

**REPORT AND RECOMMENDATION
OF THE
PRESIDENT
TO THE
BOARD OF DIRECTORS
ON A
PROPOSED LOAN
AND TECHNICAL ASSISTANCE GRANT
TO THE
REPUBLIC OF KAZAKHSTAN
FOR THE
RURAL AREA WATER SUPPLY AND SANITATION SECTOR PROJECT**

September 2003

CURRENCY EQUIVALENTS

(as of 31 August 2003)

Currency Unit	–	tenge (T)
T1.00	=	\$0.0066
\$1.00	=	T152.00

- (i) Until April 1999, the exchange rate of the tenge was determined under a system of managed float through periodic foreign exchange auctions. The Government now uses a freely floating system.
- (ii) For the purpose of calculations in this report, and exchange rate of T152 to \$1.00, the rate prevailing in February 2003, has been used.

ABBREVIATIONS

ADB	–	Asian Development Bank
CBO	–	community-based organization
CPMU	–	central project management unit
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
GWP	–	group water pipeline
HSE	–	hygiene and sanitation education
IDB	–	Islamic Development Bank
IEE	–	initial environment examination
LIBOR	–	London interbank offered rate
lpcd	–	liters per capita per day
m ³	–	cubic meters
MOA	–	Ministry of Agriculture
MOH	–	Ministry of Health
NGO	–	nongovernment organization
O&M	–	operation and maintenance
OPMU	–	oblast project management unit
PCC	–	project coordination commission
PPMS	–	project performance monitoring system
QCBS	–	quality and cost based selection
SOE	–	statement of expenditure
TA	–	technical assistance
UNDP	–	United Nations Development Programme
WCG	–	water consumers group
WRC	–	Water Resources Committee
WSS	–	water supply and sanitation
WTP	–	willingness-to-pay

GLOSSARY

<i>akim</i>	–	head of local government
<i>banya</i>	–	public bath house
<i>oblast</i>	–	province or administrative first level region
<i>rayon</i>	–	district

NOTES

- (i) The fiscal year of the Government ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

This report was prepared by P. Wallum, senior project economist (team leader).

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LOAN AND PROJECT SUMMARY

Borrower	Republic of Kazakhstan
Classification	Poverty classification: Poverty intervention Thematic: Human development Gender and development
Environment Assessment	Category B An initial environmental examination was undertaken.
Project Description	<p>The Project follows a sector lending approach and supports the Government's objectives of decentralization, poverty reduction, and human development by providing (i) improved rural water supply and sanitation (WSS) infrastructure services, and (ii) training programs to strengthen institutional capacity. The Project area covers four <i>oblasts</i> (provinces)—Akmola, Karaghandy, North-Kazakhstan and South-Kazakhstan—and includes about 500 villages, with populations ranging from 200 to 6,000 persons. The four provinces were selected because they are poor and with an identified need for development of WSS systems. The Project includes four core subprojects, which were prepared using participatory approaches. The Project will provide basic WSS infrastructure services to about 530,000 persons, of whom approximately 40% are living below the poverty line.</p>
Rationale	<p>Inadequate delivery of rural WSS services, due to aging infrastructure, institutional constraints, and fiscal difficulties is inhibiting the access of communities to basic WSS infrastructure services. Existing facilities are often poorly designed and insufficiently maintained, and do not adequately provide urgently needed basic services. The capacity of the sector agencies concerned must be developed to enable them to implement subprojects and to undertake operation and maintenance (O&M) of the constructed systems. In line with the Government's policy to use a decentralized community management approach, the Project will enhance the coverage of basic WSS facilities; contribute to improving living and health conditions, in particular for the poor; and improve the institutional, organizational, and managerial capabilities of the sector agencies.</p>

Objective and Scope The main objective of the Project is to improve the living and health conditions of selected rural communities, in particular for the poor, by providing basic WSS infrastructure services. The Project consists of two parts: Part A: Physical Infrastructure, and Part B: Institutional Development. Part A consists of about 80 subprojects; each covering one village or a cluster of up to 15 villages. The subprojects will include developing and rehabilitating piped water supply systems, wastewater facilities, school and private latrines, and bathhouses. Part B includes a capacity-building program, a hygiene and sanitation education program and consulting services for project management support.

Cost Estimates The estimated project cost is \$65.0 million equivalent, comprising foreign exchange costs of \$37.3 million and local currency costs equivalent to \$27.7 million.

Financing Plan (\$ million equivalent)

Source of Fund	Foreign Exchange	Local Currency	Total Cost	Percent
A. Asian Development Bank	27.0	7.6	34.6	53.2
B. Islamic Development Bank	6.2	3.3	9.5	14.6
C. Government	4.1	16.8	20.9	32.2
Total	37.3	27.7	65.0	100.0

Loan Amount and Terms A loan of \$34.6 million will be provided from the ordinary capital resources of the Asian Development Bank (ADB) under its London interbank offered rate (LIBOR)-based lending facility. The loan will have a term of 25 years, including a grace period of 5 years, an interest rate to be determined in accordance with ADB's LIBOR-Based Lending facility, a front-end fee of 0.5% and a commitment charge of 0.75% per annum.

Cofinancing A loan of SDR7.0 million (or about \$9.5 million) equivalent will be provided as parallel cofinancing from the Islamic Development Bank (IDB). The loan will have a term of 25 years, including a grace period of 7 years, and a service fee of 2.5% per annum. The IDB loan will provide this parallel cofinancing for the development and rehabilitation of the WSS infrastructure services in Karaghandy oblast.

Period of Utilization Until 30 June 2010

Estimated Project Completion Date 31 December 2009

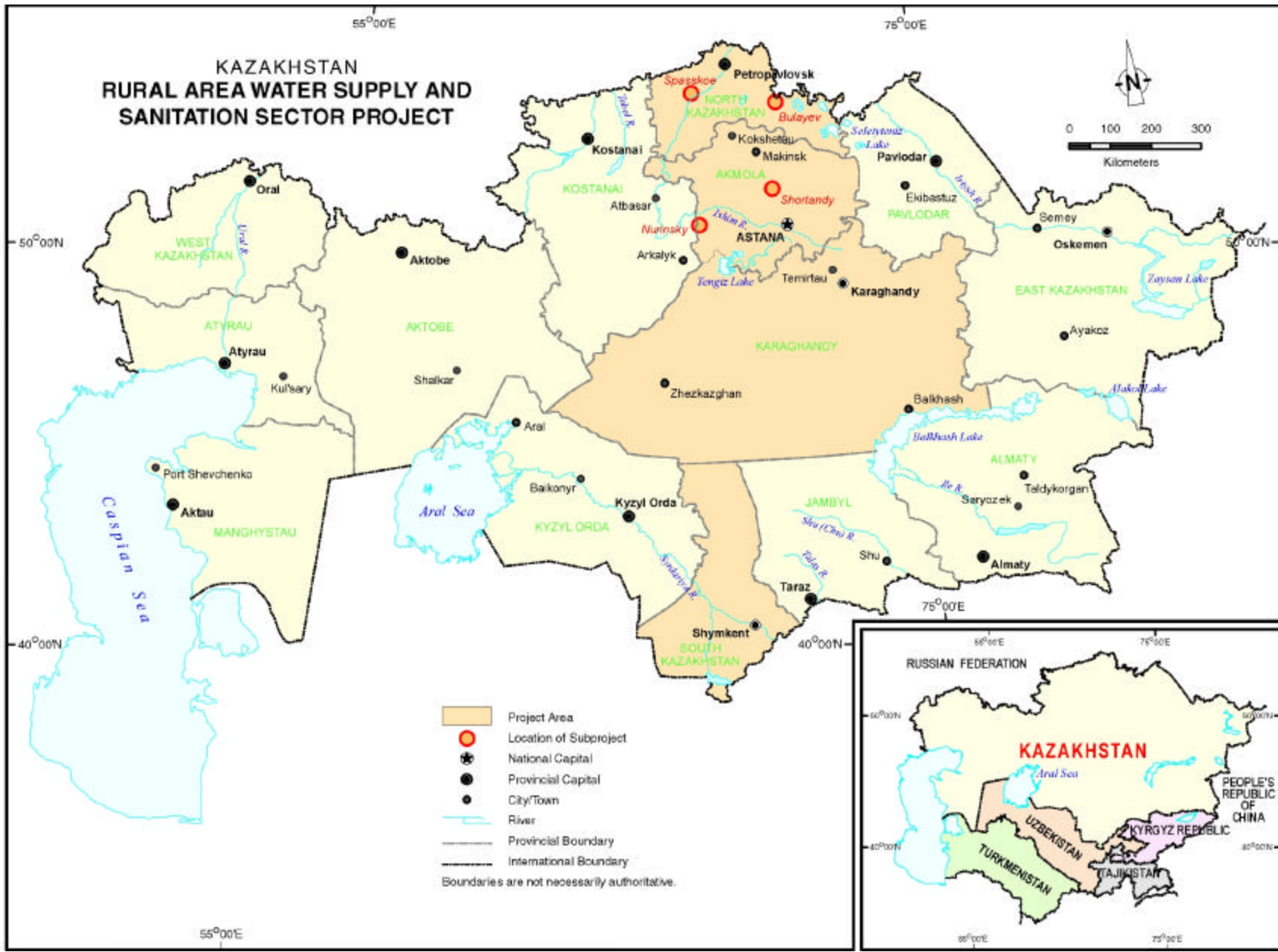
Implementation Arrangements	A central project management unit will be established within the Water Resources Committee of the Ministry of Agriculture (MOA). Project implementation will be carried out by the oblast project management units to be established in each of the four oblasts of Akmola, Karaghandy, North-Kazakhstan, and South-Kazakhstan. A project coordination commission will be established to monitor project implementation and ensure coordination with government policies and other programs.
Executing Agency	Ministry of Agriculture
Implementing Agency	Water Resources Committee
Procurement	The procurement of civil works, goods and services to be financed by the ADB loan will be undertaken in accordance with ADB's <i>Guidelines for Procurement</i> . International competitive bidding procedures will be applied for supply contracts estimated to cost the equivalent of \$500,000 or more. Supply contracts with a value less than \$500,000 equivalent will follow international shopping procedures, except for supply contracts with a value of less than \$100,000 equivalent, which may be procured by direct purchase. Local competitive bidding procedures will be applied for civil works contracts that are valued at less than \$1.0 million.
Consulting Services	The consultants will be engaged in accordance with ADB's <i>Guidelines on the Use of Consultants</i> using quality and cost based selection (QCBS) and other arrangements satisfactory to ADB for the engagement of domestic consultants. The Project will require 639 person-months of consulting services (51 person-months of international and 588 person-months of domestic) for (i) review of detailed design, (ii) construction supervision, (iii) finance and accounting, (iv) community development, and (v) project management.
Project Benefits and Beneficiaries	The Project is expected to benefit 500 villages with populations ranging from 200 to 6,000. Overall, about 530,000 people, of whom approximately 40% are living below the poverty line, will benefit directly from the Project through the provision of potable quality piped water supply facilities, improved wastewater drainage facilities, school and private latrines, and public bath houses. The Project will improve health conditions by reducing waterborne diseases. The core subprojects' average economic internal rate of return is 29%. The support for decentralized community management and capacity building will enhance the efficiency and sustainability of the rural WSS services in the Republic of Kazakhstan.

Risks and Assumptions

Three possible project risks have been identified. First, the possibility of delays in project implementation caused by lack of institutional capability to implement, operate, and maintain the water supply systems has been addressed through a clear delineation of agency responsibilities and appropriate mechanisms for coordination. Considerable preparatory work has already been undertaken in the potential subproject communities regarding the present status of water supply facilities, and an initial assessment of required development has been carried out. Substantial support will also be provided for capacity building through training programs and consulting services. Second, the potential for delays in project implementation caused by lack of local counterpart funds has been addressed by the active participation of local administration which meet some construction supervision and all land requirements. Measures to reduce possible delays have been discussed with the Government. Third, limited financial capability to cope with the incremental O&M of the expanded water supply systems has been dealt with by including the institutional development program, which should strengthen the capacity to undertake the O&M of the expanded water supply systems. If a subsidy for the O&M of completed water system facilities is needed, a commitment from the oblast to provide a subsidy will be required before a subproject can be processed. The Project is also planned to be intensively monitored, with at least two field reviews every year, throughout its implementation.

Technical Assistance

An advisory technical assistance (TA) for institutional strengthening for rural WSS services is being provided in conjunction with the Project. The Executing Agency of the TA will also be MOA. The TA is estimated to cost \$505,000 equivalent, comprising \$258,000 in foreign exchange cost, and \$247,000 in equivalent local currency cost. ADB will finance \$350,000 on a grant basis from the Japan Special Fund funded by the Government of Japan. The grant includes the entire foreign exchange cost and \$92,000 equivalent of the local currency cost. The Government will finance the remaining \$155,000 equivalent of local currency costs. The TA consultants will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* using QCBS and other arrangements satisfactory to ADB for the engagement of domestic consultants. The TA will help the Government refine and implement appropriate management systems for rural WSS services for local and village local governments and water consumers groups. The TA will focus on preparing and implementing an institutional strengthening program for the local governments, and helping the consumers groups to improve their organizational structures and capabilities.



03-526-8-HP

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the Republic of Kazakhstan for the Rural Area Water Supply and Sanitation Sector Project to be cofinanced by the Islamic Development Bank. The report also describes proposed technical assistance (TA) for Institutional Strengthening of Rural Water Supply and Sanitation Services, and if the Board approves the proposed loan, I, acting under the authority delegated to me by the Board, will approve the TA.

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

A. Performance Indicators and Analysis

2. Kazakhstan is a landlocked country covering an area of approximately 2.7 million square kilometers (km²). The population is approximately 14.9 million people, of whom about 40% (6.0 million) live in rural areas. Since 1990, the population has been declining at a rate of 0.6% per annum. The country is administratively divided into 14 *oblasts* (provinces). The main cities of Astana (the capital) and Almaty also have oblast status. North-Kazakhstan, Akmola, and South-Kazakhstan oblasts are predominantly rural, while Karaghandy oblast has a higher proportion of urban dwellers. In 2000 the populations of the four oblasts and the proportion living in rural areas were: North-Kazakhstan 727,000 (72%); Akmola 837,500 (76%); Karaghandy 1,413,000 (22%); and South-Kazakhstan 1,974,000 (36%). The sharp decline in economic output since independence has also contributed significantly to poverty. According to national poverty incidence data, in 2001, the consumption per head of 28.4% of the population was lower than the monthly subsistence minimum of T4,590 (or \$30.20). The most deprived regions are South-Kazakhstan and North-Kazakhstan. Poverty in these areas is compounded by the lack of water supply and sanitation (WSS) services and most acute in rural areas contributing to a decline in living standards and an increase in poverty. An analysis of the WSS sector is set out in Appendix 1.

3. The Government's development objectives are to promote economic growth, reduce poverty, and provide balanced regional development including improved WSS services. The country's WSS facilities are often poorly designed, inadequately maintained and in a poor state of repair. Rural water supply has been particularly badly hit by budget cuts since independence and there has been a low level of investment in the sector both by the Government and from external assistance sources (Appendix 2). There has been close coordination between ADB and other sources of assistance, which has reinforced and complemented their respective WSS sector aid activities in Kazakhstan. ADB has coordinated closely with other aid agencies during preparation in identifying requirements for WSS policy development initiatives and sector institutional arrangements. The Islamic Development Bank (IDB) is planning to cofinance the proposed Project through parallel financing for civil works in one project oblast – Karaghandy. Formerly, an estimated 80% of all rural villages had piped potable water supply. This coverage is now officially reported at 40%, although, in reality, coverage may be substantially less with working systems falling rapidly to less than 35% coverage. The poor oblasts of Akmola, Karaghandy, North-Kazakhstan, and South-Kazakhstan are particularly badly hit, where only about 30% of villages have a reliable water supply. The average amount of drinking water delivered to the population is being reduced by 3-5% a year because of the continued decline in the condition of the existing infrastructure. There are no funds with which to carry out routine maintenance, and repairs are mostly performed on an emergency basis. As a result, tens of thousands of people every year lose their piped water supply. The rate of new construction is also very slow. The levels of tariffs are low, collection management is poor, and insufficient money is raised to support efficient operation.

4. The lack of adequate WSS services has also a large negative impact on the community health of the country, especially the poor. In rural areas people often have to walk long distances, only to obtain contaminated water from untreated sources. Until recently, many villages contained *banyas* (public bath houses), which have now largely fallen into disuse due to lack of water supply. One of the results is an increase in skin diseases caused by lack of proper cleanliness. There are few working wastewater collection systems in rural areas or any acceptable level of human waste disposal. Insufficient and polluted drinking water supplies, combined with poor sanitation and hygiene practices, are directly linked to high incidence of waterborne diseases. Statistics on morbidity and mortality in the country indicate that while the mortality rate has declined somewhat because of improvements in basic health services, the morbidity rate continues to increase. Diarrheal diseases that are strongly associated with unsafe water supply, and poor sanitation and hygiene are among the leading causes of morbidity. Likewise, cases of typhoid have increased due to polluted water sources, resulting in an almost fourfold increase since 1997.

B. Analysis of Key Problems and Opportunities

5. The following government agencies are involved in development and operations of the WSS sector. The Ministry of Agriculture (MOA) is the main agency responsible for WSS sector development and protection of water sources, and its Water Resources Committee (WRC) is directly responsible for WSS development programs and water resources management. The Ministry of Health (MOH) monitors water quality through its sanitary and epidemiological services department, the Committee for Geology and Mineral Resources is responsible for controlling the exploitation of groundwater sources, and the Committee on Hydrometeorology is responsible for monitoring water recharge. The oblast governments assisted by the water consumers groups (WCGs) are responsible for operation and maintenance (O&M) of rural WSS facilities.

6. The key problems in the WSS sector are: (i) declining water quality due to increased salinity; (ii) lack of spending on maintenance of ageing water supply systems, and of new investments in water supply, particularly rural; (iii) inappropriately long-distance transmission water pipelines; (iv) lack of knowledge of new technologies for small-scale modular plants for desalination and other contemporary methods of water treatment; (v) limited acceptance of the groundwater use because of misconceptions about salinity; and (vi) difficulty in recovering O&M costs and costs of capital investments.

7. The Government follows the millennium development goal to ensure environmental sustainability and aims to halve, by 2015, the proportion of people without sustainable access to safe drinking water, presently estimated at 60% in rural areas and 30% in urban areas. The overall goal of the Government's WSS sector policy is to improve the health and living conditions of the population by providing better access to safe and adequate amounts of water supply and better sanitation services. To achieve this goal, several objectives need to be met. These objectives are to (i) assist, initially, in the development of infrastructure systems in those regions in crisis or with a depressed economy; (ii) decentralize water distribution systems development in rural areas; (iii) undertake institutional reforms necessary for the effective, efficient, and equitable development and operation of WSS; (iv) develop effective implementation mechanisms including cost recovery for WSS in conditions of the market; and (v) involve the private sector in management of WSS. The goal for drinking water supply is the reliable provision to the population of potable water, according to the standards for drinking water, in the necessary quantities. The potable water supply objectives are to (i) provide crisis regions and depressed regions with potable water according to a quality standard in minimum quantities, (ii) develop new potable water sources in regions with shortage of water, and (iii)

rehabilitate and develop water supply systems to satisfy the demand. The goal for sanitation is to provide conditions that satisfy public health requirements and do not contaminate potable water sources. The sanitation objectives are to (i) increase the reliability of operation of urban wastewater systems through rehabilitation of existing networks; (ii) develop domestic and industrial wastewater and, in parallel; (iii) take action for the relief discharge of existing sewerage ponds serving population and industry, to remove the environmental threat they pose; (iv) ensure that pit latrines in rural areas are soundly designed and operated; and (v) develop rural waterborne sanitation systems in areas where there are adequate water resources and where this would be affordable.

8. The Government's sector policies, strategies, and investment plan have been reviewed and agreed upon, and are considered to be well formulated. The Executing Agency, MOA, has successfully implemented one World Bank-financed water project in the past and is presently implementing another World Bank and one Kuwait Fund-assisted water project, and has adequate capacity and experience to implement the Project. MOA will be further strengthened through the Project's capacity-building activities. Therefore, a sector lending modality was adopted for the Project, which is also justified by the large number of replicable subprojects.

9. The main institutional challenges for further WSS sector development are the development of WSS services at the local level, and sector services decentralization. As infrastructure investments have traditionally been planned and financed by the Central Government, remnants of top-down approaches persist at almost all administrative levels, with little participation from local communities and governments. The main focus for institutional reform will therefore be in community participation, private sector participation, and capacity building in local government. Women have an important role as teachers and disseminators of information on better hygiene practices and proper use of water supply facilities. Women's organizations will be involved in leadership development, and in training women for regular participation in the local governments. To achieve this, capacity building and management support should be provided through a training and support program for the WRC, staff of the oblast and *rayon* (district) governments, the members of the Sanitary Epidemiological Station of the oblasts and rayons, and relevant water supply providers, as well as for community representatives to strengthen their capacity to efficiently implement, use, and pay for the systems. Capacity building is also required for the water service providers in public utilities management and operations, financial sustainability, responsive service delivery to the customer, and effective investment in new infrastructure and rehabilitation of the existing systems.

10. The Project would be the first-ADB assisted WSS project in Kazakhstan. However, experience from other externally assisted projects in Kazakhstan and ADB's experience in other similar projects show that the main problems faced during the implementation of large-scale rural WSS services projects relate to insufficient community consultation and participation in the planning and design of subprojects. Insufficient community involvement at these stages contributes to nonfunctioning or nonestablishment of local utility agencies, lack of guarantees for O&M financing, poor cost recovery, and inadequate O&M. The need to focus on sustainability of operations and increased sense of ownership has been recognized. Further, limited Government experience with project implementation has led to delays and slow disbursement in some projects. One other lesson learned concerns the weak institutional capacity of oblast governments. It is clear that there is a need for the government officials to become familiar with ADB's implementation procedures and to provide substantial technical assistance. These issues were studied during project formulation, and comprehensive measures have been appropriately incorporated in the project design. The Government, ADB, and other aid agencies are now focusing on community consultation and decentralizing the implementation process.

11. ADB's policy dialogue with the Government has covered investment priorities and poverty focus; the Government has agreed to rehabilitate and expand existing WSS infrastructure in poor rural areas using simple and least cost solutions. It has also covered the development of WSS services at the local level and decentralization of implementation. The Project is structured to increase local-level responsibilities for WSS infrastructure services by decentralizing implementation and O&M, and actively involving all stakeholders. Policy dialogue has also touched on local-level O&M of WSS infrastructure facilities; the communities will be involved in the O&M of the constructed facilities through their WCGs.

III. THE PROPOSED PROJECT

A. Objective

12. The main objective of the Project is to improve the living and health conditions in selected rural communities, in particular for the poor, through the provision of basic WSS services. The Project aims to achieve its objective by (i) assisting the central and local governments in delivering WSS infrastructure services; and (ii) improving the technical and financial capacity of local governments and WCGs in the planning, implementation, and O&M of facilities. The project area will cover the four oblasts of Akmola, Karaghandy, North-Kazakhstan, and South-Kazakhstan, which were selected because they are poor and have an identified demand for the development of WSS services. The linkage between the goals, objectives, outputs, and inputs are given in the Project Framework (Appendix 3).

B. Components and Outputs

13. The Project consists of two parts: Part A: Physical Infrastructure; and Part B: Institutional Development, which includes a capacity-building program, a hygiene and sanitation education (HSE) program, and consulting services for project management support.

1. Part A: Physical Infrastructure

14. Part A includes about 80 subprojects, covering 500 villages with populations ranging from 200 to 6,000. Each subproject will cover one village or a cluster of up to 15 villages. The subprojects will include the development and/or rehabilitation and upgrading of piped water supply systems, wastewater drainage facilities, school and private latrines, and banyas. The development and expansion of the water supply systems will include constructing and/or rehabilitating water source intakes, pumping stations, treatment facilities, storage reservoirs, transmission and distribution pipelines, public standpipes, and individuals yard or house connections. The subprojects will derive supplies from different types of water sources. Most of the subprojects will use groundwater, and will require development and/or rehabilitation of water supply systems and some drilling of deep wells. The new development of water supply will be coordinated with wastewater drainage measures. The school and private latrines will be constructed or rehabilitated in the form of ventilated improved pit latrines and with water supply and connected to septic tanks. The banyas, which have fallen into disuse mainly because of lack of water supply, will also be rehabilitated.

15. The WSS component will cover 500 villages of a total of 2,900 villages in the four project oblasts. About 1,750 villages of the 2,900, or 60%, do not have any formal piped water supply system; the remaining 1,150 villages or 40% have centralized systems in various states of operation. Of the total 2.5 million rural population in the project oblasts, about 20% or 530,000 people will be covered by the 80 subprojects. Of the 500 villages, 350 villages will be provided

with new systems and 150 villages will have their systems rehabilitated. Of the 80 subprojects covering 1-15 villages, about 60 systems will utilize groundwater sources, and 20 systems will utilize surface water. Subprojects will include wastewater drainage measures and rehabilitation and construction of school and private latrines and bath houses, as required. On average, the per capita investment cost will be \$90 for groundwater and \$125 for surface water. The total cost for the water supply, wastewater drainage, school and private latrines, and banyas component will be about \$55.2 million, and the overall average cost will be about \$100 per capita. The improvement of each school latrine will cost about \$200, private latrines about \$30, and average cost for rehabilitation of each bath house is about \$500. The total cost for the sanitation program is \$1.5 million.

16. Settlements in the project area are divided into three major categories (i) settlements where group water pipelines (GWPs) are no longer in working order, (ii) settlements with infrequent water supply from a GWP, and (iii) settlements that have other individual water supply. The four core subprojects were selected based on the three major categories of settlements in the project area. Bulayev in North-Kazakhstan and Shortandy in Akmola have settlements where the GWPs are functioning but the water supply is infrequent (category ii). Spasskoe in North-Kazakhstan falls under category (i) where the GWP is not functional, hence the community resorted to other type of water sources like tubewells. Nurinsky in Akmola falls under category (iii) where the villages have individual tubewells. The four core subprojects are representative of the other settlements in the project area. In selecting the settlements for the other subprojects wider criteria will be used, and priority will initially be given to the settlements where GWPs are no longer in working condition and the settlements with infrequent water supply from a GWP. In addition, the following criteria will also be included in subproject selection (i) settlements with low-income level; (ii) settlements that have available water resources to be tapped; (iii) subprojects that meet the economic criteria set out in the *ADB Guidelines on Economic Analysis of Water Supply Projects*, in particular the least-cost criteria; (iv) sustainability of the O&M of completed water supply facilities; (v) settlements that are willing to establish WCGs; and (vi) settlements for which the respective oblast government has committed itself to subsidizing the O&M cost, as required. Further, the subprojects will have environmental clearances from the Ministry of Natural Resources and Environmental Protection and will not require any resettlement. The proposed schemes must use appropriate technology and represent the least-cost solution.

17. A structured approach will be adopted for the appraisal and approval of subprojects under Part A. Small subprojects (with cost below \$0.5 million) would be mostly deep well development involving necessary water treatment, and rehabilitation and/or construction of water supply systems. Large subprojects (with cost over \$0.5 million) would involve development and/or rehabilitation of water supply systems in the service area of GWPs, including ground and/or surface water development and wastewater collection measures. The justification of subprojects will be based on (i) the proven economic viability, (ii) the adoption of affordable least-cost design solutions, (iii) assurance of regular O&M, and (iv) contribution to environmental improvements and added health benefits. The WRC will submit and obtain ADB's prior approval for each of the first small subproject proposals from each of the four oblasts and also for the first large subproject proposals from each oblast. Any subsequent subproject that cost more than \$2.0 million equivalent financed under the loan will be submitted to ADB for prior approval. The WRC will furnish ADB with an application for the approval of these subprojects, containing a description and appraisal of the subproject proposal. All other subprojects will be appraised by the central project management unit (CPMU) within the WRC and approved by the project coordination commission (PCC). The WRC and oblast project management units (OPMUs), assisted by the consultants, will carry out economic and financial analyses of all large subprojects but only simplified financial and economic analysis, including affordability analysis,

of the small subprojects. Only those subprojects found viable will be endorsed for implementation. Documentation relating to the subproject proposals will be retained by WRC and made available to ADB on request.

2. Part B: Institutional Development

18. **Capacity-Building Program.** To be carried out by the WRC assisted by the consultants, the program involves preparation of training programs, and training of central and local governments staff and other stakeholders to strengthen their capacity to efficiently plan, implement, operate, and maintain the WSS systems. The program will provide four types of training: (i) subproject-related training for local governments and training for financial staff in financial management and accounting; (ii) training in O&M of new systems; (iii) training of the WRC, CPMU, and OPMUs in financial management and accounting; and (iv) training for improved water quality testing and environmental issues. The program will focus on four areas (i) training in O&M, emphasizing reduction of unaccounted-for water; (ii) gradual expansion of the organizational structure, including assistance to local governments; (iii) development of the local governments' planning, engineering, and financial capability; and (iv) strengthening of the ongoing health education program. About 2,000 central and local government staff will be trained under the program. Under the capacity-building activities of the Project, WCGs will be developed in each subproject area. The WCGs will play a key role working in collaboration with the oblasts and local governments. The WCGs will be composed of representatives of the local government from the respective subproject area, male and female representatives from the respective community of the subproject, and representatives from selected nongovernment organizations (NGOs) and community-based organizations (CBOs). At least half of the community representatives from the settlements and management position of the WCG will be female. Community representatives will also include representatives from poor households, disabled, and elderly. Through the WCGs, the local communities will be responsible for monitoring of regular water supply, access to water by the poor households, regular payment of tariffs, quality of water, and prevention of water waste. They will also be involved in deciding on locations of public standpipes and level of services. Currently WCGs have no formal legal status; therefore a TA, Institutional Strengthening for Rural WSS Services, will assist in developing a legal framework to establish WCGs and advise on required legislation, including strengthening of the water code.

19. **Hygiene and Sanitation Education (HSE) Program.** The HSE program will help the beneficiaries to improve their understanding of the close interrelationship between hygiene, water, sanitation, and health. The program will be formulated by the CPMU and the staff of MOH responsible for surveillance of drinking water quality as well as sanitation and hygiene surveillance, and assisted by the consultants. The HSE program will include (i) selection of HSE media materials for hygiene, sanitation, and water-related issues, and production of campaign and training materials to complement existing virology school subject materials; (ii) HSE workshops, orientation and training of rayon and village health staff, village leaders, and school teachers in all selected communities; (iii) equipping selected health posts and schools with materials and software required for training; and (iv) training teachers to deliver HSE messages to the project communities. About 1,100 staff will be trained, and at least half of the trainees will be female.

20. **Consulting Services for Project Management Support.** The consultants will help implement the Project and provide project management support. They will also support the implementing capacity of sector agencies concerned. The services will also (i) help in project management and monitoring, (ii) assist in construction supervision of subprojects, and (iii) support the planning and implementation of the capacity-building and HSE programs. The

WRC will involve at least two CBOs/NGOs (such as women's committees and elders' councils) to be associated with the Project's consulting services for community consultation and development in subproject planning and for monitoring subprojects. The WRC will also use CBOs to assist in capacity building. Specific steps to enhance women's participation in the Project include (i) identifying women's groups in the community; (ii) training women's community groups to participate in project-related activities, such as health education and gender issues; (iii) training women's organizations, including those representing poorer women, in the decision-making process, including planning of WSS facilities; and (iv) providing employment opportunities for women in the activities of local governments and WCGs.

C. Special Features

21. The Project supports and strengthens several of ADB's water policy¹ principal elements: (i) promote a national focus on water sector reform, (ii) improve and expand the delivery of water services, (iii) foster the conservation of water and increase system efficiencies, and (iv) improve governance by decentralization and capacity-building. The Project incorporates appropriate technology taking into account the local conditions and the limited capacity of local governments. The community consultations ensure that appropriate technologies will be investigated and discussed prior to implementation. Such an approach helps ensure that technically appropriate and acceptable systems are sustainable. The type of technology for the systems will be guided by the design criteria. When preparing the Project, the sanitary conditions in the project area were also reviewed. The wastewater drainage components provide for the development and rehabilitation of drainage channels.

22. The private sector will participate in providing the basic infrastructure services. A key element for WSS infrastructure development is to make quality equipment, materials, and contracting services available to involved institutions. A private support industry for the WSS sector is evolving slowly in the country. The Government through the Project will be encouraging the development of (i) a diversified private consulting capacity by encouraging the transformation of present research and design institutes into smaller private organizations; (ii) a responsive and efficient industry to supply quality equipment and materials by accelerating the privatization of state equipment manufacturers and material suppliers; (iii) strong civil works contractors capable of providing quality services by strengthening of present civil works contractors in rural areas, adopting mandatory competitive procurement procedures for public enterprises such as water utilities, strengthening technical specifications, and introducing stricter supervision of construction; (iv) small-scale entrepreneurs who can offer community services in the construction and O&M of water supply systems; (v) privatized banyas; and (vi) NGOs/CBOs that can contribute to the WSS development.

23. Sustainable O&M of water supply facilities is a major problem, especially in the rural areas. An analysis of willingness-to-pay (WTP) and affordability for the four core subprojects shows that full O&M cost recovery is feasible on commencement for the three subprojects, and including depreciation in the next 5-to-10-year period by gradual tariff adjustments. The fourth subproject, however, will need subsidy from the oblast government for the O&M cost. The project design also incorporates appropriate organization at the local government level, including establishment of WCGs, systematic training of staff, preparation of O&M manuals, and periodic monitoring of operations, including consumer satisfaction. The capacity-building program will establish proper procedures for the collection of fees and sanctions for nonpayment. The charges will be affordable for all customers. Households with house or yard connections will be charged a higher fee than poorer households served by public standpipes.

¹ ADB. 2001. *Water for All: The Water Policy of ADB*. Manila.

The socioeconomic surveys to be undertaken as part of subproject design will facilitate beneficiary involvement and enable the determination of an appropriate and affordable service level. Participation of community representatives and other stakeholders will ensure that the costs of the investment and O&M will be known to the communities.

D. Cost Estimates

24. Based on cost estimates of the four representative core subprojects reviewed, the total project cost is estimated at \$65.0 million equivalent, of which \$37.3 million is the foreign exchange cost and \$27.7 million equivalent is the local currency cost. The cost estimates include interest and other charges during construction, as well as taxes and duties. The subprojects included under the Project represent least-cost solutions. A summary of the cost estimates is provided in Table 1, and detailed cost estimates are given in Appendix 4.

Table 1: Cost Estimates
(\$ million)

Item	Foreign Exchange	Local Currency	Total Cost	Percent
A. Physical Infrastructure				
1. Water Supply	33.2	20.5	53.7	82.5
2. Sanitation	0.0	1.5	1.5	2.3
3. Detailed Design and Construction Supervision	0.0	4.0	4.0	6.1
Subtotal (A)	33.2	26.0	59.2	90.9
B. Institutional Development				
1. Capacity-Building Program	0.0	0.6	0.6	0.9
2. Hygiene and Sanitation Education	0.0	0.4	0.4	0.6
3. Consulting Services for Project Management Support				
a. International Consulting Services	1.3	0.0	1.3	2.0
b. Domestic Consulting Services	0.0	0.7	0.7	1.1
Subtotal (B)	1.3	1.7	3.0	4.6
C. Interest and Other Charges during Construction	2.8	0.0	2.8	4.5
Total	37.3	27.7	65.0	100.0

Source: Asian Development Bank estimates.

E. Financing Plan

25. The Government of the Republic of the Kazakhstan has requested a loan of \$34.6 million from ADB's ordinary capital resources to help finance the Project. The loan will have a 25-year term, including a grace period of 5 years, an interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.75% per annum, a front-end fee of 0.5%, and such other terms and conditions set forth in the draft Loan Agreement. The Government has provided ADB with (i) the reason for its decision to borrow under ADB's LIBOR-based lending facility on the basis of these terms and conditions, and (ii) undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB. Of the total cost of the Project of \$65.0 million, ADB will finance 53.2% of the total estimated project cost. The ADB loan will cover \$27.0 million in foreign exchange cost, and \$7.6 million equivalent of the local currency cost. The Islamic Development Bank (IDB) will provide parallel cofinancing of SDR7.0 million equivalent to \$9.5 million (14.6%) and the Government (including the governments of the oblasts) will finance about \$20.9 million (32.2%). The ADB loan would finance the cost for civil

works and equipment/materials in Akmola, North-Kazakhstan, and South-Kazakhstan oblasts. IDB is planning to finance the civil works and equipment/materials in Karaghandy. The Central Government counterpart funds will be used to finance taxes and duties, some civil works, capacity-building, HSE, consulting services for project management support, commitment charges, front-end fees (which have to be paid prior to disbursement), and interest during construction. The proposed financing plan is summarized in Table 2 and details are presented in Appendix 4.

Table 2: Financing Plan
(\$ million)

Source		Foreign Exchange	Local Currency	Total Cost	Percent
A.	External Source				
	1. Asian Development Bank	27.0	7.6	34.6	53.2
	2. Islamic Development Bank	6.2	3.3	9.5	14.6
	Subtotal (A)	33.2	10.9	44.1	67.8
B.	Domestic Source				
	1. National Government				
	Subtotal (B)	4.1	11.8	15.9	24.6
	2. Oblasts				
	Subtotal (C)	0.0	5.0	5.0	7.6
	Total	37.3	27.7	65.0	100.0

Source: Asian Development Bank estimates.

F. Implementation Arrangements

1. Project Management

26. The WRC, under MOA (the Executing Agency), will be the Implementing Agency for the Project. A principal function of the Implementing Agency is to be responsible for preparing and implementing programs to develop and improve sustainable rural water supply systems. It is directly responsible for the planning, design, and development and/or rehabilitation of water supply systems under the Project. The WRC has 30 staff members at its headquarters including 20 engineers and 4 accountants. It also has a strong cadre of technical experts among its 510 staff and offices in all oblasts and rayons. To coordinate the wide range of ministries, agencies, organizations active and with responsibilities in the WSS sector and local governments, the PCC will be established to monitor project implementation, and ensure coordination with government policies and programs. The PCC will be chaired by the Executing Agency and comprise representatives of the ministries, offices, and agencies, including the Ministry of Economy and Budget Planning, Ministry of Finance, MOH, and other agencies concerned. The PCC will review reports to be provided by the CPMU, and provide guidance and instructions, as necessary, to the CPMU and OPMUs. Based on lessons learned and to ensure sustainability, extensive consultation with the communities is required. Decentralized institutional arrangements will be needed to ensure and formalize community involvement. Accordingly, the Project incorporates an institutional development program for sector agencies concerned.

27. The Government will establish the CPMU under the Executing Agency. The CPMU will carry out the implementation of the Project, including procurement of goods, works and services, and the awarding of contracts in coordination with the OPMUs at the four project oblast centers. The CPMU will be headed by a project coordinator/design and procurement

specialist and will have staff to be recruited under the consulting services in the fields of project implementation, engineering, financial management, community participation, and capacity-building. The OPMUs will coordinate and manage all activities for the implementation and management of the Project, and will report directly to MOA. The OPMUs will coordinate preparation and development of the basic WSS infrastructure under the general direction of the CPMU. Under the guidance of the CPMU, the OPMUs will carry out all aspects of project implementation and coordinate closely with the technical departments concerned and agencies at the oblast level. The OPMUs will initiate and coordinate key project implementation activities, such as the community consultations, subprojects selection, preparation of tender and bid documents, construction supervision, monitoring and quality control, maintenance of project accounts, and clearance for environmental examinations. Each OPMU will be supported by a technical consultant/OPMU team coordinator in consultation with the oblast governor. Each OPMU will have a staff member for project implementation to be recruited under the consulting services in the fields of engineering, construction supervision, social development, accounting, and community development. The Government will ensure adequate technical staff; the skills and number of each specialist type will be decided upon in consultation with ADB, as needed by the OPMUs to help with development and/or rehabilitation of piped water supply systems, wastewater drainage facilities, private and school latrines, and banyas.

28. To comply with the needs and demands of the community, a participatory approach is adopted to formulate and design the Project. A comprehensive socioeconomic survey was carried out during the initial phase of project preparation to determine the real demands of the people in the core subprojects area. The survey respondents expressed a strong commitment to participate in project design and implementation. CBOs and NGOs in the core subproject areas were also consulted during project formulation. To achieve a high degree of community involvement in the subproject design, implementation, and O&M, the OPMUs will carry out community participation activities and conduct socioeconomic surveys to determine the prospective beneficiaries' needs, affordability, and WTP for the services. A particular focus of the participatory programs will be on meeting and prioritizing the needs of the poor. Accordingly, in preparing the subprojects, once approved for funding, the OPMUs will work with CBOs and NGOs to help mobilize the community and to prepare socioeconomic surveys of the community. Detailed designs will have to be prepared for each individual subproject. The details of the project implementation arrangements, including a funding scheme for each subproject activity, are in Appendix 5.

2. Implementation Period

29. Implementation is planned to commence by the end of 2003 with completion expected by the end of 2009. The implementation schedule is outlined in Appendix 6. The advance project preparation activities, including detailed design carried out for the four core subprojects, will ensure that the Project gets off to a fast start. The Project is included in the Central Government's list of investment projects and budget for 2004.

3. Procurement

30. The supply of goods and services in the oblasts financed under the ADB loan will be undertaken in accordance with the ADB's *Guidelines for Procurement*. International competitive bidding (ICB) procedures will be applied to supply contracts estimated to cost the equivalent of \$500,000 or more. Supply contracts with a value less than \$500,000 equivalent will follow international shopping (IS) procedures, except for supply contracts with a value less than \$100,000 equivalent, which may be procured by direct purchase. Presently, each civil works contract is estimated at less than \$1.0 million equivalent and will follow the local competitive

bidding (LCB) procedures. Certain simple and minor civil works may be difficult to undertake by contractors at reasonable cost. Such works may be undertaken by the Borrower using its own staff (force account), provided the works cost less than \$100,000 equivalent. In addition, force account can be employed only if the Borrower has adequate construction facilities, including equipment, and the capability to undertake works expeditiously and at reasonable costs. A list of indicative contract packaging and applicable procurement procedures is in Appendix 7. Efforts will be made to make a contract package as large as possible to attain economies of scale. The procurement of goods and services financed under the IDB loan will be undertaken in accordance with IDB's procurement guidelines.

4. Consulting Services

31. The Project will require consulting services in the fields of project management, WSS engineering, environmental examination, hydrogeology, well drilling, HSE, financial and accounting advice, and institutional development for assistance with (i) preparation of socioeconomic, technical, and environmental surveys; (ii) development of standard water supply designs; (iii) preparation of contract packages and documents; (iv) supervision and evaluation of project activities; (v) support to the institutional development program, including training for unaccounted-for water loss reduction; (vi) support to the activities of the CPMU and OPMUs; (vii) training of the accounting staff in preparing loan withdrawal applications and the supporting documents; and (viii) maintaining accurate and sufficient accounting project records. A total of 639 person-months (51 person-months international and 588 person-months domestic) of consulting services are required. To ensure project quality, the international consultants will be involved in project management, financial, and institutional strengthening activities. The domestic consultants' main activities will be to review technical studies, including detailed designs, and to supervise construction. According to standard government procedures for all externally financed projects, including World Bank-assisted projects, the consultants will be financed by the Government. The consultants will work with suitable CBOs and NGOs. The level of consulting services has been discussed and agreed upon by ADB and the Government. The consultants will be engaged by MOA in accordance with ADB's *Guidelines on the Use of Consultants* using quality and cost based selection (QCBS), and other arrangements acceptable to ADB for the engagement of domestic consultants. Appendix 8 contains the required areas of expertise and terms of reference. The recruitment and fielding of the consulting services for project management support is a condition for loan effectiveness. ADB's Management has approved advance action for recruiting consultants for implementation assistance and the preparation of detailed design and contract documents.

5. Disbursement Arrangements

32. An imprest account will be established at a bank to be agreed upon by the Government and ADB to facilitate the timely release of loan funds. The MOF will supervise the imprest account operations. The amount to be deposited will not exceed \$2.0 million equivalent. ADB's statement of expenditure (SOE) procedure will be used to reimburse eligible expenditures and to liquidate advances provided to the imprest account. It will be used to finance project expenditures in local currency. The individual payments that may be reimbursed or liquidated under the SOE procedure will not exceed \$50,000 equivalent. The imprest account and SOE procedure will be established and maintained in accordance with *The Loan Disbursement Handbook*, dated January 2001 and detailed arrangements between the Government and ADB. In Karaghandy oblast, similar arrangements will be established in accordance with IDB's disbursement procedures.

6. Accounting, Auditing, and Reporting

33. The Government through the CPMU will (i) maintain separate accounts for the Project, and (ii) have such accounts and related financial statements audited annually by independent auditors acceptable to ADB and in accordance with the provisions of the Loan Agreement and as specified in ADB's *Financial Reporting and Auditing of Projects Financed by the Bank*. The auditors should have qualifications, experience, and terms of reference acceptable to ADB. The imprest account and SOE records will also be audited as part of the annual audit. The Government will submit to ADB certified copies (in English) of such audited accounts and financial statements, and the related reports of auditors, within 9 months after the close of each financial year. For the purpose of complying with the requirements for annual audited financial statements, proceeds of this loan may be used to finance expenditure for private sector auditors and translations of auditors' reports into English. The WRC will submit consolidated quarterly progress reports to ADB (in English) on all aspects of project implementation. The reports will include details on overall implementation progress, problems/issues encountered during the reference period, measures taken or proposed to be taken to remedy these problems, and the proposed program of activities for the following quarter. Within 3 months of project completion, the WRC will prepare and submit to ADB, in a format acceptable to ADB, a project completion report on the utilization and impact of the loan; performance of the Project; the economic and social benefits generated; and details about implementation, costs, and other information requested by ADB.

7. Project Performance Monitoring and Evaluation

34. The CPMU will implement a project performance monitoring system (PPMS) for each subproject to evaluate the delivery of the planned facilities and the subproject benefits accrued. A framework and the indicative indicators have been prepared. The CPMU, with the assistance of the consultants, will develop comprehensive PPMS procedures and plans in accordance with ADB's handbook within 6 months after loan effectiveness. The PPMS activities, including the establishment of benchmarks, collection of information, monitoring of benefits, and evaluation of social impact, will be undertaken by the local governments. Data collection will be carried out prior to physical implementation of the Project, in conjunction with socioeconomic surveys. It will then continue on a regular basis during implementation, and within 3 months after physical completion. The results will be incorporated into the project progress and completion reports.

8. Project Review

35. The Project features an emphasis on decentralized implementation as well as a focus on institution building, and close monitoring will be required to ensure smooth implementation and O&M. Accordingly, a comprehensive review of the implementation arrangements, including the role of the WRC and WCGs, as well as project start-up experience, will be undertaken by the Government and ADB 1 year after loan effectiveness. Comprehensive reviews will be undertaken 2 and 4 years after loan effectiveness. These reviews will focus on the impact on poverty reduction, implementation arrangements, community involvement, physical implementation, design and technology, O&M and cost recovery arrangements, institutional aspects including training, health education, and the role of women. The reviews will also assess the Project's progress and achievements against its objectives, identify any problems encountered, and recommend any required remedial measures.

IV. TECHNICAL ASSISTANCE

36. Advisory TA for Institutional Strengthening for Rural WSS Services is being provided in conjunction with the Project. The TA's main objective is to strengthen sector institutions and create the appropriate management systems. The TA will focus on (i) preparing and implementing an institutional strengthening program for local governments; and (ii) helping village local governments and communities to improve their organizational structures and capacities, including strengthening their planning, budgeting, O&M, and in particular, financial management and billing and collection systems, and examining the legal basis for the creation of WCGs. The WRC within MOA will be the Executing Agency for the TA. The main beneficiaries will be clients who receive improved services due to implementation of revised management systems. The TA will be implemented over 7 months. It will require 9 person-months of international consulting inputs and 32 person-months of domestic consulting inputs. The consultants will be recruited in accordance with ADB's *Guidelines on the Use of Consultants* using QCBS and other arrangements acceptable to ADB for the engagement of domestic consultants. The TA is estimated to cost \$505,000 equivalent, of which \$258,000 is the foreign exchange cost and \$247,000 equivalent is the local currency cost. Of this cost, \$350,000 will be financed by ADB on a grant basis from the Japan Special Fund, funded by the Government of Japan. This includes the entire foreign exchange cost and \$92,000 equivalent of the local currency cost. The Government will finance the remaining \$155,000 equivalent of local currency costs. The Government's counterpart funding will be provided in kind. A detailed TA description is given in Appendix 9.

V. PROJECT BENEFITS, IMPACTS, AND RISKS

A. Project Benefits and Impacts

37. The Project will benefit about 530,000 people, of which about 40% are considered poor, in the four project oblasts through the provision of improved access to safe and reliable water supply and better sanitation facilities. Technical, economic, and financial analyses confirm that the least-cost long-term solutions involve development and/or rehabilitation of water sources and water supply systems, including some rehabilitation of the existing GWPs. This approach will bring social and economic benefits, including poverty reduction, financial sustainability at affordable levels for project beneficiaries, and positive environmental impacts. Institutional solutions and community participation in design and implementation of the subprojects will enhance the efficiency and sustainability of the sector program and subprojects.

B. Institutional Strengthening

38. The WRC has successfully implemented one World Bank-financed water project in the past and is presently implementing another World Bank and one Kuwait Fund-assisted water project, and has adequate capacity and experience to implement the Project. However, there is a need for institutional strengthening at all government levels, including in particular strengthening their planning and financial management systems and their community participation structures and processes. Institutional strengthening is incorporated into the Project directly through the institutional development component of the Project including a capacity-building program, the HSE, and the consulting services for project management support. In addition the TA for Institutional Strengthening for Rural WSS Services will be processed in conjunction with the Project. The TA's main objective is to strengthen sector institutions and create the appropriate management systems prior to commencement of the institutional development component of the Project itself.

C. Social Dimensions

39. A social analysis following ADB's *Guidelines for Incorporation of Social Dimensions* and *Handbook for Incorporation of Social Dimensions in Projects* was undertaken to evaluate the status of infrastructure service delivery and the demands of the people living in the project area. Direct views of the community were obtained regarding the infrastructure service needs and WTP fees for the improved services. Social analysis indicates that there is an urgent need to provide access to potable water to the settlements where GWPs are no longer in working order, and water supply is infrequent. The results of the social analysis are reflected in the poverty reduction and social strategy as outlined in Appendix 10. The social analysis in the core subprojects shows that the average monthly income per person of the families surveyed is T2,453 (or \$16.7), being considerably below the living minimum established officially. The lowest income (T2,034 or \$13.8) is in South-Kazakhstan oblast and the highest (T2,935 or \$19.9) in Akmola. In all the four oblasts the average monthly income is almost half the officially stated subsistence level.

40. The impact of the Project is expected to be positive in two respects: (i) the improved quantities and quality of water available will lead to an improved quality of life, and (ii) the formation of WCGs will empower vulnerable and disenfranchised communities. Through the Project, poor women-headed households, the elderly, and disabled people will have equal access to potable water. Access to potable water and increased sanitation awareness among the rural population and children will improve health and sanitation. Improved health conditions will reduce the mortality rate and incidence of waterborne and skin diseases. The number of hours spent on collecting water will be reduced significantly by the establishment of public water standpipes by the road in a settlement. This will allow women to spend time in productive activities and family welfare. Children will have more time for school work and welfare activities.

41. Further, the Project's HSE program stresses the need to adopt proper sanitary practices. This will lead to environmental improvements, added health benefits, and increased productivity, resulting in direct economic benefits. A considerable majority of the respondents were positive with respect to the establishment of the WCGs. Their principal functions are seen as control over the water quality and spending of the funds allocated for servicing and improving the water supply systems. Further, community participation in WCGs will increase accountability and transparency in the management of the Project. To ensure equitable access to safe and reliable water supply to poor rural communities, monitoring systems will be developed both at the community level and at the project administration level. Socioeconomic surveys in accordance with ADB's guidelines will be undertaken as part of detailed analysis of affordability required for subproject preparation. The WRC and ADB will monitor the socioeconomic implications of the Project through all the processing phases. To assess the project impact, the first year, midterm, and final evaluations will examine (i) the extent to which the living conditions of the rural population and poor have improved; (ii) the extent to which the drudgery of women and children has decreased and its impact in their daily activities; (iii) changes in hygiene behavior; and (iv) the decrease in morbidity and mortality rates of waterborne diseases.

42. Specific steps to enhance women's participation in the Project include (i) identifying women's groups in the community; (ii) training women's community groups to participate in project-related activities such as health education and gender issues; (iii) training women's organizations, including those representing poorer women, in the decision-making process including planning of WSS facilities; and (iv) providing employment opportunities for women in the activities of local governments and WCGs. The improved WSS services will save time especially for women and enable them to engage in productive activities. Sanitation awareness will give them control over family hygiene. The women who work in local governments will be

involved in capacity-building training under the Project to equip them with management and technical skills in WSS work and to enable them to provide WSS services to poor communities, including women-headed households and disabled people. Half of all training activities will be directed toward women who occupy relevant staff positions.

43. In view of the sector lending modality of the Project, specific land requirements have not been fully identified. However, based on the core subprojects, the Project will require small areas of land for the location of small groundwater pumping stations and, in some cases, small storage tanks. These will be outside the village areas in agricultural land or unused land owned by the village governments. The community will contribute land for the facilities as part of their contribution to the Project. This is part of the subproject selection criteria. The Government will screen each subproject before the award of the civil works contracts to ensure that the site selection does not cause any involuntary resettlement effects that would require compensation and other assistance under ADB's *Policy on Involuntary Resettlement*.

D. Economic and Financial Aspects

1. Economic Aspects

44. The economic benefits of the Project include direct and indirect health-related benefits, release of productive time currently spent on collecting water, better education opportunities for children who share the primary responsibility for carrying water to the household, increased water consumption, and improved water quality. Other major benefits include reduced wastage of water due to distribution leaks and inefficient O&M of water supply facilities. Improved sanitation facilities will support a higher standard of public hygiene. The environment will benefit from a reduced dependence on fuel wood to render water safe for drinking by boiling.

45. Inadequate quality of drinking water supply and sanitation measures are the primary causes of rising incidences of water-borne diseases such as hepatitis, diarrhea, acute intestinal diseases, and others. According to a UNDP report, about a quarter of the population is affected by inadequate quantity and quality of potable water. The socio-economic survey showed that 15% of the households purchased drinking water from water trucks, and 25% of the households suffered some form of gastro-intestinal infection over the last year. Outbreaks of small epidemics of diseases such as viral hepatitis remain common. Though difficult to quantify, the health benefits generated by the Project will be significant. The provision of more reliable and less expensive piped water systems and improved sanitation facilities will help reduce morbidity and mortality of the population in the four oblasts, including lower infant morbidity rate in these areas, as well as an increase in the number of working days available. In addition, human suffering and medical costs associated with treatment of water-related diseases will decline, particularly for the poor who are more exposed to these diseases.

46. The economic benefits of the Project through the release of time for productive economic activities and education will be particularly significant. The sample surveys in the core subprojects areas indicate that the average household currently spends 1-4 hours per day collecting water from various sources, including polluted rivers. In winter when the water is frozen, water is transported or bought from vendors for daily needs. The time saved will become available to households for other economic and social activities. An economic rate of return (EIRR) analysis was undertaken in respect to the four representative core subprojects. Using domestic price numeraire, cost estimates were apportioned into traded and nontraded components and labor, financial costs converted to economic costs so as to reflect costs from an economic perspective, and estimated labor costs adjusted to reflect the real market value. Following the methodology for quantifiable benefits excluding the health benefits, the EIRRs for

the four core subprojects range from 22.6% in the case of Bulayev subproject to 38.6% in the case of Shortandy subproject. The EIRR for the Spasskoe subproject is 27.2% and for the Nurinsky subproject, 31.1%. The wide range of the EIRRs mainly reflects variations in per capita investment costs arising out of population base and the characteristics of the subproject, including the source of water supply. The EIRRs are all well above the economic opportunity cost of capital of 12% in Kazakhstan. The EIRRs were subjected to sensitivity analysis and remain acceptable under adverse circumstances, as summarized in Appendix 11. Financial evaluation and socioeconomic analysis have also been carried out for the four core subprojects. Of the four, two each are from Akmola and North-Kazakhstan oblasts and represent the range of various subproject types. The per capita investment costs of the core subprojects vary from \$90 to \$125, averaging about \$100. The overall viability of all four core subprojects reviewed is satisfactory in terms of viability, affordability, and type of infrastructure facilities.

2. Financial Aspects

47. The water tariffs for the core subprojects were based on the current legislation of the Republic of Kazakhstan and the methodology of tariff calculation applied by the Agency for Regulation of Natural Monopolies and Protection of Competition of the Republic of Kazakhstan (the agency in charge of the tariff setting). This method also supports affordability to the poor by allowing for subsidies to be paid to maintain project sustainability. The Project supports this approach because it is supporting the poor. The water tariffs will be a flat rate per month for public standpipe users and a fixed rate per cubic meter of water consumed for metered connections. The financial internal rate of return (FIRR) was calculated with associated sensitivity tests. The FIRR (base case) ranged from 0.7% to 2.3%. The calculations assume an annual subsidy from the Government equivalent to the annual depreciation of the capital investments. The FIRRs are below the weighted average cost of capital computed at 5.7% (considering the opportunity cost of Government investment as 10%). However, as the EIRRs are above the economic opportunity cost of capital considered at 12%, the subprojects are justified on economic considerations. Three of the four core subprojects will cover the full O&M cost from the first year of operation and generate annual revenue surplus on an incremental basis to meet part of the depreciation cost. The fourth subproject will be able to cover O&M cost in year 17 after operation. A commitment from the oblast to subsidize the O&M of this subproject is needed before it can be implemented.

3. Affordability Analysis and Project Sustainability

48. All water supply subprojects will be community driven from the initial stage of formulation and construction. WCGs formed will be participating in O&M of the schemes as self-supporting agencies to the extent possible. Due to hardship and considerable time spent in fetching water from distant places, there is an apparent willingness among the rural population to contribute in cash or kind to part of the subproject cost affecting their village. The tariffs will vary between 3.3% and 5.0% with an average of about 4.2% of the estimated average household income. These are within the accepted standards of 3-5%. As the poorer households will collect water from the public standpipes at a lower rate, in their case the cost will be much less than households with house connection. Sustainable O&M of water supply facilities is a major problem especially in rural areas of developing countries. The proposed tariff, although affordable, will not be able to sustain the O&M of constructed facilities as in the case of Nurinsky subproject. The financial analysis for the Nurinsky subproject shows that the proposed tariff will only cover 80-90% of O&M cost in the next 10 years. Subsidies from the oblast government will be needed just to operate and maintain the system. In Shortandy, the subproject revenue will be able to cover O&M and depreciation. However, in Spasskoe and Bulayev, the subprojects

revenues can only cover O&M and part of the depreciation. The oblast governments may have to subsidize capital investments to replace the old ones in the future. During the appraisal mission, discussions with the heads of local government of the rayons visited revealed that on the average about 80% of the rayon's annual budget is subsidized by the national or oblast governments while the remaining 20% comes from local taxes. More than 80% of the budget is spent on salaries and pensions and the balance is used for capital investment and O&M of public facilities. Although there is willingness on the part of the rayons to subsidize the O&M of constructed water supply facilities, the rayons may not have the financial capacity to finance the O&M. Any subsidy for water supply O&M, therefore, will come from the oblasts who also gave indications that they are willing to subsidize the O&M cost. To insure project sustainability for the succeeding subprojects, the selection criteria include evaluation of the capacity and commitment of the oblast to provide subsidy for subprojects with O&M cost that exceeds the subproject revenues generated.

E. Environment Impact

49. Overall, the Project is environmentally beneficial. An initial environmental examination (IEE) was carried out for the four core subprojects in accordance with ADB's *Environmental Assessment Guidelines* (Appendix 12). The IEE found that the subprojects component, involving simple, appropriate, low-cost technology, does not pose any significant adverse environmental consequences. The provision of safe drinking water and proper sanitation facilities is expected to have a significant positive impact on the improvement of the environment. The subprojects will include the identification of any special environmental concerns that need to be addressed during appraisal, design, and implementation of the subprojects, as well as the present environmental management measures. The Government's environment sector policies and the capacity of the Government agencies involved are adequate. An IEE will be prepared for each subproject in accordance with ADB's guidelines, and a determination will be made as to whether the subproject is environmentally sensitive. If it is, the IEE will be amplified to address any significant environmental concerns, and if the concerns are extensive, an environmental impact assessment will be prepared as for an ADB environmental category A project and be approved by ADB. Environmental examination and monitoring procedures established under an ADB-financed regional TA² will be fully utilized. Environmental concerns, for which appropriate safeguards will be built into the subproject designs, include (i) protection of environmentally sensitive areas around the water sources, (ii) provision for the proper collection and disposal of wastewater, (iii) controlled extraction from groundwater sources, and (iv) safeguarding the interests of downstream users of surface sources.

F. Overall Project Risks

50. Three possible project risks have been identified: (i) delay in project implementation caused by lack of institutional capability to implement, operate, and maintain the water supply systems; (ii) delay in project implementation caused by lack of local counterpart funds; and (iii) limited financial capacity to cope with the incremental O&M of the expanded water supply systems. The risk of delays in project implementation has been addressed through a clear delineation of agency responsibilities and appropriate mechanisms for coordination. Considerable preparatory work has already been undertaken; information has been obtained from the potential subproject communities regarding the present status of water supply facilities, and an initial assessment of required development has been carried out. Substantial support will

² ADB. 2000. *Technical Assistance to the Republic of Kazakhstan for Strengthening Environmental Management*. Manila.

also be provided for capacity building through training programs and consulting services. Through O&M training programs, local water supply system operators will be trained to ensure their involvement in O&M of the water supply systems. The possibility of delays in implementation caused by lack of local counterpart funds has been addressed. The villages will provide some labor requirements and also all land requirements in kind. Measures to reduce possible delays have been discussed with the Government. The issue of financial capability has been dealt with by including the institutional development program, which should strengthen the capacity to cope with the O&M of the expanded water supply systems. If a subsidy for the O&M of completed water system facilities is needed, a commitment from the oblast to provide subsidy will be required before a subproject can be processed. The Project is also planned to be intensively monitored, with at least two field reviews every year, throughout its implementation.

VI. ASSURANCES

A. Specific Assurances

51. In addition to the standard assurances, the Government and MOA have given the following assurances, which have been incorporated in the legal documents:

- (i) The Government will ensure and will cause the local governments to increase the supply of water to residents in the relevant subproject area who are living below the poverty levels (as defined by the Government).
- (ii) The Government will ensure that (a) all necessary government's environmental permits will be obtained promptly; (b) an IEE will be prepared for each subproject in accordance with *ADB's Environmental Guidelines*; (c) each subproject is constructed and operated in accordance with environmental procedures and guidelines of the Government and ADB; (d) any adverse environmental impacts arising from the subprojects are minimized by implementing the mitigation measures and monitoring program presented in the summary IEE of the core subprojects, and if concerns are extensive, an environmental impact assessment will be prepared; and (e) the progress of the environmental monitoring program during the construction and operation will be reported to ADB as part of the project monitoring and review.
- (iii) The Government will ensure that the implementation of the Project, the benefits derived from the Project, and the overall operations will be monitored and evaluated on an annual basis by the CPMU. Within 6 months of loan effectiveness, the Government will refine the PPMS in a manner satisfactory to ADB, including the use of relevant financial and technical monitoring indicators and information.
- (iv) The Government will cause the local governments to carry out annual reviews of the level and structure of their water tariffs, to ensure that revenues from the water tariffs cover O&M costs, and furnish the result thereof to ADB through the Executing Agency, within 3 months of each such reviews.
- (v) The Government will cause the local governments, supported by the WCGs concerned, to take appropriate measures for proper collection of outstanding water bills and protect their water resources and facilities through vigorous prosecution for violations such as water meter tampering or water theft.

- (vi) The Government will ensure that (a) relevant CBOs and NGOs will be involved in subproject planning, design, construction, and O&M, as well as actively help with the capacity building, health, and hygiene components of the Project; (b) women's community groups will participate in all relevant project-related decision-making activities; and (c) adequate opportunities for the employment of women in WCG-related activities under the Project will be made available. At least half of the members of management positions of WCGs will be women.
- (vii) The Government will obtain ADB's prior approval of the first small subprojects, or subproject costing less than \$500,000, from each of the four oblasts, and the first large subproject, or subproject costing more than \$500,000, proposal from each oblast. The Government will submit the first 10 subprojects completed in each participating oblast for ADB's review and comments. Any subsequent subproject that costs more than \$2.0 million equivalent will be submitted to ADB for prior approval.
- (viii) Loan funds may be used to finance expenditure for private sector auditors and translations of auditor's reports into English, provided that such auditors have qualifications, expertise, and terms of reference acceptable to ADB, and are recruited following processes acceptable to ADB.
- (ix) One year after loan effectiveness, the Government, together with ADB, will conduct a review of the implementation arrangements, including the role of the WRC and WCGs, as well as project start-up experience. Further, the Government will conduct comprehensive reviews on the second and fourth year of Project implementation.
- (x) The Government will ensure that the project activities are implemented in line with *ADB's Guidelines for Incorporation of Social Dimension in Bank Operations*.
- (xi) The Government will ensure that selection of the settlements and subprojects is based on the criteria established for this Project.
- (xii) The Government will ensure that all necessary counterpart funds for project implementation are provided in a timely manner and, to such end, the Government will ensure that the local governments will provide the counterpart funds and subsidy (for O&M if necessary) in a timely manner during each year of project implementation. The Government will ensure the Project is included in the list of priority investment projects for 2004.
- (xiii) Although no involuntary resettlement is envisaged, the Government will, prior to the award of civil works contracts, screen for involuntary resettlement effects, to ensure that there are no losses of land, income, housing, community facilities, or resources that would require compensation to be paid and other assistance in accordance with ADB's policy on involuntary resettlement.

B. Conditions for Loan Effectiveness

52. The effectiveness of the Loan Agreement, will be subject to the following conditions:

- (i) The Central Government will have engaged the consulting services for Project Management Support and established a CPMU under the WRC, and the four oblast governments will have established OPMUs, one each in Akmola, Karaghandy, North-Kazakhstan, and South-Kazakhstan oblasts. The central Government and the oblast governments will have provided adequate office space for the CPMU and OPMUs, and identified adequate technical staff to support the work of the CPMU and OPMUs.
- (ii) The PCC will have been established, and will be comprised of senior officials from the concerned Government ministries, offices, and agencies including Ministry of Finance, Ministry of Economy and Budget Planning, WRC, and MOH. The PCC, which is to provide overall project coordination, will be maintained throughout the implementation period, with a composition and terms of reference satisfactory to ADB.
- (iii) The Government will have issued a regulation on project implementation satisfactory to ADB, clearly specifying the respective roles and responsibilities of the Ministry of Finance, MOH, WRC, local executive authorities concerned, and other relevant agencies in implementation of the Project.

C. Conditions for Loan Disbursement

53. The disbursement of the Loan will be subject to the payment in advance of the front-end fee in the amount of 0.5% of the amount of the Loan.

VII. RECOMMENDATION

54. I am satisfied that the proposed loan would comply with the Articles of Agreement of ADB and recommend that the Board approve the loan of \$34,600,000 to the Republic of Kazakhstan for the Rural Area Water Supply and Sanitation Sector Project from ADB's ordinary capital resources with interest to be determined in accordance with ADB's LIBOR-based lending facility; an amortization period of 25 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan Agreement presented to the Board.

TADAO CHINO
President

2 September 2003

SECTOR ANALYSIS

A. General

1. The Republic of Kazakhstan is a landlocked country covering an area of approximately 2.7 million square kilometers (km²). The population is officially estimated at approximately 14.9 million people,¹ of whom about 40% (6.0 million) live in rural areas. Since 1990, the population has been declining at a rate of 0.6% per annum. The country is administratively divided into 14 *oblasts* (provinces). The main cities of Astana (the capital) and Almaty also have oblast status. North-Kazakhstan, Akmola, and South-Kazakhstan oblasts are predominantly rural, while Karaghandy oblast has a higher proportion of urban dwellers; however, it has significant rural poverty. In 2000 the populations of the four oblasts and the proportion living in rural areas were North-Kazakhstan 727,000 (72%); Akmola 837,500 (76%); Karaghandy 1,413,000 (22%); and South-Kazakhstan 1,974,000 (36%).

2. Five difficult years of macroeconomic disarray followed Kazakhstan's separation from the former Soviet Union in 1991. Gross domestic product declined by about 50%, then began stabilizing in 1995. The hyperinflation of 1992-1994 declined to about 17% in 1997 and to about 2% in 1998. Gross domestic product growth recovered to about 10% in 2000. A budget surplus was achieved in 2000 for the first time since independence, inflation subsided, the balance of payments situation improved significantly and the short-term economic outlook is positive. Despite the recent achievements and positive prospects, Kazakhstan faces major economic challenges, which have mixed implications for Asian Development Bank (ADB) operations. While continuing growth is likely to increase the country's need for long-term financing for development projects such as from ADB, growing debt service obligations may constrain the Government's external borrowing capacity.

B. Poverty and Health Implications

3. Moreover, the current economic base for growth is narrow and has not led to widespread improvements in people's living standards. As a result, poverty remains a serious problem. The Government indicates that about 30% of the population lived below the subsistence minimum² in 2000, compared with 25% in 1993. The sharp rise in poverty was caused by the persistent economic difficulties. The Government's social expenditures were sharply reduced, and the delivery of social services such as water supply and sanitation (WSS), education, and primary health care has deteriorated significantly.

4. Kazakhstan ranks 73rd in the United Nations Development Programme (UNDP) Human Development Index of year 2000. Although poverty was not statistically defined in the Soviet Union, it has been estimated that, at that time, Kazakhstan was one of the least poor Central Asian republics. Presently, however, wages have fallen by about 50% and the former security of job tenure has been replaced by unemployment, which is especially high in rural areas. Poverty in rural areas is more acute than in urban areas. The urban areas have about 25% poor population as compared to 35% of poor population in rural areas. At the time of the Soviet Union, WSS facilities were mostly provided to the public free of charge. Recent closure of facilities and declining budget for the WSS sector has resulted in service disruption and major cost increases for these

¹ Source: Population Census 1999.

² The "subsistence minimum" is defined as insufficient economic resources to meet basic needs. An official "poverty line" is also set by law and equal to 38% of the subsistence minimum. However, the "poverty line" is used to target social assistance, rather than to measure actual poverty.

services. The access of poor households to basic WSS infrastructure services has deteriorated in quantity and quality. Health and demographic indicators reinforce the presence of greater levels of human deprivation in rural areas. Diarrheal diseases, which are strongly associated with unsafe WSS and poor hygiene, are among the leading causes of increased water-related morbidity. Given the fact that health statistics are based on hospital in-patient records only, the prevalence of diarrheal diseases could be higher than reported. The incidence of waterborne and excreta-related diseases is on the rise. It is, therefore, of utmost importance that provision of basic WSS facilities are combined with hygiene education in communities and schools will become important elements in improving the community health.

C. Rural Water Supply and Sanitation Sector Conditions

5. As a result of severely reduced operational budgets, WSS systems in Kazakhstan are in a serious state of disrepair, particularly in rural areas, where population coverage is only about 40%. The conditions have worsened in the years since independence and in the period from 1991 to 2000, in which the population dropped by 9% and industrial and agricultural production declined, potable water supply decreased by 55%. Some rural potable water supplies average only 10 liters per capita per day (lpcd).³ The water is also of poor quality, either because the source is of poor quality or because of insufficient treatment and contamination during transmission. Some groundwater and surface water are highly mineralized or polluted, and pose significant health risks. Many people rely on supplementary supplies from private wells, handpumps, and local surface water sources irrespective of the quality of the water available. Others have moved because they have little or no water available. Agricultural production in the country's main grain-producing areas (especially Akmola and North-Kazakhstan oblasts) is at risk since farmers are moving due to lack of sufficient safe drinking water.

6. The water supply systems in the rural areas consist of (i) large pipeline systems, called group water pipelines (GWPs), which distribute water over long distances and served a large number of communities; and (ii) small, decentralized systems typically serving one or more communities. Most systems supply water through public standpipes in the streets. A few systems have yard taps and house connections. Groundwater is the most common water source. Surface water is used if the groundwater is unsuitable, especially for the GWPs in the North-Kazakhstan oblast. Water is also supplied by vendors through kiosks or tanker trucks. Some people depend on other supplementary sources, such as private wells, hand pumps, and local surface water sources. The reasons for the poor condition of rural water supply systems include (i) inefficiency of operation (e.g., high water losses); (ii) high operation and maintenance (O&M) costs, especially for the GWPs; (iii) insufficient resource allocation for maintenance and rehabilitation, due to low tariffs and low revenue collection; and (iv) ineffectiveness of operating water utilities to manage the systems.

7. The GWPs were designed to supply large areas where the local groundwater is mineralized. As many as 120 communities may be served by a single system, with communities up to 30-40 kilometers (km) apart. Other GWPs serve as few as 35 communities. GWPs were designed for a 25-year life but are now 30-40 years old. They are in poor condition and largely beyond repair. Some systems have ceased to function completely. This applies to treatment facilities and pumping stations as well as pipelines, which are of unlined steel. Some GWPs operate only in part, with local distribution systems closed because of their poor condition. Water is frequently sold by vendors from water towers and kiosks erected over operational standposts or modified valves. Existing decentralized water supply systems are in poor condition also, for similar

³ World Health Organization minimum standard is 25 lpcd.

reasons. A significant number of these systems supply mineralized and untreated water.

8. With regard to tariffs for water supply, the water supply services organizations are intended to operate commercially on full cost recovery principles, as required by the country's market reforms and the Agency for Regulation of Natural Monopolies and Protection of Competition of the Republic of Kazakhstan (or the Anti-Monopolies Agency, which is in charge of tariff setting). However, the agency sets tariffs based on justification provided by the water utilities, which often results in tariffs set below cost recovery level. Consequently, many water utilities have gone bankrupt. In some rural areas where GWPs are no longer working, private vendors are supplying water to the communities at a much higher cost. Monthly payment per family for water supply can therefore vary from T150 (\$1.00) to T850 (\$5.80) depending on whether the source is a piped system or a vendor. Rural populations that cannot afford to buy water are using polluted water from wells and open sources.

9. The appropriate solution for improvement of rural potable water supplies will be decentralized, small systems through a combination of development of local ground and water sources and rehabilitation of segments of the existing pipelines, where this is viable, or construction of completely new local networks. The highly dispersed settlement patterns in some rural areas make replacement or extensive rehabilitation of the GWPs inappropriate. Furthermore, the management of the new systems should be decentralized to as close to the level of the users as possible.

10. There are also few functioning sanitation systems in rural areas. Only a few *rayon* (district) centers have sewerage systems, which only collect wastewater and then dispose of it without treatment. Their condition is generally poor, with little maintenance being carried out. Elsewhere, wastewater is disposed of on the ground around the house or in a septic tank. Private toilets usually comprise simple non-sanitary pit latrines in poor condition replaced with a new one when full. School latrines and other public facilities are usually in poor condition as well, and handwashing facilities tend to be nonexistent. The cold weather adds to the difficulties of providing satisfactory sanitation, especially where large quantities of wastewater have to be disposed. In winter, wastewater is disposed of outside the house, which then freezes and melts slowly in the spring, creating pools of septic water close to the house. Further, in the past many villages had *banyas* (public bath houses), which have now mostly fallen into disuse mainly because of lack of water supply. Therefore, an increase in skin infections caused by lack of proper cleanliness has been observed.

D. Institutional, Legal and Policy Framework

1. Institutional Arrangements

11. For water resources and water supply development, there are effectively three levels of governance or organization. At the upper, national government level, the Ministry of Agriculture (MOA) together with the Water Resources Committee (WRC) within it, is responsible for water resources management, policy, and allocation. At the intermediate level, local government is indirectly responsible for water supply, but in fact this function is usually assigned to water supply providers, which report to the WRC directly. The main exceptions are in smaller rural communities where there are decentralized systems, where water is transported, and where the local government takes an active role. At the community level, water consumers groups as such do not exist. However, there are some community based, rather than government organizations that have an involvement in water supply matters. They are associations of apartment owners and the household committees.

12. The water supply providers have the role of a municipal utility in all cases where there is a centralized supply system, from small settlements to the towns and cities. This function is assigned by the local government, but they report to the WRC. There are other service providers whose area of operation extends to a number of local government areas and state-owned enterprises responsible for rural water supplies and maintenance of water supply pipelines within a particular group system area. All water supply providers' commercial operations and tariff setting are regulated by the Anti-Monopolies Agency.

13. In addition, the following organizations are directly concerned with water activities and resources management: (i) the Ministry of Health (MOH), through its sanitary-epidemiology departments, controls drinking water quality; (ii) the Hydro-meteorology and Natural Resources Monitoring Agency, whose responsibilities include analysis of surface water resources and streams; and (iii) the Ministry of Natural Resources and Environmental Protection which sets concentration norms for sewage disposal. The following agencies also play a part in the WSS sector: Construction Committee; Ministry of Transport and Communications; Forestry, Fishing and Hunting Committee; and the State Land Committee. The large number of bodies involved in the sector causes problems of interagency integration and inefficiency and creates additional constraints on the protection of water sources from pollution.

14. The governance of sanitation is treated as being a health and environmental matter, rather than being related to the provision of adequate and safe drinking water supplies, or as a service in its own right. It is therefore controlled and regulated—rather than managed for service provision—by MOH for matters related to public health and prevention of water-borne diseases, and by the Ministry of Natural Resources and Environmental Protection, which deals with standards and field monitoring for discharges of effluents to the environment including natural water bodies. There is limited involvement of community-based organizations (CBOs) and nongovernment organizations (NGOs) in the development of the WSS sector. Those CBOs that exist are informal and traditional organizations mostly in the south of the country. There are a growing number of NGOs, but they are generally weak. None specifically cover the WSS sector, several deal with environmental issues, while others promote small-scale economic activities or provide support to health or other social issues such as of mothers and children. This is probably partly due to lack of investment in the sector. The present tax code requires that NGOs be treated as any other commercial organization and are liable for income and profit tax on their earnings, representing a significant constraint in their development.

2. Legislation

15. The system of laws and subordinate regulations, standards and codes provide a sufficient normative base to enable the preparation of a detailed inventory of water resources by origin, destination, purposes, and technical conditions of usage, as follows: (i) the rights and responsibilities related to provision of WSS services have remained under the authority of local executive agencies headed by the *akims* (head of local governments) although responsibility for water supply has effectively been delegated to water service providers in cities, towns, and settlements where there are centralized systems; and (ii) the current legislation is sufficient, subject to a relevant initiative by the local agencies (*akims*), for initiating structural changes in WSS systems, including change of ownership, of enterprises involving natural monopolies, and for privatization with sales or transfer of some communal property to mixed ownership.

16. The legislative system demonstrates that, since independence, Kazakhstan is moving toward the reform of legislation in the area of environment protection. It has ratified more than 20 international agreements, and more than 30 international treaties are currently in force.

3. Policies

17. Since independence in 1991, the Government has pursued a number of policies to improve the WSS sector as well as promote cost recovery and private sector development; it has also introduced measures to improve living standards and reduce poverty. Decentralization plays a key role in the Government's approach to the restoration of basic services, as reflected in the recently approved Strategic Plan of Development of the Republic of Kazakhstan to 2010. However, until recently, Kazakhstan has had no formal program of WSS development. Only since 1999 has the WRC started developing regional sector projects and a sector program: the National Drinking Water Program.

E. Assistance to the Sector

18. Since independence, public investment in the sector has been very limited. External assistance specifically to the WSS sector has also been limited and did not commence until 1997. Assistance has been mainly for irrigation and soil salinity programs and capacity building. Multilateral support to the sector has been from the World Bank and European Bank of Reconstruction and Development (EBRD). The French Government has provided funds for the EBRD-supported WSS project in Almaty. Among the other external aid agencies, Kuwait Fund and the Government of Germany have provided funds for rural WSS development. As part of the Aral Sea initiatives, UNDP has supported a remote village development project in Kyzyl Orda. The World Bank is carrying out a technical assistance (TA) for a proposed WSS project in North-Eastern Kazakhstan, covering the cities of Karaghandy, Kokshetau, and Temirtau.

1. ADB Lending and Technical Assistance

19. In 2000, the Government requested TA from ADB to help prepare the Rural Area Water Supply and Sanitation Sector Project.⁴ There has been close coordination between ADB and other sources of assistance, which has reinforced and complemented their respective WSS sector aid activities in Kazakhstan. As a result, the Islamic Development Bank is planning to cofinance the Project through parallel financing for the civil works and equipment in one project oblast: Karaghandy.

F. Reforms Needed

20. Under the National Drinking Water Program, the overall goal of the WSS sector policy is to improve the health and living conditions of the population by providing better access to safe and adequate amounts of water supply and better sanitation services. To achieve this goal, several objectives need to be met. These objectives are to (i) assist, initially, in the development of infrastructure systems in those regions in crisis or with a depressed economy; (ii) decentralize water distribution systems development in rural areas; (iii) undertake institutional reforms necessary for the effective, efficient, and equitable development and operation of WSS; (iv) develop effective implementation mechanisms including cost recovery for WSS in conditions of the market; and (v) involve the private sector in management of WSS.

21. The goal for drinking water supply is the reliable provision to the population of potable water, according to the standards for drinking water, in the necessary quantities. The potable water supply objectives are to (i) provide crisis regions and depressed regions with potable water according to a quality standard in minimum quantities, (ii) develop new potable water sources in

⁴ ADB. 2000. *Technical Assistance to the Republic of Kazakhstan for the Rural Water Supply Sector Project*. Manila.

regions with shortages of water, and (iii) rehabilitate and develop water supply systems to satisfy the demand. The goal for sanitation is to provide conditions that satisfy public health requirements and do not contaminate potable water sources. The sanitation objectives are to (i) increase the reliability of operation of urban wastewater systems through rehabilitation of existing networks; (ii) develop domestic and industrial wastewater and, in parallel; (iii) take action for the relief discharge of existing sewerage ponds serving population and industry, to remove the environmental threat they pose; (iv) ensure that pit latrines in rural areas are soundly designed and operated; and (v) develop rural waterborne sanitation systems in areas where there are adequate water resources, and where this would be affordable.

22. The main institutional challenges for further WSS sector development are the development of WSS services at the local level, and sector services decentralization. As infrastructure investments have traditionally been planned and financed by the Central Government, remnants of top-down approaches persist at almost all administrative levels, with little participation from local communities and governments. The main focus for institutional reform will therefore be in community participation, private sector participation, and capacity building in local government. To achieve this, capacity building and management support should be provided through a training and support program for (i) MOA, the WRC, training of staff of the oblast and *rayon* (district) governments, the members of the Sanitary Epidemiological Station of the oblasts and rayons and relevant water supply providers; and (ii) the communities to strengthen their capacity to efficiently implement, use, and pay for the systems. Capacity building is also required for the water service providers in public utilities management and operations, financial sustainability, responsive service delivery to the customer, and effective investment in new infrastructure and rehabilitation of the existing systems.

EXTERNAL ASSISTANCE TO THE SECTOR

Agency	Project	Year	Amount (\$ million)
World Bank	Water Supply Project in Kyzyl-Orda Oblast (province)	1997	7.0
World Bank	TA on Rehabilitation and Management of Environment of Nura-Isim River Basins	1999	0.7
World Bank	TA on Water Resources Management at the Northeast of Kazakhstan	1999	0.5
World Bank	TA for Regulation of the Syrdarya River and Northern Part of the Aral Sea	2000	1.8
EBRD France	Almaty Water and Sewerage Project/Municipality of Almaty	2000	6.6 25.0
World Bank	Water Supply and Sanitation Facilities in Atyrau/Municipality of Atyrau	2000	16.5
Kuwait Fund	Aral Sea Region Water Supply and Sanitation Project	2001	13.6
KfW	Regulation of the Syrdarja River Course and Northern Part of Aral Sea	2001	5.3

EBRD = European Bank for Reconstruction and Development; KfW = Kreditanstalt für Weideraufbau of the Government of Germany; TA = technical assistance.

PROJECT FRAMEWORK

Design Summary	Project Targets and Measurable Indicators	Monitoring Mechanism	Risks and Assumptions
<p>Goal Improve living and health conditions of the rural communities</p>	<p>Follow the millennium development goal: aim to halve, by 2015, the proportion of people without sustainable access to safe drinking water, by increasing the population coverage with access to safe and reliable water supply and sanitation (WSS) from existing 40% to 55% by 2009 in the project villages on a self-sustainable basis, and reduce the incidence of waterborne and sanitation-related diseases by approximately 50%.</p>	<p>Conduct periodic surveys at midterm and at project completion.</p> <p>Selection criteria will focus on poor villages.</p> <p>Project performance monitoring system has been designed to monitor the Project's impact on the poor.</p>	<p>Institutional structure is in place for effective management of WSS schemes.</p> <p>There will be adequate community participation and ability to pay.</p> <p>Public standpipes will be provided to ensure that the poorest area will have access to water and charged less.</p>
<p>Purpose Provide safe, easily accessible, and sustainable water supply, and improved wastewater drainage facilities, school latrines, and bathhouses to selected rural communities in four <i>oblasts</i> (provinces).</p>	<p>Approximately 0.53 million people, of which 40% are classified as poor, will have safe and reliable water supply, adequate wastewater drainage facilities, and improved school and private latrines and bathhouses by 2009.</p>	<p>Surveys at midterm and project completion</p> <p>Project performance report</p> <p>Quarterly progress reports</p>	<p>Infrastructure is properly managed, operated, and maintained.</p> <p>Adequate community participation takes place.</p>
<p>Outputs</p> <p>A. Physical Infrastructure</p> <p>1. Rural Water Supply</p> <p>a. New water supply systems</p> <p>b. Rehabilitated water supply schemes</p>	<p>Approximately 350 villages will be provided with new water supply systems, and 150 villages will have their systems rehabilitated.</p> <p>Of the 80 subprojects, about 60 systems will utilize groundwater sources, and 20 systems surface water.</p>	<p>Progress reports and Asian Development Bank (ADB) review missions</p> <p>Project performance monitoring system (PPMS)</p>	<p>Geophysical data on groundwater reservoirs is reliable.</p> <p>Effective operation and maintenance (O&M) of WSS schemes takes place.</p> <p>Desalinization of water, if needed, is not prohibitively expensive.</p>

Design Summary	Project Targets and Measurable Indicators	Monitoring Mechanism	Risks and Assumptions
<p>2. Rural Sanitation</p> <p>a. Wastewater drainage facilities</p> <p>b. School latrines and public bath houses</p> <p>B. Institutional Development</p> <p>1. Effective structures for WSS schemes management</p> <p>2. Training centers established</p> <p>3. National health education program in place</p>	<p>Introduction of proper wastewater drainage facilities where required</p> <p>Rehabilitation of school latrines and public bathhouses in subprojects, as required</p> <p>Establishment of WCGs for each of the subprojects</p> <p>Organizational units involving water providers, and <i>akim</i> (head of local government) administration, are established for effective management, O&M of each WSS scheme.</p> <p>Decree on Drinking Water is adopted in 2003.</p> <p>About 2,000 central and local officials, and community leaders will be trained.</p> <p>Pilot health education program is in place by 2005 and expanded to four oblasts by 2006.</p>	<p>Progress reports, ADB review missions, and PPMS</p>	<p>There is effective management of WSS schemes, including functioning water consumers groups (WCGs).</p> <p>Tariffs are adequately set and collected.</p> <p>There is effective O&M of wastewater treatment facilities.</p> <p>Community participation is active.</p> <p>The roles of akims, WCGs, and water providers are clearly delineated in WSS schemes management.</p>
<p>Activities</p> <p>A. Rural Water Supply and Sanitation</p> <p>1. Geophysical surveys, physical infrastructure investigation and design</p> <p>2. Construction and rehabilitation of water supply schemes</p>	<p>Undertake detailed engineering surveys in all 80 subprojects.</p> <p>500 communities will have new or rehabilitated water supply schemes, wastewater drainage</p>	<p>Progress reports and ADB review missions</p> <p>PPMS</p>	<p>Adequate groundwater resources</p> <p>Full cooperation of communities, suitable and active nongovernment organizations (NGOs) and community-based organizations (CBOs)</p>

Design Summary	Project Targets and Measurable Indicators	Monitoring Mechanism	Risks and Assumptions
<p>3. Assessment of needs and construction of wastewater facilities, school latrines, and public bath houses</p> <p>4. Community consultations</p>	<p>facilities, school and private latrines, and bath houses.</p>		<p>Competent construction companies Availability of specific materials and equipment in country</p>
<p>B. Institutional Development</p> <p>1. Appointment of consultants and identification of NGOs and CBOs</p> <p>2. Establishment of project coordination committee (PCC)</p> <p>3. Community consultations on effective structures WSS schemes management</p> <p>4. Training courses in O&M, public hygiene, and WSS financial management</p> <p>5. Assistance with implementation of the National Drinking Water Program</p>	<p>Engagement of 60 person-months of international and 620 person-months of domestic consultants under the Project and associated TA</p> <p>PCC comprising senior officials from ministries concerned is established before loan effectiveness.</p> <p>Socioeconomic surveys and focus groups discussions on WCGs</p> <p>About 2,000 central and local officials, other stakeholders' staff, and community members trained in project management, O&M of WSS facilities, and public hygiene program</p> <p>Establish central and oblast project management units, and train staff in project management and ADB procedures</p>	<p>Progress reports and ADB review missions</p> <p>PPMS</p>	<p>Experienced and competent international and domestic consultants and counterpart staff</p> <p>Adequate support by ministers and departments concerned</p> <p>Effective cooperation among government agencies</p> <p>Adequate experience in ADB procurement procedures</p> <p>Delays in setting up offices</p> <p>Adequate funding for project management consultants</p> <p>Timely establishment of project management units</p>

DETAILED COST ESTIMATES AND FINANCING PLAN

Table A4.1: Summary of Project Cost Estimates
(\$ million)

Component	Foreign Exchange	Local Currency	Total Cost	Percent
A. Physical Infrastructure				
1. Water Supply	33.2	20.5	53.7	82.5
2. Sanitation	0.0	1.5	1.5	2.3
3. Detailed Design ^a and Construction Supervision	0.0	4.0	4.0	6.1
Subtotal (A)	33.2	26.0	59.2	90.9
B. Institutional Development				
1. Capacity Building Program	0.0	0.6	0.6	0.9
2. Hygiene and Sanitation Education	0.0	0.4	0.4	0.6
3. Consulting Services for Project Management Support				
a. International Consulting Services	1.3	0.0	1.3	2.0
b. Domestic Consulting Services	0.0	0.7	0.7	1.1
Subtotal (B)	1.3	1.7	3.0	4.6
C. Total Costs (A+B)	34.5	27.7	62.2	95.5
D. Interest During Construction ^b	2.8	0.0	2.8	4.5
Total	37.3	27.7	65.0	100.0

^a Includes surveys and investigations.

^b Includes interest, front-end fee, and commitment charge.

Source: Asian Development Bank estimates.

Table A4.2: Financing Plan
(\$ million)

Item	Foreign Exchange	Local Currency	Total Cost	Percent
A. External Source				
1. Asian Development Bank	27.0	7.6	34.6	53.2
2. Islamic Development Bank ^a	6.2	3.3	9.5	14.6
Subtotal (A)	33.2	10.9	44.1	67.8
B. Domestic Source				
1. National Government				
a. Taxes and Duties	0.0	8.4	8.4	12.9
b. Physical Infrastructure	0.0	1.7	1.7	2.6
c. Capacity Building Program	0.0	0.6	0.6	0.9
d. Hygiene and Sanitation Education	0.0	0.4	0.4	0.6
e. Consulting Services for Project Management Support	1.3	0.7	2.0	3.1
f. Interest During Construction ^b	2.8	0.0	2.8	4.5
2. Oblasts				
a. Land	0.0	1.0	1.0	1.5
b. Detailed Design ^c and Construction Supervision	0.0	4.0	4.0	6.1
Subtotal (B)	4.1	16.8	20.9	32.2
Total	37.3	27.7	65.0	100.0

^a Loan is SDR7 million. SDR1.0 = \$1.35. Amount was confirmed during project appraisal by the Islamic Development Bank in January 2003.

^b Includes interest, front-end fee, and commitment charge.

^c Includes surveys, investigations, and feasibility study.

Source: Asian Development Bank estimates.

Table A4.3: Disbursement Schedule
(\$ million)

Source of Financing	Year						Total
	2004	2005	2006	2007	2008	2009	
A. Asian Development Bank		1.7	5.2	6.9	13.8	7.0	34.6
B. Islamic Development Bank		0.5	1.4	1.8	4.0	1.8	9.5
C. National Government							
1. Physical Infrastructure		0.1	0.3	0.4	0.5	0.4	1.7
2. Consulting Services for Project Management Support	0.3	0.3	0.4	0.6	0.2	0.2	2.0
3. Hygiene and Sanitation Education	0.1	0.1	0.1	0.1			0.4
4. Capacity-Building Program	0.1	0.1	0.1	0.1	0.1	0.1	0.6
5. Front-End Fee	0.2						0.2
6. Commitment Charge		0.1	0.2	0.2	0.1		0.6
7. Interest During Construction		0.1	0.2	0.3	0.5	0.9	2.0
8. Taxes and Duties		0.6	1.3	1.8	3.1	1.6	8.4
Subtotal C	0.7	1.4	2.6	3.5	4.5	3.2	15.9
D. Oblasts							
Land, Detailed Design ^a and Construction Supervision							
1. Akmola	0.1	0.2	0.3	0.5	0.2	0.1	1.4
2. North-Kazakhstan	0.1	0.2	0.3	0.5	0.2	0.1	1.4
3. South-Kazakhstan	0.1	0.2	0.3	0.5	0.2	0.1	1.4
4. Karaghandy		0.1	0.1	0.4	0.1	0.1	0.8
Subtotal D	0.3	0.7	1.0	1.9	0.7	0.4	5.0
Total	1.0	4.3	10.2	14.1	23.0	12.4	65.0

^a Includes surveys, investigations, and feasibility study.

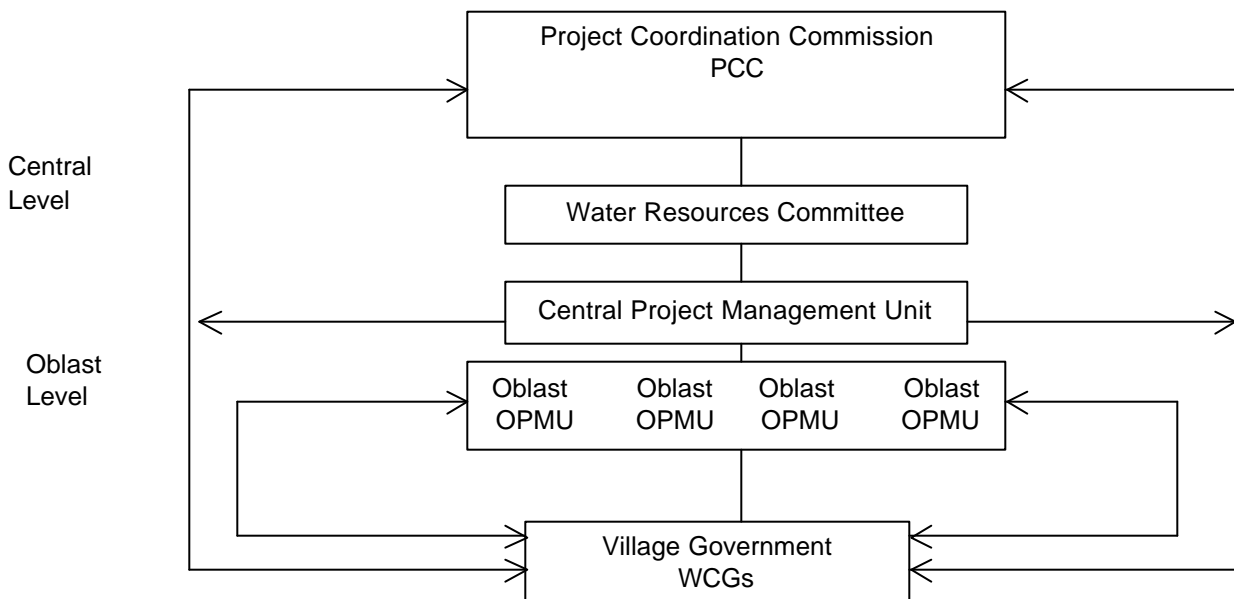
PROJECT IMPLEMENTATION ARRANGEMENTS

A. The Central Project Management Unit

1. The central project management unit (CPMU) will be established and staffed by the Water Resources Committee (WRC) of the Ministry of Agriculture (MOA), the Executing Agency. It will be supported by a consultant project coordinator, along with international and domestic consulting staff to be recruited for project management in the fields of project coordination with the Asian Development Bank (ADB) requirements, engineering and procurement supervision, financial management and accounting. The CPMU will also have a bilingual secretary and interpretation services as needed. CPMU offices will be fully equipped with computers, printers, photocopiers, fax machine, and transport facilities.

2. The CPMU will coordinate and manage all activities required for the implementation and management of the Project, and report directly to the WRC and ADB. The CPMU's main responsibilities are to (i) initiate project preparation activities including set up working systems and procedures and systems of communication and reporting between the CPMU and *oblast* (province) project management units (OPMUs), and procure office equipment; (ii) prepare the overall implementation program, including coordinate and aggregate annual provincial implementing plans and budgets; (iii) maintain accurate project accounts, including an imprest account, approve project expenditures after submission of invoices by the OPMUs, process withdrawal applications with ADB, prepare the required financial statements, and organize regular audits of all project accounts; (iv) review project proposals submitted by villages and the OPMUs to prioritize subprojects, and submit recommendations to the project steering committee, through the WRC; (v) prepare guidelines for processing tender documents, and classifying and prequalifying local, regional, or international contractors; (vi) supervise the preparation of tender documents, issue invitations to bid, evaluate bids, and award contracts; (vii) provide engineering and construction assistance by training provincial staff; (viii) monitor and report to the WRC and ADB on overall project developments including physical, institutional, and financial progress based on the aggregation of regular reports; (ix) provide overall guidance for planning and supervising local surveys (conducted by the OPMUs based on data collected in each subproject area) for the project performance monitoring system; (x) following accepted standards, format, and frequency, assume responsibility for the analysis of the project monitoring data; (xi) provide overall guidance to local governments, water consumers groups (WCGs), and the OPMUs on the introduction of new responsibilities, in particular those related to new repair and maintenance tasks, and in conjunction with relevant trainers, prepare manuals to support the introduction of new tasks; (xii) provide assistance to the OPMUs and other stakeholders on preparing proposals for the funds to rehabilitate infrastructure, and also evaluate and help implement proposals; (xiii) coordinate with outside organizations at the national and international levels, national government organizations, national representation of mass organizations, nongovernment organizations (NGOs), community-based organizations (CBOs), and external aid organizations; (xiv) organize overall institutional strengthening and training activities; and (xv) prepare a project completion report.

B. Organization Structure for Project Implementation



C. The Oblast Project Management Units

3. An OPMU will be established in each of the four project *oblasts* by the oblast *akim* (local government head). The OPMUs will each have the following staff from the oblast: (i) a program manager and design engineer, (ii) an accountant, and (iii) a social and community development specialist. Each OPMU will be supported by domestic consultants in the same areas and appointed by the oblast *akim*. To assist and oversee subproject planning and implementation each oblast *akim* will appoint a linking coordinator with the OPMU to provide access to skills in engineering, construction supervision, social development, accounting, and community development in the relevant oblast and other agencies.

4. The OPMUs will coordinate the assistance to the subproject communities in preparing and developing the rehabilitation and development of basic infrastructure, under the general direction of the CPMU. They will report to the CPMU. Their main responsibilities are to (i) visit proposed subproject communities, and ensure that the communities are aware of the basic principles of the Project and the steps and procedures that will need to be followed; (ii) carry out rapid assessments of proposed subprojects, and prepare applications for inclusion in the Project for submission to the WRC, CPMU, and the project coordination commission (PCC); (iii) together with the CPMU, prepare tender documents, issue invitations to bid, evaluate the bids received and award contracts for community mobilization, and engineering design and costing; (iv) implement the Hygiene and Sanitation Education Program in coordination with the Ministry of Health in the oblast; (v) prepare an implementation plan for the oblast, including coordinating and aggregating the subproject requests and budgets, for submission to the CPMU; (vi) monitor the design proposals submitted by the domestic subproject consultants to ensure that they meet the design criteria established by the CPMU; (vii) check the affordability of the proposed subprojects, using the data collected from the community surveys; (viii) monitor subproject implementation, in particular the quality of the work and the involvement of women in the

Project; (ix) collect regular reports on subproject preparation and implementation data and submit them in the agreed format to the CPMU; (x) maintain accurate project accounts for the Project in the oblast including an imprest account, approval of invoices from locally hired contractors for community mobilization, engineering design and costing, physical works and materials and equipment; (xi) submit financial reports on a regular basis as established by the CPMU; (xii) confirm delivery of services and materials contracted by the CPMU, to the CPMU, to facilitate the payment of the centrally appointed contractors; (xiii) disseminate guidance prepared by CPMU on system maintenance and tariff preparation for cost recovery; and (xiv) help the CPMU prepare the project completion report.

D. Work Program

5. At the start of the Project, the CPMU will assist the four province administrations in formulating the draft project expenditures for all activities, with estimates for each year of Project implementation. These budgets will be reviewed and updated every 6 months. All budgets will be reviewed and approved by the WRC before implementation. Expenditures will be recorded at source by the OPMUs and the CPMU. The CPMU will approve and supervise all draw-down arrangements. The CPMU will be responsible for compiling project expenditures based on its own expenditures and the reports of expenditures submitted by the OPMUs. It will report project expenditures to the WRC and the PCC, with copies to ADB, on a monthly basis with quarterly and annual summaries.

6. For the rehabilitation and development of infrastructure facilities, the OPMUs will work with local governments, as well as the *rayon* (district) and oblast administrations and WCGs and other stakeholders where appropriate. The OPMU will carry out a rapid assessment of the subproject. The CPMU will provide the selection criteria and the OPMU will present the applications, with their own assessment, to the CPMU for their evaluation. In preparing the subprojects, once approved for funding, the OPMU will identify and support NGOs/CBOs to help mobilize the community and prepare socioeconomic surveys of the community. This will form the basis of an assessment of their ability to pay for the improvements. The OPMU will also appoint design engineers to consult with the community and prepare financially feasible projects. Each large subproject (costing over \$0.5 million) will require a simple business plan to demonstrate how the subproject will be managed once complete, including the institutional arrangements and staff levels.

PROJECT IMPLEMENTATION SCHEDULE

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
A. Preparatory Activities						
1. Recruitment of Consultants	■					
2. Preliminary Appraisal and Selection of Subprojects	■	■	■	■		
B. Infrastructure						
Water Supply						
1. Approval by ADB of Selected Rural Subprojects	■	■	■			
2. Evaluation of Selected Subprojects	■	■	■			
3. Water Supply: WCG Formation	■	■	■	■		
4. Detailed Engineering Designs and Tender Documents	■	■	■	■		
5. Procurement of Equipment and Materials		■	■	■	■	
6. Approval of Tender Documents		■	■			
7. Tendering for Civil Works Contracts		■	■	■	■	■
8. Construction/Rehabilitation of Water Supply Works		■	■	■	■	■
Sanitation						
9. Selection of Pilot Sanitation Activities in Each Oblast	■	■				
10. Proposals for Improvement of Sanitation		■	■			
11. Construction/Rehabilitation of Rural School and Bathhouses Latrines		■	■	■	■	
12. Evaluation of Pilot Sanitation Improvements					■	■
C. Institutional Development						
1. Training of Local Governments	■	■	■	■	■	■
2. Training of Village Governments, Community Leaders		■	■	■	■	■
3. Development of Project Management		■	■			
4. Collection and Analysis of Benchmark/Information		■	■	■	■	■
5. Project Completion Report						■
6. Project Management Consulting Services	■	■	■	■	■	■

WCG = water consumers group.

INDICATIVE CONTRACT PACKAGES AND PROCUREMENT PROCEDURES
(\$ million)

Contract	Scope	Cost Estimate	Procurement Method
1. Civil Works	Well drilling and installation, transmission lines, reticulation systems, treatment facilities, storage facilities, pumping facilities, workshop and office buildings (about 12 per oblast, totalling about 48 contracts)	38.0	ICB/LCB/ Force Account
2. Equipment and Materials	Pipes, pumps, storage tanks, machine tools, installation machinery (about 4 for each oblast, totalling about 16 contracts)	7.2	ICB/IS/LCB
Total		45.2	

ICB = international competitive bidding, IS = international shopping, LCB = local competitive bidding.

TERMS OF REFERENCE FOR CONSULTING SERVICES

A. Support to the Central Project Management Unit

1. Two international and two domestic consultants will be employed to work with the central project management unit (CPMU) and to support the work of the *oblast* (province) project management units (OPMUs) for a total of 51 person-months (international) and 144 person-months (domestic), respectively, to advise on the development of operation of subprojects.

1. Project Coordinator, and Design/Procurement Specialist (40 person-months - International)

2. The project coordinator/design and procurement specialist will work with the Water Resources Committee (WRC) of the Ministry of Agriculture (the Executing Agency) to establish and support the CPMU and its relationships to the OPMUs, and the project coordinating committee (PCC), and to coordinate the WRC assistance to the CPMU and OPMUs. In the role of project coordinator, the specialist will work with the CPMU for the first 12 months of the Project full time and then work approximately half time on the Project for each of the remaining years. In particular, the specialist will (i) prepare the timetable and budget for project implementation and submit it to the WRC for approval; (ii) with the financial specialist and local accountants, assist in preparing loan withdrawal applications and supporting documents; (iii) help maintain accurate and sufficient accounting records for the Project; (iv) establish operating procedures for all project activities, including reporting and monitoring procedures based on the work undertaken in the accompanying technical assistance (TA), and provide in-house training for CPMU staff; (v) with other members of the CPMU, prepare detailed monthly progress reports and quarterly and annual summaries for the Asian Development Bank (ADB); (vi) with the CPMU, review the timetable and budget after 6 months; and (vii) help the CPMU prepare the project completion report in year six.

3. In the design/procurement role, the specialist will (i) with the OPMU engineers identify basic information requirements for preliminary subproject evaluation, so as to develop a rapid appraisal system for engineering requirements, including initial environmental examinations; (ii) train all the CPMU and OPMU engineers on the use of these rapid appraisal techniques and evaluate results of the first batch prepared for each province; (iii) identify quantities of equipment, materials, and services that should most economically be purchased in bulk through ADB and Government procurement procedures; (iv) assist the WRC with the procurement procedures and evaluate the bids submitted; (v) monitor the progress and quality of the equipment, materials, and services provided by the subcontractors, and prepare reports on work progress; (vi) prepare guidelines for construction supervision to be undertaken by domestic consultants; and (vii) provide inputs as needed in technical training as required. The design/procurement specialist will also support the work of the OPMUs in all four oblasts by (i) working closely with OPMU managers and design engineers and ensuring that the rural subprojects are selected in accordance with the selection criteria; (ii) ensuring that the water supply systems developed for preselection, contract documents, and procurement are fully understood and observed by the OPMUs and the local administrations; (iii) helping with project implementation, including preparation of detailed implementation plan, and procurement and contracting arrangements, and reviewing the detailed engineering designs of the water supply and sanitation (WSS) facilities; and (iv) assisting in setting up construction supervision schedules and procedures in accordance with the guidelines provided by the CPMU.

2. Financial Specialist (11 person-months - International)

4. The financial specialist has two main tasks: first as the senior finance consultant concerned with the orderly keeping of project accounts, and second, in developing improved financial management at the village government and subproject levels and in advising on tariff setting. For the second task, the financial specialist will work closely with the local accountants in the CPMU, OPMUs, and at the subproject village level. The financial specialist will start work in month two of project startup and work for the first year of the Project. In particular the specialist will (i) help train the WRC and the CPMU accounting staff in preparing withdrawal applications and the supporting documents; (ii) assist in maintaining accurate and sufficient project accounting records; (iii) undertake training of the OPMU accountants in the use of project financial system; (iv) oversee the financial monitoring of the Project and participate in preparing and revising the annual work plan; (v) develop a training curriculum in financial aspects of WSS system management to be tested in three pilot villages; (vi) develop and direct the training of the accountants in each OPMU and the CPMU to understand the form and contents of subproject applications; and (viii) help evaluate the first business plans and subproject applications developed for each province and revise, as necessary, contents of the plans and the operating manual.

3. CPMU Coordinator, and Design/Procurement Engineer (72 person-months - Domestic)

5. The CPMU coordinator will report to and receive directions from the project coordinator and the WRC and will (i) work closely with the international project coordinator to develop the first year's work plan and budget and be responsible for revising the plan and preparing the second and later annual plans; (ii) with the assistance of the project coordinator, prepare reports on project progress as required by ADB and as requested by the WRC; (iii) review subproject requests and prepare recommendations for consideration of the WRC; (iv) recommend, on the advice of the responsible members of the CPMU, all payment requests from subcontractors and payments from the imprest account; and (v) with the assistance of the project coordinator prepare the project completion report. The consultant will also be responsible for setting up the technical and procurement program for the Project. The engineer's responsibilities are to (i) review the four subprojects already prepared, and collect technical and financial information on the next batch of subprojects for which feasibility studies will be undertaken; (ii) assist the international design/procurement specialist in setting up specifications of all project works for WSS works; (iii) assist in preparing a detailed project implementation schedule; (iv) help identify batches of equipment and materials to be centrally procured; (v) assist in identifying local contractors to supply goods and works; (vi) help prepare guidelines for construction supervision, and monitor performance and progress by the domestic consultants; (vii) assist the CPMU and the OPMUs with the procurement procedures and evaluate bids; and (viii) help with technical training as required.

4. CPMU Senior Accountant (72 person-months - Domestic)

6. The CPMU senior accountant will work closely with the international financial specialist and with the accountants in the four OPMUs. The CPMU senior accountant will work for the whole period of the Project. More specifically the accountant will (i) have responsibility for compiling and preparing the project financial progress reports as required by ADB, (ii) review the business plans prepared as part of the subproject funding proposals, (iii) help the project coordinator and the financial specialist to prepare the first annual work plan and budget, (iv) help review the work plan and budget in month six of the Project, (v) prepare the budget for years two to six, and (vi) monitor project expenditures.

B. Domestic Consultants for OPMU Support

7. A number of domestic professional consultants will be needed for project implementation to work with the OPMUs for a total of 444 person-months.

1. Engineers and Technical Consultants/OPMU Team Coordinators (192 person-months, 4 positions - Domestic)

8. There will be one engineer and technical consultant/OPMU team coordinator for each of the four OPMUs (four positions in total, located at the OPMUs). Responsibilities of these coordinators are to (i) act as advisor to the OPMU and assist in the duties of the OPMU design engineers for all project activities in their respective oblasts; (ii) prepare the oblast implementation program for the project covering all infrastructure components of the Project, with the assistance of the CPMU; (iii) monitor the preparation of detailed engineering designs by subconsultants; (iv) help prepare bidding documents including specifications for works; (v) assist in identifying procedures for storage and handling of equipment that will be procured by the WRC and distributed to the project oblasts; (vi) monitor the implementation of subprojects and provide the data required for the project performance monitoring system; (vii) set up the construction supervision procedures and assist in supervising; and (viii) assist in the preparation of monthly and quarterly progress reports for the OPMU and CPMU.

2. Hydrogeologist (36 person-months – Domestic)

9. The hydrogeologist will be working with OPMUs and will be responsible for supervision of pre-design hydrogeological survey in identified areas, collection of available information from the Committee on Geology and Mineral Resources, and supervision of subcontractors. The hydrogeologist will be working closely with the design engineers and detailed design subconsultants.

3. OPMU Accountants (144 person-months, 4 positions - Domestic)

10. The accountants, one for each of the four OPMUs (four positions in total), will work closely with the financial specialist of the CPMU in preparing all financial reports, ensuring they are prepared accurately and promptly, that all transactions are recorded properly, and a clear audit trail is maintained. More specifically the accountants will (i) help train oblast accounting staff in preparing loan withdrawal applications and supporting documents; (ii) assist in maintaining accurate and sufficient project accounting records; (iii) help OPMUs to prepare business plans for proposed subprojects and review the business plans prepared; (iv) assist the OPMU program manager in preparing proposals for inclusion in the first annual work plan and budget prepared by the CPMU; and (v) monitor project expenditures by the OPMU.

4. Social/Community Development Specialists (72 person-months, 4 positions - Domestic)

11. The social/community development specialists, one for each of the four OPMUs (four positions in total), will have overall responsibility for ensuring that the stakeholders and communities of the subprojects are fully involved in the planning process. The social and development specialists will (i) compile a list of competent nongovernment organizations (NGOs) that could be used to help local communities strengthen their capacity to participate in the water supply and other basic infrastructure programs; (ii) review the performance of subprojects to ensure that women and the poor are fully involved; (iii) develop further training and public education programs, as considered necessary, to ensure the full participation of all stakeholders in the development of basic infrastructure; (v) liaise with other national and international agencies and NGOs that have community-based infrastructure and health

education-related projects; and (vi) develop and implement the hygiene and sanitation education program. More specifically, social and community development specialists will (i) help select suitable NGOs to work with local village communities; (ii) assist the OPMU coordinator in preparing the first annual work plan and budget for the OPMU, and work with the assistant team leader to revise the work plan; and (iii) more specifically, the social and community development specialists will help the CPMU and OPMU screen for and ensure that the subprojects will not cause any involuntary resettlement effects.

C. Other Support

12. Administrative support staff will comprise a bilingual secretary-administrative assistant in each OPMU office. An interpreter-translator will be employed full time in the CPMU. Each OPMU and CPMU office will have a set of basic office equipment, a full-time driver, and one vehicle per office. The cost estimates are shown in the table.

ADVISORY TECHNICAL ASSISTANCE FOR INSTITUTIONAL STRENGTHENING FOR RURAL WATER SUPPLY AND SANITATION SERVICES

A. Objective and Scope

1. Among the reforms undertaken by the Government of the Republic of Kazakhstan has been the decentralization of power and the transfer of some government infrastructure and assets to the local authorities. At the same time the Government has recognized the need to set tariffs for utilities and services at a level that will ensure the services can be sustained. The Project is based on the principle of cost recovery for operation and maintenance and, in the long term, also for depreciation by the end users. It is therefore necessary that the stakeholders have greater control over the standard and quality of services provided. The participation by all stakeholders is a fundamental strategy to achieve this, as is the need to create choice in the market.

2. The main purpose of the technical assistance (TA) is to develop good practices and create the appropriate management systems for the smooth implementation of these strategies. In the course of the TA good practices will be developed taking those core subproject sites that have been studied under the project preparation TA (PPTA)¹ as examples. It will also develop systems for involving the community, including strengthening the role of women in identifying needs for basic infrastructure services and planning the level of services to be provided, and propose a model for the participation of the proposed water consumers groups (WCGs). It will also introduce the concepts of establishing appropriate design standards to *oblast* (province) and village governments and give advice on tariff setting and revenue collection. The services provided under the TA will encompass: (i) international and domestic consulting services, (ii) training of central project management unit (CPMU) and oblast project management unit (OPMU) staff, and (iii) training of relevant *rayon* (district) and local village government leaders and staff.

B. Cost Estimates

3. The cost of the TA is estimated at \$505,000 equivalent, of which \$258,000 is the foreign exchange cost and \$247,000 equivalent the local currency cost. Of this, \$350,000 equivalent is proposed to be financed by the Asian Development Bank (ADB) on a grant basis, which comprises the entire foreign exchange cost and \$92,000 equivalent of local currency cost. The Government will finance the remaining \$155,000 equivalent of local currency costs. A breakdown of the cost estimates is provided in the table.

¹ ADB. 2000. *Technical Assistance to the Republic of Kazakhstan for the Rural Water Supply Sector Project*. Manila.

Cost Estimates
(\$ '000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultants	175	0	175
ii. Domestic Consultants	0	58	58
b. International and Local Travel	27	3	30
c. Reports and Communications	5	0	5
2. Equipment	7	5	12
3. Training, Seminars, and Workshops	0	11	11
4. Miscellaneous Administration and Support Costs			
5. Representatives for Contract Negotiations	0	8	8
6. Contingencies	5	0	5
	39	7	46
Subtotal (A)	258	92	350
B. Government Financing			
1. Office Accommodation and Transport	0	65	65
2. Counterpart Staff	0	40	40
3. Others	0	50	50
	0	155	155
Subtotal (B)	0	155	155
Total	258	247	505

C. Implementation Arrangements

4. The Executing Agency (EA) for the TA will be the Water Resources Committee (WRC) under the Ministry of Agriculture (MOA). The Executing Agency will supervise the implementation of the TA to maximize the use of its findings in promoting a community-based approach to basic infrastructure planning, development, operation, and management. The TA will be carried out over a 7-month period. The consultants will be recruited through a consulting firm in accordance with ADB's *Guidelines on the Use of Consultants* using quality and cost based selection (QCBS), and other arrangement acceptable to ADB for the engagement of domestic consultants.

D. Terms of Reference for the Consultants

5. A team of three international experts and eight domestic consultants will be engaged to provide 41 person-months of consulting services (9 international and 32 domestic).

1. Project Management and Design / Procurement Specialist/Team Leader (5 person-months, International)

6. The project management and design/procurement specialist will be fully familiar with setting up and managing ADB projects. The specialist will be responsible for setting up the project implementation systems, establishing design standards for the detailed engineering design, and provide training on procurement based on the subprojects prepared under the PPTA. The specialist will (i) review with the WRC and provincial administrations that the arrangements for the provision of office space and other arrangements agreed as part of the government financing are prepared prior to mobilization of the contract consultants; (ii) assist

the Executing Agency with the selection and contracting of the loan financed project management consultants; (iii) help the Executing Agency to prepare selection guidelines for prioritizing Project funding of subprojects and for the appraisal of subprojects; (iv) establish a procedure for assessing subproject applications that is simple, equitable, and transparent; (v) review the project performance monitoring system (PPMS) recommendations made for the Project and prepare a manual for the PPMS; (vi) design the management information system needed to monitor the supply and use of project inputs and measure their impact with respect to the purposes and activities of the Project; (vii) identify the sources of data, their reliability and availability for the key indicators; (viii) determine the form and frequency with which the data must be collected; (ix) develop systems of measurement; (x) prepare the training curriculum for the new system; (xi) prepare an operational manual and deliver in-house training for the CPMU and OPMU staff on ADB's procurement procedures; (xii) prepare guidelines for the evaluation of subprojects; (xiii) provide training for the CPMU and relevant OPMU staff on the review of the first proposals based on standard ADB criteria for project preparation for one small and one large detailed subprojects from each oblast, and assist in submitting them to ADB for approval; (xiv) review design standards for detailed engineering design and specifications for rural water supply and sanitation facilities, including environmental examinations; (xv) prepare training curriculum for village and rayon administrations on appropriate design standards for rural water supply and sanitation system design; (xvi) prepare guidelines for preselection of consultants to be hired by the OPMUs for design and costing of civil works and for construction; and (xvii) provide training for CPMU and OPMU staff in four project provinces in the procurement of goods, works, and services for rural water supply and sanitation subprojects based on the subprojects prepared under the PPTA.

2. Finance Specialist (2 person-months, International)

7. The finance specialist will work closely with the project management specialist, Executing Agency, CPMU and OPMU staff and provincial administrations, and will provide training for the installation of the financial reporting systems needed for use within the CPMU and the four OPMUs. In particular the finance specialist will (i) review the accounting procedures used by WRC and the provincial administrations that are relevant to project implementation; (ii) assist and provide training for the design of accounting systems, procedures, and bookkeeping formats that will allow production of prompt and accurate financial reports on a monthly, quarterly, and year-end basis; (iii) provide initial training to staff members of the OPMUs, CPMU, Executing Agency, and provincial staff on accounting procedures and reporting; and (iv) assist and provide training on the development of procedures for the establishment and use of the imprest account for the CPMU and the provincial administrations and, in conjunction with this, establish correct and transparent procedures for the handling of all claims and the disbursement of funds.

3. Institutional Development and Community Participation Specialist (2 person-months, International)

8. The specialist will (i) review the different social and stakeholder structures that exist in different parts of the country (particularly in the four project oblasts) and assess the strengths and weaknesses of each; (ii) identify strategies for ensuring meaningful stakeholder involvement in the choice of priority subprojects for the community and in the design of water supply systems; (iii) identify training requirements of local government leaders and community leaders to ensure that they all involve all sectors of the community, in particular the poor and women, in the decision-making process; (iv) assist the core subproject villages in each of the four project oblasts to develop a strategy for ensuring participation by stakeholders and the community in setting service levels for water supply; (v) prepare detailed proposals for institutional

arrangements for the management of the four pilot villages and water supply and sanitation service agencies; identify skills training requirements; (vi) examine and advise on legislative requirements to establish WCGs and identify and prepare training curriculum for nongovernment organizations (NGOs) to facilitate the process of establishing WCGs in rural communities; and (vii) consult, coordinate and develop arrangements with the Ministry of Health on the preparation and dissemination of the Hygiene and Sanitation Education Program with village schools and health posts.

4. Training Specialist in Water Supply Systems (12 person-months, 2 positions, Domestic)

9. The training specialists in water supply systems will work closely with the other experts, particularly with the community development specialist, in identifying the existing training infrastructure available and the contents of course and the training shortfalls. Based on the minimum-cost approach and the technology proposed identify the training courses required. Together with the design engineer the training specialists will also provide training for OPMU staff and for service providers in water supply and sanitation in new technologies and specific operation and maintenance skills.

5. Community Development Specialists (8 person-months, 4 positions, Domestic)

10. The community development specialists will (i) work closely with the community participation and institutional development specialist, (ii) train the local village government leaders and other stakeholders in methods of mobilizing the community so that all sectors are involved in the decision making, and (iii) train them in methods of establishing WCGs in different local cultural environments and support arrangements for the preparation and dissemination of the Hygiene and Sanitation Education Program with village schools and health posts.

6. Finance Specialist (6 person-months, Domestic)

11. The domestic finance specialist will work closely with the international finance specialist in designing and installing of accounting and financial management information systems in CPMU and OPMUs and will provide training to CPMU and OPMU staff members for the implementation of such procedures and reporting.

7. Procurement Specialist (6 person – months, Domestic)

12. The procurement specialist will work closely with the international design procurement specialist and prepare and provide training for the procurement of goods, works, and services financed by ADB, including selection of design consultants, prequalification of contractors, and construction supervision procedures.

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

A. Linkages to the Country Poverty Analysis

Sector identified as a national priority in country poverty analysis? Yes	Sector identified as a national priority in country poverty partnership agreement? Yes
<p>Contribution of the water supply and sanitation sector to reduce poverty in Kazakhstan:</p> <p>1. The water supply and sanitation sector in Kazakhstan is in a serious condition since independence. The principal reason for this is the almost complete collapse of the former water supply systems. During the period 1991 to 1999, potable water supply has decreased by about 55%. A large number of water supply lines are defunct. Drinking water supply for the rural population is a more serious problem than for the urban. Currently, there is water supply and sanitation coverage of about 40% of the rural population. Most rural water systems comprise of long-distance pipelines drawing on surface or ground water sources. The pipelines have exceeded their useful lives. Due to lack of maintenance, the pipelines are unserviceable and seriously deteriorated in many locations. In many rural areas water supply is presently unavailable. In some areas, people have access to water intermittently. From some rural areas, people have moved because they have little or no water. Agriculture production in the country's main grain producing areas is at risk.</p> <p>2. The worst situation with regards to water supply, according to results of the survey is in the South- and North-Kazakhstan <i>oblasts</i> (provinces). Some surveyed <i>rayons</i> (districts) of Karaghandy oblast are in a better position in this respect. Focus groups identified a dramatic deterioration in water supply over the last 5 years. In the oblasts surveyed the sources of water are available at night for only a proportion of households: 55.0% in South-Kazakhstan, 40.5% in Akmola, 37.1% in North-Kazakhstan, and 26.8% in Karaghandy.</p> <p>3. The lack of adequate water of an appropriate quality adversely affects the lives of much of the rural population. This is exacerbated by the fact that these communities previously had access to water. Communities identify problems related to water supply and health systems as the highest priority. Water supply problems exist in all the surveyed regions, but it is particularly critical in South- and North-Kazakhstan oblasts and in the Shortandy rayon of Akmola oblast. Water pipelines are worn out and in many villages they do not work. The water in the wells, the most common sources of water, in North-Kazakhstan is of poor quality and is salty. The villagers in South- and North-Kazakhstan oblasts have to use brought-in water most frequently. About 5% of the respondents have to use the water from the pits and irrigation canals, and to collect rainwater. In some villages the water systems have been transferred to private owners, especially in North-Kazakhstan.</p> <p>4. Recently, in some rural areas where pipeline are no longer working, private vendors are transporting water to the communities. The cost of water from the vendors varies according to the distance of water source. Monthly payment per family varies from T150 to T850. A poor family spent T150 to T300 to purchase water. Findings of the focus group discussions indicate that monthly income of the poor family's ranges from T2,000 to T5,000. Given the income of the poor family, cost of water from vendor becomes a significant burden for poor households. In North-Kazakhstan, people melt snow in winter to meet household water needs. Women are responsible for melting snow by burning coal. Women reported that burning coal every day for long hours has increased respiratory disease in the family.</p> <p>5. Since the access to potable water supply has decreased significantly, the living condition of poor pensioners and single women-headed households are most seriously affected. Half of the pensioners are women. In villages where group water pipes are no longer working, a family spends significant amounts of time fetching water. Since the pipeline became dysfunctional and water has to be collected from long distance, women, men, and children are involved in fetching water. However, women and children are mainly responsible for collecting water for household needs. The amount of time spent by children for collecting water limits the time available for education and recreation. Women's responsibility for family care and household work is affected by lack of availability of water and it has seriously complicated the already difficult circumstances of many women, especially poor women and single mother. In caring for the family, women bear the brunt of inadequate and poor quality of water. In health terms, pregnant women, nursing mothers, and young children are at greatest disadvantage.</p> <p>6. Very few rural settlements have water-borne sewerage networks and none of those have sewerage treatment facilities. The majority of families surveyed use pit latrines. In villages where water pipes are no longer working, basic water supply has a higher priority than improved sanitation measures. Field observations suggest that rural populations have low levels of awareness on sanitation. Rural sanitation needs to be improved to avoid pollution of water supply systems.</p>	

7. The health status was often related to the quality of the water supply. Survey indicates where the people use the brought-in water, water from the wells, pits and irrigation canals, the incidence of diseases, especially those related to the intestines, were higher than in the villages with the pipeline water supplies. Most bath houses in the settlements need rehabilitation. In addition schools often lack adequate toilet facilities.

8. There is an urgent need to upgrade and expand the rural water supply and sanitation services. The Project aims to rehabilitate group water pipelines where viable and to develop new supply systems from ground and surface water sources in the rural areas. The Project will provide access to potable water to the settlements where pipes are no longer in working order, settlements with infrequent water supply, and settlements that never had piped water supply but manage from alternative sources. In selecting settlements for subprojects, priority will be given to the settlements where pipes are no longer working, and settlements with infrequent water supply and with a large number of poor households. In providing water supply to the settlements, through the water consumers groups (WCGs) measures will be taken to ensure that poor households, poor women-headed households, elderly, and disabled people have access to water.

B. Poverty Analysis

Proposed Classification: Poverty Intervention

9. Kazakhstan ranks 73rd in the United Nations Development Programme Human Development Index of 2000. Although poverty was not unknown in the former Soviet Union, Kazakhstan was one of the least poor Central Asian republics. Since independence in 1991, Kazakhstan is making a difficult transition to a market-based economy. The sharp decline in output since independence has, however, contributed significantly to the increase in poverty.

10. The proportion of households living below the poverty threshold rose from 15.5% in 1989 to 25.0% in 1993 and 34.6% in 1996. The Kazakh Statistics Agency calculated the percentage of the population with a consumption level lower than the subsistence minimum by using the data on cash incomes and expenditures, as well as data on volume of material resources consumed.¹ Based on the overall data, in 1998, the consumption of 39% population was lower than the subsistence minimum. In 1999, during a period of economic growth and increase of cash incomes, this indicator dropped but remains significant. The Government indicates that about 28.4% of the population lived below the subsistence minimum in 2001. The most deprived regions are Kazakhstan's southern provinces, and the oblast of North-Kazakhstan.

11. The economic transition has been accompanied by increasing inequity in income distribution. In 1998, the richest 10% of the population received 27% of the income, while the poorest 10% received 2.3%. The poverty in rural areas is more acute than in urban areas. In urban areas 25% of the population is considered to be poor while in rural areas this increases to 35%. In rural area average living minimum per capita monthly income is T3,020 (or about \$20), while monthly per capita income in the urban area is about twice that amount. The situation is even more obvious when access to social infrastructure services such as safe and reliable water supply and sanitation is taken into account. Health and demographic indicators reinforce the presence of greater levels of human deprivation in rural areas.

12. The social and economic costs of the current transition have been sharp and immediate. Closing of facilities, privatization of public enterprises, and falling budget for the sector have resulted in service disruption and major price increases for these services. Social spending including social assistance and provision of social services such as health and education has declined sharply. Weak fiscal capability of local governments has sharply reduced access to social infrastructure such as heating, transport, water supply, and sanitation facilities. As a result, health, sanitation and general living standards are rapidly worsening. During the Soviet Union era, housing, heating, water supply and sanitation were free of charge. In service terms they accounted for 30% of household income. Wages have fallen by over 50% in real terms and earlier security of job tenure has been replaced by unemployment. Unemployment is especially high in small towns. Living conditions of people have been severely affected by environmental degradation such as air and groundwater contamination. The problem is noticeable in rural water supply and sanitation systems.

¹ The poverty incidence is based on the Government's definition of a subsistence minimum, which is set in the 1999 "Subsistence Minimum" law. It is equivalent to the minimum consumption basket estimated on the basis of a food and non-food basket of expenditures. The National Statistical Agency calculates the subsistence minimum on a quarterly basis and by oblast levels. In 2001, the value of the subsistence minimum was T4,590 per month. The Government differentiates the subsistence minimum from the "poverty line" in that the latter which is also regulated by legislation, is determined every year by Parliament as a fixed percentage of the subsistence minimum. This poverty line is used as a basis for social assistance. In 2001, the poverty line was 38% of the subsistence minimum, or T1,781 per month.

13. The population in the Project area consists of two major ethnic groups: the Kazakhs in the South and the Russians in the North. Household survey of 2000 interviews, focus group interviews, and rapid social assessments in four oblasts indicate most of the family members are not engaged in any intensive economic activity. A majority of the rural population strongly perceives a sharp decline in quality of their life as compared to during the Soviet era. Having faced serious problems in the process of privatization and agriculture restructuring, many families had to give up maintaining livestock; they are unable to buy fodder and afford other expenses required for livestock maintenance.

14. The average monthly income per person of the families surveyed is T2,453, being below the living minimum established officially. The lowest average income (T2,034) is in South-Kazakhstan and the highest average (T2,925) in Akmola. The average income of Kazakh families is lower than that of Russian families. Out of ethnic Kazakhs 60.9% have a per capita income of less than T2,000, and out of the ethnic Russians it is 37.8%. Focus group discussions in eight villages in four oblasts suggest that poor families make up 30-60% of the families in these villages. In these communities, the poorest of the poor constitutes families: (i) with no access to cash income or earn very little cash, (ii) with small household plot, (iii) with no cultivable land, (iv) with no cattle, and (v) living on pension only.

C. Participation Process

Stakeholder analysis prepared: Yes

Participatory strategy included: Yes

15. A more participatory approach for stakeholders has been recommended. Survey indicates that over two thirds of the respondents supports the idea of setting up a WCG. All the focus groups approved of the idea on setting up WCGs composed of local people. Respondents show greater willingness to participate in a WCG, the less accessible and the poorer quality the water that they have. A WCG will be formed for each subproject to assist in planning, implementing, and monitoring of the project activities. Developing WCGs will ensure community participation and local level ownership of the Project. Sense of ownership and active community participation would contribute to effective implementation and sustainability of the Project. The WCGs will be involved in the design phase of each subproject. In designing each subproject, the rural communities of the respective subproject areas will be involved in assisting in the planning and implementation of the subproject. Through the WCG, the local communities will participate in decision-making processes on the types of water connection in the subproject area, location of public standpipes, level of services, and tariffs. Women from the rural settlements will be actively involved in the planning process especially for selection of location of public standpipes. The WCG will help the poor and disabled to get equal access to water supply in the settlement. The WCG will be responsible for monitoring of regular water supply, access to water by the poor households, regular payment of tariff, quality of water, and prevention of water waste. The WCG will consist of male and female representatives from the community, and representatives of local nongovernmental organizations (NGOs) and local governments. At least half of the membership and management positions of the WCG will be held by women.

16. Hygiene and sanitation education both in schools and at the community level will be undertaken in conjunction with the water supply improvements. The selected NGOs and WCGs at the community level will facilitate the hygiene and sanitation education program. Volunteers from the community will be selected to facilitate community meetings and disseminate information in the schools. Women and youth in the community will be trained as volunteers for the hygiene and sanitation education program.

D. Gender and Development

Strategy to maximize impacts on women: Yes

Gender strategy prepared: Yes

17. Women have played a significant role in the economic development of Kazakhstan. However, current economic transitions have affected men and women differently. New gender-specific inequalities have developed during the transformation process. Since 1990 there has been a loss of women's jobs in practically every section of the economy. Female employment decreased by nearly half. On average, the share of poor female population with income below the subsistence level is 44.9%, while the poor male population, 33.2%. Women are often more vulnerable in terms of social security. The deterioration of public support mechanisms has had a severe impact on poor, women, children, and elderly. Evidence suggests that women especially, elderly pensioners, and single women heading large households are the majority of people living below subsistence minimum.

18. Since the access to potable water supply has decreased significantly, the living conditions of poor pensioners and single women-headed households are most seriously affected. Half of the pensioners are women. Since the pipeline became dysfunctional and water have to be collected from long distances, women, men, and children are involved in fetching water. Women's responsibility for family care and household work is affected by lack of availability of water and it has seriously complicated the already difficult circumstances of many women, especially poor women and single mothers. In caring for the family, women bear the brunt of inadequate and poor quality of water. In health terms, pregnant women, nursing mothers, and young children are at greatest risk.

19. Therefore the improvement of WSS systems can save women's time and reduce physical burdens. Women will also have considerable influence on the behavioral pattern of communities with their important roles as educators and information disseminators of hygiene practices. Women's role in child care will be made easier through better health of children expected from safe, potable piped water supply. A participatory approach is recommended, and the role of women is expected to become more important.

E. Social Safeguards and Other Social Risks

	Significant/ Nonsignificant/ None	Strategy to Address Issues	Plan Required
Resettlement	None	Land is required only for small groundwater pumping stations and, in some cases, small storage tanks. These will be outside the village areas in agricultural land or unused land owned by the village governments. They will make land available as an in kind contribution to local funding. There is no possibility of the Project triggering the involuntary resettlement policy.	None
Indigenous Peoples	None	Social assessment indicated that no indigenous people are involved in the proposed investment components. No plan is warranted.	No
Labor	Nonsignificant	Impact on labor is not expected to be significant, so no strategy has been designed to target labor.	No
Affordability	Significant	The tariff will vary between 3.3% and 5.0% with an average of about 4.2% of the estimated average household income. These are within the accepted standards of 3-5%. As the poorer households will collect water from the public standpipes at a lower rate, in their case the cost will be much less than households with house connection.	No
Other Risks/ Vulnerabilities	Nonsignificant	Low risks in other aspects are anticipated.	No

ECONOMIC AND FINANCIAL ANALYSIS

A. Economic Analysis

1. The Project will directly benefit about 0.53 million of the country's most deprived and underprivileged people in the *oblasts* (provinces) of North-Kazakhstan, Akmola, Karaghandy, and South-Kazakhstan, of which approximately 40% of the population are poor. The support for decentralized management and capacity building will enhance the efficiency and sustainability of rural water supply and sanitation (WSS) infrastructure services at the local levels in Kazakhstan. To comply with the needs and demands of the community, a participatory approach has been adopted to formulate and design the Project. The community, water consumers groups (WCGs), nongovernment organizations (NGOs), and community-based organizations (CBOs) will be involved in the implementation of the Project.

2. The Project will develop several direct and indirect benefits. Better access to potable water with improved rural WSS services to areas both currently served and without existing piped water supply or safe sanitation facilities will confer several long and short-term benefits. There will be qualitative improvement in the lives of the rural communities, in particular the poor. Living conditions will improve at individual and communal levels, including opportunities for improved health. Improved sanitation facilities will support higher standards of public hygiene. Major benefits include time saving, increased water consumption, and improved water quality. The economic benefits of the Project through the release of time for productive economic activities and education will be significant. Sample surveys in the project area indicate that some households can spend as much as three hours per day collecting water from various sources, including rivers, or buy it at a high price from vendors instead. The time and money saved will become available to households for other economic and social activities.

3. Although difficult to quantify, the Project will result in health benefits. The provision of more reliable water supplies and improved sanitation facilities will help to reduce morbidity and mortality, including the high morbidity rate of young children in these areas. It will also reduce the number of working days lost and hence income lost. Reduced illness will provide the basis for additional poverty reduction and economic benefits by increasing capacity for income generation. By reducing water supply losses and wastage the existing inefficiencies and resulting costs can be minimized. Security of supply and improved standards of service will increase the willingness to pay for service and will contribute to cost recovery. Financial management and accounting improvements, including meter reading, billing, and collection will improve tariff-collection levels and the viability of the implementing agencies.

4. Following the Asian Development Bank (ADB) guidelines on *Economic Analysis of Water Supply Projects*, an economic analysis was undertaken. The economic analysis is based on the findings of the socioeconomic survey and other available secondary data. In brief, the following methodology was followed:

- (i) Both project capital cost and operation and maintenance (O&M) cost estimates were apportioned into traded and nontraded components and labor so as to reflect costs from the standpoint of the economy as a whole. Using domestic price numeraire, financial prices (based on July 2001 prices and reduced by duties and taxes) were converted to economic prices by shadow exchange rate factor of 1.06 for traded cost component; nontraded cost component was considered as 1.0. Using a factor of 0.7, the estimated labor cost was converted to reflect the real market value of labor.

- (ii) Current water consumption, considered as nonincremental, was obtained from the survey figure. Based on the design norms for the subprojects incremental water provided by the Project was estimated. For the purpose of analysis, the future without-project scenario is assumed to remain at the existing level.
- (iii) Average cost of nonincremental water was estimated with reference to the time and other savings likely to be generated as a result of the Project. Using the average distance and the collection time, the cost of time used for collecting water was estimated at 75% of the average hourly wage rate. This was multiplied with the shadow wage rate of 0.7 and the number of hours needed per month. To this, the cost for in-house storage, filtration, etc., of water was added (these costs were considered as non-traded costs and therefore no conversion factor was applied). The total cost to the household was then divided by the water consumption to arrive at per cubic meter (m³) cost of present water, i.e. economic benefit from nonincremental water.
- (iv) For economic-benefit quantification, incremental water is valued at the average demand price, which is approximated by the average between the current and future costs of water supply. It has been assumed that future price of water supply will be based on the household affordability criteria restricted to 5% of income available for payment for water supply.

5. Following this methodology the quantifiable benefits of time saved in obtaining water was compared on an incremental basis with the project capital cost stream to demonstrate the economic internal rates of return (EIRRs) for the four subprojects. As economic benefits from the time savings alone justify the Project on economic grounds, other economic benefits, e.g., savings in medical expenses were not considered for analysis due to the uncertainty associated in their estimation. The EIRRs range from 22.6% in the case of Bulayev subproject to 38.6% in the case of Shortandy subproject. The wide range mainly reflects variations in per capita costs arising out of the base population, the characteristics of the subproject area and the source of water supply. The EIRRs are all well above the economic opportunity cost of capital of 12% in Kazakhstan. The EIRRs were subjected to sensitivity analysis and remain acceptable under adverse circumstances, as summarized in Table A11.1.

Table A11.1: Summary of Economic Analysis of Subprojects

Subproject	Base EIRR %	Sensitivity Tests			
		Costs +10%	Benefits – 20%	Costs +5% & Benefits –10%	Benefits delayed 1 year
1 Shortandy (Sensitivity indicators)	38.6	35.5 (0.81)	31.6 (0.91)	33.6	30.3
2 Spasskoe (Sensitivity indicators)	27.2	25.0 (0.82)	22.2 (0.92)	23.7	22.5
3 Nurinsky (Sensitivity indicators)	31.1	28.7 (0.79)	25.6 (0.89)	27.2	25.5
4 Bulayev (Sensitivity indicators)	22.6	20.5 (0.91)	18.0 (1.02)	19.3	18.8

EIRR = economic internal rate of return.

6. The average incremental cost (AIC), usually regarded as an approximation of the long run marginal cost, was calculated based on the present value of additional capital investment and O&M costs divided by the present value of additional volume of water sold/consumed resulting from such investments. The average incremental (economic and financial) costs were

calculated to determine the economic and financial tariffs required to be set for full cost recovery based on August 2001 prices over the assumed project life of 20 years and using a discount rate of 12%, considered appropriate to represent the economic cost of capital. The average incremental economic cost (AIEC) and average incremental financial cost (AIFC) have direct relation to the project costs, which are high due to the long distance to the water source, and the related operating costs. AIEC varies between T57 per m³ and T91 per m³. AIFC, which is similar to the AIEC except that capital and O&M costs are expressed in financial terms, varies between T59 per m³ and T94 per m³, as summarized in Table A11.2.

Table A11.2: Summary Average Incremental Costs

Subproject	Average Incremental Cost (T/m ³)	
	AIEC	AIFC
Shortandy	57	59
Spasskoe	80	83
Nurinsky	70	74
Bulayev	91	94

AIEC = average incremental economic cost, AIFC = average incremental financial cost, m³ = cubic meters, T = Tenge.

B. Financial Analysis

7. Existing water tariff in the core subproject areas are composed of fixed monthly fee per household for public standpipe users and a fixed rate per m³ of water consumed for metered in-house connections. Water vendors charge the household per water tanker. Households using the public standpipe and with in-house connections pay on the average T30 to T400 per month, while households supplied by water vendors, pay from T40 to T260 per m³ of water delivered. Water purchased from water vendors is mainly used for drinking purposes. The existing water tariff in the four subprojects are shown in Table A11.3.

Table A11.3: Existing Household Water Consumption and Expenditure

Subproject	Water Consumption (m ³ /month/HH)	Water Tariff		Average HH size	Estimated Water Supply Expenditure (T/month/HH)	Source of Water
		T/month (Flat Rate)	Per m ³			
Shortandy	0.7 to 5.3	50 to 200	55	3.4	50 to 250	GWS
Spasskoe	3.0 to 4.5	30 to 400	dna	3.3	30 to 400	GWS
Nurinsky ^a	1.7 to 3.2	dna	40 to 260	3.8	100 to 600	GWP
Bulayev ^a	1.2 to 3.6	150 to 190	80 to 200	3.9	150 to 700	GWP

GWP = group water pipeline; GWS = group water source, HH = household; m³ = cubic meters.

^a Delivered by water tanker.

8. Water supply tariffs should generally be set based on the AIFC of water produced, but they seldom are. The proposed capital investments consider the long-term needs of the service area and population to be served over a period of 20 years. The capital and O&M costs are high due to the long distance between the water sources and the service areas. Average incremental cost of water supply is very high. Full cost recovery based on AIC is not feasible and, on economic grounds, not affordable for most of the income groups. Tariffs were, therefore, designed for the core subprojects taking into account the existing water tariffs, concerns of the

Anti-Monopolies Agency and the affordability of the water tariffs to the communities (monthly water expenditure was restricted to 5% of household income of the low-income group) in the project area.

9. Where the schemes are based on public standpipe supplies, the collection of fees will be made from the beneficiaries either (i) through bulk metering of each public standpipe with identified households as users and under the supervision of the *rayon* (district) and the WCG, the households will decide the allocation of their respective contribution, or (ii) a fixed monthly charge will be recovered from each household irrespective of their consumption level. The collection of fees based on bulk metering was done in some communities with an existing water supply system but failed due to administrative problems. With respect of in-house connections, there are two options: (i) a flat rate where metering is not available, and (ii) a fixed tariff per m³ of water consumed where metering is available. It is difficult to control both consumption and wastage under a flat rate system. Thus for metered connection, it was proposed to use the latter scheme. Based on the discussion with the Anti-Monopolies Agency, it was agreed that a flat rate will be charged on public standpipe users and a fixed rate per m³ of water consumed for households with metered in-house connection. The proposed tariffs are shown in Table A11.4.

Table A11.4: Suggested Water Tariff by Subproject

Subproject	Shortandy	Spasskoe	Nurinsky	Bulayev
Public standpipe users (T/month/household)	200	200	200	250
Metered in-house connection (T/cubic meter)	40	30	35	45

10. Based on the proposed tariff, the financial internal rate of return (FIRR) was determined. The FIRR (base case) ranged from 0.7% to 2.3%. The calculations assume an annual subsidy from the Government equivalent to the annual depreciation of the capital investments. The FIRRs are below the weighted average cost of capital (WACC) computed at 5% (assuming the opportunity cost of Government investment as 10%). However, as the EIRR is above the economic opportunity cost of capital considered at 12% the subprojects are justified on economic considerations. Table A11.5 shows the summary of FIRRs:

Table A11.5: Summary of Financial Analysis of Subprojects

Subproject	Base FIRR %	Assumed subsidy from the Government (T million/year)	% of Depreciation covered by Project Revenue
Shortandy	2.2	0	128 to 258
Spasskoe	2.3	3.5	51 to 105
Nurinsky	1.4	5.3	11 in year 17
Bulayev	0.7	9.1	31 to 79

FIRR = financial internal rate of return.

C. Affordability Analysis and Project Sustainability

11. Sustainable O&M of water supply facilities is a major problem especially in rural areas of developing countries. For the four subprojects, the socio-economic survey results showed that there was willingness both to have piped water connections and to pay for the services. The tariffs will vary between 3.2% and 5.0% with an average of about 4.2% of the estimated average household income. These are within the accepted standards of 3.5%. As the poorer households will collect water from public standpipes at a lower rate, in their case the cost will be much less than households with in-house connections. The proposed tariff, although affordable (Table A11.6), will not be able to sustain the O&M of constructed facilities as in the case of Nurinsky

subproject. The financial analysis for the Nurinsky subproject shows that the proposed tariff will only cover 80-90% of O&M cost in the next 10 years. Subsidy from the Government will be needed just to operate and maintain the system. For the Shortandy subproject, the subproject revenue will be able to cover O&M and depreciation. However for the Spasskoe and Bulayev subprojects, the subproject revenue can only cover O&M and part of the depreciation. The Government may have to subsidize capital investments to replace the old ones in the future. During the appraisal mission, discussions with the *akims* (local government heads) of the rayons visited revealed that on the average about 80% of the rayon's annual budget is subsidized by the Central Government while the remaining 20% comes from local taxes. More than 80% of the budget is spent on salaries and pensions and the balance is used for capital investment and O&M of public facilities. Although there is willingness on the part of the rayons to subsidize the O&M of constructed water supply facilities, the rayons may not have the financial capacity to finance the O&M. Any subsidy for water supply O&M, therefore, will come from the provinces, which also gave indications that they are willing to subsidize the O&M cost. To insure project sustainability for the succeeding subprojects, the selection criteria will include evaluation of the capacity and commitment of the participating oblast to provide subsidy for subprojects with O&M cost that exceeds the subproject revenues generated.

Table A11.6: Average Household Consumption Level and Affordability

Subproject	Consumption Level	Monthly Consumption of Average HH	Tariff for Different User Category	Monthly Cost to HH	Estimated Monthly HH Income Level	Water Cost as % of HH Income
Public Standpipe Users						
1. Shortandy	50 lpcd	5 m ³	T 200/month	T 200	T 5,000	4.0%
2. Spasskoe	50 lpcd	5 m ³	T 200/month	T 200	T 5,000	4.0%
3. Nurinsky	40 lpcd	5 m ³	T 200/month	T 200	T 5,000	4.0%
4. Bulayev	40 lpcd	5 m ³	T 250/month	T 250	T 5,000	5.0%
Metered In-house Connection						
1. Shortandy	120 lpcd	12 m ³	T 40/m ³	T 480	T 10,000	4.8%
2. Spasskoe	100 lpcd	10 m ³	T 30/m ³	T 300	T 9,000	3.3%
3. Nurinsky	100 lpcd	11 m ³	T 35/m ³	T 385	T 10,000	3.8%
4. Bulayev	100 lpcd	12 m ³	T 45/m ³	T 540	T 10,000	5.0%

HH = household; lpcd = liters per capita per day; m³ = cubic meters; T = Tenge.

D. Key Assumptions

12. The key assumptions used are as follows: (i) the investment costs cover costs of all schemes within a subproject and are at base August 2002 prices; (ii) physical contingencies used on base costs are 10% ; (iii) local inflation has been considered at 6% throughout the forecast period; (iv) foreign inflation has been considered at 2.4% throughout the forecast period; (v) O&M expenses covering salaries, chemicals, power, and fuel are based on estimates made by the design institute preparing the subprojects, depending upon the technology used, (repair and maintenance cost has been considered as 1-2% of the capital cost); (vi) subproject life is assumed at 20 years; (vii) water tariffs are increased every year to account for a real term increase of 1 % over the local inflation; (viii) population growth has been assumed as 0.5%; and (ix) conversion factor used is T152 equivalent to \$1.

SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

A. Introduction

1. The initial screening of the potential environmental impacts of the Project indicates that it will not affect environmentally sensitive areas, nor will it cause large-scale changes in the physical, biological, or social environment. It will have a largely neutral impact on the ecology of the surrounding areas. Overall there will be positive effect on the physical environment, and improvements in the health, social and economic environment of the beneficiaries. The physical works proposed are limited in scope, and largely concern the development of local water supplies and improved institutional and household sanitation. This summary initial environmental examination (IEE) draws on the individual subproject IEEs and is prepared in accordance with the Asian Development Bank (ADB) guidelines on IEE preparation. The outline IEE is based on a series of field visits to the subproject sites by the technical assistance consultants and the design institutes responsible for investigation of each subproject. Software components such as the capacity building and community preparation and awareness components, which have no impact on the environment, have not been subjected to an IEE.

B. Description of the Project

2. The Project components include Part A: Physical Infrastructure comprising the construction new of local water supplies, or the rehabilitation of existing systems, and improved institutional and household sanitation; and Part B: Capacity Building for the staff of different levels of government and of state institutions, and for community members.

C. Existing Environmental Conditions

1. Physical Environment

3. Northern Kazakhstan is primarily open steppe. The climate is arid and sharply continental. Summers are dry and warm. Winters are cold, with snow covering the ground from October to April. Local streams are seasonal and are often mineralized once the snow has melted. Groundwater levels can be high in the spring. Many surface water and groundwater resources are mineralized because of high evaporation rates, low precipitation, and little movement of surface or groundwater. Most communities are more than 5 kilometers (km) apart, and sometimes as much as 30-40 km. The situation in the south of the country is similar, although the distances between communities are often not so great. Most rural communities are involved in some sort of agriculture. In many cases this is individual, small-scale agriculture. There is little flora or fauna of note in the subproject areas. No rare or endangered flora or fauna are known to inhabit these areas. Hunting and fishing are common, especially during the autumn and early winter.

2. Sociocultural Environment

4. Population densities in the subproject communities are typically in the range 40-60 persons per hectare. Since independence the population growth rate has been negative, largely as a result of migration. The declining birth rate and the increasing death rate has contributed to the decline. Per capita income in most communities is low. It is estimated that in 1998 83% of rural households had a disposable income of less than T3,000 (\$20) per month.

D. Screening of Potential Environmental Impacts and Mitigation Measures

1. Positive Environmental Impacts

5. The positive environmental benefits that will result from the Project include improved use of scarce water resources through improvements in the distribution and use of water; reduced environmental pollution, especially of ground and surface water, through improvements in institutional and domestic sanitation; and improved human health due to (i) increases in the quantity and quality of the water available; (ii) improved access to improved sanitation services, such as public *banyas* (public bath houses), institutional toilets, handwashing facilities, etc.; and (iii) reduced human exposure to wastes and reduced odor and insect nuisance through improvements in institutional and domestic sanitation.

2. Potential Negative Environmental Impacts

a. Environmental Problems Due to Project Location

6. There are few possible environmental problems associated with the subproject locations. In most cases the infrastructure that will result will affect the local environment positively. However some components, such as the need to dispose of wastes from improved sanitation and from desalination, may have minor negative impacts. Mitigation measures will be included in the Project to minimize these impacts.

b. Environmental Problems Related to Design, Construction Stage, and Operation

7. Improper design and/or siting of improved sanitation services and of facilities for disposing of the waste from desalination plant may result in adverse environmental impacts. There may also be problems attributed to the use of inexperienced and ill-equipped contractors to implement the works. During operation, overabstraction of limited water resources may result in supplies of fresh water becoming mineralized, and therefore unsuitable for potable use without further treatment. Disposal of wastes from demineralization, water treatment, latrines, and also the disposal of wastewater and solid waste could result in some negative impacts on public health and environmental pollution.

3. Mitigation Measures

a. Project Selection and Location

8. As much as possible subprojects will avoid areas that are environmentally sensitive and those that will have a negative impact on cultural heritage. The Project will be implemented in areas where environment improvements are expected as a result of the Project.

b. Project Design

9. All subproject components will be designed to ensure optimum use and appropriate design with minimum adverse environmental impacts. Sanitation components will be designed to improve the efficiency of on-plot sanitation and wastewater disposal systems, optimize the treatment of wastes and avoidance of pollution, especially of water resources that will later be used for potable purposes without any form of treatment. Similarly wastes from demineralization

will be discharged only where there will be no negative impact. Where these conditions do not exist the waste will be impounded in a reservoir.

c. Project Construction

10. The potential adverse impacts will be avoided by appointing experienced and responsible contractors, and by providing training and capacity building for local contractors, the Executive Agency, and other supervisory staff. As population densities are low and the works are relatively small scale and short term in any one area, the overall impact felt by individual community members with respect to dust, noise, interrupted access, is expected to be small.

d. Project Operation and Maintenance

11. Project components will continue to avoid negative environmental impacts only if they are operated correctly and maintained regularly. The necessary technical skills, financial resources, and operational, maintenance, and monitoring systems must therefore be put in place as part of the subproject. The capacity-building component of the Project will provide training in O&M for the oblast and rayon agencies and water consumer groups that are expected to be responsible for O&M.

E. Institutional Issues and Environmental Monitoring

12. Overall responsibility for environmental protection lies with the Ministry of Natural Resources and Environmental Protection. Regulations and guidelines concerning local environmental approval of the subprojects are detailed and comprehensive, and are generally more strict than ADB's environmental requirements.

F. Findings and Recommendations

13. The goal of the Project is to improve the living conditions and health of rural communities in the project area through improved access to increased quantities of safe water supply, improved sanitation, and hygiene and sanitation information. As about 40% of the rural population in the project area is considered poor, it is expected that the Project will result in considerable benefits to poor people. They will run less risk of incurring infectious diseases through reduced exposure to inadequate quantities of contaminated and untreated water supplies, reduced exposure to the various wastes generated in the villages, and through improved access to quantities of good quality water and better sanitation facilities. Some potential adverse impacts considered are the need to dispose of the mineralized water that will arise from the treatment of mineralized water for potable water supply, and the possible concentration of wastes from the development of toilets. However, by carefully choosing the methods to be used for disposal of these wastes, and their location, it is considered that potential adverse impacts can be minimized. Further, if the construction process is well managed the short-term minor negative impacts of the Project will be far outweighed by the major positive impacts of improved water supply services and sanitation infrastructure. Thus, on the basis of this initial evaluation, and careful attention to the mitigation of potential adverse impacts it is considered that the Project is unlikely to result in any adverse environmental impacts. The identified potential adverse effects will be readily addressed through proper engineering design and incorporation of the identified mitigation measures. The screening of potential impacts and mitigation measures associated with this Project are summarized in the following table.

Screening of Potential Environmental Impacts and Mitigation Measures

Potential Adverse or Negative Impact	Impact Ranking		Recommended Mitigation Measures
	Short-Term	Long-Term	
A. Selection and Location			
1. Encroachment on sensitive ecological areas/habitat depletion	1	0	None. Some possible loss of trees, mitigated by careful planning and design to avoid cutting of trees and the planting of replacements for those lost during construction.
2. Encroachment on sites of cultural or historic importance	0	0	None.
3. Creation of social inequities or other social or cultural problems	0	0	All households are expected to have equal access to facilities; no relocation is required.
4. Over-abstraction of groundwater	0	2	Sustainable yields will be determined during the design phase.
5. Pollution of sensitive environments, especially through poor disposal of wastes, e.g. groundwater used for potable or other purposes	1	1	Components will improve environmental conditions, especially through development of appropriate waste disposal systems suitable for local conditions, e.g. percolation through suitable filter media.
6. Construction impacts – noise, dust, access	1	0	Short-term impacts will be minimized by adequate construction planning, supervision, and implementation of mitigation measures. No long-term impacts are anticipated.
B. Design Phase			
1. Inappropriate design and/or siting of facilities	0	1	Proper investigation of local situation and needs prior to commencement of design, including any social and cultural conditions that demand special attention. Ensure designs are appropriate for local conditions and are sited correctly.
2. Increased pollution of surface water or groundwater bodies	0	1	Polluting wastes and wastewater disposed of using methods that ensure adequate dilution and dispersal, e.g., disposal during spring thaw (including any interim storage required), or minimize contract until adequate treatment has taken place.
C. Construction Phase			
1. Health/safety hazards for workers and residents	2	0	Appoint experienced contractors. Capacity building to emphasize need for safe working, and good supervision, careful planning and scheduling of activities, involve communities.

Potential Adverse or Negative Impact	Impact Ranking		Recommended Mitigation Measures
	Short-Term	Long-Term	
2. Noise impacts associated with use of construction equipment	1	0	Work only during day, minimize noise emissions. Wherever appropriate site major works outside communities.
3. Dust from construction site activities leading to adverse air quality effect	1	0	Where necessary adopt dust-suppression measures like water spraying. Wherever appropriate site major works outside communities.
4. Disposal of unwanted earth (soil) materials	1	0	Excess materials may be used as covering materials for insulating ground-level infrastructure
D. Operational Phase			
1. Nuisances and hazards to workers nearby residents and properties	0	1	Ensure that proper arrangements are made for maintenance. Capacity building of management and operational staff.
2. Increase in wastewater generation associated with the increase in quantity of water supplied	0	1	Careful planning and promotion of improved on-site methods wastewater disposal/reuse
3. Increased quantities of wastes to dispose of arising from water treatment prior to distribution and improved on-site sanitation. Also disposal of wastes from any centralized sewage treatment services rehabilitated.	0	1	Ensure proper collection and disposal of wastes according to their nature, e.g. burial of hazardous wastes, such as from institutional toilets, impounding brine arising from desalination until such time as it can be disposed of in a diluted form, e.g. during the spring thaw, or put into a suitable environment, such as a local saline lake. Investigate the potential for better solid waste management, including options for community-based programs.
E. Demobilization Phase			
1. No projected impacts	0	0	None

Note: Ranking system: 0 = no significant impact, 1 = small impact, 2 = moderate impact, and 3 = major impact.