ASIAN DEVELOPMENT BANK **RRP:KGZ 31197**

REPORT AND RECOMMENDATION
OF THE
PRESIDENT
TO THE
BOARD OF DIRECTORS
ON A
PROPOSED LOAN AND
TECHNICAL ASSISTANCE GRANT
TO THE
KYRGYZ REPUBLIC
FOR THE
COMMUNITY-BASED INFRASTRUCTURE SERVICES
SECTOR PROJECT

May 2000

CURRENCY EQUIVALENTS

(as of 30 April 2000)

Currency Unit	–	Som
Som 1.00	=	$0.021
$1.00	=	Som48.0

The exchange rate for the som is determined at regular auctions for foreign exchange conducted by the National Bank of the Kyrgyz Republic. For calculations in this report, the rate used is $1.00 = Som45.0, the rate prevailing at appraisal.

ABBREVIATIONS

ADB	-	Asian Development Bank
CBO	-	community-based organization
ESAF	-	Enhanced Structural Adjustment Facility
FSU	-	former Soviet Union
GDP	-	gross domestic product
IEE	-	initial environmental examination
IMF	-	International Monetary Fund
KAS	-	Kyrgyz Rural Water
KJKS	-	Kyrgyz Communal Services Union
MAWR	-	Ministry of Agriculture and Water Resources
MOH	-	Ministry of Health
NGO	-	nongovernment organization
NWSSC	-	National Water Supply and Sanitation Committee
O&M	-	operation and maintenance
PIU	-	project implementation unit
PMU	-	project management unit
PPMS	-	project performance monitoring system
SES	-	Sanitary and Epidemiological Services Division of MOH
SOE	-	statement of expenditure
TA	-	technical assistance
Vodokanal	-	water and sewerage agency
WUC	-	water users council

NOTES

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

CONTENTS

LOAN AND PROJECT SUMMARY

Borrower	The Kyrgyz Republic
Project Description	The Project follows a sector lending approach and supports the Government's objectives of decentralization, poverty reduction, and human development by providing (i) improved community-based infrastructure services and (ii) training programs to strengthen institutional capacity. The project area covers three *oblasts* (provinces), Chui, Jalal-Abad, and Osh, and includes about 730 villages, with populations ranging from 500 to 20,000 and seven towns with 20,000 to 80,000 residents. The three provinces were selected because they are poor and to maximize development impact, the Asian Development Bank (ADB) has other projects under implementation in these provinces. The World Bank and ADB have coordinated closely during project preparation as the World Bank is preparing a similar project in the other provinces. The Project includes 10 core subprojects, which were prepared using participatory approaches. The Project will provide basic infrastructure services, including water supply, sanitation, and drainage, to about 1.5 million persons, of whom approximately 70 percent are living below the poverty line.
Classification	Primary: Poverty reduction Secondary: Human development
Environmental Assessment	Category B An initial environmental examination was undertaken.
Rationale	Inadequate delivery of infrastructure services, due to fiscal difficulties, aging infrastructure, and institutional constraints, is inhibiting both urban and rural communities from accessing basic infrastructure services such as water supply, sanitation, flood control, drainage, and roads. Because these basic infrastructure facilities are often poorly designed and inadequately maintained, they fail to 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 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 infrastructure facilities; contribute to improving living and health conditions, in particular for the poor population; and improve the institutional, organizational, and managerial capabilities of the sector agencies.

Objectives and Scope

The main objective of the Project is to improve the living and health conditions in selected rural and urban communities, in particular for the poor, by providing basic infrastructure services. The Project consists of two parts: Part A: Physical Infrastructure, and Part B: Capacity Building. Part A consists of about 247 subprojects: 240 rural subprojects covering 730 villages, and seven small towns. The rural subprojects will include rehabilitating and upgrading piped water supply systems, sanitation facilities including latrines and bathhouses, flood control and drainage facilities, and local roads. The small towns subprojects will include rehabilitating and extending piped water supply services, and improving sewerage systems including proper wastewater collection and treatment. Part B includes an institutional development program, a hygiene and sanitation education program, and consulting services for project management support.

Cost Estimates

The estimated project cost is $45.0 million equivalent, comprising foreign exchange costs of $20.9 million and local currency costs equivalent to $24.1 million.

Financing Plan

($ million)

Source	Foreign Exchange	Local Currency	Total	Percent
A. Asian Development Bank	**20.9**	**15.1**	**36.0**	**80**
B. Domestic Sources				
1. National Government	0.0	5.5	5.5	12
2. Provincial and District Governments	0.0	0.5	0.5	1
3. Community	0.0	3.0	3.0	7
Subtotal (B)	**0.0**	**9.0**	**9.0**	**20**
Total	**20.9**	**24.1**	**45.0**	**100**

Loan Amount and Terms

The loan in various currencies equivalent to Special Drawing Rights 27,289,000 from the Special Funds resources will have an amortization period of 32 years, including a grace period of 8 years, with an interest charge at the rate of 1 percent per annum during the grace period and 1.5 percent per annum thereafter.

Period of Utilization

Until 31 December 2006

Executing Agency

Ministry of Agriculture and Water Resources (MAWR)

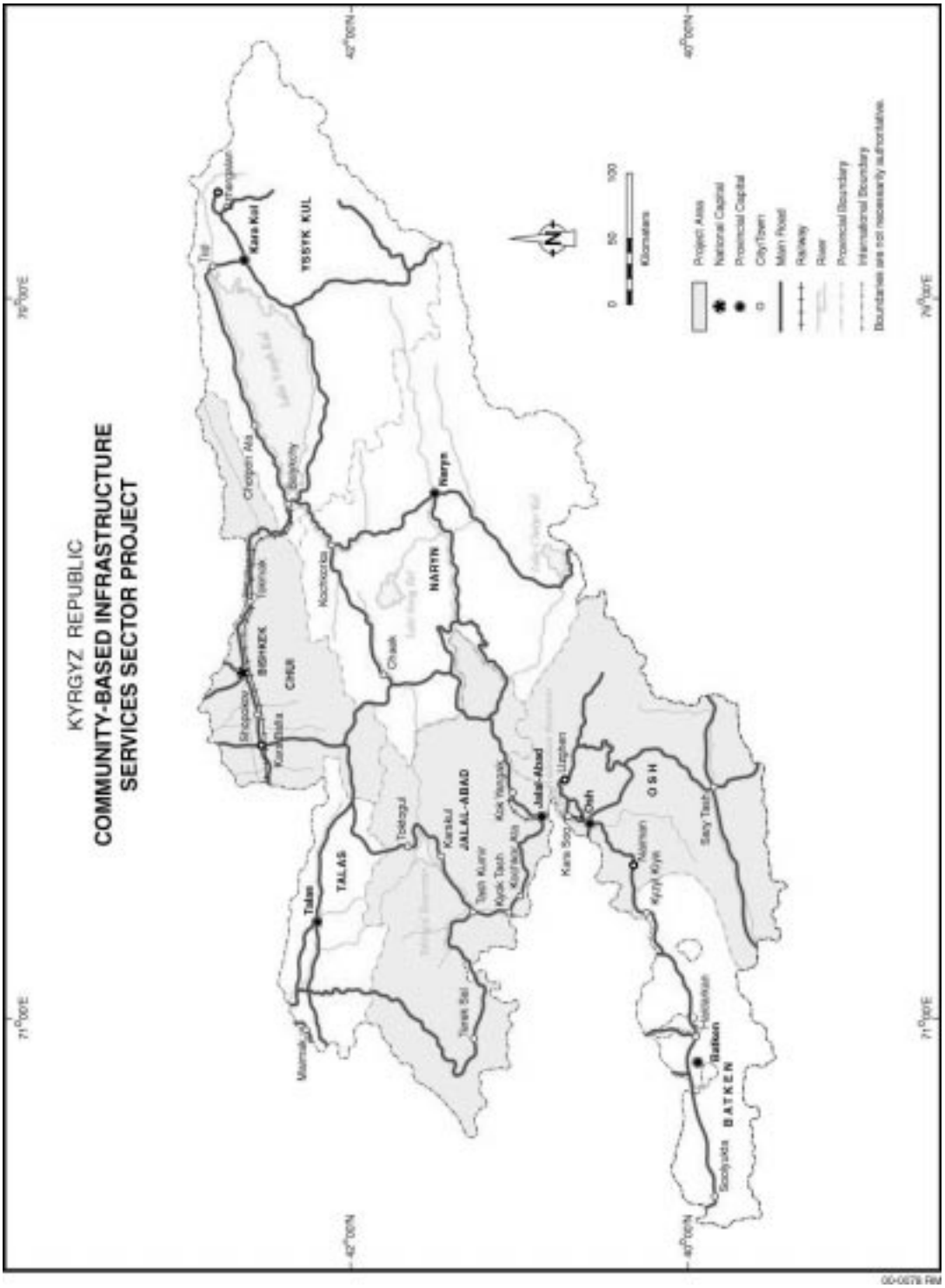
Implementation Arrangements

A central project management unit will be established within the MAWR. Project implementation units will be established in Chui, Jalal-Abad, and Osh oblasts. A national water supply and sanitation committee comprising Government representatives will

	be formed to provide policy guidance, and to monitor and supervise overall project implementation.
Procurement	The procurement of goods and services to be financed by the ADB loan will be undertaken in accordance with ADB's *Guidelines for Procurement*. 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. Civil works contracts are expected to be small and local competitive bidding procedures will be applied.
Consulting Services	The consultants will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for the engagement of domestic consultants. The Project will require 846 person-months of consulting services (67 person-months of international and 779 person-months of domestic) for (i) design engineering, (ii) hygiene and sanitation, (iii) finance and accounting, (iv) social development, (v) community development, and (vi) project management.
Estimated Project Completion Date	30 June 2006
Project Benefits and Beneficiaries	The Project is expected to benefit 730 villages and 7 towns with populations ranging from 500 to 80,000. Overall, about 1.5 million people, of whom approximately 70 percent are living below the poverty line, will benefit directly from the Project through the provision of good quality piped water supply facilities and proper sanitation, and improved flood control and drainage facilities and local roads. The Project will improve health conditions by reducing waterborne diseases. The core subprojects' average economic internal rate of return is 28 percent, and the average financial rate of return is 11 percent. The support for decentralized community management and capacity building will enhance the efficiency and sustainability of the community-based infrastructure services in the Kyrgyz Republic.
Technical Assistance	An advisory technical assistance (TA) for Institutional Strengthening for Community-Based Infrastructure Services is being provided in conjunction with the Project. The TA is estimated to cost $765,000 equivalent, comprising $537,000 foreign exchange cost, and $228,000 equivalent local currency cost. ADB will finance $650,000 on a grant basis from the Japan Special Fund funded by the Government of Japan. This includes the entire foreign exchange cost and $113,000 equivalent of the local currency cost. The Government will finance the remaining

$115,000 equivalent of local currency costs. The consultants will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* 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 community-based infrastructure services for water and sewerage agencies, water users councils, and village local governments. The TA will focus on (i) preparing and implementing an institutional strengthening program for local governments; and (ii) assisting water and sewerage agencies and water users councils to improve their organizational structures and capabilities, including strengthening their planning, budgeting, operation, maintenance, financial management, and billing and collection systems.


KYRGYZ REPUBLIC
COMMUNITY-BASED INFRASTRUCTURE
SERVICES SECTOR PROJECT
BISHKEK
CHUI
TALAS
JALAL-ABAD
NARYN
OSH
ISSYK KUL
BATKEN
Kara Kul
Naryn
Talas
Jalal-Abad
Osh
Batken
Project Area
National Capital
Provincial Capital
City/Town
Main Road
Railway
River
Provincial Boundary
International Boundary
Boundaries are not necessarily authoritative.
Kilometers

I. THE PROPOSAL

1. I submit for your approval the following Report and Recommendation on a proposed loan to the Kyrgyz Republic for the Community-Based Infrastructure Services Sector Project. The report also describes a proposed technical assistance (TA) for Institutional Strengthening for Community-Based Infrastructure Services, and if the proposed loan is approved by the Board, I, acting under the authority delegated to me by the Board, shall approve the TA.

II. INTRODUCTION

2. In 1998, the Government requested TA from the Asian Development Bank (ADB) to prepare the Community-Based Infrastructure Services Sector Project.[1] The TA was implemented by the Ministry of Agriculture and Water Resources (MAWR) and completed in October 1999. The TA supported local capacity building and designed an investment proposal for decentralized development of basic infrastructure services. The TA was divided into two phases. Phase I reviewed the current situation and proposed measures to strengthen infrastructure development policies, including preparing a community infrastructure services sector strategy paper. Under phase II, the TA consultants worked with local and national government sector agencies, and developed an investment proposal and an institutional development program. The Project has been formulated on the basis of 10 representative core subprojects, 8 rural and 2 urban. The core subprojects were prepared in close consultation with the communities, and detailed analyses, including socioeconomic analysis, were carried out. The results were used to finalize the project scope. A bottom-up approach, involving the communities in preparing the subprojects, was used to formulate the Project. This report is based on the findings of the Appraisal Mission from 2-16 February 2000 and earlier ADB missions, and has incorporated feedback from the consultation with project beneficiaries, reports prepared by the TA consultants, and discussions with the national and local governments and international assistance agencies. The project framework is presented in Appendix 1.

III. BACKGROUND

A. Sector Description

1. Economy in Transition

3. The Kyrgyz Republic, which became independent in 1991, is undertaking major changes to transform its economy from a centrally planned to a market-based system. The economy has been severely affected by the Russian Federation's economic crisis, which broke out in August 1998. Prior to this, the Government had introduced important structural reforms to move from a centrally planned economy to one in which market forces determine resource allocation and the production of goods and services.[2] The measures include (i) liberalizing most prices, (ii) privatizing public enterprises, (iii) implementing banking reforms, (iv) developing the legal framework, and (v) reforming social safety nets. Further, the Kyrgyz Republic is the first Central Asian republic to (i) become a member of the World Trade Organization, and (ii) successfully complete an International Monetary Fund (IMF)-supported Enhanced Structural Adjustment Facility (ESAF) program.

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[1] TA No. 3048-KGZ: *Community-Based Infrastructure Services Sector Project,* for $600,000, approved on 20 July 1998.

[2] For further discussion of the economy and the reform process, see CER: KGZ 99008: *Country Economic Review*, the Kyrgyz Republic, 1999; and ADB 1999 *Country Assistance Plan* (2000-2002), the Kyrgyz Republic. December 1999.

4. The Kyrgyz economy experienced another difficult year in 1999 as the adverse impact of the Russian Federation's crisis continued to affect the economy. Preliminary data for 1999 indicate that real gross domestic product (GDP) grew by 3.6 percent, higher than in 1998, owing to continued growth in agriculture that counterbalanced the persistent decline in the industry sector. Inflation, however, accelerated to about 40 percent by year-end in 1999, more than double the rate in 1998, largely due to depreciation of the som and increases in grain and flour prices. The nominal exchange rate of the som depreciated by about 35 percent against the dollar, and real interest rates hovered at about 15 percent towards year-end. During 1999, total external trade contracted by 25 percent compared with 1998; import decline outpaced export growth. As a result, in 1999 the external trade deficit was reduced by almost 65 percent, and the external current account deficit was about 15 percent of GDP as compared with 20 percent in 1998. By year-end, gross reserves increased to cover about four months worth of imports. The fiscal situation continued to be weak in 1999, as reflected by the cash deficit of 11 percent of GDP, higher than that of 1998. The Russian Federation's crisis weakened the banking system considerably, and in April 1999 it was hit by a major financial fraud that substantially aggravated the situation. As a result, some of the largest banks were closed, with the five most affected banks representing about 60 percent of the banking system deposits. These recent developments clearly demonstrate the Kyrgyz Republic's continued interdependence with the former Soviet Union (FSU) and its high vulnerability to external shocks. Structural reforms made progress in some areas such as continued efforts in implementing the comprehensive pension reform, initiation of the privatization and restructuring of several large state-owned enterprises and continued reform in the health sector. However, progress lagged in other areas including enterprise restructuring and further promotion of private sector development including enhancing legal and regulatory framework and its implementation.

5. The Government made major efforts to reach agreement with the IMF on reviving the second annual arrangement of the ESAF program which went off track in July 1999 due to failure to meet program targets. A set of prior actions was required and monthly targets towards year-end were set. With these conditions successfully met, the IMF Board approved the Poverty Reduction and Growth Facility, the successor to the ESAF program on 9 February 2000. Under the new program the Government will strengthen its efforts in macro stabilization and deepen structural reforms. In particular, a significant fiscal adjustment is needed with primary surplus targeted at about 2 percent of GDP and fiscal deficit at about 7.5 percent of GDP for 2000. These targets are ambitious but necessary to restore fiscal balance and strengthen macrostability. Monetary policy will continue to be tight in order to contain inflation and further depreciation of the som. A key to restore public confidence in the som and domestic financial system is the restructuring of the banking sector. Structural weaknesses of the economy which underlined recent economic difficulties must be tackled through persistent structural reforms. Principally, the efficiency of public sector decision making must be improved. That includes a further reduction of the state's role in the economy and promoting private sector development, and expediting the process of enterprise restructuring. Complementing these efforts are the civil service reform, the raising of energy tariffs, and a further enhancing of the legal and regulatory framework. The process of privatization and restructuring of large state-owned enterprises must be accelerated and external debt management must be improved. Provided there is strict adherence to these reform measures, the medium-term outlook of the economy is favorable. Real GDP is likely to grow at 3-4 percent for the next few years until 2003 when growth accelerates to 4-5 percent. Inflation is expected to be cut by half in 2000 and further decline to about 5 percent by end 2003. Budget deficit is expected to decrease to 7.5 percent this year and to about 3 percent by 2003. Regarding external balance, with the economic recovery of the Kyrgyz Republic's neighboring countries, the current account deficit will be reduced further to about 13 percent of GDP this year and gradually to around 10 percent in 2003.

2. Social Aspects

6. Prior to the breakup of the FSU, the Kyrgyz Republic enjoyed full employment in the context of a centrally planned economic system. The ongoing transition to the market economy has resulted in (i) a sharp decline in the active work force engaged in the formal (official registered) economy, (ii) considerable hidden unemployment, (iii) a growing informal sector, and (iv) a change in the composition of jobs provided by the economy. Registered unemployment was 3.1 percent of the labor force in 1999, while the overall rate of unemployment and underemployment amounted to over 20 percent. Unemployment among the young and women is a particularly serious problem, and is continuing to increase with women accounting for 60 percent of the unemployed. About 37 percent of these women are under 29 years of age. Real wages have fallen significantly.

7. The transition has also resulted in increased poverty. The number of people living in poverty increased from 51.0 percent of the total population in 1997 to 63.6 percent in 1998, and the level of extreme poverty increased from 14.8 percent in 1997 to 23.0 percent in 1998.[3] The Government estimates that 20 percent of households could not meet basic food needs in 1996; in 1999, the percentage rose to 23 percent, or a quarter of the country's households. The percentage of rural poor has increased from nearly 64.5 percent in 1997 to 71.3 percent in 1998. However, in urban areas the percentage of the poor has increased substantially from 28.5 percent in 1997 to 50.7 percent in 1998. Poverty is income based, and still mainly found in rural areas, where economic activity is limited and community services scarcer. In addition, the severity of poverty has increased in recent years as families deplete their savings and become indebted. Geographically, poverty is not evenly distributed between the oblasts (provinces). Naryn oblast is the poorest, with 89.1 percent of the population generally poor, and 42.6 percent extremely poor. The capital city of Bishkek is the least poor area with 28.9 percent generally poor, and 8.5 percent extremely poor, followed by Chui oblast with 37.6 percent generally poor, and 3.5 extremely poor. Jalal-Abad oblast has 72.3 percent generally poor, and 29.3 percent extremely poor. Osh oblast has 81.2 percent generally poor, and 31.3 percent extremely poor.

8. A first assessment of the determinants of poverty identifies major causes as (i) the disruption of economic activity after the breakup of the FSU; (ii) inadequate targeting of social expenditures given the current fiscal constraints; and (iii) governance issues. As in other FSU countries, the Government in the initial years of the transition addressed sector reforms issues including privatization, corporate governance, bank restructuring, and social sector reform. These reforms were a necessary, but not sufficient, condition of economic recovery. Several sectors need deepening of the reforms and further assistance. The generated pattern of economic growth has had a limited impact on poverty. Economic growth was led by capital-intensive, foreign investments in mineral extraction, which failed to generate employment on a countrywide basis or to diversify economic activity. As a result of this noninclusive pattern of growth, the gap between rich and poor has widened, income distribution worsened, and fiscal collections remain insufficient to meet social needs and public consumption, increasing the social costs of the transition.

9. The major issues related to poverty include limited access to basic infrastructure services. The access of poor households to basic infrastructure services has deteriorated in quantity and quality. Living standards have fallen drastically in spite of the high levels of education, low levels of open unemployment, availability of housing, and kin and community

[3] Poverty is defined as having an income below the general poverty line being Som4,944 per capita per annum in 1998 (Som4,647 in 1997), and the extreme poverty line being Som2,595 in 1998 (Som2,439 in 1997). *1998 Poverty in the Kyrgyz Republic,* published in November 1999 by the National Statistical Committee of the Government of the Kyrgyz Republic.

support networks. Reduced food consumption, lower nutritional value of consumed foods, reduced access to health care and medicines, and greater chances of infection, particularly for vulnerable groups, indicate a higher incidence of poverty and reduced quality of life. New groups of vulnerable people have emerged: the elderly; pensioners; poor households that are unable to undertake farming; and households headed by women, with many young children.

10. During the socialist period, women traditionally had an equitable position in society and the state. However, the impact of the transition on women has been negative and more drastic than for men. Women were the first to lose their jobs as they were mostly represented in the health and education sectors, and have suffered because of the scaling back of social services. In rural areas, women are legally entitled to equal land rights to men as household heads. It is important to ensure that women continue to have their legal rights to land respected when land shares are allotted and registered. Women should not be disadvantaged, but rather have equal opportunities to participate in income-earning opportunities. Women are active in the informal "bazaar" economy which has often acted as a buffer against abject poverty.

3. Infrastructure Services

a. General

11. The Kyrgyz Republic is a landlocked, mountainous country comprising approximately 200,000 square kilometers, with an officially estimated population of 4.9 million people; almost two thirds live in rural areas.[4] Among the structural causes of poverty is the lack of basic infrastructure services.

12. Improved basic infrastructure services, in particular water supply, can have wide-ranging health, social, and economic benefits. Sanitation-related diseases like diarrhea, typhoid, infections, and hepatitis afflict many, particularly in the rural areas. Diarrhea is the main cause of neonatal morbidity and the leading illness among children. The incidence of these diseases can be significantly reduced by improving water supply and sanitation services. The most significant health improvements are usually achieved by improving water supply and sanitation services, while improving personal and household hygiene. The benefits of water supply can be maximized in underserved rural areas by combining support programs such as hygiene and sanitation education. Women and children benefit substantially from improved water supply and sanitation services as the physical burden of carrying water can be reduced, and the time and energy saved can be put to more productive use.

13. Groundwater is available throughout much of the country and is extracted mainly for the supply of drinking water to urban and rural areas. The safe yield of the groundwater supply is estimated at about 10 million cubic meters per day, which is more than three times the current total extraction of about 3 million cubic meters per day. There are some areas where shallow groundwater is accessible for hand pumps. Groundwater in rural areas is generally of high quality, meets national drinking water quality standards, and requires little or no treatment. Surface water is generally of good quality, but may require some chemical and physical treatment in addition to chlorination. In mountainous areas, springs are a good source of water.

14. Prior to 1991, the FSU provided sufficient subsidies to construct, rehabilitate, and maintain infrastructure services throughout the country. Now, the Kyrgyz Republic Government does not have the financial capability to provide the necessary funds, nor the institutional

[4] 1,770 communities are classified as rural with populations ranging from 500 to 20,000 persons. Urban areas comprise (i) 2 primary cities (over 80,000 persons); and (ii) 16 secondary cities or small towns (20,000-80,000 persons).

arrangements to make the best use of available limited resources; infrastructure in both urban and rural areas has fallen into poor repair. Formerly, an estimated 70 percent of rural villages had a safe piped water supply, but the work of the project preparatory TA shows that this has fallen to less than 40 percent. In the southern oblasts of Jalal-Abad and Osh, about 75 percent of the villages do not have a reliable supply. In some areas, climate and topographical features also dictate a need for flood protection measures to protect the water supply infrastructure. Flooding is generally caused by the inadequacy and poor maintenance of drains. Also urban water supply has reached a state of crises. Although urban systems are continuing to operate, their effectiveness is failing, supplies are interrupted, and very high water losses occur because there have been no new investments and little funds to carry out routine maintenance and repairs. These physical problems are compounded by low tariffs and poor collection management.

15. Until recently, many villages contained *banyas* (communal bathhouses), which have now largely fallen into disuse, partly due to lack of water supply. As a result skin diseases have increased due to lack of proper cleanliness. There is also no adequate wastewater collection system in the rural areas or an acceptable level of human waste disposal. There is no formal infrastructure for sanitation; basic pit latrines with no sanitary refinement are used throughout rural areas. Some urban areas have operational sewage systems, but these are also falling into poor repair due to age and lack of new investment. Other towns use various methods of sanitation, and individual properties use dry pit latrines (replaced when full), grey water soak pits, cesspits, or septic tanks. Several ongoing and proposed projects are focussing on road infrastructure, mostly interstate highways; some include urban areas and parts of the 15,000 kilometers of rural roads. However, there has been no identifiable investment for road rehabilitation within the rural areas of the former collective farms. The situation in all the subsectors is exacerbated by the weak levels of management in the Government enterprises, which still largely apply central control and supply economy methods. Reconstruction and future operation and maintenance (O&M) will depend heavily on efficient and decentralized technical and financial management.

16. Lack of reliable data makes it difficult to present a precise assessment of water and sanitation service levels and quality. However, only about 27 percent of the population is served by house water and sanitation connections. About 40 percent receive water from public standpipes or water tankers. About one third have no public water service at all. Service coverage is highest in Bishkek at about 80 percent, although the influx of rural migrants has reduced coverage significantly. Service coverage drops off considerably in the small towns and is very low for the village segment. Reportedly, about 70 percent of the estimated 1,770 villages have no functioning water system at all. In the southern oblasts of Jalal-Abad and Osh, only about a quarter of the villages have operable water systems. Most of the groundwater pumping systems, disinfection facilities, and standpipes are currently nonfunctioning.

17. Only about 20 percent of the population have access to a water sewer system; Bishkek has about 60 percent coverage. Coverage in the smaller cities varies from 20 to 50 percent. Small towns and rural communities rely on on-site solutions, primarily latrines and drain fields. Most of the densely populated parts of urban areas are serviced. Wastewater treatment, employing secondary activated sludge processes, exist in Bishkek and in 10 other urban centers. Lack of resources for O&M has compromised the effectiveness of these plants.

18. The poor state of water and sanitation services has many undesirable consequences for the Kyrgyz people and the country's economy. Consumers incur significant time costs and inconvenience in coping with deficient or lack of service; many collect water from rivers, irrigation channels, and other villages and towns. Poor service is responsible for deteriorating

public health and increased expenditures on health. When there is freezing or drought, many consumers depend on costly water from tank trucks and other sources. Coping with poor and unsafe water and sanitation services is most difficult for the poor who have to spend more of their income and energy on water than those who are better off. In spite of the many other pressing obligations during this difficult transition period and economic recovery, the Government recognizes that improving water and sanitation services is an essential part of the country's economic and social development strategy. The Government declared 1999 as the year for rural development and included water supply as the top priority for development.

19. The poor state of water supply and sanitation systems has its roots in deficient design; use of poor materials and construction methods; and insufficient maintenance, repair, and timely rehabilitation. The present financial crises have exacerbated the situation as lack of resources prevents any maintenance at all. Water and sanitation infrastructure is being run on borrowed time. In facing these very difficult conditions, the staff involved in the water supply and sanitation sector have done a commendable job in keeping the systems operating and delivering water to customers. Given the lack of funds and the state of repair of sector assets, service quality will continue to deteriorate. Repair and rehabilitation of existing systems is obviously one of the highest priorities.

b. Government Institutions

20. The Kyrgyz Republic is a democratic parliamentary republic. Government responsibilities are shared across five levels: (i) national Government; (ii) provinces (oblasts) and the national capital region; (iii) districts (*rayons*); (iv) towns; and (v) village clusters (a*yil okmotu).* At the provincial and district levels, presidentially appointed administrators (*akims*) head the local administration, and locally elected councils (*keneshes*) provide oversight. The council of the smallest unit of local government, the ayil okmotu, is an elected body that handles both administrative and representative functions. The country is divided into seven provinces (Batken, Chui, Jalal-Abad, Naryn, Osh, Talas, and Yssyk Kul) and the national capital region, 52 districts, 16 towns, 455 village clusters, and 1,770 villages. The national Government is currently devolving important functions to the local government level. However, there is no single authority to establish a comprehensive and clear basic infrastructure services policy. The following agencies and departments are involved in granting permits, setting standards, and monitoring their implementation. Under MAWR, the *Kyrgyzselremstroi* (Kyrgyz Rural Repair and Construction Agency) recently renamed as *Kyrgyz Ayil Su* (KAS or Kyrgyz Rural Water) is responsible for the development of rural water supply systems, through water users councils (WUCs). MAWR through its Water Resources Directorate is also responsible for water resource management and irrigation schemes. The Sanitary and Epidemiological Services Division (SES) of the Ministry of Health (MOH) provides health education programs; SES has representative offices at the oblast and rayon levels. Central budget funding is provided for the development and dissemination of health and hygiene education programs. SES is also responsible for surveillance of drinking water quality. SES monitors the quality of drinking water by routinely collecting samples from various water supply systems, and testing at one of its 57 water quality testing laboratories. The Ministry of Environmental Protection is responsible for protecting water sources, preventing pollution, and decreasing wasteful use of water. The State Agency of Geology and Mineral Resources is responsible for controlling the exploitation of groundwater sources. The *Kyrgyzjylkommunsoyuz* (KJKS-Kyrgyz Communal Services Union) is charged with overall responsibility for *vodokanals* (urban water supply and sewerage agencies) and for the methodology of setting prices and tariffs for urban services. The Ministry of Transportation and Communication is responsible for interstate and interregional roads. Village roads are the responsibility of the village administration. The Ministry of Emergency Situations and Civil Defense is responsible for planning and organizing flood control. Actual implementation is a

local responsibility. The association of local self-governments is involved in rural development programs.

c. Community-Based and Nongovernment Organizations

21. The Government's policy to increase community participation in the development of community infrastructure services, in particular, the water supply sector, has encouraged the involvement of community-based organizations (CBOs) and national and local nongovernment organizations (NGOs) in the sector. CBOs and NGOs have been involved in the development of the water supply sector over the last decade. The successful CBOs and NGOs have developed expertise, experience, and a good record for the timely delivery of basic services. The main selection criteria for their participation are the requirements of being established for at least five years and having experience in the sector for over two years. One well respected CBO is the traditional elders' council (a*ksaldar sotu*), which protects traditions and sets values for the community, and resolves conflicts before cases are taken to a higher authority. This CBO will play an important role in mobilizing community support for the Project in the villages. Other examples of NGOs and CBOs are women's committees, veterans' councils, youth committees, and block organizations (*kwartel*).

d. Gender and Development

22. In many areas of the Kyrgyz Republic, particularly those with a high proportion of low-income groups, women and children are mostly responsible for collecting drinking water. However, women are frequently excluded from planning and implementation activities for new water supply facilities. As the main users of water supply facilities, women have a strong interest in ensuring proper design and O&M. Therefore, the Government plans to enlist active women's participation in all aspects of water supply and sanitation including (i) planning of water supply facilities, (ii) hygiene and sanitation education, (iii) O&M, and (iv) gender training and information for community leaders. The women's involvement will ensure their integration into WUCs, as well as into the informal network at the community level. The improved water supply and sanitation services will save time especially for women and enable them to engage in productive activities. The women who work in the local governments will be fully involved in capacity building under the Project to enable them to provide essential services to poor communities. Half of all training activities will be directed towards women staff who occupy relevant positions. Women's formal representation will be strengthened in the vodokanal and WUCs, as well as their informal network at the community level as part of the capacity-building component of the Project.

B. Government Policies and Plans

23. The World Bank and ADB have coordinated closely in the preparation of a national program for the development of basic infrastructure facilities. The Government's five-year, medium-term policies prepared in 1999 for the development of community-based infrastructure services include (i) focusing on poor areas; (ii) phasing in full cost recovery in five years with lifeline affordable tariffs for the poorest beneficiaries; (iii) involving communities in the planning, implementation, and O&M; (iv) building institutional capacity; (v) facilitating private sector participation; and (vi) establishing a national coordination committee. The problems facing the Government during this transition period have given urgency to some of these policies, in particular the need for a more focused and coordinated approach to reducing poverty, implementing cost recovery, and privatizing industry and services. In addition, decentralization is seen as an integral part of the Government's approach to facilitating the restoration of basic services necessary for economic and social development. Along with social assistance

programs, the Government has emphasized improvements in the water supply and sanitation sector as part of its instruments to fight poverty, improve living standards, and protect the health of the poorest. The close correlation between poverty and access to clean water and health indicators make the recovery of the water supply and sanitation sector an integral part of the Government's strategy for fighting poverty. In its draft public investment program for 2000-2004, the Government is planning to invest over $100 million in the sector.

24. In 1996, the Government began a privatization and land reform process in rural areas. About 5,000 communal and industrial assets were transferred to local village administrations. These included the assets of the *sovkhoze* and *kolkhoze* (the State and collective farms), which previously owned the rural water supply systems and bathhouses and much of the housing. They were also responsible for the roads within the farms. In the urban areas, the industrial assets have been candidates for privatization, or have been wound up. Transfer of water and sewerage, along with other communal assets to the relevant municipal self-government administration began in 1998. This reform of communal utilities provides the tariff to cover the actual production costs, taking into account the subsidies available to certain population categories. However, it falls short of demanding full cost recovery. While these activities are positive, too much power still resides with the central authorities. One of the problems is that ownership and control are seen as separate issues. While ownership is being transferred to the local level, the control including the setting of tariffs still remains at the central level. This issue must be resolved to facilitate long-term sustainability of the desired project results. A good example is seen with the 1998 law on drinking water, which identifies KJKS as responsible for the methodology to establish tariffs, the National Commission for the Protection and Development of Competitiveness in the President's office as responsible for ensuring that the rates are justified, and the *Jogorku Kengesh* (Peoples Assembly) as the body that ultimately annually ratifies the actual tariffs set. This procedure is unwieldy and allows only for annual changes, thus greatly jeopardizing efforts to ensure that enterprises become financially viable. However, the Government is presently revising the law on drinking water to provide full cost recovery by allowing the WUCs and vodokanals to set their own tariffs.

25. The law on drinking water also includes several regulations pertaining to protecting water resources and the environment. The main policy components of the law are that (i) all people have the right to uninterrupted, sufficient safe water; (ii) individual water meters are to be installed for all customers; and (iii) local governments must set aside funds and equipment to supply the population with water in cases of emergency. The law identifies the departments and Government agencies responsible for water quality, the method of water treatment and production, environmental protection of water sources, the preparation of water supply programs, the monitoring of water resources, and the setting of tariffs. It also defines the responsibilities of the local self-governments for implementing the regulations.

26. The policy of establishing local farmer water users associations to manage resources, is part of the larger policy to develop more rational water resource management. The policy restores the ownership of irrigation systems to the users. The local governments are responsible for system management and the recovery of all costs, including investment and operational costs. However, the geographic coverage of the water supply and irrigation systems does not necessarily coincide.

27. Government policy on health stresses preventative actions. With very limited resources, the Government is actively looking for external financial assistance. The Government's hygiene education program is to be implemented at the village level. Local health posts receive funding from the rayon budget, although the village administration can use nonbudget funds to provide additional staff. Consequently, these facilities remain staffed even in quite remote rural areas,

but they have no medicines and little working equipment. These health posts and schools organize health education programs.

28. The policy that transfers ownership to the local self-governments also addresses village roads. Village governments, using the village budget are responsible for road maintenance within the village. Flood control measures are the responsibility of the Ministry of Emergency Situations and Civil Defense, which receives about 1.5 percent of the total State budget. Responsibility for monitoring flood risk, however, is with the State Committee on Hydrometeorology. Monitoring of the situation in flood-prone areas is the responsibility of the ministry. Preventative measures, information campaigns, and reconstruction and rehabilitation works must be covered by local funds. Thus flood prevention measures required at the village level are the responsibility of the village budget.

29. The investment levels required to provide the entire population with a modest, but safe level of water supply and sanitation services are as follows: (i) $90 million to rehabilitate and expand the rural water supply systems, (ii) $10 million to upgrade rural sanitation facilities, (iii) $60 million to rehabilitate urban water supply systems and provide water supply by public standpipes to unserved people, (iv) $20 million to rehabilitate sewerage systems in densely populated urban areas, and (v) $20 million to rehabilitate and improve the performance of existing wastewater treatment plants. Altogether about $200 million of investments over 10 years, or about an average of $45 per capita (including costly new development in urban areas), will be needed to address the highest priority and most urgent concerns in the water supply and sanitation sector.

C. External Assistance to the Sector

30. The World Bank and ADB have coordinated closely during project preparation as the World Bank is preparing a similar project in the other provinces. It is now preparing a project (a loan of about $15.0 million) to improve urban and rural water supply and sanitation facilities for the oblast*s* of Naryn, Talas, and Yssyk Kul. ADB and the World Bank have cooperated closely in identifying requirements for policy development initiatives and institutional arrangements for coordinated project implementation. Agreements have been reached with the Government on the identification of project areas, scope of work, cost recovery, and per capita investment requirements. ADB and the World Bank have also other ongoing projects in the oblasts covered by the two proposed projects. Several other multilaterals, bilaterals, and international NGOs have also provided assistance to the water supply and sanitation sector. The assistance has been limited to pilot projects and activities to develop community-based solutions for the deteriorating water supply situation. Among the external aid agencies, the Helvetas, Soros Foundation-Kyrgyz Republic, Swiss Association for International Cooperation, United Nations Children's Fund, United States Agency for International Development, and United Nations Development Programme have been active and provided limited funds. The World Health Organization has helped the National Environmental Action Plan. Appendix 2 lists external assistance from aid agencies to the sector.

D. Lessons Learned

31. The main problems faced during the implementation of large-scale aid-assisted infrastructure services projects relate to insufficient community consultation and participation in the planning and design of subprojects; this 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. The Government's limited experience with project

implementation has led to delays and slow disbursement. It is also clear that there is need for the Government officials to become more familiar with ADB's implementation procedures as experienced during the implementation of the Flood Emergency Rehabilitation Project.[5] One other lesson learned is weak institutional capacity of oblasts. Substantial technical and financial assistance is required. These issues were studied during the project formulation, and appropriate measures have been comprehensively incorporated in the project design (Appendix 3). The Government, ADB, and other aid agencies are now focusing on community consultation and decentralizing the implementation process. Under the Project, a comprehensive capacity-building program will be undertaken for local sector agencies. Detailed cost recovery arrangements have been outlined and O&M functions will be strengthened.

E. Country Operational Strategy

32. The primary objectives of the ADB's country operational strategy for the Kyrgyz Republic are to (i) support the Government's reform activities and strengthen its development management by encouraging institutional change, strengthening institutional capacity, and improving the provision of public services; (ii) encourage the creation of a new structure for output and capacity by the private sector by facilitating investment and creating jobs; and (iii) enhance the long-term potential of the country by investing in physical infrastructure and human development, as well as selectively intervening to protect and rehabilitate the environment. The strategy recognizes the importance of sound management of natural resources and protection of the environment for sustainable growth. ADB's country operational strategy was prepared in 1996 and did not envisage direct support for water and sanitation projects. However, the Government's requirements and priorities have changed and are now focused on poverty reduction. As explained in the section describing the Government sectoral policies and plans, the Project is a high priority, given the present emphasis of the Government on investments in water supply and sanitation for improving the living conditions of the poor. The Government sees the Project as an essential feature of its strategy to ensure (i) that rural areas in particular have adequate access to potable water, and (ii) support for the development of community-based infrastructure services.

33. The ADB's poverty reduction strategy[6] states that since poverty in the region is concentrated in rural areas, ADB will give priority to projects impacting directly on the rural poor. These include rural roads and electrification, promotion of small and medium enterprises, and water supply and sanitation programs (wherever the absence of basic services jeopardizes the health of the poor). The ADB, IMF, World Bank, and the United Nations Development Programme, are assisting the Government in preparing a national strategy for poverty reduction. The Government has indicated that improved water supply, sanitation, and other infrastructure services in poor areas will be an integral part of this national strategy. Thus, the proposed Project, which will impact significantly on the poor is fully in consonance with the new priorities of both the Government and the ADB to improve basic services and living conditions particularly in poverty affected areas.

F. Policy Dialogue

34. ADB's policy dialogue with the Government has covered (i) investment priorities and poverty focus, (ii) development of community infrastructure services at the local level and decentralization of implementation, and (iii) local maintenance of infrastructure facilities.

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[5] Loan 1633-KGZ: *Flood Emergency Rehabilitation Project*, for $5.0 million, approved on 24 September 1998.

[6] *Fighting Poverty in Asia and Pacific: The Poverty Reduction Strategy of the ADB* dated 19 October 1999.

35. **Investment Priorities and Poverty Focus.** Under the centrally planned system, infrastructure investments were capital and energy intensive, and difficult and expensive to operate and maintain; large investments in urban areas were favored. As a result of ADB's policy dialogue, the Government has agreed to rehabilitate and expand existing infrastructure in poor areas. The Government agreed to support the Project, and will rehabilitate and expand existing water supply; sanitation, including wastewater treatment and bathhouses; flood control and drainage facilities; and local roads in selected poor urban and rural areas. While minimizing costs, the emphasis will be on rehabilitating and upgrading existing facilities, using simple technology and low cost. The poverty focus is reflected in the selection criteria which aim to focus support for poor communities which have a majority of their population living below the poverty line and with high incidence of waterborne-related diseases. About 70 percent of households in the targeted project communities are living below the poverty line and limited access to basic infrastructure services is a major issue contributing to poverty.

36. **The Development of Community Infrastructure Services at the Local Level and Decentralization of Implementation.** As infrastructure investments have traditionally been planned and financed by the national Government, remnants of top-down approaches persist at almost all administrative levels, with little participation from local communities and governments. The project design required extensive discussions between the central and local governments, agreement on implementation arrangements, and the preselection of facilities. Under a decentralized approach, project implementation will be at the oblast level, with project management support from the central level. Capacity building will be carried out under the loan and the associated TA. By playing an active role in the selection of facilities to be rehabilitated, local governments are expected to gain experience in planning and administrative functions. However, many areas will require special community-based bodies, such as WUCs, to be established to plan and ultimately own and manage the water supply systems. This is necessary as (i) the area covered by water supply systems does not always coincide with local village government boundaries; and (ii) opportunities must be provided for women, who are generally most affected by poor water supply and sanitation, to be involved in the planning of the system and its management. Investments will reflect local needs and priorities, and incentives for cost recovery will be in place. The Government accepts this principle and understands that for the system to be sustainable, ownership and responsibility must be passed to the users. The Project is thus structured to increase local-level responsibilities for infrastructure services by decentralizing implementation and O&M, and actively involving all stakeholders.

37. **Local Maintenance of Infrastructure Facilities.** The communities will maintain the project facilities at adequate levels by implementing user charges to be collected by the vodokanals and WUCs. Since the lack of proper maintenance in any one year would likely increase the cost of rehabilitating a given facility in succeeding years, the local governments have agreed in principle to establish appropriate and affordable user fees. This will be reflected in the revised law on drinking water. For water supply facilities, full cost recovery is envisaged, under a phased program, with internal cross-subsidies for the poorer population to be served through public standpipes. Community contributions, in cash or in kind, will be mobilized with project assistance. After careful analysis, the Government and ADB have in close consultation with communities, concluded that by using least cost approaches and self help (*ashar*) and by carefully calculating for differentiation, the proposed subprojects are affordable for communities concerned. Project formulation was based on a process of surveys, data analysis, and consultation with concerned stakeholders, including all levels of Government, and project beneficiaries. This participatory approach had very positive results on building conceptual understanding and consensus. Fostering partnerships between the community and local governments will result in more responsive infrastructure services delivery. The thrust of the

project structure is to build ownership and responsibility at the local and community levels with effective partnerships between local bodies and the communities.

IV. THE PROPOSED PROJECT

A. Rationale

38. The Government's sector policies and strategies prepared under the project preparation TA have been reviewed and agreed upon, and are considered to be well formulated. The ADB and the World Bank have coordinated and will assist the Government with two similar projects covering the entire country. The Executing Agency, MAWR has implemented one ADB-financed project[7] and other externally assisted projects in the past, and has adequate capacity to implement the Project. MAWR will be further strengthened through the Project's capacity-building activities. Therefore, a sector lending modality was adopted for the Project. The sector lending approach is also justified by the large number of replicable subprojects. To ensure sustainability, community consultations will be a feature of the Project. Another important characteristic is the major role of oblast administrations in project implementation. Decentralized implementation is to be standardized on a countrywide basis for all community-based infrastructure services sector projects. The capacity of vodokanals and local government will be built up to enable them to implement subprojects and to undertake O&M of the constructed systems.

39. The Government's development objectives to promote economic growth, reduce poverty, and provide balanced regional development include improving water supply, sanitation, flood control and drainage, and rural roads. The country's infrastructure facilities are often poorly designed and inadequately maintained. Insufficient and polluted drinking water supplies, combined with poor sanitation and hygiene practices are directly linked to significant increases of waterborne diseases. Flooding is generally caused by inadequacy and poor maintenance of drains. Local roads need to be upgraded and expanded to cope with increasing traffic. Prior to the 1990s, the FSU provided sufficient subsidies to construct, rehabilitate, and maintain infrastructure throughout the country. Now, the Kyrgyz Government does not have the financial capability to provide the necessary funds, and infrastructure facilities in both urban and rural areas have fallen into poor repair.

40. Rural water supply has been particularly badly hit. Formerly, an estimated 70 percent of rural villages had a clean, healthy piped water supply. This coverage has now officially dropped to 60 percent although the work under the project preparatory TA shows that, in reality, coverage is substantially less with working systems failing rapidly to now less than 40 percent. Particularly badly hit are the southern poor oblast*s* of Jalal-Abad and Osh, where only about 25 percent of villages have a reliable supply. Flood protection measures to protect water infrastructure are also required in some area because of climate and topographical features. On the plus side there are large resources of groundwater available for high quality drinking water. These can be easily accessed by most village communities.

41. The urban water supply has also reached a state of crisis. Although systems are continuing to operate, there has been no new investment for many years. There are no funds with which to carry out routine maintenance, and repairs are mostly performed on an emergency basis, often without proper replacement parts. The levels of tariffs are low, collection management is poor, and insufficient money is raised to support efficient operation.

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[7] Loan 1407-KGZ: *Agriculture Sector Program Loan,* for $40 million, approved on 23 November 1995. Another Loan 1726-KGZ: *Agriculture Area Development Project*, for $36 million, was approved on 20 December 1999.

42. Statistics on morbidity and mortality in the Kyrgyz Republic 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 with an incidence rate of about 425 per 100,000 population in 1998. Likewise, cases of typhoid have increased each year since 1995, and in 1998 an outbreak in Osh and around Bishkek, due to polluted water sources, resulted in an almost fourfold increase over 1997. Figures for all forms of hepatitis show a fluctuating situation since 1991, but in 1997 there was a major increase in cases of hepatitis A. Given that health statistics are based only on Government hospital in-patient records, the prevalence of most of these diseases, and diarrheal diseases in particular, is much higher than reported.

43. The lack of adequate water supply and sanitation services has a large negative impact on the social economy of the country and especially the poor. There is almost certainly a direct link between the deterioration of these services and the increase of waterborne and excreta-related diseases during the 1990s. Having to cope with poor and unsafe water and sanitation services extracts large financial and social costs from the poor population. Some can afford to spend resources on alternative methods to provide a centralized water supply, but in rural areas people often walk long distances, only to obtain contaminated water from untreated sources. Until recently, many villages contained communal bathhouses (*banyas*), which have now largely fallen into disuse due to lack of water supply. One of the results is an increase in skin complaints caused by lack of proper cleanliness. There is no wastewater collection system in rural areas or an acceptable level of human waste disposal. Some urban areas have operational sewerage systems, but these are in need of repair due to age and lack of new investment. Improving the water supply and sanitation sector's performance is an integral part of the Government's poverty reduction strategy.

B. Objective and Scope

44. The main objective of the Project is to improve the living and health conditions in selected rural and urban communities, in particular for the poor, through the provision of basic infrastructure services. The Project aims to achieve its objective by (i) assisting the central and local governments in delivering infrastructure services; (ii) supporting sanitation and hygiene education; (iii) improving the technical and financial capacity of local governments and vodokanals in the planning, implementation, and O&M of facilities; and (iv) promoting ownership and community management of both rural and urban community-based infrastructure services.

45. The project area will cover the three oblasts of Chui, Jalal-Abad, and Osh, which contain two thirds of the country's population and most of the country's poor. The three provinces were selected as they are among the poorest and ADB has other projects there which would help maximize development impact. The World Bank and ADB have coordinated closely during project preparation. The proposed World Bank-financed project is expected to cover another three oblasts (Naryn, Talas, and Yssyk Kul) with a similar project. The Project consists of two parts: Part A: Physical Infrastructure; and Part B: Capacity Building.

1. Part A: Physical Infrastructure

46. Part A includes about 247 subprojects: about 240 rural subprojects, covering 730 villages with populations ranging from 500 to 20,000, and 7 small towns subprojects with 20,000 to 80,000 residents. Each rural subproject will cover one village or a cluster of two or more villages. The rural subprojects will include the rehabilitation and upgrading of piped water supply systems, sanitation facilities including latrines and bathhouses, flood control and drainage

facilities, and local roads. The urban subprojects will cover rehabilitating and extending piped water supply services, and improving sewerage systems including wastewater collection and treatment. 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 individual house connections. The subprojects will derive supplies from different types of water sources. Most of the subprojects will use groundwater and springs, and will require rehabilitation and some drilling of deep wells and the construction of spring intakes.

47. **Rural Water Supply Component.** This component will cover 730 villages of the total 1,403 villages in the three project oblasts. About 560 villages of the 1,403, or 40 percent, do not have any water supply; the remaining 843 villages have only about 50 percent of their systems functioning. Of the total 2.4 million rural population in the project oblasts, about 50 percent or 1.2 million will be covered by the 240 rural subprojects; 420 villages will be provided with new systems, and 310 villages will have their systems rehabilitated. Of the 240 subprojects covering two to nine villages, about 170 systems will utilize groundwater sources, 50 systems spring sources, and 20 systems surface water. On average the per capita investment cost will be $18 for groundwater, $10 for spring development, and $25 for surface water. The total cost for the rural water supply component will be about $23.9 million and the overall average cost will be $20 per capita.

48. **Rural Sanitation Component.** This component covers about 90 villages in each of the three project oblasts. The Project aims to provide 70,000 households with improved family latrines. In addition, about 250 school latrines will be improved. For the family latrines, materials will be required to make the squatting plate, ventilation pipe, cover for hole, and improve the superstructure. The family latrine is estimated to cost $30 per household; the per capita cost will be about $5. The school latrines will be constructed or rehabilitated in the form of ventilated improved pit latrines connected to septic tanks. The improvements to each school latrine will cost about $300. About $2.2 million will be spent on the rural sanitation programs. In addition, about $0.5 million will be used to rehabilitate bathhouses in all 730 villages under the Project where water supply improvements will be undertaken. The average cost will be about $700 per bathhouse. The communities have indicated a high demand for public bathhouses, and the Government will encourage their privatization.

49. **Rural Flood Control and Drainage Component.** Approximately 30 subprojects covering about 100 villages will be undertaken to protect rural water supply facilities from flood damage. The total investment for rural flood control and drainage will be about $0.7 million and the per capita investment cost about $5.

50. **Rural Roads Component.** Rural roads within the village boundaries will be improved to enable easy access to secondary roads leading to rayon centers. Materials such as local gravel are adequate for the road base and surface pavement. Based on low-cost solutions and normative standards, unit costs to improve local roads are about $50,000 per kilometer; $1.0 million has been allocated for road improvements. About 20 kilometers of village roads will be improved.

51. **Urban Water Supply Component.** Seven small towns, of the 13 in the project area, will be covered. They have a population of about 0.3 million. The scope will cover rehabilitation and construction of reservoirs, transmission mains, networks, public standpipes, bulk flow and consumer flow meters, and valves. The total investment for urban water supply will be about $5.8 million and the per capita investment cost about $20.

52. **Urban Sewerage Component.** Three of the seven small towns, also covered under the urban water supply component, will have their existing sewerage systems rehabilitated, including repair and replacement of deteriorated sewers. Pumping stations will be refurbished, and wastewater treatment plants refurbished and extended. Effective O&M equipment will be provided. Flow sampling and laboratory testing equipment, flow gauges, and sewer cleaning equipment will be procured. Tankers will be supplied to facilitate tank emptying and sewer flushing on a regular basis. The urban sewerage work will cost about $4.8 million and will benefit about 90,000 persons. The per capita investment cost will be about $50.

2. Part B: Capacity Building

53. Part B covers an institutional development program, hygiene and sanitation education program, and consulting services for project management support.

54. **Institutional Development Program.** To be carried out by MAWR assisted by the consultants, the program involves establishing training centers, and training central and local governments, WUCs, and vodokanals board members and staff to strengthen their capacity to efficiently implement, operate, and maintain the systems. The program will provide four types of training: (i) subproject related training for local governments, community leaders, and management and financial staff; (ii) training for engineering design; (iii) training of trainers; and (iv) in-house training for MAWR staff. 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, WUCs, and vodokanals, in identifying required qualifications of key staff to be hired; (iii) development of the local governments, WUCs, and vodokanals' planning, engineering, and financial capability; and (iv) depending on vodokanals' size and development level, computerization of administrative, accounting, billing and collection, engineering, and financial operations. About 16,000 central and local government and vodokanal staff will be trained under the program (Appendix 4).

55. **Hygiene and Sanitation Education Program.** To be developed and disseminated in rural subprojects, the program will help the beneficiaries to improve their understanding of the close interrelationship between hygiene, water, sanitation, and health. As part of a comprehensive information dissemination and education drive of the Government to improve health conditions, the program will be formulated and implemented by MOH. The program will focus on safe drinking water, hand washing, proper use of toilets, and need for adequate wastewater disposal. About 540 staff of local governments, and 14 staff of vodokanals will be trained in health education principles and methods. The program will also cover quality testing to ensure that the quality of water that will be distributed by local governments and vodokanal*s* to the consumers is regularly monitored to ascertain that all parameters are within the national standards for drinking water. The program will be formulated and implemented in 90 villages in each of the three oblasts under the Project.

56. **Consulting Services.** Consultants will help implement the Project and provide project management support. They will also support the implementing capacity of sector agencies concerned. The consultants will involve the CBOs and NGOs in socioeconomic surveys and community consultations. The services will cover (i) project management and monitoring, (ii) feasibility studies and design of subprojects, (iii) construction of subprojects, (iv) preparation and implementation of the hygiene and sanitation education program, and (v) planning and implementation of the institutional development program.

57. MAWR has agreed to involve at least three CBOs or NGOs (women's committee, elders' council, and block organizations) to be associated with the project consulting services for (i)

community consultation and development in subproject planning and O&M; (ii) hygiene and sanitation education training activities; and (iii) monitoring subprojects. MAWR 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 poorer women, in the decision-making process including planning of water supply and sanitation facilities; and (iv) providing employment opportunities for women in the activities of local governments, WUCs, and vodokanals, including in the O&M of water supply and sanitation facilities.

C. Technical Justification

58. The Project incorporates appropriate technology taking into account the limited capacity of local governments. An important criterion for the selection of a water supply technology is its adaptability to local conditions and community demand. 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. With this concept, the Project proposes the adoption of simple piped water supply system technologies. Most of the water supply schemes will include deep wells with public standpipes in several places in a given community. The type of technology for the systems will be guided by the design criteria (Appendix 5). When designing the Project, the sanitary conditions in the project areas were also reviewed. The seven urban subprojects will involve improving water supply facilities; in three of these the sewerage systems will be rehabilitated and expanded, including wastewater collection and treatment. The hygiene and sanitation education program will improve the use of toilets and wastewater disposal. The flood control components provide for the rehabilitation of drainage canals. Works involved in the road components provide for upgrading the local roads to standard specifications.

D. Cost Estimates

59. Based on cost estimates of the 10 representative core subprojects reviewed, the total project cost is estimated at $45.0 million equivalent, of which $20.9 million is the foreign exchange cost and $24.1 million equivalent is the local currency cost. The cost estimates include taxes and duties, as well as physical and price contingencies. 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 6.

Table 1: Cost Estimates
($ million)

Component	Foreign Exchange	Local Currency	Total Cost
A. Physical Infrastructure			
1. Rural Water Supply	9.8	14.1	23.9
2. Rural Sanitation	1.2	1.5	2.7
3. Rural Flood Control	0.2	0.5	0.7
4. Rural Local Roads	0.3	0.7	1.0
5. Urban Water Supply	2.9	2.9	5.8
6. Urban Sewerage	2.6	2.2	4.8
Subtotal (A)	**17.0**	**21.9**	**38.9**
B. Capacity Building			
1. Institutional Development Program	0.1	1.0	1.1
2. Hygiene and Sanitation Education Program	0.0	0.4	0.4
3. Consulting Services for Project Management Support	1.9	0.8	2.7
Subtotal (B)	**2.0**	**2.2**	**4.2**
C. Interest During Construction	**1.9**	**0.0**	**1.9**
Total	**20.9**	**24.1**	**45.0**

Source: Staff estimates.

E. Financing Plan

60. The proposed ADB loan of $36.0 million equivalent will finance the entire foreign exchange cost of $20.9 million (about 46 percent of the total project cost) and $15.1 million equivalent of the local currency cost (about 34 percent of the total project cost). The local cost financing is considered justified because of the difficult fiscal circumstances of the country. The balance, amounting to $9.0 million equivalent, or about 20 percent of the total cost, will be financed by the beneficiary communities ($3.0 million), the oblast and rayon administrations ($0.5 million), and the central Government ($5.5 million). The Government financing will cover local expenditures including taxes and duties. The borrower will be the Kyrgyz Republic and the foreign exchange risk will be borne by the Borrower. The proposed loan will be provided from ADB's Special Funds resources and will have the following terms: an amortization period of 32 years including a grace period of 8 years, and an interest charge of 1 percent per annum during the grace period and 1.5 percent per annum thereafter. The proposed financing plan is summarized in Table 2.

Table 2: Financing Plan
($ million)

Source	Foreign Exchange	Local Currency	Total Cost	Percent
A. External Source				
Asian Development Bank	20.9	15.1	36.0	80
Subtotal (A)	**20.9**	**15.1**	**36.0**	**80**
B. Domestic Source				
1. National Government	0.0	5.5	5.5	12
2. Provincial/District Government	0.0	0.5	0.5	1
3. Communities	0.0	3.0	3.0	7
Subtotal (B)	**0.0**	**9.0**	**9.0**	**20**
Total	**20.9**	**24.1**	**45.0**	**100**

Source: Staff estimates.

F. The Executing Agency

61. MAWR will be the Executing Agency for the Project. A principal function of MAWR is to be responsible for preparing and implementing special programs to develop and improve sustainable piped water supply systems. MAWR is headed by a minister of cabinet rank who is assisted by four deputy ministers. MAWR has a strong cadre of technical staff. It has 71 staff at its headquarters, including 58 engineers of various disciplines, four accountants, and one lawyer. MAWR also has offices at the oblast level. KAS is a subdivision of MAWR and a separate legal entity that maintains its own bank accounts. KAS is directly responsible for the planning, design, and implementation of rehabilitation of water supply. KAS has 10 staff at its headquarters including five engineers, and two accountants. It also has a staff of 683 and offices in all oblasts and rayons. MAWR has considerable experience in dealing with rural water supply rehabilitation. MAWR implementation capabilities will be further strengthened through the Project's capacity-building activities.

G. Implementation Arrangements

1. Execution and Coordination

62. The Government will establish a project management unit (PMU) under MAWR. The PMU will be responsible for overall implementation of the Project including awarding of contracts in coordination with the PMU's regional offices, called project implementation units (PIUs), that will be established in the three project oblasts. The PMU will be headed by a full-time project coordinator and have five staff to be recruited under the consulting services in the fields of project implementation, engineering, financial management, community participation, and capacity building. The PMU will coordinate and manage all activities for the implementation and management of the Project, and report directly to MAWR. The PIUs 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 PMU. The PIUs will assist the PMU in all aspects of project implementation and coordinate closely with the concerned technical departments and agencies at the oblast level. The PIUs will initiate and coordinate key project implementation activities such as the community consultations, detailed engineering designs, preparation of tender and bid documents, evaluation of bids, awarding of contracts, procurement, construction supervision, monitoring and quality control, maintenance of project accounts, and clearance for environmental examinations. The Government is also planning to establish a national water supply and sanitation agency to implement all future water supply and sanitation projects.

63. Each PIU will be headed by a project director who will be seconded from the concerned oblast by its governor. The project directors will be assisted by a full-time project manager in each of the three PIUs. Each PIU will have a staff of five persons to be recruited under the consulting services in the fields of engineering, construction supervision, social development, accounting, and community development. The Government will ensure that adequate technical staff, the skills and number of each will be decided upon in consultation with ADB, are seconded to the PIUs as needed to help with water supply, sanitation, flood control and drainage, and local roads.

64. A national water supply and sanitation committee (NWSSC) will be formed at the central Government level to provide policy guidance, and monitor and supervise overall project implementation. The NWSSC will be chaired by a senior Government official at the Minister's or Deputy Minister's level and comprise representatives of the concerned ministries, offices, and

agencies including and Goskominvest (State Commission on Foreign Investment and Economic Assistance), MAWR, Ministry of Finance, MOH, Ministry of Environmental Protection, State Agency for Geology and Mineral Resources, KJKS, and the association of local self-governments. The NWSSC will review reports to be provided by the PMU, and provide guidance and instructions, as necessary, to the PMU and PIUs. Based on lessons learned and to ensure sustainability, extensive consultation with the communities is required. To ensure this, decentralized institutional arrangements are needed to formalize community involvement. Accordingly, the Project incorporates an institutional development program for concerned sector agencies. The decentralized implementation model is to be standardized on a countrywide basis for all community infrastructure services projects.

65. To rehabilitate and develop infrastructure facilities, the PIUs will work with local governments, vodokanals, and WUCs, as well as the oblast administrations. The PIU will carry out a rapid assessment of need and capacity of the community, local governments and vodokanals to meet their obligations and this report will be submitted with the applications for project funding from the local village communities and governments. The decision on which communities and facilities are to be assisted and to what extent will be decided by NWSSC on the recommendation of the PMU. The PMU will provide the selection criteria, and the PIU will present the applications, with their own assessment, to the PMU for their evaluation.

66. In preparing the subprojects, once approved for funding, the PIUs will work with CBOs and NGOs to help mobilize the community and to prepare socioeconomic surveys of the community. This will form the basis of an assessment of their ability to pay for the improvements and contribute to the costs of the work through financial contributions or the *ashar* (volunteer labor) method. The design engineers will also work with the community to prepare the subprojects. Each subproject will require a simple business plan to demonstrate how the subproject will be managed once complete, the proposed tariff and sanctions, the institutional arrangements, and staff levels. The details of the project implementation arrangements are in Appendix 7.

2. Subproject Formulation and Approval

a. Selection and Design

67. The Project will cover communities that lack basic infrastructure services, especially safe and reliable piped water supply services. Each subproject under part A, Physical Infrastructure, will include water supply facilities. The selection criteria for the subprojects require that the project community (i) has a majority of its population living below the poverty level; (ii) has deficient basic infrastructure, in particular, water supply, including poor quality and insufficient quantity; (iii) has available water resources to be tapped; and (iv) is willing to establish a WUC, pay water tariffs of 3 to 5 percent of monthly income, and be responsible for full cost recovery, in line with the Government's new policy. Further, the subprojects will have environmental clearances and not involve any significant potential adverse environmental impacts that are left unmitigated. The subprojects will not require any resettlement. The proposed schemes must use appropriate technology and represent the least-cost solution. The selection criteria, presented in Appendix 8, cover community commitment, and technical, environmental, and financial aspects. These have been developed within the overall strategy to apply appropriate and affordable technology, and to provide adequate flexibility for the wide variety of geographic and physical conditions that exist in the project area.

b. Appraisal and Approval

68. A structured approach will be adopted for the appraisal and approval of the physical infrastructure subprojects. Of the estimated 247 eligible subprojects, about 240 rural subprojects with an individual cost of less than $0.5 million have been classified as small, and 7 urban subprojects with an individual cost of over $0.5 million as large. Small subprojects will involve mostly deep-well rehabilitation or development without any water treatment required except for disinfection, construction of public bathhouses, flood control, and rehabilitation of local roads. Large subprojects could involve surface water development with treatment works, and sewerage development including wastewater treatment. The economic justification of subprojects will be based on (i) the proven economic viability of the appraised core subprojects, (ii) the adoption of least-cost design solutions, and (iii) contribution to environmental improvements and added health benefits. The PMU will approve all subprojects and obtain ADB's prior approval for each of the first two small subproject proposals from each of the three oblasts and the first large subproject proposals from each oblast. The PMU will furnish ADB with an application for the approval of these subprojects, containing a description and appraisal of the subproject proposal. To ensure continuing close monitoring, the PMU will submit documentation relating to the first 20 subprojects completed in each participating oblast for ADB's review and comments. ADB will review during implementation a selected number of the subprojects. All subprojects will be appraised by the PMU and approved by the NWSSC. The PMU and implementing agencies, assisted by the consultants will carry out economic and financial analysis of all large subprojects, and only simplified financial analysis, including affordability analysis, of the small subprojects. Only those subprojects found financially viable will be endorsed for implementation. Documentation relating to the subproject proposals will be retained by the PMU and made available to ADB on request.

c. Appraisal of Core subprojects

69. Financial evaluation and socioeconomic analysis have been carried out for the 10 core subprojects which represent a broad range of various subproject types. Of the 10, three each are from Chui and Jalal-Abad, and four from Osh. The per capita investment costs of the core subprojects vary from $15 to $50, averaging about $25. The overall viability of all 10 core subprojects reviewed is satisfactory in terms of financial viability, affordability, and type of infrastructure facilities.

3. Budgetary Support and Channeling of Funds

70. The Government would finance 90 percent of the capital cost; the communities will contribute 10 percent as equity in cash or kind through labor, local building materials, and land. The funds to be provided by the Government will be channeled through regular budgetary allocations. The Government has given the assurance that adequate funds for the Project will be allocated and released in line with the implementation schedule. The Ministry of Finance will channel the funds to MAWR and KJKS which will be responsible for awarding all contracts. The PIUs within the oblast administrations will assume responsibility for the implementation of the civil works contracts in both the rural and urban communities. The community administrations will conclude agreements with the oblast administrations to implement and repay the loan resources. Cost recovery will be made by rural and urban communities, through village and town governments and regional branches of the State treasury in the districts, from tariff and charges to consumers, and the allowance for O&M. A tripartite agreement on channeling of funds and cost recovery will be concluded between the Ministry of Finance, MAWR, KJKS, and the oblast administrations.

71. At the start of the Project, the PMU will help the three province administrations formulate the draft project expenditures for all activities, with estimates for each year of project implementation. These budgets will be reviewed and updated every six months. All budgets will be reviewed and approved by PMU before implementation. Expenditures will be recorded at source by the PIUs and the PMU. The PMU will approve and supervise all drawdown arrangements. The PMU will be responsible for compiling project expenditures based on its own expenditures and the reports of expenditures submitted by the PIUs. It will report project expenditures to MAWR and the steering committee, with copies to ADB, on a monthly basis with quarterly and annual summaries.

4. Anti-Corruption

72. During project processing ADB's anti-corruption policy was explained to central and local government officials. Attention was drawn to the section on fraud and corruption that was added to ADB's *Guidelines on Procurement*, particularly the need for bidders, suppliers, and contractors to observe the highest standards of ethics in the procurement and execution of ADB financed contracts, and the sanctions if fraud and corruption are discovered. Similarly, the anti-corruption provisions added to ADB's *Guidelines on the Use of Consultants* were discussed. The project implementation consulting services include assistance that will strengthen the implementation arrangements including auditing procedures. The international implementing consultants will assist in strengthening the procedures for the selection and engagement of local consultants, increase transparency, and provide for equal opportunity competition. The consultants will also help to (i) strengthen government auditing standards and procedures; and (ii) conduct audit training to promote full and consistent adherence to auditing standards. The consultants will also assist in drafting procurement and bidding documents. This work should strengthen the ability to detect fraud and corruption. The Government is increasingly concerned with governance issues and has conducted campaigns against official corruption.

5. Implementation Schedule

73. Commencing around mid-2000, the Project will be implemented over 6 years, with completion expected by mid-2006. The implementation schedule is outlined in Appendix 9. The advance project preparation activities being carried out for 10 core subprojects will ensure that the Project gets off to a fast start. With the preparatory work in progress, the implementation schedule is considered to be realistic.

6. Community-Based and Nongovernment Organizations

74. Through MAWR, CBOs and NGOs will (i) help with community consultation activities, (ii) conduct socioeconomic surveys, (iii) monitor subprojects, and (iv) help with training activities on hygiene and sanitation education. Women will be closely involved in implementing the hygiene and sanitation education program. The implementation consultants will work with suitable CBOs and NGOs such as the elders' council. It is through this CBO that the traditional self-help (ashar) system is to undertake work for the whole community. Under the Project, the local labor required will be provided through this CBO.

7. Project Monitoring and Review

75. The Project features (i) an emphasis on decentralized implementation, and (ii) a focus on institution building. Close monitoring is required to ensure smooth implementation and O&M. Accordingly, a comprehensive review of the implementation arrangements, including the role of MAWR and vodokanals, as well as project start-up experience, will be undertaken by the

Government and ADB one year after loan effectiveness. An assessment will be made of the possibility of using more decentralized implementation approach allowing the oblast administrations to gradually assume full responsibility for physical implementation of the subprojects. A comprehensive midterm review will be undertaken three years after the loan effectivity. These reviews will focus on the impact on poverty reduction, implementation arrangements, community involvement, physical implementation, design and technology, O&M arrangements, institutional aspects including training, hygiene and sanitation 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.

8. Procurement

76. The procurement of goods and services financed by the ADB loan will be undertaken in accordance with ADB's *Guidelines for Procurement*. 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 which are all valued at less than $2.0 million. Local competitive bidding procedures applicable to the Project were reviewed by the Appraisal Mission and are acceptable to ADB. The tentative contract packaging and proposed procurement modes are in Appendix 10.

9. Consulting Services

77. The Project will require consulting services in the fields of project management, water supply and sanitation engineering, environmental examination, hydrogeology, well drilling, health education, financial and accounting advice, and institutional development for assistance with (i) preparation of feasibility studies including socioeconomic, technical, and environmental surveys; (ii) development of standard water supply designs; (iii) preparation of detailed design, 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 PMU and PIUs; (vii) training of the accounting staff on preparing loan withdrawal applications and the supporting documents; and (viii) maintaining accurate and sufficient accounting project records. A total of 846 person-months (67 person-months international and 779 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, prepare detailed designs, and supervise construction. There is a growing local consulting industry in the country. The domestic consultants will be recruited by the international consultants. The consultants will work with suitable CBOs and NGOs. The level of consulting services has been discussed and agreed to by ADB and the Government. The consultants will be engaged by MAWR in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements acceptable to ADB for the engagement of domestic consultants. Appendix 11 contains the required areas of expertise and terms of reference.

78. The institutional development program will include training local governments and vodokanals on O&M and management of water supply schemes. The program will focus on (i) gradual expansion of the organizational structure, including identifying the qualifications of key staff to be hired; (ii) O&M, with emphasis on reduction of unaccounted for water; and (iii)

development of capabilities, including planning, engineering, financial, accounting, billing and collection, and operations. Training modules for O&M will be prepared for the training activities. Water supply system operators identified mainly from the project communities will be trained during subproject implementation, and in the process, will develop a comprehensive understanding of the water supply systems that they will subsequently be operating. About 16,000 persons will be trained under the institutional development program. The training will be carried out in conjunction with the physical implementation of the subprojects. The PMU will continue development of the training program with the assistance of the project consultants, and will implement the program.

79. The PMU, in coordination with MOH and with assistance from consultants, CBOs, and NGOs, will develop the hygiene and sanitation education program including water quality testing. The programs will include (i) mass communication campaigns to educate the project communities on the causes, effects, and prevention of waterborne and related diseases; (ii) training of about 540 local government officials and local community leaders, and 14 vodokanal staff in health education principles and methods; (iii) training on carrying out sanitary inspection of water supply facilities, and the collection and analysis of water samples; and (iv) institutional strengthening of the communities to carry out hygiene and sanitation education and water quality testing activities.

10. Disbursement Arrangements

80. 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 Ministry of Finance will supervise the imprest account operations. The initial amount to be deposited will not exceed $50,000 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 allow for financing of project expenditures for (i) civil works awarded on the basis of local competitive bidding, and also for (ii) locally procured construction materials. The individual payments that may be reimbursed or liquidated under the SOE procedure will not exceed $25,000 equivalent. The imprest account and SOE procedure will be established and maintained in accordance with the *Loan Disbursement Handbook* and detailed arrangements between the Government and ADB.

11. Accounts, Audit, and Report

81. The Government through the PMU will (i) maintain separate accounts for the Project, and (ii) have such accounts and related financial statements audited annually by 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 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 six 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.

82. MAWR 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 six months after the closing date of the loan, MAWR 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.

12. Advance Action

83. ADB's Management has approved advance action from the end of the Appraisal Mission visit until loan approval, for recruiting consulting services for implementation assistance and the preparation of detailed designs and contract documents.

13. Community Participation

84. To comply with the needs and demands of the community, a participatory approach was 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 results indicate that all respondents wished to have improved basic infrastructure services and expressed their willingness to pay user fees for water supply services. The survey respondents also expressed a strong commitment to participate in project design and implementation. CBOs and NGOs in the core subproject area were also consulted during project formulation. To achieve a high degree of community involvement in the subproject design, implementation, and operation, the PIUs will carry out community participation activities, and assisted by the consultants, carry out socioeconomic surveys to determine the prospective beneficiaries' needs, affordability, and willingness to pay for the services. A particular focus of the participatory programs will be on meeting and prioritizing the needs of the poor.

14. Private Sector Participation

85. The private sector will participate in providing the basic infrastructure services. A key element for infrastructure development is to make quality equipment, materials, and contracting services available to involved institutions. A strong support industry is an essential ingredient for good utility performance. In market economies, support services to utilities are generally supplied by private firms. The resulting competition allows utilities to choose the best contract in terms of quality and cost. A private support industry for the water supply and sanitation sector is evolving slowly in the Kyrgyz Republic. 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 accelerating the privatization of present state civil works contractors, 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 public bathhouses; and (vi) NGOs that can contribute all water system development, in particular help small communities to build and maintain water and sanitation systems.

15. Operation, Maintenance, and Cost Recovery

86. An analysis of willingness-to-pay and affordability shows that full cost recovery is feasible over a five-year period of gradual tariff adjustments. In the past, sustainable O&M of water supply facilities was a major problem. To ensure sustainable O&M, the project design

incorporates appropriate organization at the local government level, including the restructuring of vodokanals and WUCs, systematic training of staff, preparation of O&M manuals, and periodic monitoring of operations, including consumer satisfaction. The institutional development program will establish proper procedures for (i) the collection of fees, (ii) sanctions for nonpayment, and (iii) payment of capital and O&M costs, including depreciation. For the constructed subprojects, the communities will pay the full cost covering the investment and O&M costs, including depreciation. The local water supply and sanitation organizations will be responsible for O&M of constructed facilities. The WUCs and vodokanals will also be responsible for the collection of consumer fees on a regular monthly basis. Households with house or yard connections will be charged a higher fee than poorer households served by public standpipes. The cross-subsidies within the system will allow the poorest to pay lower water tariffs than others. The charges will be affordable for all consumers. The sanitation, flood control and drainage facilities, and local roads will be operated and maintained by the local governments, and the O&M cost for this will be paid for from land and other local taxes.

87. 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, including depreciation are fully understood. The Government would like to achieve full cost recovery. It is critical to achieve reasonable cost recovery as it cannot afford to subsidize the water supply sector.

16. Land Acquisition

88. In view of the sector lending modality for the Project, specific land requirements have not been fully identified. However, based on the core subprojects, it is estimated that the Project will not involve any major land acquisition but will require small areas of land for the location of deep wells, water storage, sewage treatment, and right-of-way for pipelines. Community-owned land is required. Land acquisition does not entail any resettlement or relocation of people in the project area. Also the road rehabilitation component will not involve any resettlement or relocation of people.

17. Project Performance Monitoring System

89. The PIUs will implement a project performance monitoring system (PPMS) for each subproject to evaluate the delivery of the planned facilities and the project benefits accrued. A framework and the indicative indicators are shown in Appendix 12. The PMU, with the assistance of the consultants, will develop comprehensive PPMS procedures and plans in accordance with ADB's handbook within six 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 three months after project completion. The results will be incorporated into the project progress and completion report.

H. Environmental and Social Measures

1. Environmental

90. Overall, the Project is environmentally beneficial. An initial environmental examination (IEE) was carried out for eight rural subprojects and two urban subprojects in accordance with

ADB's *Environmental Assessment Requirements and Environmental Review Procedures.* The IEE found that the rural subprojects component, involving simple, appropriate, low-cost technology, does not pose any serious environmental consequences. The provision of safe drinking water and proper environmental sanitation would contribute significantly to improving the environment in rural areas. The availability of a safe and piped water supply will eliminate the time-consuming activity of fetching water from polluted and unsafe water sources. Complementary hygiene and sanitation education would also have a beneficial impact by promoting a hygienic and clean environment. The Project will include many small water supply schemes, and household and school latrines, which will be designed to protect water sources and reduce health hazards of indiscriminate human waste disposal in rudimentary latrines and open areas. Use of improved latrines would result in the elimination of odors and insect access to latrines and waste disposal pits, further adding to the quality of the rural environment. The bathhouses will have proper arrangements for wastewater drainage. The flood control component will reduce the incidence of flooding, and the local rural road rehabilitation component is expected the improve the village environments.

91. The urban subprojects cover small towns and the IEE found that the Project will not adversely affect natural resources and will lead to improvements in community health, living conditions, and the urban environment. Wastage of water will be reduced, as will environmental pollution by the interception of wastewater flows and their diversion to the treatment works. Effluent quality complies with national and international standards. The Project will have no detrimental effect upon the environment including the fauna and flora of the region.

92. The Project 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 a previous ADB-financed advisory TA[8] will be fully utilized.

2. Social Analysis

93. 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 concerned were obtained regarding the infrastructure service needs and willingness to pay fees for the improved services. The results of the social analysis are reflected in project formulation as outlined in Appendix 13. The social analysis indicates that the potential beneficiaries show a high level of satisfaction and support for each project component. Water supply, sanitation, flood control, and in selected cases, roads, were given high priority by the potential beneficiaries.

[8] TA 2934-KGZ: *Environmental Monitoring and Management Capacity Building*, for $598,000, approved on 11 December 1997.

94. Rapid appraisal techniques, including rapid social analysis and needs assessment will be undertaken for each subproject prior to its inclusion in the Project. Later, socioeconomic surveys in accordance with ADB's guidelines will be undertaken as part of the detailed analysis of affordability required for subproject preparation. The consultants will help the PIUs carry out these rapid appraisals and surveys. MAWR and ADB will monitor the socioeconomic implications of the Project through all the processing phases, implementation, and the first year of O&M. These socioeconomic surveys, including community participation activities, cover the following items: (i) poverty reduction, (ii) improved level of services, (iii) community participation in improved living and health conditions, and (iv) strengthened institutional capacity and financial performance. The socioeconomic surveys will determine the prospective beneficiaries' present knowledge of, attitude toward, and practices involving hygiene and sanitation, and will assess the requirement for health education and estimate its likely impact. The community participation approach in each of the communities will ensure that the beneficiaries, CBOs, and NGOs are involved in determining an appropriate and affordable service level, and that they are aware of the cost for the investment and O&M of the subprojects. Consultations and group meetings with major stakeholders were also undertaken during appraisal. The social analysis in the sample communities shows that about 60 percent of the households have monthly income of less than Som1,000 and the average household consists of five to six family members. The surveyed households noted the insufficiency of water supply in their community and the need for a 45 percent increase of the existing supply. Fifty-one percent expressed their willingness to have their own house connection. They are willing to pay an average of Som1,000 for a connection, and an average of Som30-Som50 for monthly water bills; this represents, on average, the actual average expected connection fee and monthly water bills of the subprojects. Using least-cost design and providing for a lifeline tariff for the poorer, the proposed subprojects are affordable. The households with house or yard water supply connections will be charged a higher fee than poorer households served by public standpipes. The tariff increases would be affordable at 3-5 percent of the monthly household incomes of the poorer population.

95. Subproject design preparation, implementation, and arrangements for O&M will be undertaken through close consultation with the communities. They will be involved in the decisions about service level and other standards of the systems, including coverage of the service areas and the selection of the sites for public standpipes. Institutional strengthening experts will be part of the consulting teams. As part of the PPMS, socioeconomic surveys are planned in selected communities during implementation and at project completion.

I. Technical Assistance

96. The TA, Institutional Strengthening for Community-Based Infrastructure 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 for smooth project implementation. The TA will focus on (i) preparing and implementing an institutional strengthening program for local governments and CBOs; and (ii) helping vodokanals, village local governments, and WUCs improve their organizational structures and capacities, including strengthening their planning, budgeting, O&M, and in particular, financial management and billing and collection systems.

97. MAWR will be the Executing Agency for the TA. The NWSSC established for the Project will also supervise TA implementation to maximize use of TA findings in local government reform. The main beneficiaries will be clients who receive improved services due to implementation of revised management systems. The TA will be implemented over nine months, commencing three months after project start up. It will require 18 person-months of international consulting inputs and 40 person-months of domestic consulting inputs. The

consultants will be recruited in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements for the engagement of domestic consultants.

98. The TA is estimated to cost $765,000 equivalent, of which $537,000 is the foreign exchange cost and $228,000 equivalent, the local currency cost. Of this cost, $650,000 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 $113,000 equivalent of the local currency cost. The Government will finance the remaining $115,000 equivalent of local currency costs. A detailed TA description is given in Appendix 14.

V. PROJECT JUSTIFICATION

A. Economic and Financial Analyses

1. General

99. The project beneficiaries in seven small towns and about 730 villages will receive improved access to basic infrastructure services, in particular, reliable and potable piped water supply facilities. While minimizing costs, emphasis will be on rehabilitating and upgrading existing facilities, with simple, cost-effective, and least-cost technology. The population coverage in the project area will increase the coverage of piped and safe water supply from the present estimate of 40 percent to 80 percent, and will benefit about 1.5 million persons by 2006. The support for capacity building will enhance the efficiency and sustainability of the sector program and subprojects.

100. The provision of water supply systems under the Project will significantly reduce the time spent collecting water, and will directly benefit women and children who share the primary responsibility for carrying water to the household. Sample surveys in the project area indicate that the average household currently spends between one-half and one hour per day collecting water, usually from rivers and irrigation channels. In winter, when water is frozen, water is transported or bought from vendors at about Som5 for the household's daily needs. Upon project completion, the time allocated and the burden of physical labor borne by women and children, will be significantly reduced. The time saved will become available to households for other economic and social activities, including greater input of labor in industry and agricultural activities, and for child rearing, education, rest, and leisure activities. The contribution of the Project to poverty reduction through the release of time for productive economic activities and education will be particularly significant as 70 percent of the residents of the project area are living below the poverty line. The time savings were estimated directly from survey evidence, multiplying the average time spent each day for fetching water by the assumed value of time in the subproject area using an unskilled agricultural wage rate as the value of time.

101. The health benefits generated by the Project will be significant, as the incidence of illness associated with poor water quality is currently high with 7 percent of households reporting outbreaks of waterborne diseases that required a full course of treatment in the past year. The Project will contribute to reduced morbidity and mortality, particularly the high infant morbidity rate in poor areas in the country. To the extent that the reduction of time spent on collecting water can be devoted to rest and leisure activities, improvements in the health of women and children can be anticipated. The provision of health and hygiene education will further improve health levels and particularly benefit women. The direct health benefits associated with the Project by reducing illness will provide the basis for additional poverty reduction and economic benefits by increasing capacity for income generation and education. The Project's health and hygiene education program will complement and reinforce the health

and economic benefits associated with the water supply component, and ensure that the initial gains provided can be sustained and enhanced.

102. The economic and financial analysis of the selected core subprojects carried out during project preparation has established the viability of the Project. Based on a methodology of quantifiable benefits that was not able to incorporate the health benefits, the economic internal rates of return for the 10 core subprojects were estimated to range from 13 to 38 percent. These are higher than the 12 percent economic opportunity cost of capital. The economic analysis was done in constant 1999 prices using a domestic price numeraire. The financial internal rates of return for the 10 core subprojects were estimated at between 5 and 14 percent, and will exceed the weighted average cost of capital of about 1 percent. The economic internal rates of return and financial internal rates of return were subjected to sensitivity analysis and remain acceptable under adverse circumstances. While it has not been possible to quantify the health benefits associated with the Project, their qualitative impact is significant, which further enhances the Project's economic viability. Details of the economic and financial analyses are in Appendix 15.

103. The results of socioeconomic surveys covering the core subprojects indicate that the beneficiaries give high priority to the development of adequate water supply and sanitation facilities. In workshop consultations, the communities have indicated their willingness to assume full responsibility for O&M of the subprojects, and pay user charges to cover investment and O&M costs, including depreciation costs in order to maintain the systems in the future. The Government will ensure that the vodokanals and local governments will be responsible for O&M in accordance with the Government's existing policy. This policy reinforces community involvement by creating a direct and transparent link between the collection of consumer fees from the community, and the application of such funds toward O&M of the subproject. To assess the impact of this policy on consumer affordability, tariff requirements were estimated for the core subprojects. The average monthly tariff required to cover the full cost of the water supply system was estimated to be Som45 per household. Within this sample group of schemes, the required monthly tariff ranged from a low of Som16 to a high of Som87 per household, depending on the technology used and the economies of scale of the subproject. The analysis of the ability to pay indicates that the tariffs required are consistent with generally accepted guidelines, which consider the cost of water supply as affordable if the charge does not exceed about 3 to 5 percent of the monthly income of low-income groups. The highest proposed tariff in the sample group, Som87 per month for a system of mostly yard connections preferred by the community, represents 3 percent of the income of an average household of that community. Poorer households will be served from public standpipes and charged less, keeping within the affordability criteria. At present, the cost would be approximately Som150 per month for households getting water from water vendors. About 15 percent of the households are getting drinking water from water vendors.

2. Water Pricing and Revenues

104. The Project will be fully self-financing, as water tariffs will be set to recover full costs. In both urban and rural areas, the local governments and WUCs will ensure proper O&M and the setting and collection of water tariffs to cover O&M costs, including depreciation. The tariffs are to be determined during the preparation of the subprojects in coordination with the local governments and vodokanals, and will cover capital and O&M costs, including depreciation. The water tariffs will be collected monthly. Beneficiaries consuming water from public standpipes will be charged a standard fixed monthly rate. The water revenues will be kept in a separate bank account. The treasurer will be authorized to release funds for the monthly O&M expenditures. The tariffs are to be collected monthly, however if a household fails to pay for a period of two

months, its house or yard connection, if provided, will be disconnected until its accounts have been fully paid. Peer pressure from the fully paying households will be utilized to effectively prevent nonpaying households from using the public standpipe facilities.

105. The Government intends to finance 90 percent of the capital cost to be recovered by the water tariffs; the communities will contribute 10 percent as equity in cash or kind. This level of investment costs is fully justified considering (i) that the facilities play a major role in serving basic needs and reducing waterborne diseases, and (ii) the time demands for collecting water. The general affordability criterion limits tariffs to 3 to 5 percent of the household's monthly income. The percentage would be 3 to 5 percent of the income of the poorest beneficiaries charged a lifeline tariff. The households with house or yard water supply connections will be charged a higher fee than poorer households served by public standpipes. The tariffs will be set in such a way that the water charges will finance not only O&M costs but also the replacement of capital investments through depreciation. The vodokanals and WUCs will collect the tariffs monthly and deposit the funds in a separate bank account. The level of tariffs was tested during the review of the core subprojects and was found to be within affordable limits. The analysis of willingness-to-pay and affordability shows that full cost recovery is feasible over a five-year period of gradual tariff adjustments. For all core subprojects, the proposed average price of water exceeds the average incremental costs, which indicates that the subprojects will not require any subsidy.

B. Environment

106. 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 spring sources. The Project is expected to have a significant positive impact on the environment. In addition, the Project's impact on poverty reduction, public health, and women in development will be positive.

C. Social Dimensions

1. Impact on Poverty

107. A total of about 70 percent of the households in the project communities are living below the poverty line, about 75 percent in rural areas and about 60 percent in urban areas. Deficiencies in community infrastructure impact disproportionately on the poor. As these facilities are improved, for example, as water supply coverage is increased from 40 percent to 80 percent, a proportionately higher percentage of the poor will benefit under the Project. Accordingly, more than 70 percent of the beneficiaries are expected to be poor. The improvement of water supply facilities in the project communities would also provide employment opportunities and enhance economic growth. During the implementation period, there will be a demand for assistance to help plan and construct the facilities and in capacity-building activities. There will also be employment opportunities during O&M of the constructed facilities. Further, the Project's hygiene and sanitation education 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. The provision of public standpipes and affordable tariffs to be established through the institutional development program will ensure that the beneficiary poor population will have access to water supply facilities at affordable prices.

2. Human Development

108. In addition to health-related benefits, the Project will contribute to human development by improving living standards, improving quality of life, and increasing productivity. With improved water supply facilities, the incidence of waterborne diseases will decrease over time. Although the Project focuses on water supply facilities, its real impact will depend on proper use and maintenance of the subprojects. Accordingly, the Project includes the institutional development program for local governments and other capacity building support.

3. Gender and Development

109. The Project will contribute to more equitable distribution of water to the beneficiaries. Women and children in particular will benefit from the water supply improvements as collection and storage of water is mainly their responsibility. The improved water supply services will save time and reduce the physical burden on women, enabling them to engage in more fulfilling and productive activities. As women have considerable influence on the behavioral patterns of communities, they have an important role as teachers and disseminators of information on better hygiene practices and proper use of water supply facilities. Women's role in child care will be made easier through better health of children expected from safe, potable, piped water supply brought by the Project. Women's organizations will be involved in leadership development and in training women for regular participation in local governments, WUCs, and vodokanal meetings. Women will also be part of the boards of WUCs and vodokanals.

D. Risks

110. 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 expansion of the 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 project 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. 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 local counterpart fund requirements are small and can be provided in cash or in kind through labor, local building materials, and land. 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. 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

111. The Government has given the following assurances, in addition to the standard assurances, which have been incorporated in the legal documents:

(i) Within six months of loan effectiveness, the Government will issue a decree on Project implementation, satisfactory to ADB, clearly specifying (a) the respective roles and responsibilities of the Ministry of Finance, MAWR, oblast administrations concerned, and other relevant agencies in implementation of the Project; (b) flow of funds between such parties; and (c) cost recovery arrangements.

(ii) The local governments will increase the supply of water to residents in the relevant subproject area who are living below the poverty levels (as defined by the Government) by expanding the public standpipe program.

(iii) In implementing the Project, consideration will be given to environmental aspects in strict conformity with the Government's national environmental impact standards. An IEE will be undertaken in accordance with ADB's *Environmental Assessment Requirements and Environmental Review Procedures*, and necessary Government permits will be obtained promptly. An IEE will be prepared for each subproject, and a determination will be made of whether the subproject is environmentally sensitive. If concerns are extensive, an environmental impact assessment will be prepared. The environmental procedures established under TA 2934-KGZ: Environmental Monitoring and Management Capacity Building will be fully utilized.

(iv) Project implementation, the benefits derived from it, and the overall operations will be monitored and evaluated on an annual basis by the PMU. Within six months of the effective date of the Loan Agreement, the Government will refine the PPMS system in a manner acceptable to ADB, including the use of relevant financial and technical monitoring indicators and information.

(v) The completed project facilities will be maintained in accordance with sound administrative policies and procedures by the concerned local governments, vodokanals, and WUCs through the collection of user charges and other local taxes.

(vi) The local governments concerned at village and town levels will (a) carry out annual reviews of the level and structure of their water tariffs and forward copies to ADB, and (b) revise the water tariffs as necessary.

(vii) The local governments concerned will ensure that (a) revenues from water tariffs cover capital and operation and O&M costs, including depreciation; and (b) full-cost recovery of subprojects is achieved in a staged manner over a five-year period after the completion of such facilities.

(viii) The WUCs and vodokanals concerned will 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.

(ix) The CBOs and NGOs concerned, through their representatives, 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. Women's community groups will participate in all relevant project-related

decision-making activities. Adequate opportunities for the employment of women in vodokanal and WUC-related activities under the Project will be made available.

(x) The Government will obtain ADB's prior approval for each of the first two small subprojects from each of the three oblasts, and the first large subproject proposal from each oblast. The Government will submit the first 20 subprojects completed in each participating oblast for ADB's review and comments.

(xi) Loan funds may be used to finance expenditure for private sector auditors and translations of auditor's reports into English.

B. Conditions for Loan Effectiveness

112. In addition to the standard conditions for loan effectiveness, the following conditions are included in the legal documents:

(i) The central Government will have established a PMU, under MAWR and the oblast governments will have established three PIUs, one each in Chui, Jalal-Abad, and Osh oblasts. The central Government and the oblast governments will have provided adequate office space for the PMU and the PIUs, allocated an adequate number of technical staff, and appointed the head of the PMU and PIUs.

(ii) The NWSSC will have been established, and will be comprised of senior officials from the concerned Government ministries, offices, and agencies including Goskominvest, KJKS, MAWR, MOH, Ministry of Environmental Protection, Ministry of Finance, State Agency for Geology and Mineral Resources, and the association of local self-governments. The NWSSC, which is to provide overall project coordination, will be maintained throughout the implementation period, with a composition and terms of reference satisfactory to ADB.

VII. RECOMMENDATION

113. I am satisfied that the proposed loan would comply with the Articles of Agreement of ADB and recommend that the Board approve the loan in various currencies equivalent to Special Drawing Rights 27,289,000 to the Kyrgyz Republic for the Community-Based Infrastructure Services Sector Project, with a term of 32 years, including a grace period of 8 years, and with an interest charge at the rate of 1 percent per annum during the grace period and 1.5 percent per annum thereafter, 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

15 May 2000

APPENDIXES

SUPPLEMENTARY APPENDIXES
(available upon request)

PROJECT FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
1. Goals • Improve living conditions and health of the rural and urban communities by providing a safe water supply and proper sanitation and improving rural infrastructure such as flood control and local roads in the three project oblasts.	• Increase population coverage with access to safe and adequate water supply from existing 40 to 80 percent in 2006 in the project villages and urban towns on a self-sustainable basis. Of the 1.2 million rural residents and 0.3 million urban residents covered, approximately 70 percent are living below the poverty line.	• Conduct periodic surveys at midterm and at project completion.	• Institutional capabilities • Legal changes • Willingness of communities to pay
2. Purpose • Using a community participation approach, provide safe, adequate, and easily accessible water supply and sanitation to selected rural communities and urban towns. Improve rural infrastructure in flood control and local roads.	• In the rural areas provide safe water supply to about 730 villages where there is no provision of safe water and improve water supply in seven towns including sewerage in three of these towns	• Surveys at midterm and project completion • Project performance report • Quarterly progress reports	• Infrastructure is not properly managed, operated, and maintained • Short construction season • Adequate time available to develop community participation
3. Outputs **Part A: Physical Infrastructure** • Rural water supply • Urban water supply • Rural sanitation	• Rehabilitate and construct water supply systems in 730 rural villages, including 420 new systems and 310 rehabilitated systems. • Rehabilitate and improve water supply in seven towns, covering 0.3 million urban population. • Introduce proper sanitation facilities in 90 villages in each oblast. A total of 70,000 family latrines and 250 school latrines will be improved.	• Progress reports and Asian Development Bank (ADB) review missions • Progress reports and ADB review missions	• Failure to set adequate tariffs • Failure to collect tariffs • Cooperation of community • Lack of funding available from village or rayon budget

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
• Urban sanitation	• Rehabilitate and construct 730 *banyas* (public bathhouses) in subproject villages. • Rehabilitate and extend the sewerage network and treatment plant in three towns, and improve septic tank construction and tanker purchase in two towns.	• Progress reports and ADB review missions	• Failure to set adequate tariffs • Failure to collect tariffs
• Flood control	• Construct flood control facilities as appropriate to protect water supply systems in 100 villages.		• Standards too high and too expensive
• Local roads	• Improve 20 km of local roads in selected villages		
Part B: Capacity-Building • Institutional development program • Hygiene and sanitation education program • Consulting services for project management support	• Establish the National Water Supply and Sanitation Committee (NWSSC). • Establish training facilitation centers. • Train 16,000 community leaders, local governments, and vodokanal board members and staff. • Develop hygiene education program, and disseminate program in 90 villages in each oblast.	• Progress reports and ADB review missions	• Inadequate support by all ministries and departments • Failure to find educational institutes interested in participating
4. Activities **Part A: Physical Infrastructure** **Rural Water Supply** • Appointment of consultants and nongovernment organizations (NGOs) • Community consultations • Physical infrastructure surveys, investigation, and designs • Construction and rehabilitation of rural water supply and sanitation facilities • Appoint and train management staff	• 730 communities to be served • 310 settlements with new water supply systems • 420 rehabilitated and new management systems created	• Progress reports and ADB review missions • Progress reports and ADB review missions	• Lack of experienced domestic consultants • Lack of suitable NGOs • Lack of experience in ADB procurement procedures • Lack of competent construction companies • Lack of specified equipment and materials in the country • Delays in delivery and clearance of imported materials

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Urban Water Supply and Sewerage • Urban water supply and sewerage surveys, investigation, and designs • Community consultations • Water supply and sewerage rehabilitation • Establish vodokanal board and train staffs	• Seven towns with rehabilitated and extended water supply systems and new management systems created, three sewerage systems extended and rehabilitated	• Progress reports and ADB review missions	• Cooperation of community
Rural Sanitation • Need assessment of school toilets, *banya* rehabilitation or provision, domestic toilets, and sludge disposal • Community consultation • Rehabilitation and construction	• Program for improvement and construction of 70,000 family toilets, 250 school latrines, and rehabilitation of 730 banya	• Progress reports and ADB review missions	
Other Infrastructure • Need assessment of community • Survey of roads • Engineering design • Construction and supervision	• Construction of flood control facilities in 100 villages and 20 km of local roads in selected villages	• Progress reports and ADB review missions	• Community participation
Part B: Institutional Development			
Capacity Building Program **Hygiene and Sanitation Education Program**	• Establishment of NWSSC and training centers; 16,000 local governments and vodokanals staff trained. • Hygiene education carried out in 90 villages in each oblast	• Progress reports and ADB review missions	• Delays in establishing project management and implementation units • Lack of suitable consultants willing to work in remote areas • Costs of consultants
Consulting Services for Project Management Support	• Establish steering committee and project monitoring unit (PMU) • Establish oblast level project implementation units (PIUs) • Train staffs of PMU and PIU in project management procedures, and help ADB ensure successful project implementation.	• Progress reports and ADB review mission	• Delays in setting up offices • Project coordinator not competent • Consultants not competent • Lack of counterpart staff

EXTERNAL ASSISTANCE TO COMMUNITY-BASED INFRASTRUCTURE SERVICES

Agency	Program/Executing Agency	Year	Amount ($)
UNICEF	Community Water Management in Fergana Valley/International Secretariat for Water	1998	325,000
USAID	Mercy Corps International, under the "Food for Work Program"	1997	15,000
	Counterpart Consortium, Support of the NGO, facilitating water supply projects	1998	14,000
Soros Foundation/ Kyrgyz Republic	Improvement of Water Quality in Bishkek	1997	7,000
	Development of Local Communities	1998	42,000
WHO	Development of Environmental Health Action Plan	1997	
Helvetas/ Swiss Association for International Cooperation	Rehabilitation of Nonfunctioning Rural Water Supply and Sanitation System in Village Bash Kugandy/Naryn Oblast	1998	5,000
UNDP	Decentralization Program/Association of Local Self-Governments	1998	1,200,000
World Bank	Rural Water Supply and Sanitation Project/MAWR	1998	650,000
Total Assistance			**2,258,000**

MAWR=Ministry of Agriculture and Water Resources, NGO=nongovernment organization, UNDP=United Nations Development Programme, UNICEF=United Nations Children's Fund, USAID=United States Agency for International Development, WHO=World Health Organization.

Appendix 3

LESSONS LEARNED AND INCORPORATED IN THE PROJECT

Lessons Learned from Past Aid-Assisted Projects	Proposals in Community-Based Infrastructure Services Sector Project
Greater emphasis should be placed on institutional strengthening measures, particularly at the local level.	A capacity-building program for local governments, vodokanals (water and sewerage agencies), and water users councils (WUCs) will be implemented. A major focus of the consulting services will be institutional strengthening.
Clearer and more responsive delineation of responsibilities and roles of concerned national agencies, provincial and district governments, and the WUCs is required.	Clear delineation of responsibility of the central and local agencies involved has been outlined, taking account of the decentralization policy and the need for the transition arrangements to consider existing capacities of the agencies.
WUCs or other suitable community-based organization needs to be formed prior to subproject approval.	Formation of community organizations and WUCs are to be completed prior to subproject approval and actual physical implementation.
Community organization improvements are essential.	Part of the institutional development program is to strengthen community organization activities.
Greater beneficiary and local government participation is required.	Participatory approaches were used to design the Project, and a process approach will be adopted for its implementation.
More careful subproject site selection is needed.	Site selection criteria developed for the Project together with greater involvement of the community and the local governments concerned will ensure better selection of sites for subprojects.
Cost-recovery aspects need to be reviewed to enhance sustainability.	Cost recovery and cost sharing are built into the design of the Project. Contributions of land and labor in kind are envisaged together with full recovery of operation and maintenance (O&M) costs, including depreciation.
Improved local capacity for O&M is required.	The training programs at community/WUC level as well as the formulation of O&M guidelines will guarantee improved local capacity to deal with O&M.
Greater involvement of women in water supply management enhances the sustainability of the water supply system.	Specific measures to increase involvement of women in the planning, implementation and O&M of water and sanitation facilities are included.

INSTITUTIONAL DEVELOPMENT PROGRAM

1. There are four types of training provided under the project: (i) training related directly to the subproject for the community, local governments, community leaders, management and technical staff; (ii) training in engineering design and procurement; (iii) training of trainers for the subproject related training; and (iv) in-house training for the staff of the project management unit (PMU) and the project implementation unit (PIU). Training materials will be developed through the advisory technical assistance (ADTA) processed in parallel with the Project, and by the implementing consulting services (CS). Training for the design engineering of the water and sanitation facilities on appropriate design standards and community involvement in design will be given. The staff of the Ministry of Agriculture and Water Resources (MAWR) and the three project provinces will be trained.

2. The training courses that have been identified and are necessary for the successful involvement of the community and stakeholders in the design, development, operation, and management of the water and sanitation facilities will be developed and taught using local training facilities. The courses include (i) community mobilization, including gender sensitivity and the use of social surveys as a tool for community participation; (ii) preparation of simple business plans for water supply systems; (iii) improved accounting and budgeting skills, including the use of task based budgeting and prioritizing capital investments; (iv) management skills including decision making skills, staff recruitment skills, understanding budgets, balance sheets and the principles of tariff setting and arrears reduction strategies; (v) tariff setting; (vi) preventive maintenance; and (vii) skills training for those involved in self-help programs, including trenching, pipe laying and flood protection measures.

3. The training offered by the PMU and PIUs to provincial and central government staff include training on (i) procurement of goods, services and civil works and specification preparation; (ii) appropriate design standards; (iii) public consultation in the design of subprojects; and (iv) construction supervision.

4. The training of trainers will be for nongovernment organizations and training institutes that will undertake the subproject training. Specifically the training provided will be given by the consultants from both the ADTA and the CS. This will include (i) training in community mobilization by ADTA consultants; (ii) training in preparation of business plans for project communities by the financial specialist of the CS; and (iii) tariff setting for the PIU accountants by the CS.

5. The training to be provided for the members of PMU and PIUs will include (i) rapid appraisal staff for project selection for engineers; (ii) rapid appraisal techniques for project selection for social planners; (iii) procurement procedures; (iv) project accounting procedures; (v) contractor supervision; and (vi) data requirements and collection methods for project performance monitoring systems.

SUBPROJECT DESIGN CRITERIA[1]

A. Rural Subprojects Design Criteria

1.	Design Period	15	years
2.	Population		
	- annual growth rate (percent)	1.6	%
	- average household size (persons)	6	persons
	- design population (DP), years (n)	(Present population x 1.016)	
3.	Water Demand (liters per capita per day - lpcd)		
	- public standpipes	40	
	- yard connections	70	
	- livestock (community consumption)	10	%
4.	Demand Factors		
	- average day demand (ADD)	DP x lpcd	
	- maximum day demand (multiplier of ADD)	1.3	
	- peak-hour demand (multiplier of ADD)	2.0	
5.	Service Level		
	- public standpipes (persons served)	200	
	- maximum distance of standpipes from households (m)	200	
6.	Pipe Hydraulics		
	- average pipe velocity (meters per second-m/sec)	0.5	
	- maximum pipe velocity (m/sec)	3	
	- maximum pressure in the network (m)	70	
	- minimum pressure in the network (m)	7	
7.	Pumping Systems		
	- standby capacity (1 or 2 pumps)	1	
	- standby capacity (2 or more pumps)	2	
	- pumping hours: less than 1000 population	8	hours minimum
	- pumping hours: more than 1000 population	12	hours minimum
8.	Water Treatment		
	- groundwater	Disinfection only	
	- surface water	Flocculation, sedimentation, filtration, and disinfection with minimum mechanical equipment and power dependence	
9.	Maximum Level of Unaccounted-for-Water (by 2015)		
	- new systems (percent)	20	
	- rehabilitated systems (percent)	25	
10.	Water Quality	Compliance with Kyrgyz Republic national standards for drinking water.	

B. Urban Water Supply Subprojects Design Criteria

1.	Design Period	15	years
2.	Population		
	- annual growth	1.5	%
	- urban migration	0	%
	- household size	5	persons
	- apartment size	4	persons

[1] In the case of flood control, drainage and local road components, these will follow the national standard design criteria.

3.	Water Demand - target daily average		
	- apartment (without meter)	175	lpcd
	- apartment (with meter)	125	lpcd
	- private house (without meter)	125	lpcd
	- private house (with meter)	90	lpcd
	- livestock and garden	25	lpcd
	- fire service (major highways)	40	liters/second
	- fire service (minor roads)	25	liters/second
4.	Supply Factors		
	- maximum daily demand	1.3 x	lpcd
	- peak hour demand	1.7 x	lpcd
	- reservoir capacity at average daily demand	15	hrs
5.	Pumping		
	- standby for 1 or 2 duty	1	no
	- standby for > 2 duty	2	no
	- maximum starts per hour	15	no
	- design hours run per day	18	hrs
6.	Network hydraulics		
	- average flow velocity	1	m/sec
	- maximum flow velocity	3	m/sec
	- maximum pressure (transmission)	10	atmosphere
	- maximum pressure (distribution)	4	atmosphere
	- minimum pressure	1.2	atmosphere
	- pipe friction factor		

C. Urban Sewerage Subprojects Design Criteria

1.	Design Period	25	years
2.	Population		
	- annual growth	1.5	%
	- urban migration	0.1	%
	- household size	5	persons
	- apartment size	4	persons
3.	Development Phasing		
	- properties connection limit	90	%
	- connection period	15	years
	- rate of connections per year	400	
4.	Dry Weather Sewage Flows (dwsf)		
	- private houses	120	lpcd
	- apartments	185	lpcd
5.	Storm-water flows	3x	dwsf
6.	Infiltration	20-25	% of dwsf
7.	Minimum flow velocity	0.5	m/sec
8.	Minimum depth of sewers	1.2	meter
9.	Distance Between Service Holes		
	- primary and secondary sewers (maximum)	100	meter
	- tertiary sewers (maximum)	60	meter
10.	Pipe Friction for Hydraulic Calculations	1.5	mm

Table A6.3: Detailed Project Cost Estimates
($ million)

Component	Foreign Exchange	Local Currency	Total Cost
A. Physical Infrastructure			
1. Rural Water Supply	**9.8**	**14.1**	**23.9**
a. Land	0.0	0.5	0.5
b. Civil works	2.2	8.9	11.1
c. Equipment	7.6	3.5	11.1
d. Design and construction supervision	0.0	1.2	1.2
2. Rural Sanitation/Bath Houses	**1.2**	**1.5**	**2.7**
a. Civil works	0.3	1.0	1.3
b. Equipment	0.9	0.4	1.3
c. Design and construction supervision	0.0	0.1	0.1
3. Rural Flood Control Measures	**0.2**	**0.5**	**0.7**
a. Civil works	0.1	0.3	0.4
b. Equipment	0.1	0.1	0.2
c. Design and construction supervision	0.0	0.1	0.1
4. Rural Local Roads	**0.3**	**0.7**	**1.0**
a. Civil works	0.2	0.6	0.8
b. Equipment	0.1	0.0	0.1
c. Design and construction supervision	0.0	0.1	0.1
5. Urban Water Supply	**2.9**	**2.9**	**5.8**
a. Land	0.0	0.2	0.2
b. Civil works	0.3	1.3	1.6
c. Equipment	2.6	1.1	3.7
d. Design and construction supervision	0.0	0.3	0.3
6. Urban Sewerage	**2.6**	**2.2**	**4.8**
a. Land	0.0	0.3	0.3
b. Civil works	0.1	0.6	0.7
c. Equipment	2.5	1.1	3.6
d. Design and construction supervision	0.0	0.2	0.2
Subtotal (A)	**17.0**	**21.9**	**38.9**
B. Capacity Building			
1. Institutional Development Program	0.1	1.0	1.1
2. Hygiene and Sanitation Education	0.0	0.4	0.4
3. Consulting Services for Project Management Support	1.9	0.8	2.7
Subtotal (B)	**2.0**	**2.2**	**4.2**
C. Interest During Construction	**1.9**	**0.0**	**1.9**
Total	**20.9**	**24.1**	**45.0**

Source: Staff estimates.

PROJECT COST ESTIMATES AND FINANCING PLAN

Table A6.1: Project Cost Estimates

($ million)

Component	Foreign Exchange	Local Currency	Total Cost
A. Physical Infrastructure			
1. Land	0.0	1.0	1.0
2. Civil Works	3.2	12.7	15.9
3. Equipment	13.8	6.2	20.0
4. Design and Construction Supervision	0.0	2.0	2.0
Subtotal (A)	**17.0**	**21.9**	**38.9**
B. Capacity Building			
1. Institutional Development Program	0.1	1.0	1.1
2. Hygiene and Sanitation Education Program	0.0	0.4	0.4
3. Consulting Services for Project Management Support	1.9	0.8	2.7
Subtotal (B)	**2.0**	**2.2**	**4.2**
C. Interest During Construction	**1.9**	**0.0**	**1.9**
Total	**20.9**	**24.1**	**45.0**

Source: Staff estimates.

Table A6.2: Financing Plan

($ million)

Source	Foreign Exchange	Local Currency	Total Cost	Percent
A. External Source				
Asian Development Bank	20.9	15.1	36.0	80.0
Subtotal (A)	**20.9**	**15.1**	**36.0**	**80.0**
B. Domestic Source				
1. National Government	**0.0**	**5.5**	**5.5**	**12.2**
a. Taxes and duties	0.0	5.4	5.4	12.0
b. Incremental administration (PMU)	0.0	0.1	0.1	0.2
2. Oblasts/Rayons	**0.0**	**0.5**	**0.5**	**1.1**
a. Incremental administration (PIUs)	0.0	0.4	0.4	0.9
b. Schools sanitation program	0.0	0.1	0.1	0.2
3. Community/Village and Town Administration	**0.0**	**3.0**	**3.0**	**6.7**
a. Labor and cash/kind contributions	0.0	1.7	1.7	3.8
b. Land	0.0	1.0	1.0	2.2
c. Contributions to village roads	0.0	0.3	0.3	0.7
Subtotal (B)	**0.0**	**9.0**	**9.0**	**20.0**
Total	**20.9**	**24.1**	**45.0**	**100.0**

PIU = project implementation unit, PMU = project management unit.

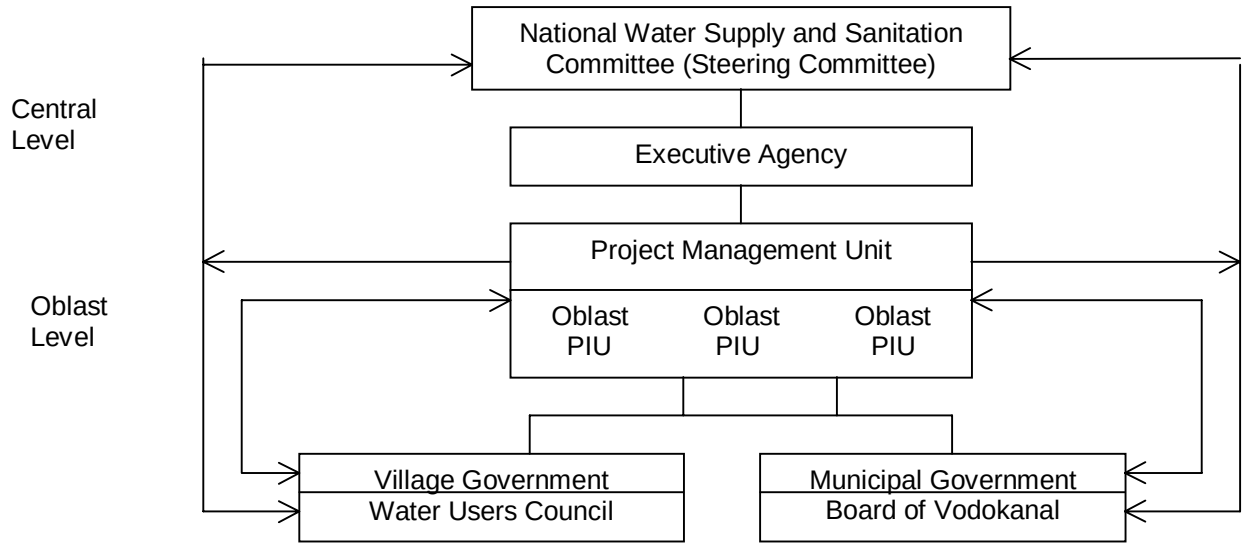
Source: Staff estimates.

PROJECT IMPLEMENTATION ARRANGEMENTS

A. The Project Management Unit

1. The project management unit (PMU) will be staffed by domestic consultants: (i) a project manager, (ii) a senior design engineer, (iii) a social development specialist, and (iv) an accountant; and international consultants: (i) a senior adviser (management) and (ii) a senior design engineer. The PMU and project implementation units (PIUs) will also each have (i) a bilingual secretary and (ii) interpretation services as needed. All offices will be fully equipped with computers, printers, photocopiers, and fax machines. The PMU will coordinate and manage all activities required for the implementation and management of the Project, and report directly to the Ministry of Agriculture and Water Resources (MAWR) and the Asian Development Bank (ADB). The PMU's main responsibilities are to (i) initiate project preparation activities including (a) set up working systems and procedures, and systems of communication and reporting between the PMU and PIUs, and (b) 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 PIUs, 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 PIUs to prioritize subprojects, and submit recommendations to the National Water Supply and Sanitation (NWSSC) through MAWR; (v) formulate design standards for the detailed design and specification of all project civil works; (vi) prepare guidelines for processing tender documents, and classifying and prequalifying local, regional, or international contractors; (vii) help the PIUs prepare tender documents, issue invitations to bid, evaluate bids and award contracts; (viii) provide engineering and construction assistance by training provincial staff; (ix) monitor and report to MAWR and ADB on overall project developments including physical, institutional, financial progress, based on the aggregation of regular reports; (x) provide overall guidance for planning and supervising local surveys for the project performance monitoring system (PPMS); surveys should be conducted by the PIUs based on data collected in each subproject area; (xi) following accepted standards, format, and frequency, assume responsibility for the analysis of the PPMS data; (xii) provide overall guidance to local governments, vodokanals, water users councils, (WUCs) and the PIUs on the introduction of new responsibilities, in particular those related to new repair and maintenance tasks; in conjunction with relevant trainers, prepare manuals to support the introduction of new tasks; (xiii) provide assistance to the PIUs, vodokanals, and WUCs on preparing proposals for the funds to rehabilitate infrastructure; evaluate and help implement proposals; (xiv) coordinate with outside organizations at the national and international levels, national government organizations, national representation of mass organizations, nongovernment organizations (NGOs), and foreign aid organizations; (xv) organize overall institutional strengthening and training activities; and (xvi) prepare a project completion report.

Figure A7: Organizational Structure for Project Implementation



B. The Project Implementation Units

2. The PIUs will each have the following domestic consultants: (i) a design engineer and program manager, (ii) an accountant, and (iii) a NGOs coordinator and community development specialist. The PIUs will be assisted by the following international consultants: (i) finance adviser, and (ii) a design engineer, one of whom will have considerable program or project management experience. The design engineer will be solely concerned with the southern oblasts. Engineering design assistance to the Chui PIU will be provided by the PMU senior design engineer. It is expected that the PIU for Chui will only need to be operational for four years, as the number of subprojects is considerably less than in Osh or Jalal-Abad. The PIUs 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 PMU. They will report to the PMU. 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 help village and urban communities prepare applications for inclusion in the Project for submission to MAWR, PMU, and NWSSC; (iii) assist in the preparation of tender documents and evaluation of bids received for community mobilization, engineering design and costing, physical works, and materials and equipment; (iv) help the subproject communities prepare the basic model business plan to justify the proposed subproject and to justify its feasibility; (v) prepare the implementation plan for the oblast, including coordinating and aggregating the subproject requests and budgets, for submission to the PMU; (vi) monitor the design proposals submitted by the domestic subproject consultants to ensure that they meet the design criteria established by the PMU; (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 use of local labor, the *ashar* (self-help) system, and the involvement of women in project design and management; (ix) collect data required for the PPMS from regular reports on subproject preparation and implementation data and submit this in the agreed format to the PMU; (x) maintain accurate project accounts; (xi) submit reports on a regular basis as established by the PMU; (xii) confirm delivery of services and materials contracted by the PMU, to the PMU, to facilitate the payment of the centrally appointed contractors; (xiii) disseminate guidance prepared by PMU on system maintenance and tariff preparation for cost recovery; and (xiv) help the PMU prepare the project completion report.

Implementation Action Plan

Action by the Government	Completion Date
A. Institutional and Financial	
1. Institutional Development Improve institutional capacity through staffing and training. Approve participation of local government's staff in the training program. Prepare and approve budget for staff training.	30 September 2000
2. Hygiene and Sanitation Education The program will focus on safe drinking water, hand washing, proper use of toilets, and need for adequate wastewater disposal. Approve participation of local governments staff in the education program. Prepare and approve budget for the program.	30 September 2000
3. Water Supply Fees Prepare and implement a progressive program for applying and collecting water supply fees. Improve financial management, including strategic planning and the development of budgeting capacity.	31 October 2000
4. Flow of Funds Tripartite agreement on channeling of funds and cost recovery will be concluded between the Ministry of Finance, the Executing Agency, and the oblast administrations.	30 September 2000
B. Operational	
1. Project Management Establish PMU and PIUs	30 June 2000
2. Consultants Appoint project implementation assistance consultants	31 August 2000
3. Feasibility Studies Appoint feasibility studies consultants	30 September 2000
4. Land Acquisition Complete all project related land acquisition	31 October 2000
5. Detailed Engineering Design Appoint detailed engineering	31 October 2000

Appendix 8

SELECTION CRITERIA FOR RURAL VILLAGES AND URBAN TOWNS FOR WATER SUPPLY AND SEWERAGE/SANITATION

A. Rural Communities

The screening criteria for eligibility for rural communities to be covered under a subproject is that the majority of community's population has an income below the poverty level. Once the eligibility has been established, the following weightage to establish priority would apply.

1. Water supply schemes where multiple villages are served by a single water supply source (weight 20%)
2. Willingness and commitment by the community to (i) participate in the Project and provide necessary land, (ii) establish a water users council, (iii) pay for part of the capital cost of the water supply works in kind (labor) or cash, and (iv) assume responsibility for operation and maintenance of the facilities and pay for water charges (weight 30%)
3. Lack of water supply (weight 20%)
4. High incidence of waterborne and excreta-related diseases, poor sanitation conditions, and willingness to improve sanitation (weight 10%)
5. Use of appropriate and low-cost technology; preference to develop spring sources and groundwater over surface water (weight 10%)
6. Minimum financial internal rate of return of 1 percent (weight 10%)

B. Urban Towns

The seven urban communities covered under the Project have already been preselected based on the criteria that the majority of the population has an income below the poverty level. The priority was determined based on the following criteria.

1. Willingness by the vodokanal to participate and commit funds and land (weight 30%)
2. Urban community water needs: (weight 20%)
    - poor water quality (5%)
    - insufficient water quantity (5%)
    - high incidence of waterborne and excreta-related diseases (5%)
    - satisfactory initial environmental examination (5%)
3. Low wastewater treatment capacity per capita and substandard discharge for final effluent (weight 15%)
4. Low per capita cost to effective solution to problems (weight 15%)
5. Minimum economic rate of return of 12 percent (weight 10%)
6. Minimum financial internal rate of return of 1 percent (weight 10%)

PROJECT IMPLEMENTATION SCHEDULE

Activity	2000	2001	2002	2003	2004	2005
A. Preparatory Activities						
1. Recruitment of consultants						
2. Preliminary appraisal and selection of subprojects						
B. Rural Infrastructure						
Rural Water Supply						
1. Approval by ADB of selected rural subprojects						
2. Evaluation of selected subprojects						
3. Water supply; WUC formation and registration						
4. Feasibility studies						
5. Detailed engineering designs and tender documents						
6. Procurement of equipment and materials						
7. Approval by ADB of tender documents						
8. Tendering for civil works contracts						
9. Construction/rehabilitation of water supply works						
Rural Sanitation						
1. Selection of pilot sanitation activities in each oblast						
2. Preparation and dissemination of improved latrine designs						
3. Construction/rehabilitation of latrines and bathhouses						
4. Evaluation of pilot sanitation improvements						
Flood Control Measures						
1. Selection of subprojects requiring flood control improvements						
2. Preparation of designs and tender documents and approval						
3. Construction of flood control facilities						
Local Roads						
1. Selection of local roads requiring improvements						
2. Preparation of designs and tender documents and approval						
3. Construction of local roads improvements						
C. Urban Infrastructure						
1. Approval by ADB of selected urban subprojects						
2. Preparation of feasibility studies for five urban towns						
3. Preparation of detailed engineering designs and tender documents						
4. Prequalification of urban water and sewerage contractors						
5. Approval by ADB of tender documents and prequalified contractors						
6. Tendering for works and goods contracts						
7. Construction/rehabilitation of urban water supply and sewerage works						
D. Institutional Development						
1. Training of kwartel captains, municipal governments and vodokanals						
2. Training of village governments, community leaders and WUCs						
3. Development of project management staff						
4. Collection and analysis of benchmark information						
5. Project completion report						
6. Consulting services						

ADB = Asian Development Bank, WUC = water users council.

TENTATIVE CONTRACT PACKAGES AND PROPOSED PROCUREMENT MODES

Contract	Possible Packaging	Cost Estimate $ million [a]	Procurement Method
A. Rural Water Supply			
1. Civil works	About six contracts, two in each *oblast* (about $1.6 million per contract)	9.5	LCB
2. Equipment	About four major contracts, two each for pipes and pumps (about $2.4 million per contract)	9.5	ICB
B. Urban Water Supply and Sewerage			
1. Civil works	About seven contracts, one for each participating *Vodokanal* (about $0.3 million per contract)	2.0	LCB
2. Equipment	About four major contracts, one each for pipes, pumps, water and sewerage treatment equipment (about $1.6 million per contract)	6.2	ICB
C. Rural Sanitation			
Civil works and equipment (including bathhouses)	About three contracts, one for each *oblast* (about $0.7 million per contract)	2.1	LCB
D. Other Infrastructure			
1. Flood control	About three contracts, one for each *oblast* (about $0.2 million per contract)	0.6	LCB
2. Local roads	About three contracts, one for each *oblast* (about $0.3 million per contract)	0.8	LCB
E. Capacity Building			
1. Institutional Development Program	Training program including education materials	1.0	local consultant
2. Hygiene and sanitation education program	Training program including education materials	0.3	local consultant
3. Management/ Implementation support	Contract for consulting services	2.5	International and local consultant
4. Design and construction supervision	About six contracts, two for each oblast (about $0.3 million per contract)	1.5	local consultant
Total		**36.0**	

ICB = international competitive bidding; IS = international shopping;
LCB = local competitive bidding

[a] Excluding taxes and duties

TERMS OF REFERENCE FOR CONSULTING SERVICES FOR PROJECT MANAGEMENT SUPPORT

A. International Consultants

1. Six international consultants will be employed for a total of 67 person-months mainly over the first 16 months of the Project (and then intermittently) to establish operating systems and procedures needed for the sound management of the Project and its activities.

1. Project Management Specialist/Team Leader (20 person-months)

2. The project management specialist will serve as the team leader to establish the project management unit (PMU) and its relationships to the project implementation units (PIUs), the Ministry of Agriculture and Water Resources (MAWR), and the National Water Supply and Sanitation Committee (NWSSC), and coordinate the MAWR assistance to the PMU and PIUs. The specialist will work with the PMU for the first 16 months of the Project and then make short visits each of the remaining years. In particular, the specialist will (i) with the assistant team leader and the PIUs, prepare the timetable and budget for project implementation and submit it to MAWR for approval; (ii) with the financial specialist and local accountants, assist in training the accounting staff of MAWR 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 attached technical assistance (TA), and provide in-house training for PMU staff; (v) with the assistant team leader and other members of the PMU, prepare detailed monthly progress reports and quarterly and annual summaries for the Asian Development Bank (ADB); (vi) with the PMU, review the timetable and budget after six months; and (vii) help the PMU prepare the project completion report in year six.

2. Senior Design Engineer/Procurement Specialist (12 person-months)

3. The senior design engineer and procurement specialist will work closely with the project management specialist, the local senior design engineer, and the rural and urban design engineers attached to the southern oblast PIUs as well as the local engineers in each PIU. The engineer will start work in month two after the start-up date and remain for nine months, returning to make two follow-up visits in years two and four, or as considered necessary by ADB with MAWR. In particular the engineer will (i) with the team leader, assistant team leader, and the PIU engineers, identify basic information requirements for preliminary subproject evaluation, so as to develop a rapid appraisal system for engineering requirements; (ii) train all the PMU and PIU engineers on the use of these rapid appraisal techniques and evaluate results of the first batch prepared for each province (*oblast*); (iii) identify quantities of equipment, materials, and services that should most economically be purchased in bulk through ADB's international procurement procedures; (iv) assist MAWR 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; (vii) provide inputs as needed in technical training as required; and (viii) undertake the function of the design engineer for Chui oblast PIU including rural and urban engineering works.

3. Financial Specialist (12 person-months)

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. For the second task, the financial specialist will work closely with the local accountants in the PMU, PIUs, and the *rayon* (district) and village governments. The financial specialist will start work in month two of project start-up. In particular the specialist will (i) help train MAWR 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 PIU accountants in the use of

the management information system; (iv) oversee the financial monitoring of the Project and participate in preparing and revising the annual work plan; (v) review local government budget capacities and expenditures; (vi) develop a training curriculum to be tested in three pilot villages; (vii) develop and direct the training of the accountants in each PIU and the PMU to understand the form and contents of business plans; and (viii) help evaluate the first business plans developed for each province and revise, as necessary, contents of the plans and the operating manual.

D. Rural Design Engineer for the PIUs (12 person-months)

5. The rural design engineer will work in three oblasts (Chui, Jalal Abad, and Osh). The design engineer will join the Project at the end of the second month after the start-up date and work for six months in the two southern oblasts, with three monitoring visits in years two, three, and four. The design engineer will (i) work closely with the PIU manager and design engineer in each PIU and ensure that the rural subprojects are selected in accordance with the selection criteria; (ii) ensure that the rural water supply systems developed for preselection, contract documents, and procurement are fully understood and observed by the PIUs and the local governments; (iii) help with project implementation, including preparation of detailed implementation plan, and procurement and contracting arrangements; and supervise the detailed engineering designs of the rural water and sanitation facilities; and (iv) assist in setting up construction supervision schedules and procedures in accordance with the guidelines provided by the PMU.

5. Urban Design Engineer (7 person-months)

6. The urban design engineer will join the Project at the end of the second month after the start-up date and will primarily be responsible in assisting with the design and implementation of four urban subprojects in the southern two oblasts, and assist the senior design engineer with the three urban subprojects in Chui oblast. The urban design engineer will work for four months with three further monitoring visits during years two and four. The urban design engineer will (i) together with the senior engineer and procurement specialist and based on the work undertaken in the attached TA and project preparation TA, prepare design standards for urban water supply and sewerage rehabilitation and improvements; (ii) work very closely with the project vodokanals in preparing an implementation program for each of the urban subproject, in particular, help the vodokanals and the domestic consultants prepare detailed engineering designs, and procurement and contracting arrangements; and set guidelines for construction supervision for water supply and sewerage facilities such as headworks, pumping stations, storage reservoirs, network rehabilitation, and wastewater treatment works; and (iii) prepare operation and maintenance manuals for efficient operation of the pumping stations and the treatment plant.

6. Hygiene and Sanitation Education Specialist (4 person-months)

7. The specialist will primarily assist in formulating and designing the HSE component of the Project. The specialist will be attached to the sanitary epidemiological services (SES) Department of the Ministry of Health (MOH) and will work closely with the PMU management. In particular, the specialist will (i) review the national health and hygiene education strategy and program; (ii) assist SES in designing a promotional and participatory HSE program for the Project's rural sanitation component; (iii) prepare training programs for SES health personnel at the center and at the oblast and rayon levels, on hygiene and sanitation education principles and methods; (iv) prepare and participate in the hygiene and sanitation education workshops, orientation, and training activities; (v) field test the HSE messages during visits to the communities; and (vi) prepare a monitoring and evaluation program for HSE intervention.

B. Domestic Consultants and Personnel

8. A number of key domestic professional personnel will be needed for project implementation for a total of 779 person-months.

1. Assistant Team Leader (60 person-months), PMU

9. The assistant team leader will report to and receive directions from the project manager and NWSSC and will (i) work closely with the team leader to develop the first year 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 team leader, prepare reports on project progress as required by ADB and as requested by NWSSC or the project manager; (iii) review subproject requests and prepare recommendations for consideration of NWSSC; (iv) review the MOH's program with MOH on a six-monthly basis; (v) recommend, on the advice of the responsible members of the PMU, all payment requests from subcontractors and payments from the imprest account; and (vi) with the assistance of the team leader prepare the project completion report.

2. Senior Design Engineer (54 person-months), PMU

10. The senior design engineer will work closely with the international senior design engineer and procurement specialist in setting up the technical program for the Project. The engineer's responsibilities are to (i) review the 10 feasibility studies 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 senior design engineer in setting up design standards for detailed engineering designs and specifications of all project works for rural and urban water supply and sewerage/sanitation works; (iii) assist in preparing a detailed project implementation schedule; (iv) help prepare and supervise feasibility studies and detailed engineering designs; (v) help identify batches of equipment and materials to be centrally procured; (vi) assist in identifying local contractors to supply goods and works; (vii) help prepare guidelines for construction supervision, and monitor performance and progress by the domestic consultants; (viii) assist the PMU and the PIUs with the procurement procedures and evaluate bids; and (ix) help with technical training as required.

3. Design Engineers and Program Managers (total 216 person-months in three PIUs)

11. There will be four positions: (i) one design engineer or program manager for Chui (60 person-months); (ii) two design engineers or program managers for Osh (96 person-months); and (iii) one design engineer and program manager for Jalal-Abad (60 person-months). Responsibilities of these design engineers/PIU team leaders are to (i) act as team leader of the PIU and perform the duties of design engineer 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 assistance of the PMU design engineers and assistant team leader; (iii) assist with and monitor the preparation of feasibility studies and 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 MAWR and distributed to the project oblasts; (vi) monitor the implementation of subprojects and provide the data required for the PPMS; (vii) set up the construction supervision procedures and assist in supervising; and (viii) prepare monthly and quarterly progress reports for the PIU and PMU.

4. Social Development Specialist (41 person-months)

12. The social development specialist will have overall responsibility for ensuring that the communities of the subprojects are fully involved in the planning, development, and management process. In this function the social development specialist will be responsible for directing the work of the community development specialists in the three oblasts. More specifically the social development specialist will (i) compile a list of competent nongovernment organizations (NGOs) that could be used to assist local communities strengthen their capacity to participate in the planning, development, and management of the water supply and other basic infrastructure programs; (ii) review the performance of subprojects to ensure that women and the poor are fully involved in the planning and implementation, and where possible, the management; (iii) assist the team leader in preparing the first annual work plan and budget, and

work with the team leader and the assistant team leader to revise the work plan; (iv) develop further training and public education programs as considered necessary to ensure the full participation of all stakeholders in the development and management 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) with the hygiene and sanitation specialist, develop training in community health education.

5. Accountant (60 person-months), PMU

13. The PMU accountant will work closely with the financial adviser and with the accountants in the three PIUs. The PMU 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) assist the senior adviser, the project manager, and the financial adviser 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 five; and (vi) monitor project expenditures.

6. Accountants (216 person-months), PIU

14. The accountants, one for each PIU, will work closely with the senior financial adviser and the PMU accountant 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 MAWR accounting staff in preparing loan withdrawal applications and supporting documents; (ii) assist in maintaining accurate and sufficient project accounting records; (iii) help subproject communities prepare business plans for proposed subprojects and review the business plans prepared; (iv) assist the PIU program manager to prepare proposals for inclusion in the first annual work plan and budget prepared by the PMU; and (v) monitor project expenditures by the PIU.

7. Community Development Specialists (132 person-months)

15. The community development specialists, one for each PIU, will work closely with social development specialist and will (i) compile a list of competent NGOs that could be used to help local communities strengthen their capacity to participate in the planning, development, and management of the water supply and other basic infrastructure programs; (ii) help select suitable NGOs to work with local village communities; (iii) review performance of subprojects to ensure that women and the poor are fully involved in the planning and implementation, and where possible, the management; (iv) assist the PIU team leader in preparing the first annual work plan and budget for the PIU and work with the assistant team leader to revise the work plan; (v) participate in training for design contractors on the principles and techniques of community participation in the design of subprojects, the level of service, and the costs of options; and (vi) review training provided for village government staff and leaders of CBOs and recommend improvements.

8. Other Support

16. Administrative support staff will comprise a bilingual secretary-administrative assistant in each PMU and PIU office, for the duration of the particular office (216 person-months). An interpreter-translator will be employed full time for the first 15 months of the Project in the PMU and on a need basis in the PIUs after the first 15 months in the PMU. Each PIU and PMU office will have a computer and a printer, a full-time driver, and one vehicle per office. The distribution of costs for support to the oblast administrations will be prepared by the consultants and agreed with Goskominvest and the Ministry of Finance.

PROJECT PERFORMANCE MONITORING SYSTEM

1. The project performance monitoring system (PPMS) plan covers project targets, performance indicators, and monitoring mechanisms. PPMS activities will be overseen by the National Water Supply and Sanitation Committee and a PPMS team involving individuals from provincial departments, the project management unit (PMU), the project implementation units (PIUs), and consultants from the accompanying technical assistance (TA). The PMU will have overall responsibility for overseeing and coordinating the PPMS efforts. Responsibilities for data collection, analysis, and reporting will be delineated for each level of government participating in the project activities. A plan for monitoring, evaluating, and reporting, including a time frame, resources required, and persons responsible will be prepared within six months of loan effectiveness. The project framework has been matched with monitoring indicators and targets used in the PPMS. Successful implementation of the PPMS will require the close cooperation and participation of the national Government, local governments, and the beneficiary communities. Training workshops will be conducted in each province to address the structure, process, and intended purpose of the PPMS; data collection issues; use of key social indicators; and implications of PPMS analysis for targeting and managing resources.

2. The team will work with the Ministry of Agriculture and Water Resources and local governments to establish appropriate organizational arrangements for the PPMS. It is envisioned that primary data collection and processing activities will be based at the PIUs, with assistance from local governments and the community as necessary. Analysis will be conducted at the PMU level. Training workshops will be conducted with designated government officials at the national and province levels to develop the capacity to use the PPMS to target and manage project resources. Significant participation during all phases will therefore be required from the Government and the beneficiary communities. A combination of data sources will be used, including (i) a project management information system; (ii) routine statistics; and (iii) household, facility, and special surveys where required. Since the present Project comprises about 240 rural and 7 urban subprojects, impact evaluations are proposed by surveying a representative sample of the subproject areas. In general, where surveys are used, the social surveys conducted as part of subproject implementation will be used to measure baseline conditions prior to project intervention. Following the implementation of the project impact surveys will be undertaken to measure the effects. Table A12 provides some examples of each type of project performance indicators appropriate for each subsector, as well as the source from which they can be obtained. Four broad categories of impact indicators corresponding to the project objectives are proposed: (i) poverty reduction, (ii) community participation in improved living and health conditions, (iii) improved levels of service, and (iv) strengthened institutional capacity and financial performance.

Table A12: Proposed Project Performance Indicators

Impact	Project Component	Indicator	Measures	Source of Data
• Poverty Reduction • Improved Levels of Service • Community Participation • Strengthen Institutional Capacity	Rural Water Supply	Prioritize rural poor in program	• Percentage of poor population served • Number of poor beneficiaries • Water consumption per capita by rural poverty groups • Total water sales to rural poverty groups • Standpipes provided to rural poverty groups	Social survey
		Release time for poor to increase productive economic activity/education	• Time savings collecting water by rural poverty groups • Percentage of registration of land shares by households headed by women	Social survey

Impact	Project Component	Indicator	Measures	Source of Data
	Rural Sanitation, Bathhouses	Prioritize rural poor in program Reduce mortality and morbidity among poor	• Number of ventilated improved pit latrines constructed by rural poverty groups. • Overall mortality and morbidity rates among rural poverty groups. • Child and infant morbidity rates among rural poverty groups	Social survey Social survey
	Rural Flood Control Measures	Prioritize rural poor in program	• Subprojects completed in villages with above average poverty levels	Social survey
	Rural Local Roads	Prioritize rural poor in program	• Subprojects completed in villages with above average poverty levels	Social survey
	Urban Water Supply	Prioritize rural poor in program Increased time for poor to increase productive economic activity and education	• Percentage of poor population served • Number of poor beneficiaries • Water consumption per capita by urban poverty groups • Total water sales to urban poverty groups • Subprojects completed • Town systems rehabilitated/extended • Standpipes provided • Yard connections provided • Time savings collecting water by urban poverty groups	Social survey
	Urban Sewerage	Prioritize rural poor in program Reduce mortality and morbidity among poor	• Percentage of poor population served • Number of poor beneficiaries • Water consumption per capita by urban poverty groups • Total water sales to urban poverty groups • Overall mortality and morbidity rates among urban poverty groups • Child and infant morbidity rates among urban poverty groups	Social survey
	Capacity Building Program	Prioritize outreach to poverty groups	• Water users council (WUC)/other community representatives from rural and urban poverty groups trained	Social survey
	Hygiene and Sanitation Education Program	Prioritize outreach to poverty groups	• WUC and other community representatives from rural and urban poverty groups educated	Social survey

SOCIAL ANALYSIS

A. Outline of Report

1. The report covers the findings of detailed household surveys carried out between April and May 1999 with 1,113 households in 11 villages and 400 households in two towns in the three project provinces (*oblasts)*. It is primarily concerned with socioeconomic issues related to the degree and distribution of poverty and social equity, and how this impacts on the provision of basic infrastructure services. The report examines how the incidence of poverty, its nature, and the mutual support systems influence the design of the Project and the risks to which it is exposed. The report draws on the report, 1998 Poverty in the Kyrgyz Republic (November 1999). It compares the data collected by the consultants, and uses the 1998 updated figures for poverty provided by the National Statistical Committee (NATSTATKOM) Kyrgyz Poverty Monitoring Survey office. It also considers the impact of the policy of making beneficiaries pay the full costs of water provision, and the position of women in the development and management of water systems.

B. Background

2. Since independence, the Government has pursued policies to restructure the economy, redistribute rural land, and decentralize power to local authorities. The consequence has been the laying off of some workers and the closing of many factories, as well as the break up of the *sovkhoze* and *kolkhoze* (state and communal farms) and the handover of communal property to local authorities. Without the massive support from the central administration of the former Soviet Union (FSU), the Kyrgyz Republic has been unable to maintain services and basic utilities. While payment for services was always officially the policy, tariffs were nominal and insufficient, even when collected, to cover the full cost of operation and maintenance. Consequently much of the infrastructure has ceased to function. Likewise community facilities have deteriorated and the services provided are grossly underfunded. Health posts have no medicines and schools lack equipment.

3. While the economy began to show some signs of recovery in 1996/1997, this was slowed or even reversed by the Russian monetary crisis and the customs disputes with its' neighboring countries following the acceptance of the Kyrgyz Republic as the first country from the FSU to become a member of the World Trade Organization. The full impact of that is only now being felt. Inflation did improve and dropped from 62 percent in 1994, to 13 percent by the end of 1997. While it rose slightly in 1998, the full impact of the problems identified was not felt until 1999. In the first nine months of 1999, inflation was reported at 40 percent. The greatest inflation has been in the food sector. Although the Government claims that the country meets 60 percent of its food needs, there is no evidence that the benefits of the relatively faster increase in food prices has benefited the rural areas. The report 1998 Poverty in the Kyrgyz Republic identified insignificant increase in the national poverty level including the proportion of the population living in extreme poverty[1] between 1997 and 1998. The general poverty level for the country as a whole increased from 51.0 percent in 1997 to 63.6 percent in 1998, and the extreme poverty increased from 14.8 percent to 23.0 percent. The poverty that exists is not evenly spread. It is considered to be a predominantly rural phenomenon. However, in urban areas the percentage of poor has increased substantially, from 28.5 percent in 1997 to 50.7 percent in 1998.

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[1] Extreme poverty is defined as the situation when all resources are devoted to food, yet the minimum caloric values cannot be met. The general poverty line is based on the same basic caloric requirement and the level of resources required to cover minimal needs for expenditure on taxes, utilities, clothing, transport, social, health, and education services. In 1997 the extreme poverty level was Som2,439 per person per year, and Som2,595 in 1998. The general poverty level was Som4,647 and Som4,944 in the same years, respectively. 1998 Poverty in the Kyrgyz Republic, NATSTATKOM, November 1999.

Table A13.1: Poverty by Geographic Area, 1997-1998
Urban and Rural Split 1997-98

	All Poor			Extremely Poor		
Year	Urban	Rural	Total	Urban	Rural	Total
1997	28.5	64.5	51.0	4.9	20.7	14.8
1998	50.7	71.3	63.6	18.3	25.8	23.0

Source: 1998 Poverty in the Kyrgyz Republic, November 1999.

Table A13.2: Poverty by Province, 1998

Province	Poor	Extremely Poor
Bishkek	28.9	36.5
Issyk-Kul	68.8	16.5
Jalal-Abad	72.3	29.3
Naryn	89.1	42.6
Osh	81.2	31.3
Talas	82.1	48.8
Chui	37.6	8.1

Source: 1998 Poverty in the Kyrgyz Republic, November 1999.

4. Further, not all poverty indicators reflect the reported poverty. Malnutrition would be expected to closely reflect the distribution of extreme poverty, although unpublished data for 1998 from the Safety Net Project of NATSTATKOM shows that almost the opposite is true. The greatest incidence of malnutrition found among children less than 7 years old and those 7 to 11 is highest in Bishkek with 12.4 and 12.0 percent, respectively, while it is lowest in Talas for the younger group, and in Naryn for the older group. In both categories, the incidence of malnutrition recorded by the poorest oblast is smaller the median figure. Jalal-Abad, which has a high level of extreme poverty, has the second lowest incidence of malnutrition for the zero to six age category, but does less well with the older group. In both groups, Chui has a high level of malnutrition (9.8 percent in both categories). This apparent contradiction is hard to explain, except possibly that the incidence of large families is less frequently reported in Bishkek and Chui,[2] where average family size is smaller than the national average. This paradox needs careful consideration for it could suggest an underrecording of nutrition intake by rural families that rely more on self-grown produce.

5. Nationally, food consumption represents 58 percent of total consumption. Overall, 80 percent of all food consumed is purchased. However, for the extreme poor and the poor, a greater proportion of food is self-produced (27.8 percent for the extreme poor as opposed to 15.4 percent for the nonpoor). Of all households, 6.2 percent of expenditure is for utilities. However, this is lower (4.6 and 5.3 percent) for the extreme poor and all poor. This low level of expenditure is explained by the fact that 80 percent of the poor are found in rural areas, where there is often no, or an irregular, supply of electricity, and where piped water supply systems exist many are nonfunctional. Education on the other hand represents over 10 percent of the consumption of all poor, as opposed to 7 percent for the nonpoor. Education also appears to correlate with the incidence of poverty. Those who stopped education at the secondary level or before are considerably more likely to be poor (58.4 percent) than those who received some higher education (36.9 percent). Enrollment data suggests that while there is little difference in the rate of enrollment of those below the age of 16, there is a substantial difference after the age of 16. This suggests that those who are from poor families are more likely to remain poor.

6. The most substantial increase in employment between 1997 and 1998 was in the rural areas, however, this may be either because of high underemployment or the seasonal nature of employment in rural areas. In rural areas, reliance on agricultural wages appears to be

[2] In Osh and Jalal-Abad oblasts, the survey of villages found that the average size of households were 5.7 and 5.6 respectively, whereas in Chui, the average household size was 4.4 persons.

associated with greater poverty. Poor households are likely to have less wage incomes than nonpoor households. In general, households headed by women are less likely to be poor than male. This is explained as being due to the system of help, which is more likely to be given to households headed by women. Size of land holding was also not found to be associated with poverty in the rural areas. This may be reflected in poverty distribution, with Naryn displaying the highest levels of poverty and the lowest level of population density. This is further confirmed by the fact that the main form of agriculture is livestock farming; on average, the extremely poor have access to more pasture land than the other groups. Concern has been expressed in other Asian Development Bank (ADB) social analysis over the distribution of land in rural areas, which was initially distributed by means of a share for all those working on the *sovkhoze* or *kolkhoze*, but which now is consolidated in the name of the head of household. This may mean that women will lose rights over land should the family break up, however, this is dismissed by officials in the southern oblasts because it is argued that men are more likely to leave the home and so give up these rights.

C. Profile of the Beneficiaries

1. Income and Living Standards

7. The survey carried out in the selected villages and two towns cannot be directly compared with the data collected as part of the 1998 Poverty in the Kyrgyz Republic report. It measured both reported cash incomes and expenditures, and did not measure consumption. However, the survey did measure expenditure, and included gifts and assistance received as income. Average household incomes for both towns were Som1,013 per month. Considerable differences are found with Uzghen recording Som841 per month and Kant Som1,186. Median incomes were considerably lower with the overall figure being Som850, made up of Som800 in Uzghen and Som930 in Kant. Average expenditures levels, as recorded in the survey, are close to income. The major difference between expenditures as used for the survey and consumption as used for the 1998 poverty report is that the former did not include self-grown produce. However, for comparison, it is possible to assume that total consumption is approximately 9 to 16 percent higher than the expenditure data would suggest. It is assumed that the income and expenditure data provided was in large part (where the expenditure is annual or seasonal) based on the respondents memory of what they spent or received in 1998.

8. Based on these assumptions, the survey suggests that poverty in the southern urban areas is far more widespread. In both towns together, over 38 percent would appear to be living in extreme poverty,[3] while over 70 percent are living in poverty.[4] These percentages differ markedly between Kant in the north and Uzghen, in the south. In Uzghen, 95 percent are living below the general poverty line, while in Kant, with slightly more than half the population is living in poverty. The figures for the southern town may be exaggerated by the use of the national poverty level, as food prices in particular are considerably lower.

9. Overall, in the urban areas, 63 percent of income is spent on food. This varies little between the two towns, but is higher than the average for the country as a whole. However, it is very close to the adjusted figure[5] for poor households, which suggests that poverty may well be as widespread as recorded in the survey. Thirteen percent of income is spent on utilities, including heating, cooking fuels or power, water, and electricity, with the figure being lower in the southern town of Uzghen (11 percent) than in the northern town of Kant (15 percent). Six percent is spent on education in the two urban areas. This is substantially less than reported for the whole of the country.

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[3] Unconfirmed figure from NATSTATKOM of between Som245 to Som250 per person per month for 1998.

[4] Unconfirmed figure from NATSTATKOM of Som450 per person per month for 1998.

[5] Excluding home production consumption, the poor use 66 percent of their resources on food.

10. Uzghen, the poorer town, has an average household size of 5.3, whereas in Kant it is 3.3. While Uzghen has a higher number of persons earning per family, of those contributing income, only 30 percent are working full time. In Kant, however, 60 percent are full time. Uzghen is heavily dependent on seasonal work, which suggests a possible underrecording of income and expenditure. Forty-one percent of all contribute income, and 47 percent of all households contain seasonal workers. Uzghen also has a higher number of pensioners, reflecting more traditional extended family patterns. Thirty-eight percent of all households in Uzghen include one or more pensioners. In Kant, no seasonal workers were recorded, and 27.5 percent of households contained pensioners. Including pensioners, part-time and seasonal workers, the dependency ratio for Uzghen is 1.8, whereas in Kant it is 3.1. However, with the higher number of full-time employees and the smaller household size, poverty appears less severe in the northern sample town.

11. In the rural areas, for all the villages surveyed, 52 percent of expenditures were for food. This varies from 57 percent in Osh, to 54 percent in Jalal-Abad and only 45 percent in Chui. Present levels of expenditure on utilities amount to 12 percent of the total. This is considerably higher than reported in the poverty report. This varies from 9 percent in Osh where because of the poor state of the water services, expenditure appears low, to 16 percent in Jalal-Abad and 10 percent in Chui. Education accounts for 13 percent and is similar to the adjusted figure[6] for the poor as reported in the poverty report. This varies from 9 percent in Osh, to 16 percent in Jalal-Abad and 13 percent in Chui.

12. No analysis is possible of the actual per capita expenditures, which could be used to establish the percentage of households in poverty. However, based on the higher figures for income and expenditure in all the villages surveyed, it is possible to establish an average per capita sum available. The average per capita available per month is Som185. Adjusted, this would appear to give an average consumption equivalent to approximately Som220 per capita per month, below the unconfirmed extreme poverty level of Som245 per month. However, in Chui, the average per capita income available is Som340, which adjusted is equivalent to Som392. This is still below the unconfirmed general poverty level, but not as extreme as for the southern oblasts. These figures, even if underrecording the total value of consumption, suggest that these villages suffer severe poverty.

13. While the villages chosen all suffer from substantially nonfunctioning or no water supply systems, there would appear to be a close connection between this fact and the prevalence of poverty. However, the relatively low level of malnutrition in the poorer rural dominated oblasts suggests a more complex situation. In many villages, substantial funds have been raised in cash, produce, labor, and use of machinery to extend or develop water systems. Unseasonal rains in 1998 affected many farming areas and resulted in low yields, hence reducing the income of many farmers. The figures do suggest, however, that care will need to be taken to allow some cross-subsidy within the individual systems, from those who are better off and may request individual connections and those who will collect their water from public standpipes.

2. The Role of Women in Water Usage and Sanitation

14. Women are most frequently the household member most affected by the lack of adequate clean and safe water. Not only are they most often responsible for collecting water, but they must also care for members of the family who fall sick as a consequence of the polluted water and inadequate sanitation facilities. Further, they are most likely to train the next generation on good sanitary practices and so protects them from the risk of illness. In the surveyed villages, women were the most frequent primary collectors of water (40 percent). However, in over a fifth of all households it was the adult males. Children collected water in 15

[6] Adjusted to exclude home production consumption.

percent of cases. There is, however, a difference in practices between the north and the south. In the south the adult women were the primary collectors in over 41 percent of households. In the north, adult men were more frequently the main collectors of water (31 percent of cases), while women were the primary collectors in only 25 percent. This disparity is a reflection of the strength of more traditional family structures that exist in the south. In the two towns surveyed, the picture is similar, with the divide between the north and the south. Overall, adult women were the main collectors of water when there was no individual connection (in 45 percent). In the south in 50 percent of the cases it was the women and only 9 percent the men, while in the northern town, men and women shared this task equally, relying also less on the help of children. These figures suggest a clear need to ensure women are involved in the design of water supply systems and in the management of the system.

15. In most villages, women are severely underrepresented on the village councils. In recent local elections in the pilot villages in the southern oblasts, very few women stood for office and fewer were elected. In three villages visited, one had one member on a 16-person council, another had one for a 21-person council, while another had one candidate who had been unsuccessful for an 18-person council. Such traditional prejudice against women at this level of local government suggests a need to develop special institutional arrangements for the management of water supply systems if women's needs are to be given greater importance. During Soviet times, women's committees were established in all communities. Their main function was to ensure that good practices were observed in the home, in particular cleanliness. They also acted as a welfare agency, providing assistance to those most in need. These have continued in most villages until today. However, being top-down appointments, these frequently have little true support. In some villages though, it was found that these organizations have become quite strong and are effective in mobilizing women and assisting them develop small economic activities. In the projects initiated by the International Secretariat for Water and funded by United Nations Children's Fund and supported by United States Agency for International Development (USAID), in the south, women have become the leaders of some of the local nongovernment organizations (NGOs) and play an active part in the water users councils that have been established. From the reports of the social organizations of the core subproject villages, women expressed a clear desire to play a central role in the planning and management of water systems.

3. Community Structures and the Social Support System

16. Under the constitution each village (*ayil okmotu*) is governed by a village council (*ayil kenesh*). The council is headed by the chairperson of the council (*bashchy*). The council formally elects the head of the village council. The elected head of the village council forms the village administration, and on recommendation of the head of *rayon* (district) administration the session of village government appoints the chair of the village council as chief executive of the *ayil okmotu bashchy* for the same period of time. Village government and its community elect its own village committee out of 3-5 people, and each settlement identifies its own village captain (*ayil bashchy*). The ay*il bashchy* is responsible for ensuring that the programs of the village council are implemented. According to the work regiment of *ayil okmoto*, the *ayil bashchy* can have paid staff if the settlement is located 4.5 km away from the administrative center. In other situations the *ayil bashchy* works with volunteers. In the restructuring of the *sovkhozes* and *kolkhozes*, all land is being distributed to the workers, while the local government (*ayil okmotu*) can retain 25 percent on which it may earn income by letting it out to farmers or for grazing and similar purposes. In many areas, the local government retained an interest in technical service enterprises and seed farms. Irrigation services are now being organized with the establishment of water users associations made up of local farmers.

17. The *ayil kenesh* is responsible for preparing a balanced budget. The budget covers the costs of the local administration, including the cost of the staff. In addition to the administration staff, the village budget can support health workers, medical staff of the village clinic and hospital, library, clubs, bathhouses (*banyas),* and technical school support staff. It can also be used to rehabilitate schools, health posts, clinics, and local village roads. However, the teaching and administrative staff of schools are paid from the *rayon* budget. The income of the village administration comes from the *rayon*. However, the amount received represents up to 25 percent of the earnings of the village from the land tax, and 100 percent of income comes from such sources as different fees and service charges, rent, and any profits from commercial operations received by the *ayil okmoto*. The payment of taxes includes both current taxes and the repayment of arrears.

18. Informal and traditional community-based organizations (CBOs) are playing a large role in the development of rural and urban areas. In most rural communities there are several CBOs operating. Many CBOs were developed during Soviet times. Examples of these are women's committees, veteran's councils, youth committees, and *kwartels* (block organizations). The *kwartels* reflect other traditional CBOs such as those based on the *uruu* (a family subgroup, who traditionally live together as a nomadic subtribe), or the *onbashy* (another form of family subgroup), or the *mahalla* (the neighborhood organization, which has its roots in Moslem organizational structures). An important CBO is the traditional elders council (*aksaldar sotu)*. The main function of the *aksaldar* is to resolve conflicts and disputes before cases are taken to a higher authority or the courts. They also protect traditions and set community values. These are well recognized and respected in most parts of the country, and are expected to play an important role in mobilizing community support for infrastructure projects in the villages. It is through these informal organizations that the traditional self-help (*ashar*) system is arranged to undertake work necessary for the whole community.

19. Two influential organizations operate in the schools. These are the parent's committees and school pedagogical councils. The parent's committee is an annually elected committee for each school year, which is established at a school meeting. The chair of the committee should be included on the school pedagogical council. This committee provides a board for the school, which decides on the level of contribution to be made by each parent and the use of the money so raised. The money raised could be used to upgrade sanitation. However, a growing number of informal CBOs have begun to emerge with the transfer of powers and assets to the local government level, especially at this time of financial deprivation. It is increasingly recognized that rural communities must rely on their own resources. This suggests a major shift in the thinking of people in the villages. Many of the leaders of these informal action-oriented NGOs are women. Supporting this move has been the increased use of NGOs for channeling funds from international funding agencies, in particular bilateral funding sources, such as USAID and Helvetas. The local NGOs are, however, generally weak. With the use of NGOs as channels for assistance, a number of NGOs were established for the sole purpose of enabling the founders to access the funds available, but with little ability to aid the development process. Under the present tax code, NGOs are treated as any other commercial company that must pay income and profit (corporation) tax on its earnings over its expenditures. This makes efforts by NGOs to undertake some commercial activities to fund future projects nearly impossible.[7] Exemption from this ruling can only be achieved by a special Government decree.

[7] Despite these difficulties, a number of NGOs are working successfully to help local community based NGOs set up water users councils and associations to develop clean water. Examples can be found in *Alay rayon*, Osh oblast, where the International Water Secretariat and USAID through counterpart consortium have assisted Atajurt establish water systems in five villages.

4. Water Sources and Availability

20. In the villages surveyed, only 32 percent of households had access to a piped water supply system. Thirty-three percent use the river and a further 9 percent irrigation channels. Fifteen percent had water delivered by truck. The remainder used private wells or other sources. Twenty-seven percent of all households had to travel more than a kilometer to the source, while less than half were within 200 meters of their main source of water. Approximately 57 percent thought their water tasted, looked, and smelled good, while around 15 percent thought they had bad water. The remainder were ambivalent. Sixty percent complained that their main source of water was not available all year. The main reasons given were the poor state of the equipment and freezing of the source. In urban areas, 40 percent had individual connections to their house or yard, while 41 percent had access to water from a public standpipe in the street. However, 19 percent had no convenient or safe supply. Some of those who used the public standpipe had to walk more than 300 meters, and 6 percent had to travel more than 1 kilometer to collect water. Thirty-six percent complained that water was not available all year, primarily because of inadequate pressure due to the poor equipment or lack of capacity. While 78 percent were happy with the quality of water, 11 percent thought it bad, which suggests that most who received piped water were happy with its quality, if not with its regularity.

5. Sewerage and Sanitation Services

21. In all the villages surveyed, almost all households used simple pits, which once full, are covered and a new one is dug. The most frequent form of wastewater disposal is to throw it in the yard or into an open pit in the garden. Only 2 percent have septic tanks. The majority (about two thirds) bathe at home, while 32 percent use public or private bathhouses. When asked where they would prefer to bathe, 68 percent mentioned public bathhouses. However, in many places the bathhouse no longer works, either having broken down or because of the lack of water. In urban areas, 71 percent still use simple pit latrines as in rural areas, while another 4 percent use ventilated pit latrines. Only 18 percent have septic tanks or are connected to main sewers. The rest have no individual toilets and use public toilets. For bathing, 43 percent bathe exclusively at home, while more than half use the public *banya*. When asked where they would prefer to bathe, the only significant change was in the increase of those who would like the option of bathing at home, which presumably is not presently possible due to the poor supply of water. Presently, half of all households dispose of their wastewater in open pits as in rural areas. Only 23 percent have a septic tank or are connected to main sewers.

6. Perceived Needs for Services

22. Water was perceived as the highest priority for all the villages surveyed, it was mentioned by over 95 percent of all households. Improvements in local power supplies and medical services were ranked as important by over half the respondents in all villages. Improvements to roads were also considered important by more than half the households in over half the villages. Sanitation was not recognized as a priority by many people. Less than 7 percent sought improved individual toilets, and 13 percent wanted improved school toilets. Bathhouses were, however, a perceived need for about 60 percent of all households surveyed. In the urban areas, the perceived need for water was less strong in Kant, which has a water supply system, than in Uzghen where the water supply coverage is less complete and problems are more acute. Improvements to the roads and solid waste collection systems were perceived as the next highest need with approximately 44 percent of households identifying these as important. Improvement to power supplies and gas connections was considered less important than improving the sewerage system. Approximately a third of the population in both towns perceived any improvement in sanitation to be important.

7. Willingness to Pay

23. The residents of the villages were asked whether they would be willing to make advance payments for the construction of the water supply systems, as well as improvements to their own wastewater and sanitation systems. Twenty-three percent expressed a willingness to pay in advance for the development or improvement of the water supply system. However, in practice, they all have, either with cash, produce for barter, or human resources, or the use of equipment. All those who wanted to improve their wastewater disposal system (approximately a quarter) said they were willing to pay. Of these, approximately 84 percent mentioned an initial cost contribution of about Som200 per capita. Of those who wished to improve their toilet, the households said they were willing to pay an amount similar to that for the wastewater systems. Both these systems need to be designed without expensive materials or equipment.

24. The willingness to pay analysis in the core communities shows that about 60 percent of the households have monthly income of less than Som1,000 and the average household consists of five to six family members. The surveyed households stated that water supply in their community was insufficient and a 45 percent increase of the existing supply is needed. Fifty-one percent expressed their willingness to have their own house connection. They are willing to pay an average Som1,000 for a connection and to spend an average of Som30-50 (or Som5-10 per person) for monthly water bills; on average, this represents the actual average expected connection fee and monthly water bills of the subprojects. Using least-cost design and providing for lifeline tariff for the poorer, the proposed subprojects are affordable. The households with house or yard water supply connections will be charged a higher fee than poorer households served by public standpipes. The tariff increases would be affordable at 3-5 percent of the monthly household incomes of the poorer population.

D. Social Impact

25. The Project will contribute to improvements in health and will provide an opportunity to strengthen the role of women in the community and thereby raise their status. It will also lessen the burden on women as the main collectors of water and the nurse of the sick affected by unsanitary conditions. Time will be saved and improved health should result in improvements in greater productive capacity of the whole population. In the urban areas, improved water supply and sanitation systems should improve the attractiveness of these towns for investment and hence employment. This should have a positive impact on the level of poverty presently found. Both rural and urban subprojects will provide employment opportunities for residents, both in the construction or repair of water supply and sanitation systems, as well as in the management of the systems. All the water users councils will require some accounting services and there is a strong tradition for women to enter this profession. It is expected that women, by being involved in both the councils and in the management of *vodakanals*, (urban water and sewerage agencies) will be empowered, and that this will result in further initiatives being developed by them.

ADVISORY TECHNICAL ASSISTANCE
INSTITUTIONAL STRENGTHENING FOR COMMUNITY BASED INFRASTRUCTURE SERVICES

A. Objective and Scope

1. The main objective of the technical assistance (TA) is to strengthen the sector institutions and create the appropriate management systems for the smooth implementation of the Project. The TA will focus its activities to develop good implementation practices using the core subproject sites studied under the project preparatory TA.[1] It will (i) 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 (ii) propose a model for the management by the water users councils (WUCs). The TA will help strengthen the capacity at both the central and provincial government levels to manage the Project. This will be done by developing and undertaking (i) the training for project procurement, and (ii) the training for the project performance monitoring system (PPMS).

B. Cost Estimates

2. The cost of the TA is estimated at $765,000 equivalent, of which $537,000 is foreign exchange cost and $228,000 equivalent the local currency cost. Of this, $650,000 equivalent is proposed to be financed by the Asian Development Bank (ADB) on a grant basis from the Japan Special Fund funded by the Government of Japan; this comprises the entire foreign exchange cost and $113,000 equivalent of local currency cost. The Government will finance the remaining $115,000 equivalent of local currency costs. The estimated costs and financing plan are in Table A14.

C. Implementation Arrangements

3. The Executing Agency for the TA will be the Ministry of Agriculture and Water Resources (MAWR). During the TA the consultants will be appointed for the project management unit (PMU) and the project implementation units (PIUs) in the three project oblasts (Chui, Jalal-Abad, and Osh). The National Water Supply and Sanitation Committee (NWSSC) will be the steering committee for the Project, and will supervise the TA implementation to maximize the use of TA findings in promoting a community-based approach to basic infrastructure planning, development, operation, and management. The TA will be carried out over nine months, commencing in the third month of loan effectiveness. The consultants will be recruited through a consulting firm in accordance with ADB's *Guidelines on the Use of Consultants*.

D. Terms of Reference for the Consultants

4. A team of five international experts and nine domestic consultants will be engaged to provide 58 person-months of consulting services (18 international and 40 domestic).

1. Project Management Specialist/Team Leader (5 person-months, international)

5. The project management specialist will be fully familiar with setting up and managing ADB projects. The project management specialist will (i) review with MAWR and provincial administrations the implementation arrangements; (ii) prepare selection guidelines to prioritize project funding of subprojects; (iii) establish a procedure for assessing subproject applications; (iv) review the PPMS recommendations made for the Project, design the management information system (MIS); (v) identify the sources of data for the key indicators; (vi) prepare an operational manual and deliver short in-house training for the PMU and PIU staff on ADB procurement procedures; (vii) prepare guidelines for the evaluation of subprojects; and (viii)

[1] TA 3048-*KGZ: Community Based Infrastructure Services Sector Project,* for $600,000, approved on 20 July 1998.

review the first proposals based on standard ADB criteria for project preparation for two small and one large subprojects from each *oblast,* and submit them to ADB for approval.

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

6. The finance specialist will work closely with the project management specialist, MAWR, Ministry of Health (MOH), and provincial administrations, and will be responsible for installation of the financial reporting systems needed for use within the PMU and the three PIUs. In particular the finance specialist will (i) review the accounting procedures used by the provincial administrations that are relevant to project implementation; and design systems, procedures, and bookkeeping formats that will allow production of prompt and accurate financial reports each month and at the end of each year; (ii) provide training to staff members of the PIUs, PMU, MAWR, MOH, and provincial staff on accounting procedures and reporting; and (iii) develop procedures for the use of the imprest account; in conjunction with this, establish correct and transparent procedures for the handling of all claims and the disbursement of funds.

3. Community Participation and Institutional Development Specialist (5 person-months, international)

7. The community participation and development expert will (i) identify strategies to ensure meaningful community involvement in the choice of priority subprojects for the community; (ii) identify training requirements of local government leaders and community leaders to ensure that they involve all sectors of the community, in particular the poor and women, in the decision-making process; (iii) develop a strategy to ensure participation by all sectors of the community in setting service levels for water supply and the level of tariffs; (iv) prepare detailed proposals for institutional arrangements to manage water supply and sanitation systems; and (v) prepare a manual on establishing WUCs and boards for municipal *vodokanals* (water and sewerage agencies).

4. Design Engineer/Project Procurement Specialist (4 person-months, international)

8. The design engineer will establish design standards for the detailed engineering design, and help procure services and materials for the implementation of TA. The specialist will (i) review design standards for detailed engineering design and specifications of all project civil works for water supply and sanitation facilities; (ii) prepare training curriculum for potential contractors on appropriate design standards for water supply and sanitation system design; (iii) undertake in-house training of PIUs and PMU staff in appropriate engineering standards and preselection of contractors; and (iv) help the provincial administrations in three provinces (Chui, Jalal-Abad, and Osh) prepare the tender documents for contracting materials and services required for the subprojects.

5. Training Development Specialist (2 person-months, international)

9. The training development specialist will prepare detailed proposals to ensure the availability of sustainable training of those involved in the management, operations, and maintenance of water supply and sanitation systems. The training development specialist will (i) review the availability of training courses and their contents in water supply and sanitation, as well as community development and motivation, which might be accessed by those living in Chui, Jalal Abad, and Osh; (ii) develop a list of organizations and training institutes, universities, and Government agencies that will be involved and the nature of their involvement; and (iii) prepare a business plan for training centers.

6. Community Development Specialists (23 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 the leaders of CBOs in methods of mobilizing the community so that all sectors are involved in the decision making and train them in methods of establishing WUCs in different local cultural environments.

7. Training Specialist in Water Supply Systems (6 person-months, domestic)

11. The training specialist will work closely with the design engineer in (i) developing the training for provincial and village governments and other design institutes; (ii) delivering training in each oblast; and (iii) monitoring the work of the design consultants in the core subprojects.

8. Training Specialist in Sanitation Systems (6 person-months, domestic)

12. The training specialist in sanitation systems will work closely with the training development specialist in identifying the existing training infrastructure available. The training specialist will also work closely with the design engineer in (i) developing the training for provincial and village governments and other design institutes; (ii) delivering training in each oblast; and (iii) monitoring the work of the design consultants in the core projects.

9. Social Sector Specialist (5 person-months, domestic)

13. The social sector specialist will (i) develop mechanisms and instruments for monitoring the impact of the project on local level of poverty and on women's involvement in the planning, implementation and management; (ii) train members of the PMU and PIUs in the use of the PPMS, and the data collection and analysis systems; (iv) assist the PIUs in gathering the data required, and (v) help the PMU in analyzing the data and preparing monitoring reports.

E. Study Tour

14. The study tour is designed to provide key decision makers with a clearer idea of what is intended by the Project in terms of least cost, and cost recovery of water and sanitation subprojects. It will help the decision makers understand and implement the objectives of the Project.

Table A14: Cost Estimates
($'000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultant	354	0	354
ii. Domestic Consultant	0	64	64
b. International and Local Travels	45	2	47
c. Reports and Communications	9	0	9
2. Equipment	9	0	9
3. Training, Seminars, and Workshops	0	8	8
4. Study Tour	40	0	40
5. Miscellaneous Administration and Support Costs	0	25	25
6. Representatives for Contract Negotiations	10	0	10
7. Contingencies	70	14	84
Sub Total (A)	**537**	**113**	**650**
B. Government Financing			
1. Counterpart Staff Remuneration	0	32	32
2. Office Accommodation and Utilities	0	48	48
3. Studies, Data, and Reports	0	8	8
4.Transportation and Drivers	0	10	10
5. Contingencies	0	17	17
Sub Total (B)	**0**	**115**	**115**
Total	**537**	**228**	**765**

ECONOMIC AND FINANCIAL ANALYSES

1. Eight rural and two urban representative core subprojects were subjected to economic and financial evaluation to determine their viability. Viability was established by computing the economic and financial internal rates of return (EIRRs and FIRRs) following Asian Development Bank (ADB) *Guidelines for the Economic Analysis of Water Supply Projects*. The rural water supply, and urban water and sewage components were subjected to analysis. These components make up about 90 percent of the physical infrastructure costs of the Project. The economic analysis of the urban subprojects combines both water supply and sewage components, and produces a single EIRR for both components.

A. Economic Analysis

1. Assumptions and Methodology

2. The calculations were based on 1999 constant prices. The financial costs were converted to economic costs by excluding taxes and duties, as well as price contingencies, and using a domestic price numeraire. Financial costs were converted to economic costs for tradable goods using a shadow exchange rate factor (SERF) of 1.0. There is no general guidance available on the standard conversion factors (SCFs) or SERFs appropriate for the Kyrgyz Republic. Previous projects in the highway sector have used an SCF of 0.9, but this is for Kazakhstan and the Kyrgyz Republic jointly. An agricultural project used an SCF of 0.98 for agricultural projects in the Kyrgyz Republic. The World Bank's project analysis for rural projects has used an SCF of 1.0 assuming no discernable distortions, and therefore a reciprocal SERF of 1.0 was used in this case. For nontraded goods and services, a shadow wage rate (SWR) for unskilled labor has been used following estimates made for Kyrgyz agricultural and highway projects, and taking account of the relatively high and increasing underemployment of labor. Annual operation and maintenance costs are in constant terms. For land, fair market value was considered as the best approximation of its opportunity cost. Economic benefit streams include economic cost savings, time savings, and the value of nontechnical losses in unaccounted for water (UFW) consumed but not paid for in urban areas generated by the subprojects and projected over a period of 25 years. Specifically the analysis includes the following:

(i) The value of nonincremental outputs replacing existing supplies were distinguished from incremental benefits that expand supply to meet new or additional demands as a result of new populations served or induced demand from existing populations. The Project will increase the population coverage with access to safe and adequate water supply from the existing 40 percent to 80 percent in the project villages. In view of the very low level of existing services, incremental demand is a significant component representing about half of the total benefits. Nonincremental water is valued based on existing supply price but volumes are low as most is carried from rivers or purchased from vendors at high prices. Incremental water is valued at the average demand price projecting a growing use from piped sources and with new populations served. The proportion of incremental water to nonincremental water sold varies by subproject from 2.3 times for Tegirmenty to 0.8 times for Saz, but is typically around twice as much. The main direct cost savings, are time savings, which are also significant, however, and as a result incremental benefits in rural subprojects range from 35 percent of total benefits in Saz to 71 percent in Tegirmenty. In urban subprojects there are also nonrevenue water (NRW) benefits, so incremental water is typically 35 to 55 percent.

(ii) Cost savings valued in terms of (a) the savings in direct costs, which are flat rate tariffs limited only to piped water sold in the two urban areas and a partial service

in one rural area, and (b) savings in not having to buy water from private water vendors including that bought when other sources such as rivers and irrigation channels are frozen or dry. Cost savings from not having to buy water from commercial water vendors were estimated by multiplying the average consumption of water that households bought from vendors without the subproject by the cost of water from these vendors.

(iii) Cost savings for households connected to existing piped water systems were estimated by multiplying the average monthly consumption per household by the difference between the tariff currently charged and the average price of water with the subproject.

(iv) Time savings are substantial in nearly all the rural areas and some parts of the towns. These have been estimated direct from survey evidence multiplying the average time spent each day to fetch water by the assumed value of time in the subproject area using an unskilled agricultural wage rate as the value of time. Time savings are included as part of overall cost savings.

(v) The value of UFW nontechnical losses could be estimated only for the urban areas where data is available on total water production and some water meter data for Kant is available. Total UFW losses are high—around 70 percent—but most of these are technical losses. In view of the inaccuracy of the available data, nontechnical losses are estimated at only around 10 percent for the two towns and are not a significant component of benefits.

3. Estimates of present and future consumption were based on survey results, some limited metered data on consumption from Kant, international standards and experience on demand, and estimates based on a surrogate demand curve derived from survey results on willingness to pay and calibrated using metered demand data and other sources. To estimate market dynamism, without- and with-subproject scenarios were evaluated for all expected economic benefits. Morbidity and mortality due to water-related diseases as measured in the social surveys are significant in the subproject areas and form part of the evaluation. However these have not been included in the cost-benefit analysis. The Project is expected to generate significant health benefits by providing safe, potable water to the beneficiaries. The sanitation and bathhouse program will complement and reinforce the economic benefits associated with the Project and ensure that initial gains will be enhanced and sustained.

2. Economic Internal Rates of Return

4. The major indicators of economic viability are summarized in Table A15.1. All core subprojects were evaluated to be economically viable. Following ADB guidelines, the economic opportunity cost of capital was set at 12 percent. EIRRs were computed to be over the economic opportunity cost of capital of 12 percent and range widely from about 13 to 38 percent. In the rural subprojects EIRRs are as follows: (i) Kydyrsha 28.2 percent, (ii) Kyzyl Ordo 38.2 percent, (iii) Abdraimov 38.1 percent, (iv) Dostuk 13.0 percent, (v) Safarovka 33.6 percent, (vi) Tegirmenty 14.1 percent, and (vii) Saz 34.5 percent. In the towns, the combined water and sewerage EIRRs were 14.1 percent in Kant, and 32.7 percent in Uzghen. An economic analysis of Kosh Korgon was not carried out in view of the very high unit costs, small population that benefits, and the decision of the case study to incorporate the subproject into the nearby Uzghen urban subproject. The average EIRR for rural subprojects is 28.5 percent, reflecting a generally high level of benefits, particularly in induced increases in demand, time savings, and in some cases the reduction of significant vended water charges. It also reflects relatively low unit costs of improving water systems, particularly where the high costs of taxes and duties are excluded from the economic costs. In cases such as Uzghen, where a low cost sewage option

has been selected and Kyzyl Ordo where significant time and vended water savings are made, EIRRs are very high. The lower level of return for the Kant subproject reflects the higher costs of a full sewage scheme.

5. These EIRRs were subjected to sensitivity analysis using the following parameters: (i) 10 percent increase in capital cost, (ii) 20 percent decrease in benefits, (iii) a combination of 5 percent increase in capital costs and 10 percent decrease in benefits, and (iv) one-year delay in benefits. Switching values have also been estimated for costs and benefits. Only two subprojects became marginally nonviable within acceptable ranges of sensitivity under adverse circumstances. It should be noted that this analysis excludes the significant health and environmental benefits from these quantified results.

Table A15.1: Summary of Economic Analysis

Subproject	Economic Evaluation Base EIRR Percent	Sensitivity Tests Costs plus 10 percent	Benefit less 20 percent	Costs +5% & Benefit −10%	Benefit Delay 1 Year	Switching Values	
						Costs	Benefits
Urban Water Supply and Sewerage Services							
Kant	14.1	10.0	5.4	7.8	9.6	4.7	4.5
Uzghen	32.7	22.8	12.5	17.9	17.2	25.8	20.5
Rural Water Supply							
Kydyrsha	28.2	25.1	21.2	23.3	21.9	81.0	44.8
Kyzyl Ordo	38.2	34.3	29.7	32.1	28.7	144.2	59.1
Kosh Korgon	—	—	—	—	—	—	—
Abdraimov	38.1	34.2	29.6	32.0	28.6	145.7	59.3
Dostuk	13.0	11.3	9.2	10.3	11.0	5.8	5.5
Safarovka	33.6	30.2	26.1	28.3	25.9	126.1	55.8
Tegirmenty	14.1	12.5	10.4	11.5	12.0	13.3	11.7
Saz	34.5	31.0	26.8	29.0	26.4	129.5	56.4

— = not available, EIRR = economic internal rate of return.

B. Financial Analysis

6. Financial evaluations were conducted for all rural and urban core subprojects. Financial evaluations were conducted by calculating the FIRRs. Costs and revenues were evaluated at constant 1999 prices. Investment costs for the rural program include the capital costs of rehabilitation, expansion of existing water supply systems, and construction of new systems. In the urban areas, water supply and sewerage systems are analyzed separately. Capital costs include expansion of existing water supply systems, rehabilitation of the treatment plant in Kant, installation of septic tanks in Uzghen, development of pumping and distribution facilities, and construction of new connections. Operating costs cover the incremental labor, power, chemicals, repairs and maintenance, emptying, carriage, and disposal of septic tanks in Uzghen, and administrative costs projected over 25 years. The weighted average cost of capital (WACC) was computed at 0.9 percent based on the following parameters:

Loan Source	Weight	Loan Rate (%)
ADB	80	1.00
Government	20	13.30
Total	100	
WACC nominal		3.46
Inflation rate (foreign)	0.025	2.50
WACC, real (1+0.0346)/(1+0.025)-1		**0.90**

ADB = Asian Development Bank, WACC = weighted average cost of capital.

7. All core subprojects were evaluated to have FIRRs higher than the WACC and are therefore financially viable. FIRRs in the rural subprojects are as follows: (i) Kydyrsha 14.1 percent, (ii) Kyzyl Ordo 13.7 percent, (iii) Kosh Korgon 4.7 percent, (iv) Abdraimov 13.5 percent, (v) Dostuk 7.0 percent, (vi) Safarovka 13.2 percent, (vii) Tegirmenty 14.4 percent, and (viii) Saz 12.9 percent. In the towns, FIRRs were 8.4 percent for water supply and 13.5 percent for sewerage in Kant, and 6.2 percent for water supply and 5.8 percent for sewerage in Uzghen. These were subjected to sensitivity analysis using the following parameters: (i) 10 percent increase in capital cost, (ii) 20 percent decrease in benefits, (iii) a combination of 5 percent increase in capital costs and 10 percent decrease in benefits, and (iv) one-year delay in benefits. These were found to be satisfactory compared with the WACC in all cases. The average FIRR for the eight rural water supply subprojects is about 11 percent. The tariffs have been estimated on a full cost-recovery basis and found to be sufficient to cover all financial requirements of the water providers including capital, operation, maintenance, and replacement costs. The tariff increases will be affordable at 3-5 percent of the monthly household incomes of the poor project beneficiaries.

1. Revenues

8. For subprojects in rural and urban areas, both with and without existing water systems, tariff rates were determined based on financial operations requirements with existing tariffs, affordability, average household income levels, and willingness-to-pay data as reference data. The proportion of household income used to pay for water should not exceed 5 percent. In low income and high poverty level areas the proportion should range from 3 to 5 percent. The impact on affordability limits is examined in paras. 10-12.

2. Financial Internal Rates of Return

9. The major indicators of financial viability are summarized in Table A15.2. All 10 core subprojects were found to be financially viable, with FIRRs ranging from 4.7 to 14.4 percent. The same sensitivity tests used in the economic analysis were used. All subprojects were evaluated to be within acceptable ranges of sensitivity under adverse circumstances.

Table A15.2: Summary of Financial Analysis

Subproject	Base FIRR (percent)	Sensitivity Tests: Costs +10%	Revenue –20 %	Costs +5% and Revenue –10%	Revenue delayed 1 year	Switching Values: Costs	Revenue
Urban Water Supply							
Kant	8.4	5.1	1.0	3.2	5.8	19.3	16.2
Uzghen	6.2	3.6	1.8	2.8	3.9	14.6	12.8
Urban Sewerage							
Kant	13.5	10.6	7.1	9.0	10.2	49.8	33.2
Uzghen	5.8	4.6	2.9	3.8	4.6	29.2	22.6
Rural Water Supply							
Kydyrsha	14.1	11.6	8.4	10.1	11.1	59.8	37.4
Kyzyl Ordo	13.7	11.6	8.8	10.3	11.2	70.9	41.5
Kosh Korgon	4.7	2.8	0.2	1.7	3.5	11.9	10.6
Abdraimov	13.5	11.3	8.7	10.1	11.0	70.3	41.3
Dostuk	7.0	5.4	3.3	4.4	5.7	31.1	23.7
Safarovka	13.2	11.3	8.8	10.1	10.9	77.8	43.8
Tegirmenty	14.4	12.6	10.4	11.6	12.2	112.9	53.0
Saz	12.9	10.8	8.2	9.6	10.5	68.4	40.6

FIRR = financial internal rate of return.

C. Affordability Analysis

10. Affordability analysis was conducted of the case study subprojects to examine the affordability of the proposed water charges with reference to the recommended limit of 3-5 percent of monthly household income. Tariffs used in the analysis were for 2010 when the cost-recovery analysis shows that they will have settled to their fixed level following the initial construction, operation, and five year gradual adjustment periods. The analysis was therefore conducted using an estimate of average household incomes in 2010 based on the survey results for 1999, and applying a real growth factor of 3 percent per annum. There is no reliable income trend or projection data for the Kyrgyz Republic but in the medium to long term a rate of 3 percent per annum represents a fairly conservative approach to estimating affordability. In view of the lack of reliability of data the average household expenditure for water and average household incomes were subjected to sensitivity analysis to analyze affordability under adverse circumstances using the following parameters: (i) increase rates by 10 percent, (ii) decrease average household income by 10 percent, and (iii) both (i) and (ii).

11. Affordability analysis proved to be satisfactory, with the percentage of average monthly household expenditure to be spent on water varying from 0.7 to 4.1 percent with two exceptions. The average affordability level for the nine water supply core subprojects analyzed is 3.1 percent. The exceptions are, firstly, Dostuk where affordability reaches 5.0 percent. Dostuk is a village of 1,570 people to be served by the proposed system; there are no economies of scale. The second exception, Kosh Korgon, where tariffs would be nearly 35 percent of income, demonstrates that this small village of just over 500 population cannot be economically or affordably served. The subproject case study therefore recommends that it should be incorporated into the adjoining Uzghen urban system at marginal additional cost; it is excluded from the analysis. Sensitivity analysis showed satisfactory results under the most adverse circumstances, with percentages ranging from 0.8 to 6.5 percent. The analysis demonstrates the affordability of urban sewerage systems. The proposed improvement and extension of the existing Kant system would produce average full cost-recovery tariffs of 4.8 percent of income. The lower cost of the option with a new septic tank chosen for Uzghen represents only 1.4 percent of income. A summary of the evaluation is shown in Table A15.3.

Table A15.3: Affordability Analysis

Subproject	Average Household Income Per Month (Som) 2010	Proposed Household Tariff per Month (Som) 2010	Tariff as Percentage of Income (%)	Sensitivity (%)		
				Tariff +10 Percent Income	–10 Percent	Both
Rural Water and Sanitation						
Kydyrsha	950	27.70	2.9	3.2	3.2	3.6
Kyzyl Ordo	1296	34.10	2.6	2.9	2.9	3.2
Kosh Korgon	1064	—	—	—	—	—
Abdraimov	796	19.70	2.4	2.7	2.7	3.0
Dostuk	1378	68.90	5.0	5.5	5.5	6.1
Safarovka	1425	49.90	3.5	3.9	3.9	4.3
Tegirmenty	2874	87.20	3.0	3.3	3.4	3.7
Saz	2315	17.40	0.7	0.8	0.8	0.9
Urban Water Supply						
Kant	1642	54.80	3.3	3.7	3.7	4.1
Uzghen	1165	47.40	4.1	4.5	4.5	5.0
Urban Sewerage						
Kant	1642	79.60	4.8	5.3	5.3	5.9
Uzghen	1165	16.22	1.4	1.5	1.5	1.7

— = not available.

D. Full Cost Recovery

12. In line with the Government's policy to discourage Government subsidy and to encourage the adoption of a corporate approach in managing public service enterprises, water tariff rates are set at levels that would recover capital costs while providing enough funds for operation and management costs and depreciation. The recovery of capital costs will ensure the availability of funds for asset replacement after the life of the Project.