin, chlorination equipment (currently not operational), four storage reservoir with the total storage capacity of 16,000m³, water transfer mains, transmission pipes, and distribution pipes with kiosks, and associated pumping facilities. The water is also transferred by tank lorries to serve the Ger area.

The pictures showing the current situations are available in Attachment-2.

b. List of existing equipment covering the name, quantity, year purchased, country of origin of the equipment, together with the manufacturer's name and operating conditions (A=operable, B=partially operable, C=inoperable and the reason(s) for such inoperability. Also, attach photographs of the equipment so that the current conditions can be grasped

The list of the existing equipment for the water supply systems is shown in the Attachment-4.

c. Project site preparation (including expropriation)

As the Project is to improve the existing water supply systems of Darkhan City, no additional site preparation will be involved except for the installation of transmission/distribution pipes to serve the expansion areas. The right-of-way for transmission/distribution pipes can be easily acquired. There exists no security problem in the project areas.

d. Related grant aid cooperation in the past

None exists

e. Possible environmental impact

Currently, groundwater is used through wells as water sources. After the implementation of the project, the volume of water will not increase much. As groundwater is abundant and the ground is rudaceous, the possibility of land subsidence is low. Furthermore, as the project does not require a water plant that produces wastewater with sedimented sludge, the possibility of public water pollution is also low.

f. Sustainable Management

Immediately replacing deteriorated facilities with energy-saving facilities is necessary for efficient operation management. However, self-reliance is not effective due to financial constraints. It is therefore desirable that minimum assistance (hardware such as proposed facilities renovation and software such as operation improvement and human resource development) is given through grant aid and technical cooperation scheme of Japan, providing a basis for later self-reliance. Also essential are to proceed with a charge increase for better service, to change user awareness, and to build a cooperative system. Moreover, both the central and the provincial government should establish a subsidy system for waterworks of small and medium cities as well as environmental regulation legislation.

The staff have a strong sense of responsibility in management and administration of the service. They understand the unsatisfactory situations and are strongly willing to implement countermeasures. Accordingly, execution ability is good in principle, and technical ability is on a certain level even comparable to commercial enterprises. The organizations, too, are functioning systematically with checks and balances and can be self-sufficient with certain assistance. However, for future development, specialists (facility improvement such as hardware and organization, charge system and others as software) of technical cooperation project and JICA must be introduced.

In the future, steps to solve current problems, urgently, immediately, and specifically, in close collaboration with Japanese grant aid and technical cooperation project are strongly desired. In doing so, the maximum benefit will surely be obtained.

g. Consideration in Hard and Soft Component

It is necessary to jointly implement the improvement of hardware such as facilities

Renovation and rehabilitation and software such as promoting user awareness, setting up the appropriate charges, etc.. Improved financial status and consequent sustainable management can be expected accordingly.

h. Possible Environmental Impact

There is no substantial impact on environment as the renovation of existing facilities is the main activity. Possibility of land subsidence is low as potential groundwater is more abundant than water use even after the renovation. Pollution of the public water area is of no concern.

15. Benefit and effects of the project

(1) Area that will benefit from the project (specify the total area, if possible):

Urban areas of Darkham City including the Ger areas.: Darkhan - 327,500 ha
Darkhan Sum-10,315 ha

(2) Population that will benefit (directly and indirectly):

The populations served by the existing water supply systems are approximately 75,000 in Darkhan City. People would benefit from the improvement of the existing water supply systems. Additional people would benefit from the expansion of the respective supply system.

(3) Expected social and economic effects (Itemize concretely)

- Improvement of sanitation and welfare of people
- Reduction of water-borne diseases especially among nomadic people
- Housing development in the Ger areas
- Expansion of existing industries and establishment of new ones
- Creation of job opportunities associated with industrial and related development
- Financial autonomy of the Water Supply and Sewerage Public Corporation for sustainable water supply development and management

(4) Impact of the Project Implementation

Results of project implementation
<ul style="list-style-type: none">- Development of local cities and consequent elimination of regional differences between cities and provinces by stable urbanization with the establishment of water infrastructure system- Promotion of settlement of local residents by stabilizing urban infrastructure with the development of water works
<ul style="list-style-type: none">- Contribution to the prevention of waterborne infectious diseases (transmissible diseases) by the development of water works- Conservation of the environment of the area
<ul style="list-style-type: none">- Development of commerce and industry, consequent increased demand by the creation of local industry and employment creation, and growth as a result of the promotion of settlement of local residents, and corresponding increased consumption- Increased investment from domestic sources and abroad as a result of stabilized urban infrastructure- Promotion of sound management of water works
<ul style="list-style-type: none">- Possible technology transfer by the introduction of energy-saving equipment and the renovation of facilities with the development of water works- Prevention of air pollution and global warming by the introduction of energy-saving equipment and consequent electricity savings- Stable facility operation by the transfer of maintenance techniques
<ul style="list-style-type: none">- Japan's humanitarian technical assistance aimed at securing safe drinking water contributes greatly to the development of Mongolia and to strengthening friendly relations between both countries

16. Relation with technical cooperation, etc.

(1) **Feasibility study:** A preliminary feasibility study was conducted by the Japan International Cooperation of Welfare Services (JICWELS) in March, 2005

(2) **Technical cooperation**

Which of the following forms of assistance do you require?

- 1) Project-type technical cooperation: Yes
- 2) Long-term experts: 1 person(s)
- 3) Short-term experts: 2 person(s)
- 4) JOCV: 2 person(s)
- 5) Acceptance of trainees: 2 person(s)

Dispatch of short and long term experts is desirable to train staff members of the WSSC in association with the improved water supply systems and new equipment for water quality test and other works. Acceptance of trainees for training in Japan is also expected in the management of the water supply systems including financial management.

(3) **Japan's Technical achievement in Mongolia**

Japan's ODA project in the field of waterworks in Mongolia has experience with the Improvement Plan for the Water Supply Facilities in Ulaanbaatar (improvement of the central water plant and intake facilities and others from 1996 to 1997). The outlines of this project are: 1) to improve the financial status of waterworks by renovating deteriorated water supply well facilities, by increasing facility efficiency, and by cutting and controlling electricity consumption; 2) to contribute a supply of safe water by replacing chlorination facilities; and 3) to facilitate the establishment of a fair, secure water charge collection system and the financial stability of waterworks by controlling excessive water demand, and by shifting a fixed system to a pay-as-you-go system with the installation of water meters. It is also expected that this project can contribute to the prevention of air pollution and global warming by decreasing electricity consumption through the introduction of energy-saving equipment developed by Japan's experience and technology. This experience and technology can be utilized in this Project at Darkhan City.

17. Request to other donors for the same project: None

No other donor agencies have been contacted for possible supports of the project

18. Aid by third countries or international organizations in the same or related fields:

Donor*	Period	Type	Amount (US\$10 ⁶)	Outline	Relationship with _____ the present request
AUS	Planned			Water supply project in seven capitals of the southeast provinces	
ADB	2000		3.0	Provincial town basic urban services stage II	
WB	1998		16.7	Ulaanbaatar services	

ADB	1997	6.8	improvement project Provincial town basic urban services	
JICA	2004	(To be confirmed)	Long term Advisory and Improvement of Health Sector Strategic Master Plan Development(HSSMP)	To transfer and apply the technical and skill Experiences and Schemes

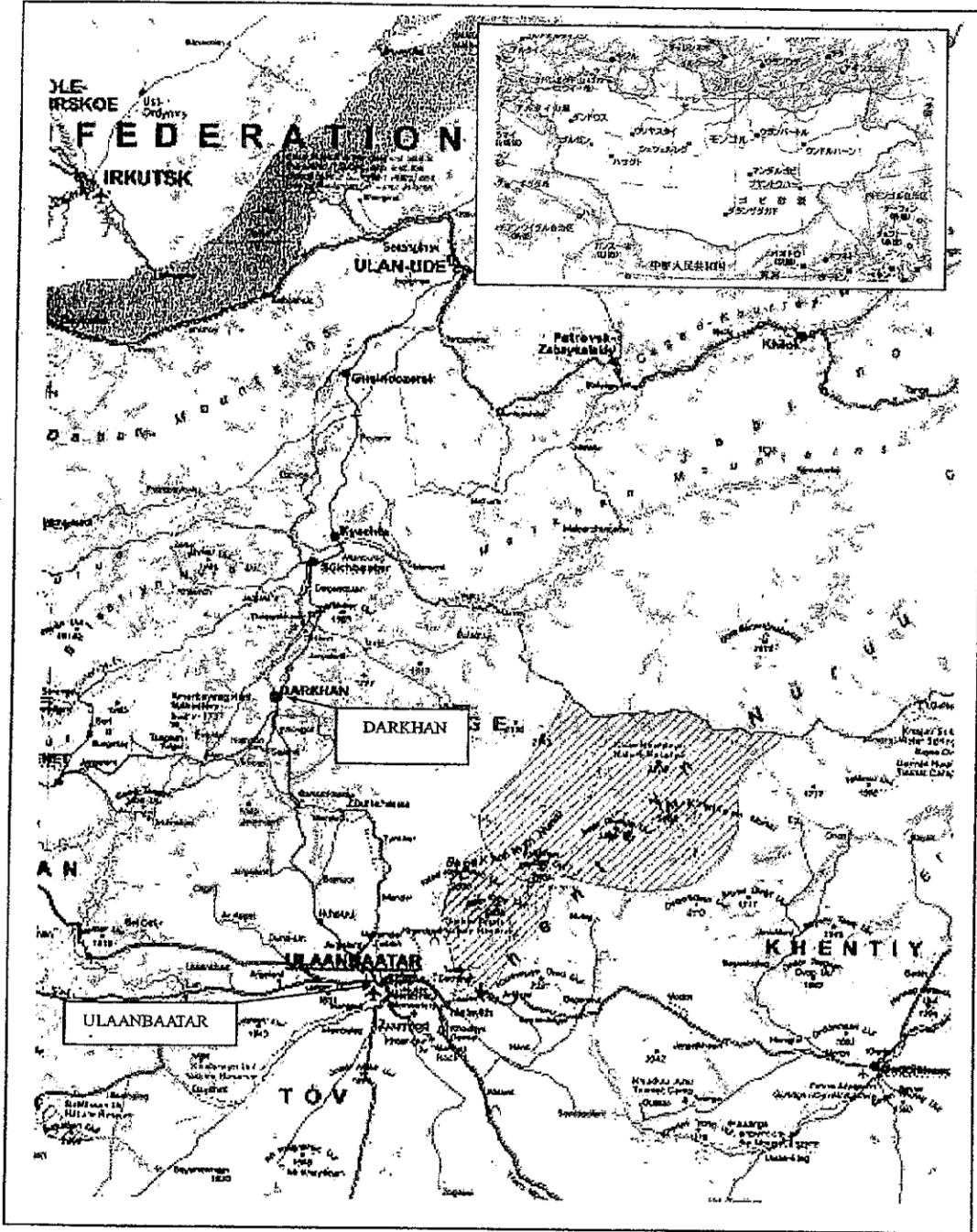
*Note: ADB=Asian Development Bank, AUS=Australian government (AusAID), WB=World Bank.
JICA=Japan International Corporation Agency

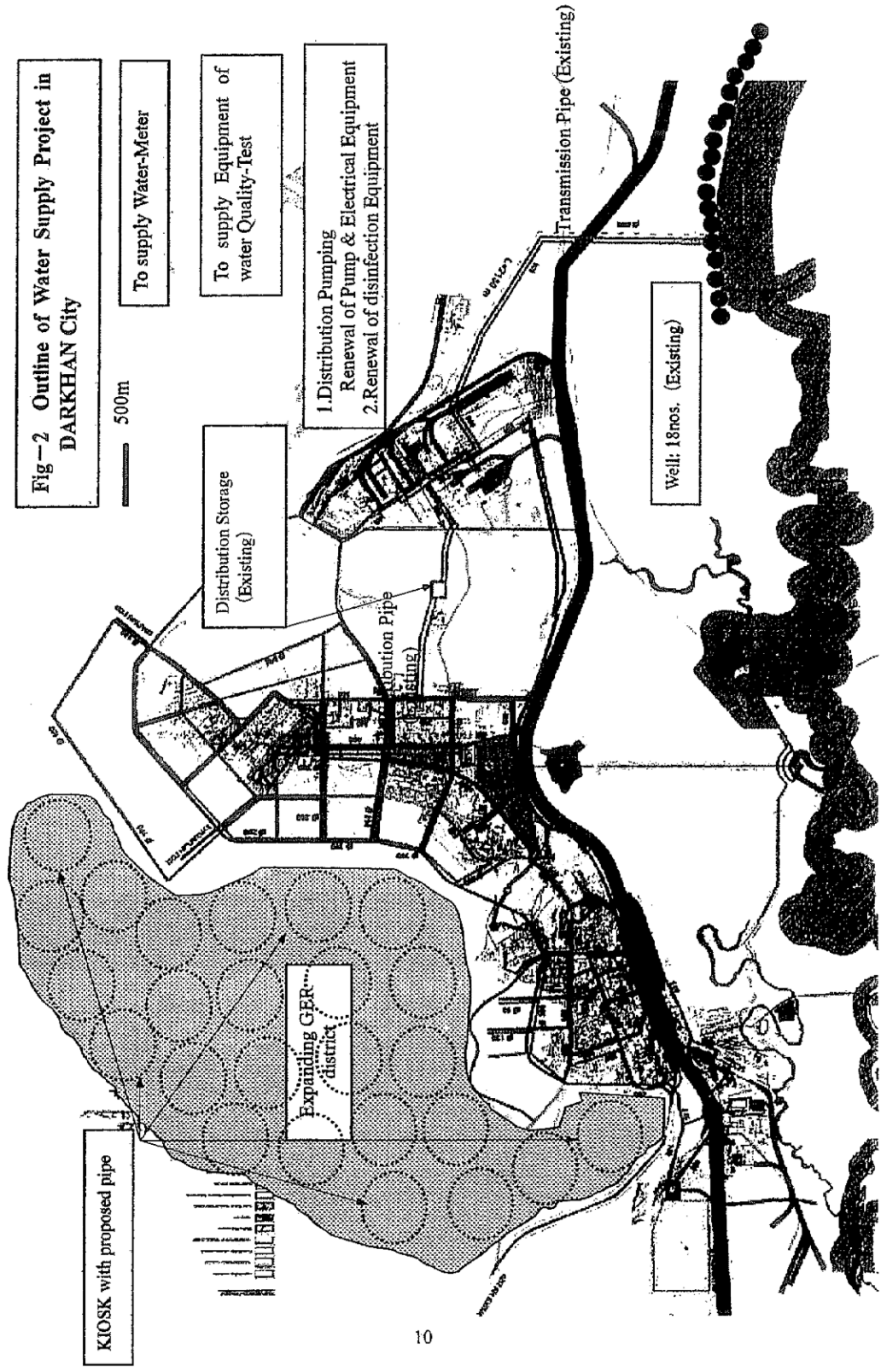
Other donor agencies have been involved in the water supply and sanitation sector in Mongolia, including the World Bank, Asian Development Bank (ADB), and AusAID. In the Central Region, ADB supported in 2000 the improvement of water supply and sewerage in the capital cities of seven provinces, with the focus on the Ger areas under the Provincial Town Basic Urban Services Stage II.

19. Other information with special remark (whether or not privatization policy is effected. If yes, indicate the relationship with the requested project.

Water supply and sewerage services for Darkhan City has been provided by a public corporation, respectively. Full privatization of the services has not been contemplated.

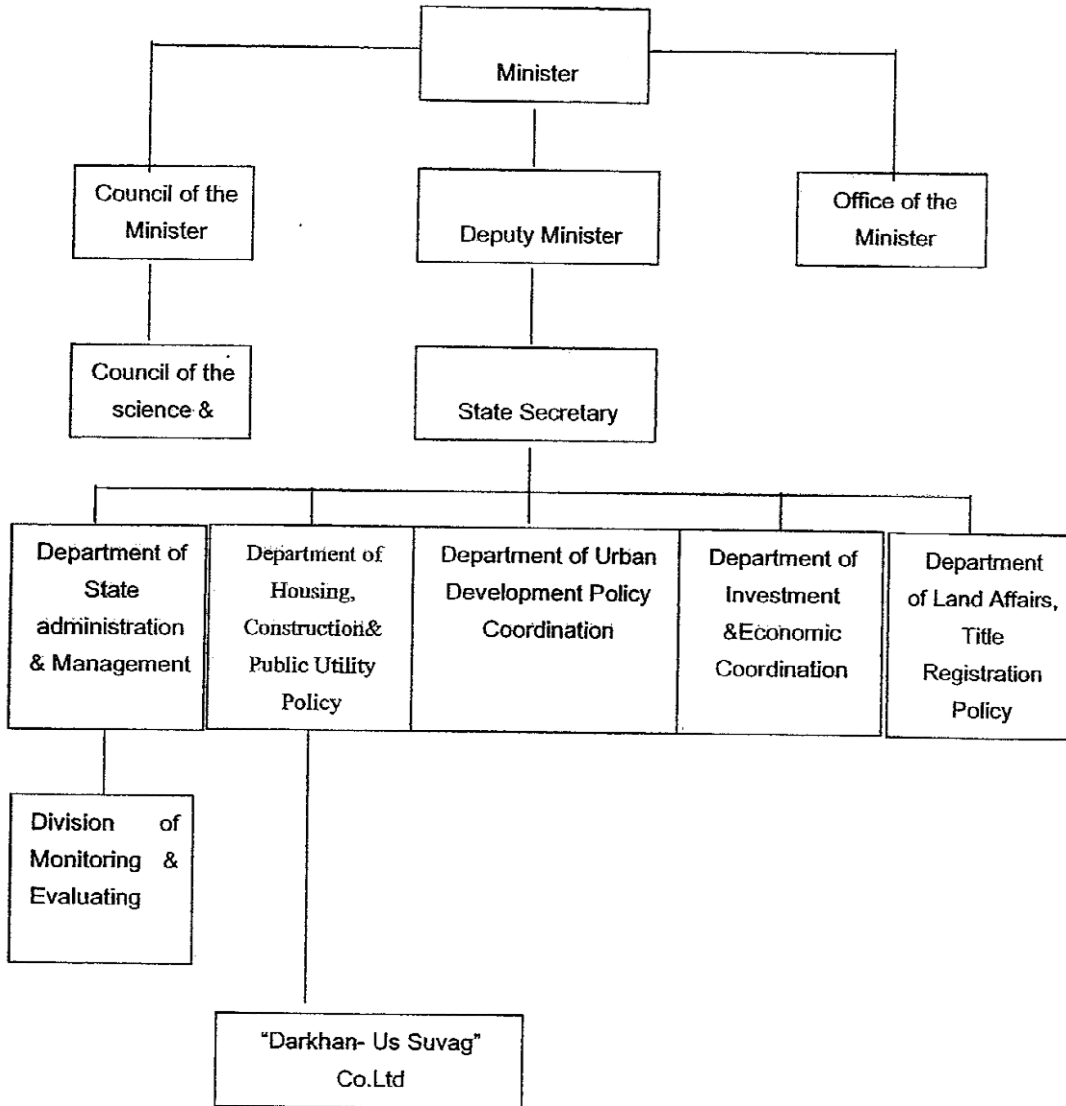
Fig. — 1 Location of Project Site





Attachment—1

**MINISTRY OF CONSTRUCTION AND URBAN
DEVELOPMENT OF MONGOLIA
ORGANIZATION CHART**

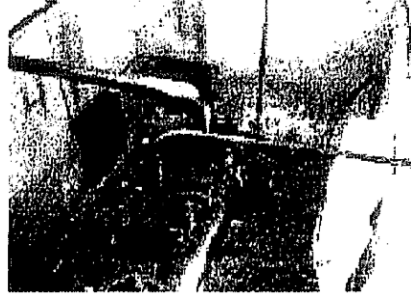


Attachment-2

Photos
Darkhan City



DARKHAN US SUVAG Co. Ltd. intake pumping station!
As the pump is old, its efficiency is poor. Hence, power costs (including power to maintain room temperature) are a great burden.



DARKHAN US SUVAG Co. Ltd. intake pumping station!
As the pump is old, its efficiency is poor. Hence, power costs (including power to maintain room temperature) are a great burden.



Water quality analysis lab at DARKHAN US SUVAG Co. Ltd.



There is lack of analysis reagents. Analysis equipment is also old and excessive time is required to conduct water quality analysis. In order to manage water quality, there is a pressing need for the upgrade of equipment.

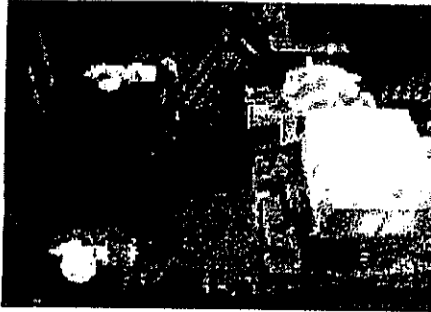


Repair works of damaged distribution piping (in summer)

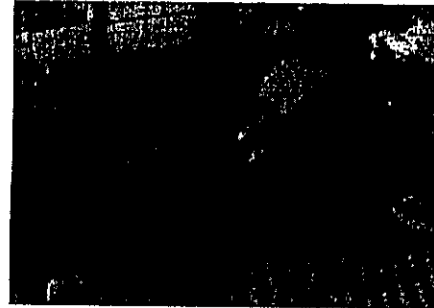


Damaged distribution piping

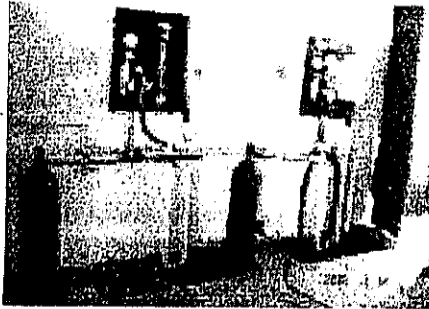
Photos
Darkhan City



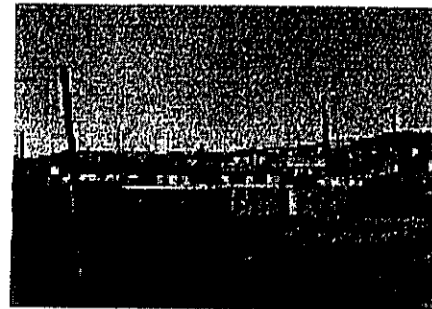
DARKHAN-US SUVAG Co. Ltd. "pump room"
Pumps are old frequently breaks down replacement parts require substantial cost and power costs are a great burden as well. Replacement with energy-saving pumps is desirable.



Water pump.
Currently, power electric motor is inoperable. As it is old, frequent replacement of parts is necessary and a lack of finances has occurred.



DARKHAN-US SUVAG Co. Ltd. (drinking water treatment plant)
Components of the chlorination system are damaged and inoperable. Water that has not been disinfected is being supplied.



Darkhan City, Ger District (residential area without organized planning)
Ger District is without drinking water or sewerage services and is growing with the influx of people from other areas, thereby increasing the demand for water.

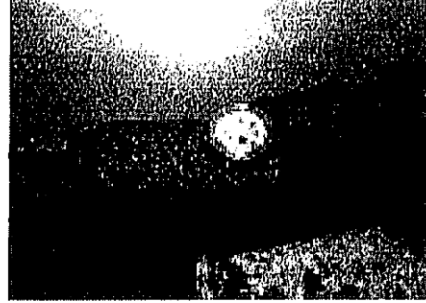


Building housing the chlorination equipment room
Due to insufficient maintenance funds, deterioration of facility progresses

Photos
Darkhan City



Water station (AKA kiosk) in area without water supply piping
Locals come to purchase drinking water.

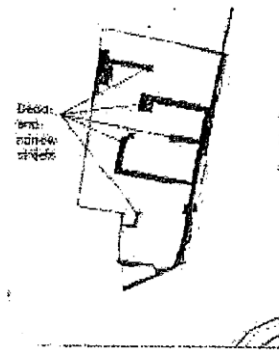


Inside a water station (AKA kiosk) in an area with water supply piping
Based on water meter, drinking water is sold.

Attachment—3

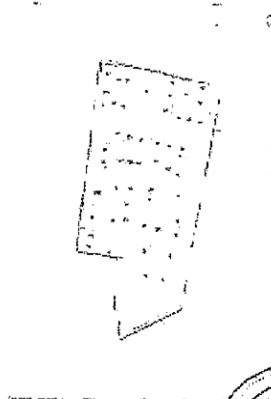
Pilot Project in GER Area

1. CURRENT SITUATION



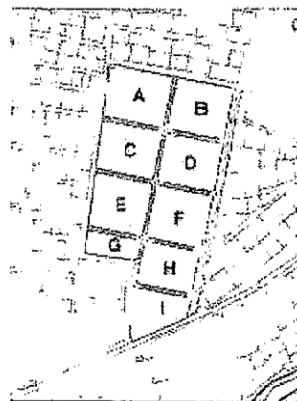
- Unplanned fenced plots
- Narrow, dead-end streets
- Lack of pedestrian paths
- Lack of green area, area for public recreation

2. PLANNING STAGES



- Location survey
- Socio-economic survey
- Public consultations
- Planning with public participation

3. PLANNING MODEL



- Re-adjusting fenced plots
- Planning of roads and streets
- Grouping of households in plots
- Detailed design of each plot and cost estimates.

Attachment—4

List of Existing Equipment for the Water Supply System

Darkhan City												
No.	Equipment Name	Capacity (Power)	Unit	Country of Origin	Year Purchased	Operating Conditions						
						Operable A	Partially Operable B	Inoperable Reason C				
1.	Second well ETSB-12	160-100	1	Russia	2002	Completely						
2.	Third well ETSB-10	110-100	1	Russia	2004		incompletely	Engine had burnt				
3.	Fourth well ETSB-12	160-100	1	Russia	2004	completely						
4.	Fifth well						incompletely	Pump without engine				
5.	Sixth well						incompletely	Pump without engine				
6.	Seventh ETSB-12 well	160-100	1	Russia	2003	Completely						
7.	Eighth well						incompletely	Pump without engine				
8.	Ninth well ETSB-12	160-100	1	Russia	2005	Completely						
9.	Tenth well						incompletely	Pump without engine				
10.	Eleventh ETSB-12 well	160-100	1	Russia	2004	Completely						
11.	12th well ETSB-12	160-100	1	Russia	1996	Completely						
12.	13th well ETSB-12	160-100	1	Russia	1996	completely						
13.	14th well ETSB-12	160-100	1	Russia	1998	completely						
14.	15th well						incomplete	Pump without engine				
15.	16th well ETSB-12	160-100	1	Russia	1990	completely						

16.	17th well ETSB-12	160-100	1	Russia	1985	completely
17.	18th well ETSB-12	160-100	1	Russia	1990	completely
18.	Second station pumping 1st well 12NDS	830-880	1	Russia	2005	completely

No.	Equipment Name	Capacity (Power)	Unit	Country of Origin	Year Purchased	Operating Conditions		
						Operable A	Partially Operable B	Inoperable Reason C
19.	2nd pump 12NDC		1				incompletely	Without engine
20.	3rd pump D-1600	1200	1	Russia	1987	Completely		
21.	4th pump D-1600	1400	1	Russia	2000	Completely		
22.	CD-800-32	160	10	Russia	1990	6	4	Without engine
23.	Filter MG1000/1600	1	4	Russia	1981	2	2	Without spare parts
24.	Mill /crusher/	22	2	Russia	1965	2		
25.	CD-250/22.5	37	2	Russia	1990	2		
26.	NP-50 Pump	10	2	Russia	1997	1	1	Without spare parts
27.	FG 216/22.5	40	2	Russia	1997	2		
28.	Cd 450/22.5	45	6	Russia	1997	6		
29.	K 85/73	30	1	Russia	1997	1		
30.	K 90/45	17	1	Russia	1997		1	Without engine
31.	2.5 NF pump	30	1	Russia	1997	1		
32.	TV 175-1.6	250	3	Russia	1997	2	1	Without engine
33.	FG 144/46	55	2	Russia	1990	2		
34.	First pumping station 1st well	ETSB-12-160-100	1	Russia	2001		Incompletely	Engine had burnt