

PROJECT COMPLETION REPORT

ON THE

**PROVINCIAL TOWNS BASIC URBAN SERVICES PROJECT
(Loan 1560-MON[SF])**

IN

MONGOLIA

March 2003

CURRENCY EQUIVALENTS

Currency Unit – togrog (MNT)

		At Appraisal (June 1997)	At Project Completion (June 2002)
MNT1.00	=	\$0.00125	\$0.00091
\$1.00	=	MNT800	MNT1,105

ABBREVIATIONS

ADB	–	Asian Development Bank
BME	–	benefit monitoring and evaluation
EIRR	–	economic internal rate of return
FIRR	–	financial rate of return
GIACUDPU	–	Government Implementing Agency for Construction, Urban Development, and Public Utilities
MIS	–	management information system
MOFE	–	Ministry of Finance and Economy
MOI	–	Ministry of Infrastructure
NRW	–	nonrevenue water
O&M	–	operation and maintenance
PIU	–	project implementation unit
PMO	–	project management office
p-m	–	person-month
PUSO	–	public urban services organization
TA	–	technical assistance

NOTES

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

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BASIC DATA

A. Loan Identification

1.	Country	Mongolia
2.	Loan Number	1560-MON (SF)
3.	Project Title	Provincial Towns Basic Urban Services Project
4.	Borrower	Ministry of Finance and Economy
5.	Executing Agency	Ministry of Infrastructure
6.	Amount of Loan	SDR5,013,000
7.	Project Completion Report Number	PCR:MON 732

B. Loan Data

1.	Appraisal	
	– Date Started	16 Jun 1997
	– Date Completed	7 Jul 1997
2.	Loan Negotiations	
	– Date Started	25 Aug 1997
	– Date Completed	27 Aug 1997
3.	Date of Board Approval	30 Sep 1997
4.	Date of Loan Agreement	17 Feb 1998
5.	Date of Loan Effectiveness	
	– In Loan Agreement	17 May 1998
	– Actual	18 Aug 1998
	– Number of Extensions	1
6.	Closing Date	
	– In Loan Agreement	30 Jun 2002
	– Actual	6 Jan 2003
	– Number of Extensions	none
7.	Terms of Loan	
	– Interest Rate	1 percent
	– Maturity (number of years)	40
	– Grace Period (number of years)	10
8.	Terms of Relending (if any)	
	– Interest Rate	Nominal 10 percent
	– Maturity (number of years)	20
	– Grace Period (number of years)	5
	– Second-Step Borrower	Public Utility Service Organizations

9. Disbursements

a. Dates

	Initial Disbursement	Final Disbursement	Time Interval
	7 Dec 1998	13 Dec 2002	48 months
	Effective Date	Original Closing Date	Time Interval
	18 Aug 1998	30 Jun 2002	46 months

b. Amount (SDR million)

Category or Subloan	Original Allocation	Last Revised Allocation	Amount Canceled	Net Amount Available	Amount Disbursed	Undisbursed Balance
Civil Work	2.167	1.463	(0.704)	1.463	1.467	(0.003)
Equipment	1.438	2.395	0.957	2.395	2.364	0.031
Proj. Imp.	0.612	0.707	0.095	0.707	0.696	0.010
Inst. Dev.	0.265	0.352	0.087	0.352	0.279	0.073
Service Chg	0.096	0.096	0.000	0.096	0.069	0.026
Unallocated	0.435	0.000	(0.435)	0.000	0.000	0.000
Total	5.013	5.013	0	5.013	4.875	0.137

10. Local Costs (Financed)

- Amount (\$)	1.67 million
- Percent of Local Costs	54.25 percent
- Percent of Total Cost	21.56 percent

C. Project Data

1. Project Cost (\$ million)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	4.47	4.64
Local Currency Cost	4.03	3.06
Total	8.50	7.70

2. Financing Plan (\$ million)

Cost	Appraisal Estimate			Actual		
	Foreign	Local	Total	Foreign	Local	Total
Implementation Costs						
ADB-Financed	4.34	2.33	6.67	4.55	1.67	6.31
Borrower-Financed	0.00	0.84	0.84	0.00	1.39	1.39
Other External Financing	0.00	0.23	0.23	0.00	0.00	0.00
Total	4.34	3.40	7.74	4.55	3.06	7.61
IDC Costs						
ADB-Financed	0.13	0.00	0.13	0.09	0.00	0.09
Borrower-Financed	0.00	0.00	0.00	0.00	0.00	0.00
Other External Financing	0.00	0.63	0.63	0.00	0.00	0.00
Total	0.13	0.63	0.76	0.09	0.00	0.09

ADB = Asian Development Bank, IDC = interest during construction.

3. Cost Breakdown by Project Component (\$ million)

Implementation Costs	Appraisal Estimate			Actual		
	Foreign Currency	Local Currency	Total	Foreign Currency	Local Currency	Total
A. Physical Infrastructure and Equipment						
1. Civil Works	0.91	1.95	2.86	0.59	1.78	2.37
2. Equipment and Others	1.95	0.20	2.15	3.01	0.79	3.80
Subtotal (A)	2.86	2.15	5.01	3.60	2.57	6.17
B. Project Implementation Assistance and Institutional Development						
1. Project Implementation Assistance	0.61	0.49	1.10	0.67	0.40	1.07
2. Institutional Development	0.28	0.11	0.39	0.28	0.09	0.37
Subtotal (B)	0.89	0.60	1.49	0.95	0.49	1.44
Total Base Cost (A + B)	3.75	2.75	6.50	4.55	3.06	7.61
C. Contingencies						
1. Physical	0.34	0.26	0.60	0.00	0.00	0.00
2. Price	0.24	0.40	0.64	0.00	0.00	0.00
Subtotal (C)	0.58	0.66	1.24	0.00	0.00	0.00
D. Fees and Charges						
1. Service Charge on Bank Loan	0.13	0.00	0.13	0.09	0.00	0.09
2. Interest During Construction	0.00	0.63	0.63	0.00	0.00	0.00
Subtotal (D)	0.13	0.63	0.76	0.09	0.00	0.09
Total	4.47	4.03	8.50	4.64	3.06	7.70

4. Project Schedule

Item	Appraisal Estimate	Actual
Date of Contract with Consultants	Apr 1998	Jun 1998
Completion of Engineering Designs	Oct 1998	Oct 1999
Civil Works Contract		
Date of Award	Mar 1999	May 2000
Completion of Work	Oct 2001	Oct 2001
Equipment and Supplies		
Dates		
First Procurement	Dec 1998	Sep 1999
Last Procurement	Mar 1999	Aug 2001
Completion of Equipment Installation	Oct 2001	Nov 2001
Start of Operations		
Completion of Tests and Commissioning	Oct 2001	Nov 2001
Beginning of Start-Up	Dec 2001	Dec 2001
Reallocation of Loan Proceeds		Jan 2002
Loan Closing	Jun 2002	Jan 2003

5. Project Performance Report Ratings

Implementation Period		Ratings	
		Development Objectives	Implementation Progress
From 24 Nov 2000	to 18 Jan 2001	Satisfactory	Satisfactory
From 31 Dec 2000	to 31 May 2001	Highly satisfactory	Satisfactory
From 30 Jun 2001	to 31 Aug 2001	Satisfactory	Satisfactory
From 30 Sep 2001	to 30 Sep 2002	Highly satisfactory	Satisfactory

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members ^a
Appraisal ^b	16 Jun–7 Jul 1997	6	105	a,b,c,d,e,f
Loan Negotiation ^c	22–29 Aug 1997	2	6	c,i
Special Project Administration Review ^d	11–14 Oct 1998	1	4	a
Inception	2–15 May 1999	2	28	g,h
Review 1 ^d	6–12 Dec 1999	1	7	a
Review 2 ^d	4–10 May 2000	2	14	g,h
Midterm Review	5–20 Mar 2001	3	37	g,h,j
Review 3 ^e	22–30 Oct 2001	2	18	h,k
Review 4	11–17 Jun 2002	3	14	g,h,j
Project Completion Review ^f	21 Oct–4 Nov 2002	4	37	g,h,j,l

Note:

^a a-Economist/Project Officer, b-counsel, c-Programs Officer, d-Financial Analyst-Staff Consultant, e-Institutional Expert/Staff Consultant, f-Procurement Specialist, g-Project Administration Specialist /Staff Consultant, h-Urban Economist/Project Officer, i-Financial Analyst(Chief Negotiator), j-Assistant Project Analyst, k-Young Professional, l-Economist (Mongolia Resident Mission)

^b In conjunction with fact finding for House Privatization Utility Services technical assistance

^c In conjunction with TA 2679-MON: Strengthening of Local Government and Decentralization II

^d In conjunction with TA 2881-MON:Capacity Building for Provincial Urban Services

^e In conjunction with project preparatory TA 3685-MON: Integrated Development of Basic Urban Services for Secondary Towns

^f The Project Completion Report was prepared by K. Choe, Urban Economist.

RUSSIAN FEDERATION

MONGOLIA PROVINCIAL TOWNS BASIC URBAN SERVICES PROJECT (as completed)



- National Capital
 - Provincial Capital
 - Administrative City
 - City/Town
 - Project Town
 - River
 - Provincial Boundary
 - International Boundary
- Boundaries are not necessarily authoritative.

I. PROJECT DESCRIPTION

1. Urban infrastructure in Mongolia deteriorated seriously in the 1990s as the economy worsened. The quality of life and productive capacity declined in the provincial towns, which function as economic and administrative service centers in the hinterland. Aiming to support decentralized authority and improve the economic situation of the provincial towns, the Government channeled assistance to the provincial towns that most needed infrastructure upgrading and financial aid. Accordingly, the Asian Development Bank (ADB) developed a Project to help provide improved urban services in five provincial capitals in western and northwestern Mongolia (Hovd, Moron, Olgiy, Ulaangom, and Uliastay).¹

2. The long-term goals of the Project were to (i) improve the health and living conditions of the residents in the provincial towns, and (ii) reduce inequality in access to urban services between residents of apartments and those of *ger* areas (informal settlements). The short-term objectives of the Project were to (i) improve the access to affordable basic urban services for the *ger* area residents, (ii) provide reliable urban infrastructure for apartment residents and other formal users, and (iii) strengthen the institutional and management capacity of local service providers. The project framework is in Appendix 1.

3. The Project included physical infrastructure works as well as institutional development and capacity-building components. The Project had two parts: Part A for physical infrastructure and equipment, and Part B for implementation assistance and institutional development. Part A comprised the following components: (i) rehabilitation of centralized water supply systems and improvement of water supply delivery and access for the residents of *ger* areas; (ii) replacement of old sewage treatment works with sewage lagoons and septic tanks, and rehabilitation of pumps and sewage collection network; (iii) development of new disposal sites closer to the towns and use of low-cost technologies in collecting and transporting waste to the sites; and (iv) rehabilitation of bathhouses in four towns and provision of two new bathhouses in the *ger* areas in each of the five project towns. Part B comprised the following components: (i) project implementation assistance including design, construction supervision, and assistance in procurement and disbursement; (ii) community participation and public health education; (iii) training in maintenance improvement; (iv) implementation of a water loss reduction program; and (v) benefit monitoring and evaluation (BME).

4. To establish service delivery institutions and management functions, the Project was accompanied by technical assistance (TA) to build capacity for the provision of urban services in provincial towns.²

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

5. Urban settlements in Mongolia have formal apartment areas separate from informal, often temporary, *ger* settlements. In sharp contrast to living conditions in the formal settlements, basic urban services in the *ger* areas are generally poor. The project design therefore emphasized the balanced development of formal and informal areas by providing reliable

¹ ADB. 1997. *Report and Recommendation of the President to the Board on a Proposed Loan to Mongolia for the Provincial Towns Basic Urban Services Project*. Manila.

² ADB. 1997. *Technical Assistance to Mongolia for the Capacity Building for the Provision of Urban Services in Provincial Towns*. Manila.

services for formal area residents and improving the access of ger residents to basic services. The project design was generally sound and relevant to the country's urban settlement pattern.

6. ADB's country strategy for Mongolia supports its transition to a market economy by helping to create an environment based on market principles, develop human resources, and facilitate cost-effective infrastructure development. The Government committed itself to a market economy in its Medium-Term Strategy approved in 1995. To improve productivity and the quality of life, it proposed to provide better urban services and adhere to market-oriented principles, including cost-recovery schemes for demand-driven infrastructure services. Emphasizing relending and cost recovery from subborrowers, the Project was formulated in line with the medium-term Government Action Program 1996–2000 at appraisal. Throughout implementation the Project remained consistent with the country's development goals and with ADB's operational strategy.

7. The scope of the Project was developed in close consultation with the communities and local and central government officials. The scope of work, cost estimates, and implementation arrangements prepared under the project preparatory TA were generally satisfactory.³ The relending rate was overestimated at appraisal, increasing the risks of low cost recovery and high tariff increases, but this was unavoidable given the macroeconomic instability in the country at the time.

B. Project Outputs

1. Part A: Physical Infrastructure and Equipment

8. The physical infrastructure and equipment components were fully completed as estimated at appraisal. Appendix 2 summarizes the physical infrastructure improvements and equipment supplied to each town, and compares them with the appraised targets.

9. **Water Supply.** The Project extended or replaced 12.7 kilometers (km) of water distribution lines, more than twice the appraisal target (5.5 km). Procurement of valves, pumps, electrical gear, cables, and new control panels all exceeded appraisal targets for the renovation or construction of 22 water well houses and six pumping stations. Centralized water supply systems now run 24 hours a day in all five towns.⁴ To monitor and reduce water loss and leakage, 522 flow and bulk meters were installed at various pumping stations and institutional public buildings. In addition, 595 water meters (for hot and cold water) were installed in apartment buildings. In ger areas, 43 new kiosks (8 tankered, 9 well, 4 hydrant, and 22 hand-pump kiosks) reduced the average walking distance to a water kiosk to less than 300 meters for most ger residents. The facilities are well run and used.

10. **Sanitation.** One new lagoon was built and one sewage pumping station was rehabilitated in each town, as envisaged at appraisal. Eight sewage pumps were renovated and Moron has a new sewage pump. A 9.3-km sewer network taking wastewater from formal areas to a sewage lagoon was rehabilitated and extended. Two septic tanks were installed in ger areas to collect sewage from public bathhouses, and a vacuum tanker was also procured for each town. These facilities are all well run and used.

³ ADB. 1997. *Technical Assistance to Mongolia for the Capacity Building for the Provision of Urban Services in Provincial Towns*. Manila.

⁴ Electricity supply breakdowns cut off the water supply at times.

11. **Solid Waste.** Instead of the animal carts envisaged at appraisal, a truck and a backhoe loader were procured for each of the five towns. The new dumping sites envisaged at appraisal were not built, as it was deemed more economical to improve the existing dumping sites. The use of backhoe loaders and guards to supervise the dumping activities substantially improved dumping sites in the five towns. Solid waste collection services covered all formal residents and 80% of the ger population, and random dumping was significantly reduced. These improved services are producing considerable environmental benefits. However, the services were not incorporated under the public utility services organizations (PUSOs) as envisaged at appraisal, as some services are still provided by local governments.

12. **Bathhouses.** This component was completed as appraised. A five-person-capacity bathhouse and a three-person-capacity bathhouse with sauna facilities have been built in each of the five towns. In addition, one big bathhouse with 30-person capacity was also renovated in each of the towns except Uliastay. The big bathhouse in Uliastay, which had been privatized, was not renovated. All bathhouses have opened for business.

13. Minor adjustments were made at the detailed engineering stage, mainly in water and sanitation to extend the networks and to renovate old pumping stations, and in solid waste collection to increase the operational efficiency of the services by providing trucks instead of animal carts or small tractors for waste collection. These modifications in design are considered minor and have added to the Project's benefits.

2. Part B: Project Implementation Assistance and Institutional Development

14. The institutional development component comprised four programs: (i) community participation and public health education, (ii) maintenance improvement, (iii) water loss reduction, and (iv) BME. No target indicators were provided at appraisal.

15. The community participation and public health program was well implemented. Hygiene committees were established in the project towns and the members, trained by the consultants, organized public education campaigns. The hygiene committees are continuing the public education campaigns for new residents.

16. Maintenance was improved with the help of suppliers and contractors. Tender documents included separate items for training and for producing operation and maintenance (O&M) manuals. In general, the intended outputs and benefits were achieved.

17. Delays in the water meter installation and the availability of leak detection equipment hampered the water loss reduction program. However, installing water meters in offices, industrial buildings, and selected apartments, and refurbishing dilapidated water pipes reduced water loss. Studies showed that charging for actual water consumption would encourage consumers to repair leaks and waste less water. The equipment was to have been procured as part of the consulting services contract but was included instead in the main supplier's contract for the supply and installation of pumps. When the equipment did arrive, it could not adequately detect leaks in the distribution system. The equipment has not been used, diminishing the efficiency of the water loss reduction activities.

18. The BME indicators collected have not been fully utilized. During project implementation, the Implementing Agency took over the responsibility for the Management Information System (MIS) from the Executing Agency. The MIS, including BME, was intended to be used in monitoring urban infrastructure services throughout the country. The consultants under the

associated advisory TA (footnote 2) developed the system at a later stage (November 2001), while the loan consultants were assigned to develop the BME indicators and help PUSOs collect data for the BME/MIS. Poor coordination between the loan and TA consultants affected the completion of the system. The MIS system developed by TA consultants was too complicated and demanding for data collection, and the PUSO staff had difficulty using the detailed list of indicators.

C. Project Costs and Financing

19. At appraisal the total project cost was estimated at \$8.50 million, comprising \$4.47 million in foreign exchange cost and \$4.03 million equivalent in local currency cost. ADB was to finance \$6.80 million (80% of total costs), comprising the entire \$4.47 million in foreign exchange cost and \$2.33 million equivalent in local currency cost. Actual project costs were \$7.70 million equivalent, comprising \$4.64 million in foreign exchange cost and \$3.06 million equivalent in local currency cost. ADB financed \$6.31 million (82% of costs). During construction, local PUSOs were exempted from paying interest on their respective subloans, thus reducing the local currency cost (by \$0.63 million equivalent). Apart from this difference, there were no major shifts between foreign and local currency costs.

20. The actual cost of civil works was significantly lower than appraisal estimates, which were inaccurate due to lack of market data shortly after the end of the Soviet Union era. On the other hand, actual equipment costs were higher than appraisal estimates, partly due to lack of realistic market data, and partly because higher cost items were chosen for some components, mainly the use of trucks instead of animal carts for waste collection. There were no cost overruns. Appendix 3 compares appraisal estimates with actual costs.

D. Disbursements

21. The first disbursement of loan funds was made in December 1998 as advance payment for consulting services, and the last disbursement in December 2002. Progress in the early stages of project implementation was slow. As a result, disbursement was also slow and consisted mainly of payments for consulting services and advances to the imprest account. The first contract for the procurement of equipment was signed in March 2000 and all five civil works contracts were signed in May 2000. Disbursements accelerated thereafter, and remained generally in line with projections through project completion.

22. Special drawing rights (SDR) depreciated by about 5% against the United States dollar over the implementation period, from \$1.36 during loan negotiations to \$1.29 by October 2002. Because the loan was denominated in SDR, the depreciation reduced the loan amount in dollar terms, to \$6.50 million from \$6.80 million, thus cancelling out the loan savings of \$0.19 million when the loan account was closed on 6 January 2003.

23. An imprest account was established in the Trade and Development Bank, Ulaanbaatar, with an initial deposit of \$500,000. The imprest account was effectively used and liquidated according to Statement of Expenditure procedures. The use of an imprest account helped expedite project implementation and promoted efficiency in disbursements by reducing the number of withdrawal applications.

E. Project Schedule

24. The loan became effective on 18 August 1998. ADB had approved advance action for the recruitment of the implementation consultants, and the consultancy contract was signed already on 24 June 1998. Delays in design, tendering, and evaluation delayed the awarding of the civil works contracts by nearly 1 year. However, after the award of major equipment and civil works contracts, implementation picked up and the Project was completed as originally scheduled on 30 June 2002, with the project management office (PMO), the Ministry of Infrastructure (MOI), and PUSOs diligently working together. This was a major achievement, considering the logistical difficulties associated with working in the five remote project towns and the unfamiliarity of MOI with ADB guidelines at the start of the Project. Appendix 4 compares the project implementation schedule at appraisal with the actual implementation schedule.

F. Implementation Arrangements

25. The implementation arrangements were as envisaged at appraisal. The MOI was the Executing Agency and the Government Implementing Agency for Construction, Urban Development, and Public Utilities (GIACUDPU) implemented the Project.⁵ A PMO was established within GIACUDPU, under a project director and originally including two professional staff. A project steering committee at the National Government level was chaired by the state secretary of MOI. In each project town a project implementation unit (PIU) for each PUSO and a town steering committee, chaired by the respective provincial governor, were formed.

26. At the start of the Project, the PMO showed itself to be unfamiliar with the implementation of externally financed projects and the management of construction works, and needed support. Following initial implementation delays, a full-time domestic civil engineer with good experience in the implementation of civil works was engaged to provide that support. The PMO staff gained significant experience during implementation and in general handled their responsibilities with competence. GIACUDPU, after its reorganization in 2000, took over the management and monitoring of the MIS from MOI. However, this aspect of the Project continuously suffered as a result of staffing changes, and GIACUDPU gave inadequate attention to the MIS. Staff in the PUSOs and PIUs worked hard for the successful implementation of the Project, but the PIU staff required close support from the PMO and the consultants. Both the project and town steering committees met regularly. The project steering committee provided high-level guidance and coordination, and the town steering committees consulted the public and kept it informed about project activities. The implementation arrangements were adequate for the Project's purpose and outputs.

G. Conditions and Covenants

27. The loan was approved on 30 September 1997 on the condition that there were enough funds from ADB's Special Funds resources. The replenishment of the Special Funds resources delayed the signing of the loan until 17 February 1998. The loan became effective 6 months later, on 18 August 1998, after the required ratification of the signed agreement by Parliament.

⁵ GIACUDPU was established on 6 September 2000 following the merger of two agencies: the Government Implementing Agency of Urban Services (GIAUS), the originally envisaged implementing agency, and the Construction Architecture Agency. Since GIAUS was maintained under GIACUDPU, this merger had little impact on project implementation. Also, when the name of the Ministry of Infrastructure Development changed to the Ministry of Infrastructure in 2000, there were no changes in functional responsibilities.

28. Compliance with covenants was generally satisfactory (Appendix 5). Of the 27 loan covenants, 4 were partly complied with, 23 were fully complied with, and audited financial reports were submitted on time. Shortcomings were found mainly in the financial and institutional covenants, particularly those related to tariff increases for cost recovery. Despite having been corporatized to keep them at arm's length from the political influence of their respective provincial government, the PUSOs did not always succeed in having their tariff increase proposals approved by the provincial governors. However, the intended outcome, as covenanted, was achieved by (i) gradually reducing the tariff in real terms for ger residents, and (ii) providing for reasonable cost recovery for O&M costs and debt servicing as well as for partial coverage of depreciation.

H. Related Technical Assistance

29. The Capacity Building TA (footnote 1) complemented the Project. Its objective was to help the PUSOs in the project towns become more efficient and effective in delivering sustainable urban services. The scope of the TA included training, the setting up of an MIS, accounting system, and institutional development for the PUSOs in the five project towns. The TA began in March 1998 and was completed in March 2002 after intermittent work in the field. Work progressed well in general, and the capacity of the PUSOs was gradually built up through training and workshops in financial management and accounting, business planning, and tariff setting according to market principles. Though the MIS system is not fully functioning and needs further improvement, the TA was instrumental in establishing PUSOs under the Company Law, and in preparing them to function as business entities based on market principles. MOI confirmed that the TA provided useful training in infrastructure management in a market economy. The TA completion report is in Appendix 6. The TA is rated successful, and substantially complemented the loan project in increasing the financial and managerial capacities of PUSOs.

I. Consultant Recruitment and Procurement

30. An international consulting firm in association with a domestic firm was recruited under advance procurement action. The consultants were mobilized in September 1998 and their services continued until the completion of the Project in June 2002. At appraisal, 31 person-months (p-m) of international consultant input and 112 p-m of domestic consultant input were envisaged for project implementation and institutional development assistance. The contract with the consultants included this p-m total as appraised. Additional work involving 6.6 p-m for the international consultants and 14 p-m for the domestic consultants was agreed upon during implementation, largely to strengthen tendering and bid evaluation, which was taking longer than expected, and to supervise construction in the five towns, which are far apart from one another. This additional work was to be financed from the contingency amount in the consulting services contract.

31. At appraisal, the Project was to have 28 procurement packages for goods and civil works: (i) 8 packages for the procurement of goods, including 2 under international competitive bidding, 3 under international shopping, and 3 under direct purchase; and (ii) 20 civil works packages for local competitive bidding. During the Inception Mission, the Government pointed out that the large number of civil works contracts would be difficult for the PMO to handle and coordinate, so it was agreed to reduce the number of civil works contracts procured under local competitive bidding to five, one for each project town. As a result, domestic contractors were able to complete all civil works required for each town efficiently and on time. Goods and

equipment were procured in nine packages; one international shopping package for procurement of waste collection trucks was added to the eight packages originally included.

32. At the start of implementation, bid evaluation by the PMO and the loan consultants was too slow, and the consultants sometimes made deficient evaluations, causing bidders to complain. Initially, the consultants evaluated only the technical responsiveness of bids, while the PMO assessed responsiveness to commercial terms and conditions. This division of responsibility was not satisfactory and did not comply with the terms of reference for the consultants. Review missions in 2000 emphasized correcting this problem. Once the consultants gave more support to the PMO in bid evaluation and the PMO gained more experience, the bid evaluations were carried out efficiently.

J. Performance of Consultants, Contractors, and Suppliers

33. The contract for the loan consultants originally provided for 31 p-m for international consultants (25 p-m in the field and 6 p-m at the home office) and 112 p-m for domestic consultants. During the midterm review in March 2001, the consultants claimed to have used 38 p-m for the international consultants and 91 p-m for the domestic consultants. This was of considerable concern, as only about 60% of the Project had been implemented and much more was required from the consultants. The international consultants claimed that they had used up all the p-m for water loss reduction and benefit monitoring, but there were no substantive results in these areas at that time. Further, it turned out that, as of August 2000, the international consultants had spent up to 24 p-m at their home office but only 10 p-m in Mongolia without prior approval from the Government. This deviation was later rectified in consultations between the Government, the consultants, and ADB.

34. The consultants were competent with respect to the engineering design of project facilities, but less so when it came to supporting the PMO and implementing the institutional development component. The domestic consultants provided satisfactory services, but insufficient support from the international consultants, particularly in the institutional development component, adversely affected the achievement of intended outputs in the water loss reduction and BME system, and delayed tendering and evaluation. Some required items were left out, whereas other items were included in more than one tender, requiring contract variations after the contract awards. Bid evaluations took too long and were sometimes deficient, resulting in complaints from bidders and delays in contract award. In general, the consultants provided satisfactory services in the design phase, but they should have taken more care in preparing the tender documents.

35. The five civil works contracts were awarded to three domestic contractors. Two contractors were each awarded contracts for two towns, and one contractor was awarded a contract for one town. The contractors completed the works as scheduled and the quality of the works was generally satisfactory.

36. There were eight contracts for the supply of goods and equipment and one contract for the supply and installation of pumps and electrical equipment. The goods supplied were generally of acceptable quality. Most were delivered slightly later than scheduled. Only one supplier, of pipes and appurtenances, delivered 10 months behind schedule, thus delaying the associated civil works.

K. Performance of the Borrower and the Executing Agency

37. The Borrower, represented by the Ministry of Finance and Economy (MOFE), and the Executing Agency, MOI, performed fully satisfactorily. The staff of the Implementing Agency, GIACUDPU, PMO and PUSOs, worked hard and were dedicated to the successful implementation of the Project. Completion on schedule and without cost overruns was a considerable achievement. However, institutional management capabilities need further attention, because some of the trained staff of PUSOs were transferred to other departments or towns. PUSOs should retain staff who were trained during the project, and the PUSO staff need to undergo continuous training in financial management. GIACUDPU needs to strengthen the management of MIS/BME to effectively carry out its responsibility of supervising urban infrastructure and services.

L. Performance of ADB

38. The performance of ADB was considered satisfactory. During project implementation, from October 1998 to October 2002, ADB fielded eight review missions including a special review mission and inception, midterm, and completion review missions, as well as regular reviews. The PMO's project completion report noted that ADB guidance and instructions helped significantly in project implementation, and that ADB missions played an important role in solving implementation problems. The review missions were comprehensive, and the midterm review in March 2001 evaluated overall implementation in depth and provided timely advice on consultants' services, tariff increase, relending rate, and cost recovery issues.

III. EVALUATION OF PERFORMANCE

A. Relevance

39. The project design was generally technically sound. The new water kiosks and public bathhouses significantly improved the quality of life of the residents in both informal and formal areas. Given the cold climate, sewage lagoons proved to be appropriate and beneficial to the communities. The upgrading of solid waste collection equipment from oxcarts to trucks during procurement improved project performance within the budget and helped maximize project benefits.

40. The Project was formulated to nurture a commercial-like business environment for PUSOs, and to encourage market-based provision of urban services by requiring public enterprises to borrow and to recover the costs of services through efficient operations and user charges. However, tariff increase proposals by PUSOs and budget support from the Government to allow public institutional buildings to pay higher tariffs were difficult to achieve, hindering PUSOs from building up their financial management capacities according to commercial rules. The relending rate of 10% prescribed at appraisal was unnecessarily high at the time of project completion review, imposing a burden on the PUSOs' debt service capacities and affecting higher tariff settings.⁶ The ability of PUSOs to repay subloans (starting January

⁶ Throughout implementation, PUSOs asked for the relending rate to be lowered from the 10% prescribed in the original subsidiary loan agreement in 1998, to reflect the improved macroeconomic situation since appraisal. During the project completion mission, MOFE agreed to amend the subsidiary loan agreement such that (i) the relending rate would be 4.5%, and (ii) subloan payments (principal and interest) would be denominated in local currency to keep the foreign exchange risk with the borrower, not the local PUSOs. MOFE will closely coordinate with ADB in finalizing the amendment by 30 June 2003.

2004) will be a key indicator of the future sustainability of the Project. Therefore, persuading the Government to lower the relending rate is the most effective approach to improving the performance of the PUSO's. This would facilitate tariff increases and cost recovery, consistent with the Government's drive toward a market economy. Overall, the Project is rated highly relevant.

B. Efficacy in Achievement of Purpose

41. The purpose of the Project was to improve the reliability of the basic urban services for apartment residents, and to increase the accessibility and affordability of services for residents of ger areas. There were two groups of monitorable targets: increased quantity of physical service facilities and improved operational capability of the PUSOs. The Project generally achieved the physical and institutional targets planned at appraisal, and the efficacy of the Project is rated satisfactory.

1. Physical Infrastructure Component

42. The physical infrastructure component of the Project generally achieved its objectives as planned at appraisal. Reliable urban infrastructure—water supply, sanitation, bathhouses, and solid waste collection facilities—are fully operational and are being maintained. Block water meters installed in about 10% of apartment buildings helped to reduce nonrevenue water (NRW) from over 50% to 40% on average in the five project towns by 2002. Centralized water supply systems are running 24 hours a day in all five project towns, improving service reliability. The number of water distribution points in ger areas has increased significantly. According to a PMO survey, the residents can afford to use more water, as the price has declined in real terms, and as the average walking distance to a water kiosk has been reduced to 300 meters for 80% of ger residents. The new and renovated bathhouses in each project town have given more residents access to bathing facilities. The sewer network has been extended considerably, and the discharge of untreated sewage into rivers has been minimized. PUSOs at least partly operate and maintain solid waste management facilities. Solid waste collection services cover more ger residents. Generally, irregular street dumping has been substantially reduced.

43. With the achievement of these project objectives, the development goals of improving the health and living conditions of the residents of the project towns and reducing inequality in access to urban services between apartment and ger residents have been substantially achieved.

2. Reduction of Nonrevenue Water

44. Table 1 shows the total NRW by project town from 1997 to 2002. At appraisal, NRW was projected to fall from over 50% to 40% on average by project completion. New or replaced pipes, water meters at water sources, and more distribution points have reduced NRW since 2000, and have helped achieve water loss reduction targets that are, on average, close to the level envisaged at appraisal.

Table 1: Nonrevenue Water Levels

Town	1997 (%)	1998 (%)	1999 (%)	2000 (%)	2001 (%)	2002 (%) (est.)	Avg. annual reduction, 1997–2001 (%)
Hovd	57	57	51	50	48	42	2.50%
Moron ^a	52	52	52	52	52	39	2.00%
Olgii	35	39	38	35	31	36	0.00%
Ulaangom	46	44	35	35	30	30	2.67%
Uliastay*	66	65	66	65	59	53	2.17%
Average	51	51	48	47	44	40	1.85%

^a No metering data are available for Uliastay and Moron, so the difference between the old norms of consumption per capita and production amount was used to estimate nonrevenue water.

Source: Public urban service organization estimates.

3. PUSO Corporatization

45. All five PUSOs under the Project have been successfully corporatized as limited liability companies in line with the Company Law of Mongolia. Corporatization was intended to establish an efficient urban service delivery organization, and make PUSOs more independent in tariff-setting decisions. PUSOs were established, and strategic business plans prepared, for commercial-like business operations. Despite interference from local governing authorities, PUSO staff set water tariffs for apartment residents and institutions according to business plans and the cost-recovery principle, and regularly propose rate changes to the provincial governments for approval.

4. PUSO Operational Capacity and Financial Performance

46. Financial management software was introduced to support PUSO operations, and was considered appropriate. PUSO accountants and relevant staff in each project town were trained in the use of suitable software through the associated TA to enable them to manage their financial activities more efficiently and monitor accounting, cost efficiency of service delivery, and cost-recovery impact. All PUSOs maintained separate income and expense accounts and were able to provide cost allocation and income generation information by type of service from 2000 onward in general. At appraisal, PUSOs could not evaluate the financial efficiency of each type of service. By project completion, accounting records were being kept in good order and were managed satisfactorily. Operational revenues and expenditures of PUSOs during project implementation were much lower than the income and expenditure projected at appraisal. The main reason for the gap was overly optimistic assumptions on asset revaluations at appraisal. However, all PUSOs showed positive net operating incomes at the end of 2001, as appraised, and are projected to improve their operating ratios gradually to cover O&M, debt servicing, and partial depreciation (Appendix 7).

5. Water Tariff Reviews

47. To reduce the inequality of water tariff charges between apartment and ger area residents, the PUSOs and local governments were required to increase tariffs for apartment residents and public/commercial water users to cover O&M costs, depreciation, and debt servicing, and to revise the rates regularly, while decreasing tariffs on ger area residents in real terms. Appendix 7 includes a summary table of tariff reviews.

48. Except in Moron, tariffs for apartment residents have increased, ranging from 37.2% to 103.2% in real terms during project implementation. The water tariffs for ger residents in four towns have declined in real terms, while ger residents in Olgii were already charged a lower

rate at appraisal. However, tariffs for institutional/public buildings (of which most are not yet metered) have only increased by 21.9% in Olgiy, while Hovd and Ulaangom actually decreased by 40% in real terms during the same period. The appraisal target tariff increase of 35% in real terms was generally pursued only for apartment residents, and contributed to reducing the inequality of water tariff charges between formal and informal areas. Tariff charges for the water users in institutional organizations and public buildings were not increased as appraised. To facilitate the achievement of the target tariff increase for water users in institutional buildings, and thus strengthen the financial capacity of PUSOs to pay back the subloans, the Government agreed to increase the tariffs for institutional buildings by 1–3% annually⁷ in real terms, assuming 100% billing and an 80% bill collection rate, at a relending rate of 4.5%. Given that tariff reform requires a long-term commitment, the Project is rated efficacious.

C. Efficiency in Achievement of Outputs and Purpose

49. Financial internal rates of return (FIRRs) and economic internal rates of return (EIRRs) for each project town are compared with appraisal estimates in Table 2. Reestimated FIRRs are lower than those at appraisal because the analysis at appraisal assumed too optimistically that (i) higher volume of water and sanitation sales revenues would be achieved; (ii) cost savings in electricity at completion would be significant; and (iii) water users from institutional and public buildings would be charged a substantially higher tariff in real terms, as proposed. All reestimated FIRRs are higher than the weighted average cost of capital, 2.72% at the time of project completion review, confirming the Project's financial efficiency. Estimates of EIRRs are based on incremental benefits derived from additional water consumption in ger areas, apartments and public buildings, and nonincremental benefits as a result of cost savings in time spent by ger area residents collecting water. The EIRRs for Hovd, Moron, Olgiy, and Ulaangom are generally above the 10% economic opportunity cost of capital at appraisal. For Uliastay the reestimated EIRR was only at the margin of economic opportunity cost of capital 10% at appraisal, largely due to significant out-migration from the town. Based on the reestimated EIRRs, the Project is rated efficient. A detailed economic and financial analysis is in Appendix 8.

Table 2: Internal Rates of Return at Appraisal and Project Completion

Town	Appraisal		Project Completion	
	FIRR (%)	EIRR (%)	FIRR (%)	EIRR (%)
Hovd	20.5	15.7	11.8	18.5
Moron	12.3	11.0	7.7	14.6
Olgiy	12.3	11.2	9.0	16.1
Ulaangom	13.2	18.4	6.0	14.0
Uliastay	15.4	22.8	7.8	10.8

EIRR = economic internal rate of return, FIRR = financial internal rate of return.

Note: The real weighted average cost of capital was 5% at appraisal and is about 2.72% currently.

Source: Consultants' estimates.

D. Preliminary Assessment of Sustainability

50. PUSOs had much lower operational revenues and expenditures during project implementation than projected at appraisal because of delays in physical construction, and overly optimistic appraisal assumptions about asset revaluation as well as water and sanitation

⁷ At appraisal, a 10% relending rate was used since the macroeconomic situation in Mongolia was unstable and inflation unpredictable. Macroeconomic conditions have improved over the years and inflation has gone down to about 5%, and the Government has consequently agreed to lower the relending rate from 10% to 4.5%. Financial projections and tariff increases are based on the amended relending rate of 4.5%.

sales revenues. Balance sheets show that the assets of PUSOs were not revalued during the Project as projected, which resulted in a lower actual cash balance compared with the balance projected at appraisal. However, the current net operating incomes are sufficient to cover O&M of sustainable provision of services. The Project is likely to be sustainable at a more realistic relending rate of 4.5% and a revised tariff schedule as agreed during the Project Completion Review Mission.

51. To keep the Project financially sustainable and allow PUSOs to repay their loans, they need to increase tariffs for institutional organizations and public buildings by 1–3% annually in real terms for the payback period. MOFE should accept budget increase proposals from the local governments to allow them to pay for the increased tariff for institutional buildings. Since the water and sanitation expenditures of families in formal areas are already close to maximum affordability (about 4% of household monthly income), water tariffs charged to formal apartment and informal ger residents cannot be increased further.

52. Government ownership of the Project is strong, but GIACUDPU needs to improve its capability to monitor the sustainable operation of PUSOs, mainly through its MIS. Training and workshops provided under the associated TA improved the financial management capacity of PUSOs and gave key staff a better understanding and knowledge of the O&M of infrastructure and services. GIACUDPU will need to conduct continuous training to update the skills and knowledge of its personnel in using MIS.

53. Given the foregoing results of the affordability analysis, it is recommended that to sustain financial cost recovery and avoid adverse social effects, PUSOs should be required to (i) increase tariffs only for institutional and public buildings by 1–3% in real terms annually; (ii) keep tariffs for apartment residents constant or increase them annually only to keep up with inflation; and (iii) decrease tariffs in real terms for informal ger area residents, to ensure that such charges are within the affordability level of 4% of monthly household income on average. The sustainability of the Project is rated likely, provided the lower relending rates and tariff schemes are fully implemented as agreed. Also, to keep the Project financially sustainable, MOFE should carefully review and approve budget increase proposals submitted by the local governments for the payment of increasing tariffs charged to water users in institutional buildings.

E. Environmental, Sociocultural, and Other Impacts

54. The Project had a positive impact on the environment as water supply improved, sanitation (waste water collection and treatment) was provided, solid waste collection and disposal improved, and bathhouses were built or upgraded. All environmental standards of the Government for the location of wastewater treatment lagoons, solid waste disposal sites, and new wells were followed.

55. The principal project beneficiaries are the inhabitants of the project towns. Table 3 compares the number of inhabitants in project towns at appraisal and completion. At appraisal, the improvements in water, sanitation, bathhouse, and solid waste disposal services were expected to benefit 124,200 people in the project towns, of which 110,000 were to be in ger areas. At completion in 2002, there were 125,436 beneficiaries in the project towns, of which 114,309 live in ger areas. The number of beneficiaries was lower than expected only in Uliastay because of out-migration to bigger cities nearby following severe winter storms in 1999 and 2000. The other project towns experienced population growth of between 5.2% (Olgiy) and 13.9% (Ulaangom) over the 5-year period, mainly from in-migration from adjacent rural districts, settling in ger areas. Overall, the improvements of basic urban services resulted in the project

towns retaining their population base, while other provincial capitals nationwide experienced declining populations. Though difficult to quantify, the Project has played a key role in sustaining the local economies of the project towns, compared with those of other towns.

Table 3: Beneficiaries in Project Towns at Appraisal and Project Completion

	Moron		Ulaangom		Olgiy		Hovd		Uliastay	
	1997	2002	1997	2002	1997	2002	1997	2002	1997	2002
Apartments	1,950	1,200	3,336	3,697	4,640	1,333	4,640	3,697	2,345	1,200
Ger Areas	23,620	27,216	18,788	21,503	21,172	25,812	21,172	24,653	21,444	15,125
Total	25,570	28,416	22,124	25,200	25,812	27,145	25,812	28,350	23,789	16,325

Source: Soum Statistic Office and public urban service organizations.

56. Beneficiary populations were informed about the Project through radio and television announcements and were consulted about the location of water and bathing facilities at the design stage, and community participation was strong. A hygiene committee was established in each project town and members were trained by the loan consultants. Hygiene committee members provided information and training to local communities, particularly children, visiting schools to explain water use and conservation and hygiene. The committees estimated that consumption of river water (or shallow ground water wells) was reduced by 5% through hygiene education. The committees continue to conduct regular public education programs for new in-migrants.

57. Tables 4 and 5 review the affordability of water for apartment and ger dwellers at project completion. The households in apartments on average spend up to 3.7% of their monthly income on water bills, while those living in informal areas spend 3.2% on water. Affordability of water does not exceed the 4% norm for the town residents, but could go up to 6% for apartment dwellers when sewer collection bills are added. Keeping these tariffs constant in real terms will be essential to maintaining the affordability of urban services. However, tariffs for institutional consumers should be increased gradually to sustain cost recovery and cross-subsidies for informal area residents. With tariffs increasing yearly 1-3% in real terms for institutional buildings only, as agreed during the completion mission, water is expected to remain affordable to residents in both apartment and ger areas, within 4% of total household income on average.

Table 4: Affordability of Water for Apartment Dwellers at Project Completion

	Average Monthly Household Income (MNT)	Household Size (persons)	Average Daily Per Capita Water Consumption (cubic meters)	Monthly Water Bill (MNT)	Cost Burden as % of Household Income
Hovd	38,000	3.5	0.1	790	2.1%
Moron	56,000	4.0	0.3	1,320	2.4%
Olgiy	65,500	3.2	0.2	1,532	2.3%
Uliastay	56,000	3.5	0.1	1,750	3.1%
Ulaangom	56,000	4.0	0.1	2,070	3.7%

Source: Consultants' estimates.

Table 5: Affordability of Water for Ger Residents at Project Completion

	Average Monthly Household Income (MNT)	Household Size (persons)	Average Daily Per Capita Water Consumption (liters) ^a	Monthly Water Bill (MNT)	Cost Burden as % of Household Income
Hovd	29,000	4.5	4.6	420	1.4%
Moron	25,000	4.2	6.2	780	3.2%
Olgij	38,200	4.8	7.6	1,095	2.9%
Uliastay	30,000	4.4	7.0	924	3.1%
Ulaangom	31,000	4.2	7.0	811	2.6%

^a Mainly for drinking purposes.

Source: Consultants' estimates.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

58. Overall, the Project is rated successful (Appendix 9). It achieved its immediate objectives of making basic urban infrastructure services to formal residents more reliable and improving access of informal ger residents to water supply, solid waste collection, and public bathhouses. The Project was implemented as conceived, improving the capability of PUSOs to manage basic service delivery and promoting the provision of market-based infrastructure services. However, institutional development outputs require follow-up, in particular the strengthening of BME/MIS. The Project improved the technical and financial managerial capabilities of PUSOs through corporatization. This has had positive demonstration impacts on other provincial towns.

B. Lessons Learned

59. Project implementation yielded the following lessons:

- (i) As a result of capacity building training, PUSO staff were able to set water tariffs for apartment residents and institutions according to business plans and the cost-recovery principle. The training increased the awareness among PUSO staff of the importance of regular adjustment of tariff schedules for the cost recovery, which should be taken as a good lesson for enhancing sustainability of similar future projects.
- (ii) The consultants contracted under the associated TA worked with MOI, while the loan was implemented by GIACUDPU. This arrangement hampered coordination of inputs provided under the TA and the loan. A key lesson for future projects is to place both loan and associated TA project consulting services under one counterpart agency, to ensure coordination and synchronization of implementation.
- (iii) Appraisal projections and assumptions for incremental water sold and revaluation of assets were relatively high. Future projects should ensure that projections are based on realistic assumption of the financial capacity for subborrowers.

- (iv) At appraisal, the civil works in each project town were divided into four packages. This proved to be unrealistic, as the multiple contracts would have been difficult for the PUSOs to manage. Closer involvement of PUSO staff in the planning and packaging of civil works would have helped to avoid the need for repackaging during implementation.
- (v) Any changes in loan consultants' terms of reference or contracts should be agreed in advance between the Government, the consultants and ADB.

C. Recommendations

1. Project-Related

60. The following recommendations are made to maximize the sustainability of Project benefits:

- (i) Though GIACUDPU is responsible for the use and management of the MIS, including BME, it has not assigned anyone to follow-up the task. It should assign a staff member technically qualified for the task, and further develop BME indicators and data entry into the MIS.
- (ii) To sustain financial cost recovery and avoid adverse social impacts, PUSOs should (a) increase tariffs for institutional and public buildings by 1–3% in real terms yearly; (b) keep tariffs for apartment residents constant or increase them yearly only to keep up with inflation; and (c) review tariffs in real terms for informal ger area residents, to ensure that they remain within the affordability level of 4% of monthly household income.
- (iii) MOFE has given ADB its assurances that it will revise subsidiary loan agreements with PUSOs to lower the relending rate from 10% to 4.5% by June 2003. This should be followed up by ADB.
- (iv) MOI should submit audited financial accounts for the Project for 2002 to ADB by 30 September 2003. This should be followed up by ADB.
- (v) For the PUSOs to remain financially sustainable, MOFE should carefully review and approve budget increase proposals of local governments for tariffs of water users in institutional buildings.
- (vi) To reduce NRW on a sustainable basis, PUSOs should continue to implement NRW reduction and water leakage detection programs, as an integral part of O&M.
- (vii) It is recommended that a project performance audit review be carried out in late 2005, about 3 years after project completion. In preparation for this review, GIACUDPU should revise and strengthen BME and MIS and submit an annual BME report to ADB.

- (ix) PUSOs should take effective measures to retain staff assigned to the institutional development program, so that the knowledge and experience gained during training and implementation can be fully utilized to the benefit of the PUSOs.
- (x) The Government should take effective measures, for example by passing appropriate legislation, to ensure that provincial governments will not interfere in the business activities of PUSOs, particularly in tariff setting, and thus hinder the repayment of subloans.

2. General

61. The Project was formulated to nurture a commercial-like business environment for PUSOs, and to encourage market-based provision of urban services. To enable PUSOs to recover costs and repay subloans, the Government should (i) ensure PUSOs' autonomy in taking decisions on tariff increases, and (ii) provide adequate allocations for public institutional buildings to pay established tariffs.

PROJECT FRAMEWORK

Design Summary	Appraisal Targets	Project Achievements	Key Issues and Recommendations
<p>1. Sector/Area Goals</p> <p>1.1 Improvement in health and living conditions of town residents</p> <p>1.2 Reduction of inequality in access to urban services between apartments and <i>ger</i> (informal area) residents</p>	<ul style="list-style-type: none"> • Morbidity and mortality indicators for water-borne and water-wash diseases improved • Reduction of differential in quality and quantity of water supply, solid waste, and bathhouses (between two user groups) • Differential in unit cost of water between two user groups to be at least halved • Quantity of water consumed by <i>ger</i> residents to increase to at least 15 liters per capita per day by end of Project 	<ul style="list-style-type: none"> • Preliminary data collected by public utility services organizations (PUSOs) showed generally declining trends of the incidence of water-borne and water-wash diseases, during 1997-2001. Incidence of scabies in 2001 was only about one tenth of that in 1997. • No indicator was proposed. But, any service improvements in <i>ger</i> areas contributed reducing the service gaps between the two user groups, as <i>ger</i> areas had virtually no service before the Project. • Before the appraisal, <i>ger</i> residents paid unit cost of water over 100 times higher than apartment residents did. At project completion, the differential is about 10 times on average. • Quantity of water consumed by <i>ger</i> residents increased for those living within 100 meters of the kiosks. 	<ul style="list-style-type: none"> • The Government Implementation Agency for Construction, Urban Development and Public Utilities (GIACUDPU) is required to strengthen benefit monitoring and evaluation (BME) system and Management Information System (MIS), and submit an annual report to follow-up its progress.
<p>2. Objectives/ Purposes</p> <p>2.1 Improvement in access to, and availability of, affordable water, bathing facilities, and solid waste services for residents of <i>ger</i> areas</p> <p>2.2 Improved reliability of water supply, sanitation and solid waste services for apartment residents and other formal users</p>	<ul style="list-style-type: none"> • Increased number of water supply facilities to cover all <i>ger</i> areas, and provide at least two bathhouses in the <i>ger</i> areas in each town • Increase in operational efficiency, reliability and sustainability of the PUSOs 	<ul style="list-style-type: none"> • The number of water supply facilities to cover all <i>ger</i> areas, including hydrant, well, or hand-pump kiosks, water tankers, and bathhouses, has increased. • Operational efficiency, reliability, and sustainability of the PUSOs have improved. 	<ul style="list-style-type: none"> • GIACUDPU needs to strengthen its overall supervisory roles on PUSOs' performance, and leads policy direction by adequately monitoring MIS of PUSOs. • Towns are still dependent on external supply of electricity.
<p>3. Project Components/ Outputs</p> <p>3.1 Sector agencies capability strengthened</p>	<ul style="list-style-type: none"> • The PUSOs are corporatized • Corporate and business plans prepared through the technical assistance (TA) and implemented 	<ul style="list-style-type: none"> • PUSOs are corporatized and transformed as state-owned companies, according to the Company Law and Articles of Association. • Corporate and business plans prepared within the TA and implemented by PUSOs. • PUSOs were operating with positive net incomes by 2001. Financial and 	<ul style="list-style-type: none"> • PUSO staff were able to set water tariffs for apartment residents and institutions according to business plans and the cost-recovery principle. However, the Government must give more assurance, perhaps by passing appropriate laws that

Design Summary	Appraisal Targets	Project Achievements	Key Issues and Recommendations
	<ul style="list-style-type: none"> Financial and operational ratios of the PUSOs improved. The PUSOs to achieve full cost recovery based on revaluation of assets by 2001 	<p>operational ratios of the PUSOs are projected to improve gradually, and to be sustainable at 4.5% relending rate. Though revaluation of assets was not incorporated, throughout the debt service period, PUSOs are projected to have positive cash flows and reasonable cost recovery (operation and maintenance, debt servicing, and covering partial depreciation), showing no liquidity problems.</p>	<p>provincial governments will not interfere in the business activities of PUSOs.</p> <ul style="list-style-type: none"> Relending rate 10% at appraisal is less relevant currently, and Government agreed to lower it to 4.5% to help better financial performance and cost recovery of PUSOs, consistent with Government policy.
<p>3.2 Physical infrastructure developed</p> <ul style="list-style-type: none"> Improved number and location of water supply facilities in <i>gers</i> 	<ul style="list-style-type: none"> Water distribution points increased to a maximum walking distance of 300 meters for 80% of the ger residents by 2001. Number of ger households using river water for drinking purposes reduced to an average of no more than 10% by 2001 Water consumption increased to at least 15 liters per capita per day by 2001 Percentage of household income for residents of ger areas spent on water is no more than 4% by 2001 	<ul style="list-style-type: none"> Water distribution points increased significantly (new tankered kiosks -8, hydrant kiosks -10, hand-pump kiosks -24, water tankers -5). The average walking distance for ger residents to fetch water has been reduced to 300 meters on average. Number of ger households using river water for drinking purposes reduced to an average of no more than 5%, and water consumption increased. Percentage of household income for residents of ger areas spent on water is less than 3.2% at the completion. 	<ul style="list-style-type: none"> Isolated gers are still difficult to service efficiently. Public campaign to discourage ger residents using surface water/shallow well needs to continue. Water consumption increased for those living near the water kiosks. The consumption level tend to decrease with distance due to heavy buckets to carry. Extension of pipelines for individual connection would be recommended.
<ul style="list-style-type: none"> Rehabilitated centralized water supply systems 	<ul style="list-style-type: none"> 24-hour water supply by 2001 All apartment blocks and major users to be metered by 2001 Nonrevenue water reduced to no more than 40% by 2001 	<ul style="list-style-type: none"> Centralized water supply systems are running 24 hours a day, subject to external supply of electricity Over 1117 consumption meters were installed, about half of the target. Block meter installation has achieved almost three times over the target. Nonrevenue water about 40% levels was achieved in general. 	<ul style="list-style-type: none"> Metering program was undertaken as a measure of nonrevenue water reduction, not for a rigorous metering on all water consumption. Metering, nonrevenue water reduction and operation and maintenance programs should continue.
<ul style="list-style-type: none"> Cost-effective central sanitation systems developed 	<ul style="list-style-type: none"> New efficient and less technologically demanding sanitation systems are developed No untreated sewage is discharged to rivers 	<ul style="list-style-type: none"> Sewage lagoon system, normally used in cold climate regions, were developed successfully, and no untreated sewage discharged to rivers 	
<ul style="list-style-type: none"> More and affordable bathhouses are provided 	<ul style="list-style-type: none"> Increase the number of operating bathhouses to at least two in each town Improve the affordability of bathhouses to residents of ger 	<ul style="list-style-type: none"> Provided two more bathhouses for each town. PUSOs' revenue data showed that the number of users increased in the 30 person-capacity bathhouses. At the 	<ul style="list-style-type: none"> Cross-subsidy for the operation of public bathhouses should continue Utilization and the number of bath taken by town residents

Design Summary	Appraisal Targets	Project Achievements	Key Issues and Recommendations
	areas <ul style="list-style-type: none"> Increase the utilization of bathhouses from about 15% at present to at least 50% of capacity Increase the number of baths taken by town residents by 200% 	completion, the utilization rate 40% of capacity for the newly constructed bathhouses was confirmed <ul style="list-style-type: none"> Bathhouses have been in operation less than a year, and seasonal differences made it difficult to estimate the number of bath taken by town residents. 	should be monitored longer period and incorporated in the BME.
<ul style="list-style-type: none"> Solid waste operations are improved and new collection systems are introduced 	<ul style="list-style-type: none"> New solid waste sites are redeveloped closer to the towns that at present Dumping of waste at other than the waste disposal site is reduced Regular services are provided to 80% of ger areas in addition to the central, formal part of the towns Unit cost of solid waste operations is reduced, and cost recovery is achieved 	<ul style="list-style-type: none"> Dumpsites are not located as far away from the town centers as originally reported: the distance is around 5 kilometers (km) from the town centers. The planned new dumping sites were not developed because rehabilitation and compacting the existing dumping sites were considered economical during the detailed design stage. Loan proceeds, allocated for this purpose, was utilized for procurement of the trucks and backhoe loaders for collection and management of existing dumping sites. Dumping of waste at other than the waste disposal site is reduced in project towns as each town procured a solid waste collection truck. 	<ul style="list-style-type: none"> Original plan of having ox carts as solid waste collection measure were not considered as improvement, as ox cart was too slow to transport collected garbages 5 km away from the towns. The plans prepared within the TA and implemented in PUSOs
4. Activities 4.1 Physical infrastructure developed <ul style="list-style-type: none"> Rehabilitated centralized water supply systems <ul style="list-style-type: none"> Procurement for repairs and rehabilitation of pumping stations, reservoirs, and water pipes Leak reduction program Installation of meters Procurement of laboratory equipment Improved number and location of water supply facilities in gers <ul style="list-style-type: none"> Community participation Community awareness program Installation of kiosk, hand pumps, etc. Cost-effective central sanitation system developed <ul style="list-style-type: none"> Five sewage lagoons (septic 	\$5.01 million (base cost, including taxes) \$1.17 million \$0.77 million \$2.57 million	\$6.67 million (base cost, including taxes) \$1.59 million \$0.59 million \$1.44 million	

Design Summary	Appraisal Targets	Project Achievements	Key Issues and Recommendations
<p>tanks) built and rehabilitation of pipe network and pumps</p> <ul style="list-style-type: none"> • Increased number of operating bathhouses <ul style="list-style-type: none"> – Rehabilitation of four existing bathhouses owned by the PUSOs – Development of eight new bathhouses in ger areas • New systems of solid waste operations introduced <ul style="list-style-type: none"> – Dumping sites identified and developed closed to towns – Appropriate, low-cost technologies used (animal carts and/or tractors) <p>4.2 Project Implementation Assistance and Institutional Development</p> <ul style="list-style-type: none"> • Project Implementation Assistance <ul style="list-style-type: none"> – Procurement of consulting services – Surveys and detailed design – Procurement of equipment – Contracting construction – Supervision and monitoring • Institutional Development <ul style="list-style-type: none"> – Training for leak detection – Training for use of laboratory – Training in the use of meters – Training for operation and maintenance – Education and public health campaign – Community participation in Project design and implementation – Out-of-country study tour and equipment for capacity-building TA 	<p>\$0.39 million</p> <p>\$0.11 million</p> <p>\$1.29 million (based cost including taxes, and equipment and study tours for Capacity Building) 143 person-months of consultant inputs (31 of international and 112 of domestic)</p> <p>31 person-months of consultant inputs</p> <p>Total Cost: \$8.5 million (including physical contingencies \$0.60; price contingencies \$0.63, and service charge and interest during construction \$0.77 million)</p>	<p>\$0.78 million.</p> <p>\$0.58 million.</p> <p>\$1.39 million (cost including taxes, and equipment and study tour)^a</p> <p>163 person-months of consultant inputs (37.6 of international and 126 of domestic)</p> <p>37.6 person-months of consultants inputs</p> <p>Total Cost: \$8.19 million (physical contingency is 12% of physical infrastructure and equipment; service charge \$0.13 million)</p>	

SUMMARY OF PHYSICAL COMPONENTS COMPLETED

Component	Hovd		Moron		Olgij		Ulaangoom		Uliastay		Total	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual
A. Water Supply (centralized system)												
Length of pipe (in meters) ^a	0	1000	3500	6013	0	2603	0	1011	0	884	3500	11511
Number of consumption meters	770	244	240	145	300	256	520	298	174	174	2004	1117
Number of bulk meters and gauges	6	27	1	17	6	13	8	13	6	24	27	94
Number of centrifugal pumps	0	3	6	3	3	4	4	3	2	6	15	19
Number of submersible pumps	0	9	0	3	0	2	0	2	0	5	0	21
B. Water Supply (Ger areas)												
Number of tankered kiosks ^b	0	0	4	4	0	2	0	0	5	2	9	8
Number of hydrant kiosks	5	0	3	0	3	2	1	2	2	0	14	4
Number of well kiosks	4	2	0	2	4	2	4	2	2	2	14	10
Number of hand-pump kiosks	0	7	3	3	4	2	4	7	5	5	16	24
Number of water tankers	0	1	5	1	0	1	0	1	5	1	10	5
C. Sanitation												
Number of pumping stations to be rehabilitated	1	1	0	1	1	2	1	1	1	2	4	7
Length of pipe (in meters)	0	0	0	2156	0	55	0	0	0	2314	0	4525
Number of lagoons	1	1	1	1	1	1	1	1	1	1	5	5
Number of septic tanks	2	2	2	2	2	2	2	2	14	2	22	10
Number of vacuum tankers	0	1	0	1	0	1	0	1	1	1	1	5
Number of new pumping stations	0	0	0	1	0	0	0	0	0	0	0	1
D. Solid Waste												
Number of sites to be renovated/replaced	1	1	1	1	1	1	1	1	1	1	5	5
Number of trucks ^c	0	1	0	1	0	1	0	1	0	1	0	5
Number of backhoe loaders ^c	0	1	0	1	0	1	0	1	0	1	0	5
Number of animal care units ^c	10	0	10	0	10	0	10	0	10	0	50	0
E. Bathhouses												
Number to be renovated	1	1	1	1	1	1	1	1	0	0	4	4
Number to be built	2	2	2	2	2	2	2	2	2	2	10	10

^a The length of pipes are actual.

^b In ger (informal settlement) areas water is supplied by water tankers instead of door-to-door animal cart units.

^c In solid waste instead of animal cart units, trucks, and backhoeloaders were used.

SUMMARY OF APPRAISED AND ACTUAL PROJECT COSTS

Table A3.1: Summary of Project Costs
(\$ million^a)

Component	Appraisal			Actual							
	Foreign	Local ^b	Total	ADB			Gov't	Total ADB/Gov't			
				Foreign	Local	Total	Local	Foreign	Local	Total	
A. Physical Infrastructure and Equipment											
1. Civil Works	0.91	1.95	2.86	0.59	1.33	1.92	0.45	0.59	1.78	2.37	
2. Equipment and others	1.95	0.20	2.15	3.05	0.00	3.01	0.79	3.01	0.79	3.80	
Subtotal (A)	2.86	2.15	5.01	3.60	1.33	4.93	1.24	3.60	2.57	6.17	
B. Project Implementation Assistance and Institutional Development											
1. Project Implementation Assistance	0.61	0.49	1.10	0.67	0.25	0.92	0.15	0.67	0.40	1.07	
2. Institutional Development ^c	0.28	0.11	0.39	0.29	0.09	0.37	0.00	0.28	0.09	0.37	
Subtotal (B)	0.89	0.60	1.49	0.96	0.34	1.29	0.15	0.95	0.49	1.44	
C. Contingencies											
1. Physical ^d	0.34	0.26	0.60	0.00	0.00	0.00	0.00	0.00	-	0.00	
2. Price	0.24	0.40	0.64	0.00	0.00	0.00	0.00	0.00	-	0.00	
Subtotal (C)	0.58	0.66	1.24	0.00	0.00	0.00	0.00	0.00	-	0.00	
D. Fees and Charges											
1. Service Charge on Bank Loan	0.13	0.00	0.13	0.09	0.00	0.09	0.00	0.09	-	0.09	
2. Interest During Construction	0.00	0.63	0.63	0.00	0.00	0.00	0.00	0.00	-	0.00	
Subtotal (D)	0.13	0.63	0.76	0.09	0.00	0.09	0.00	0.09	-	0.09	
Total	4.47	4.03	8.50	4.64	1.67	6.31	1.39	4.64	3.06	7.70	

ADB = Asian Development Bank, Gov't = Government of Mongolia.

^a In June 1997 prices.

^b Includes commercial taxes, estimated at \$0.69 million (8% of the total cost).

^c Includes consulting services for institutional development, as well as equipment for and study tours under the associated technical assistance.

^d 12% for physical infrastructure and equipment.

Table A3.2: Financing Plan
(\$ million)

Source	Appraisal				Actual			
	Foreign Exchange	Local Currency	Total Cost	Percent	Foreign Exchange	Local Currency	Total Cost	Percent
A. Asian Development Bank	4.47	2.33	6.80	80	4.64	1.67	6.31	82
B. Central Government	0.00	0.84	0.84	10	0.00	1.39	1.39	18
C. PUSOs	0.00	0.86	0.86	10	0.00	0.00	0.00	0
Total	4.47	4.03	8.50	100	4.64	3.06	7.70	100

PUSO = public urban services organization.

Table A3.3: Disbursements at Appraisal and at Project Completion

Project Phase	1998	1999	2000	2001	2002	Total
A. Appraisal						
1. Percent	5	10	50	35	0	100
2. \$ equivalent	325,000	650,000	3,250,000	2,275,000	0	6,500,000
B. Actual						
1. Percent	3	15	26	50	6	100
2. \$ equivalent	195,425	925,002	1,619,866	3,156,235	415,992	6,312,560

Source: ADB loan disbursement record.

PROJECT IMPLEMENTATION SCHEDULE

Task	1998				1999				2000				2001				2002			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
A. Recruitment of Consultants																				
1. Contract awards																				
2. Mobilization																				
B. Physical Infrastructure																				
1. Pre-design activities																				
2. Design and preparation of tender documents																				
3. tendering and contract awards of civil works																				
4. tendering and contract awards of equipment																				
5. construction of civil works																				
6. installation of equipment																				
C. Institutional Development																				
1. Community health and public health program																				
2. O&M program																				
3. water loss reduction program																				
4. BME program																				

BME = benefit monitoring evaluation, O&M = operation and maintenance, Q1 = first quarter, Q2 = second quarter, Q3 = third quarter, Q4 = fourth quarter.

 Appraisal estimate

 Actual

Source: Asian Development Bank estimates.

STATUS OF COMPLIANCE WITH LOAN COVENANTS

Covenant	Reference in Loan Agreement	Status of Compliance
General		
1. The Borrower shall cause the provincial governments to carry out the Project with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental, and public utility practices.	Sec. 4.01(a)	Complied with
2. The Borrower shall make available to the Provincial governments, promptly as needed, the funds, facilities, services, land, and other resources which are required. In addition to the proceeds of the Loan, for the carrying out of the Project.	Sec. 4.02	Complied with
3. Except as the Asian Development Bank (ADB) may otherwise agree, all goods and services to be financed out of the proceeds of the Loan shall be procured in accordance with the provisions of Schedule 4 and Schedule 5 to the Loan Agreement. ADB may refuse to finance a contract where goods or services have not been procured under procedures substantially in accordance with those agreed between the Borrower and ADB or where the terms and conditions of the contract are not satisfactory to ADB.	Sec. 2.03(b)	Complied with
4. The Borrower shall furnish to ADB all such reports and information as ADB shall reasonably request concerning (i) the Loan, and the expenditure of the proceeds and maintenance of the service thereof; (ii) the goods and services and other items of expenditure financed out of the proceeds of the Loan; (iii) the Project; (iv) the administration, operations and financial condition of the Provincial governments, the public urban services organizations (PUSOs) and any other agencies of the Borrower responsible for the carrying out of the Project and operation of the project facilities, or any part thereof; (v) financial and economic conditions in the territory of the Borrower and the international balance-of-payments position of the Borrower; and (vi) any other matters relating to the purposes of the Loan.	Sec. 4.04	Complied with
5. The Borrower shall enable ADB's representatives to inspect the Project, the goods financed out of the proceeds of the Loan, and any relevant records and documents.	Sec. 4.05	Complied with
6. Without limiting the generality of the foregoing, each Provincial Government shall ensure that its PUSO, through the Project Management Office (PMO), help	Sec. 2.08(b)	Complied with. The PMO has regularly submitted monthly progress reports to

Covenant	Reference in Loan Agreement	Status of Compliance
<p>furnish to ADB semi-annual reports on the execution of the Project and on the operation and management of the Project facilities. Such reports shall be submitted in such form and in such detail and within such a period as ADB shall reasonably request, and shall indicate progress made and problems encountered during the semi-annual period under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following half year.</p>		<p>ADB since January 2000, and comprehensive status reports have been provided to review missions.</p>
<p>7. Promptly after physical completion of the Project, but in any event not later than three months thereafter or such later date as ADB may agree for this purpose, each PUSO shall, through the PMO, help prepare and furnish to ADB a report, in such form and in such detail as ADB shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by the PUSO of its obligations under this Project Agreement and the accomplishments of the purposes of the Loan.</p>	<p>Sec. 2.08(c)</p>	<p>Complied with</p>
<p>8. Each Provincial Government shall, or shall ensure that its PUSO shall, forward to the PMO (i) accounts for its respective part of the Project and for its overall operations so that such accounts and related financial statements (balance sheet, statement of income and expenses, and related statements) are audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB; and (ii) furnish to ADB, through the PMO, promptly after their preparation but in any event not later than nine months after the close of the fiscal year to which they relate, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and compliance with the covenants of this Loan Agreement as well as on the use of the procedures for imprest account/statement of expenditures), all in the English language.</p>	<p>Sec. 2.09(a)</p>	<p>Complied with. The audited project accounts for 2001 were submitted by the Executing Agency in May 2002, four months before due date. These were reviewed and found acceptable by ADB.</p>
<p>9. Each Provincial Government shall, or shall ensure that its PUSO shall, enable ADB's representatives to inspect the Project, the goods financed out of the proceeds of the Loan, all other plants, sites, works, properties and equipment of such PUSO, and any relevant records and documents.</p>	<p>Sec. 2.10</p>	<p>Complied with</p>
<p>10. The Borrower shall take all action which shall be necessary on its part to enable the Provincial Governments to perform their obligations under the</p>	<p>Sec. 4.06</p>	<p>Partly complied with. Tariffs have increase in real term for the residents of</p>

Covenant	Reference in Loan Agreement	Status of Compliance
<p>Project Agreement, including the establishment and maintenance of tariffs as stipulated in paras. 3, 4, 5 and 7 of Schedule 6 to this Loan Agreement, and shall not take or permit any action which would interfere with the performance of such obligations.</p> <p>11. The Borrower shall exercise its rights under the Provincial Government Subsidiary Loan Agreements in such a manner as to protect the interests of the Borrower and ADB and to accomplish the purposes of the Loan. No rights or obligations under any of the Subsidiary Loan Agreements shall be assigned, amended, abrogated or waived without the prior concurrence of ADB.</p>	<p>Sec. 4.07 (a)(b)</p>	<p>formal apartment areas, and have decreased in real terms for the residents of informal ger areas, but tariffs for the users of institutional buildings have not increased as estimated.</p> <p>Complied with. Amendments of subsidiary loan agreement need to be approved by ADB.</p>
<p>Institutional Matters</p> <p>12. Ministry of Infrastructure and Development (later renamed Ministry of Infrastructure [MOI]) shall be the Executing Agency for the Project. Government Implementing Agency of Urban Services within MOI shall, throughout the implementation period of the Project, maintain the PMO for the Project. The PMO shall be headed by a full time Project Director and its three professional staff will include a full time engineer/procurement expert, and a full time financial/administration expert. The functions of the PMO include (i) acting as the secretariat to the Project Steering Committee; (ii) providing coordination with MOI; (iii) coordination of the project implementation units (PIUs) within the PUSOs; (iv) procurement of equipment; (v) preparation of procurement and bidding documents, evaluation of offers and bids and recommendations on award of contracts for civil works in consultation with PIUs; (vi) preparatory work and supervision with regard to consultants; (vii) coordination with ADB; as well as (vii) preparation and submission to ADB of semi-annual Project reports, annual Benefit Monitoring and Evaluation reports and a Project Completion Report, not later than 6 months after completion of the Project.</p>	<p>Schedule 6, para. 1</p>	<p>Complied with</p>
<p>13. Within each PUSO in each Project town a PIU shall be established. The PIU shall include the PUSO Director, the Chief Engineer and the Chief Accountant of the PUSO. Each PIU shall be responsible for the financial, technical and administrative execution of its part of the Project. The PIUs shall be responsible, among other duties for the following: (i) day-to-day implementation and</p>	<p>Schedule 6, para. 2</p>	<p>Complied with</p>

Covenant	Reference in Loan Agreement	Status of Compliance
supervision of the Project; (ii) overview of Project designs; (iii) coordination with the PMO; and (iv) acting as secretariat to the Town Steering Committee.		
14. The Project Steering Committee shall be chaired by the State Secretary of MOI and composed of officials from MOI, MOF, GIAUS and the five Provincial Governors, and shall conduct policy guidance and coordination. The Project Steering Committee shall meet at least twice a year. In addition, Town Steering Committees shall be established in each Project town consisting of the respective Provincial Governor or Vice-Governor, PUSO Director, the head of the Women's Organization and the Secretary of the Poverty Alleviation Programme. The Town Steering Committees shall meet at least quarterly, and in advance of the Project Steering Committee.	Schedule 6, para. 3	Complied with
15. The Borrower and the Provincial Governments shall ensure in accordance with the Development Action Plan, that for the five Project PUSOs there will be (i) integration of townwide solid waste services into PUSO operations by 31 December 1999; (ii) separate accounting for water supply, sanitation, bath houses, solid waste and other PUSO services; and (iii) corporation of the PUSOs in accordance with the 1995 Partnership and Company Law of the Borrower by 1 January 1999, including the establishment of a governing body, directors, auditors, articles of association, revaluation of PUSO assets, all necessary registration and any other legal requirements needed to ensure that the PUSOs have legal capacity to borrow.	Schedule 6, para. 4	Partly complied with. Solid waste disposal services were not fully incorporated under PUSOs as some are covered by housing building association, local governments or by private contractors.
16. Following PUSO corporatization, the Provincial Governments shall ensure that the onlending of portions of the loan proceeds to their respective PUSOs under PUSO Subsidiary Loan Agreements is on the same terms and conditions as the Provincial Government Subsidiary Loan Agreements.	Schedule 6, para. 5	Complied with
17. Each Provincial Government shall, or shall ensure that its PUSO shall, promptly as required, take all action within its powers to establish and maintain its corporate existence, to carry on its operations, and to acquire, maintain and renew all rights, properties, powers, privileges and franchises which are necessary in the carrying out of the Project or in the conduct of its business.	Sec. 2.11(a)	Complied with
18. Each Provincial Government shall, or shall ensure that its PUSO shall, at all times operate and maintain its plants, equipment and other property, and from	Sec. 211(c)	Complied with

Covenant	Reference in Loan Agreement	Status of Compliance
<p>time to time, promptly as needed, make all necessary repairs and renewals thereof, all in accordance with sound administrative, financial, engineering, environmental, utility, and maintenance and operational practices.</p>		
<p>Policy Reforms</p>		
<p>19. The Borrower and Provincial Governments shall ensure that water, sanitation, solid waste and bath house tariffs are based on principles of cost recovery, and promotion of demand management and equity among consumers, such that (i) tariffs are regularly revised and increased as set out in the Development Action Plan (ii) there is a structure of reduced differentials between the tariffs for the gers and the apartment dwellers in accordance with the Development Action Plan; and (iii) no further tariff increases are imposed on ger area residents in 1997 and 1998.</p>	Schedule 6, para. 6	Partly complied with. Tariff charges for the users of institutional building were not increased as agreed.
<p>20. In order to satisfy cost recovery the Borrower and the Provincial Governments shall ensure that (I) water and sanitation tariffs shall be increased prior to the first withdrawal from the Loan Account to cover operations and maintenance costs and 50 percent depreciation of revalued assets; and (ii) by 31 December 2001 revenues will be sufficient to cover operations and maintenance, depreciation and any interest on loans.</p>	Schedule 6, para. 7	Complied with
<p>21. The Borrower and Provincial Governments shall ensure, that bath houses are cross subsidized by the Project's PUSOs and that such cross subsidization, subject to utilization and affordability, is progressively phased out over the Project implementation period.</p>	Schedule 6, para. 8	Being complied with
<p>22. Each Provincial Government shall ensure that (i) its PUSOs regularly submits a tariff proposal, in compliance with the Development Action Plan, to the Provincial Governments; (ii) that such tariff proposals are reviewed by Provincial Governments under economic, financial and social criteria set by performance agreements; and (iii) tariffs thus set are to be valid, binding and enforceable on all consumers and entities.</p>	Schedule 6, para. 9)	Complied with
<p>Financial Matters</p>		
<p>23. Without limiting the generality of Section 4.02 of this Loan Agreement, the Borrower and the Provincial Governments shall ensure and provide due financial and investment budget evidence to ADB (i) that sufficient counterpart funds will be made available on a timely and continuing basis in the form of budget</p>	Schedule 6, para. 10)	Complied with

Covenant	Reference in Loan Agreement	Status of Compliance
<p>allocations to the PMO throughout the period of Project implementation; (ii) that adequate provision of counterpart funds, satisfactory in amount to ADB, will be made for the purpose of Project implementation; and (iii) that throughout the period of Project implementation no domestic funds for water supply, sanitation, solid waste services and public bath houses is provided to any of the Project towns without prior consultation with or approval by ADB.</p>		
<p>24. Each Provincial Government shall, or shall ensure that its PUSO, through the PMO, shall maintain, or cause to be maintained, records and accounts adequate to identify the goods and services and other items of expenditure financed out of the proceeds of the Loan, to disclose the use thereof in the Project, to record the progress of the Project (including the cost thereof) and to reflect in accordance with consistently maintained sound accounting principles, its operation and financial condition.</p>	Sec. 2.06	Complied with
<p>25. The Provincial Governments shall ensure that the PIUs records of Project expenditures will be forwarded regularly to the PMO, which will prepare consolidated Project accounts. Such consolidated Project accounts and the imprest account and statement of expenditure are to be audited annually by independent auditors acceptable to ADB with certified copies of such audited accounts being submitted to ADB in English not later than 9 months after the end of the financial year to which they relate.</p>	Schedule 6, para. 11	Complied with
<p>26. The Borrower and Provincial Government shall ensure that a benefits monitoring and evaluation (BME) system for the Project, acceptable to ADB, is integrated into the management information system of the PUSOs. Annual BME reports will be prepared by each PIU and consolidated and submitted to ADB through the PMO.</p>	Schedule 6, para. 12	Partly complied with. Requires further attention and follow up on how to use BME and integrate into MIS. BME indicators were prepared but too detailed and not integrated into the management information system.
<p>Other Matters</p>		
<p>27. The Borrower shall ensure that no legislation, regulation, resolution, decree or rule limits, interferes or alters the Project implementation arrangement and design as detailed in this Loan Agreement, without prior consultation with ADB.</p>	Schedule 6, para. 13	Complied with

TECHNICAL ASSISTANCE COMPLETION REPORT

Division: ECSS

TA No. and Name: 2881-MON: Capacity Building for the Provision of Urban Services in Provincial Towns			Amount Approved: \$825,000 Revised Amount: -	
Executing Agency: Ministry of Infrastructure		Source of Funding: JSF		TA Amount Undisbursed: \$9,643
				TA Amount Utilized: \$815,357
Date			TA Completion Date	
Approval 30 Sep 1997	Signing 16 Oct 1997	Fielding of Consultants 23 Mar 1998		Original 30 Sep 2001
			Actual 30 Jun 2002	
			Account Closing Date	
			Original 30 Jun 2002	
			Actual 6 Jan 2003	
Description				
<p>The responsibilities of Mongolian local governments increased in the transition to a market economy despite reduced budgetary allocations and earnings. Public services were generally the responsibility of specialized companies, but in the provincial towns there were less specialization and one or two local utilities traditionally managed apartment housing, as well as water supply, sanitation, public bathhouses, and, in some cases, district heating. In January 1997, the Ministry of Infrastructure (MOI) passed a resolution to encourage the creation of a more compact and efficient organization structure for the provision of urban services at the provincial level and formed the public urban services organizations (PUSOs) as limited companies.</p> <p>Initially, the PUSOs were run as if they were departments of provincial governments. Business and operational decisions were often subservient to political considerations. Management processes and systems, particularly in business and financial planning, management and financial reporting, and operation and maintenance, were largely underdeveloped. There was a need to make the PUSOs more independent and able to deliver effective and efficient services. Accordingly, this technical assistance (TA) was processed in conjunction with the Project.</p>				
Objectives and Scope				
<p>The TA was intended to help the PUSOs in the Project towns deliver sustainable urban services more efficiently and effectively by (i) establishing an appropriate operating environment for the PUSOs with corporate business planning capability; (ii) installing accounting and management information systems to improve the efficiency of the PUSOs; (iii) designing a basic formula for determining tariffs to meet cost-recovery and equity targets; and (iv) developing the capacity of MOI to benchmark PUSO services and subsequently monitor key performance indicators to enhance MOI policy advice on the operational effectiveness of the PUSOs.</p>				
Evaluation of Inputs				
<p>The TA consultants were fielded at the end of March 1998. A contract amount of \$739,000 was negotiated originally, and total \$819,000 was approved. The TA provided for 18 person-months of international and 35 person-months of domestic consulting services in financial management, business planning, accounting, and training. The consulting team made eight field trips to Mongolia during the TA, and held intensive training for local PUSO staff in (i) customer service, (ii) tariff-setting methods, (iii) financial accounting, and (iv) computer use. PUSO staff (three from each PUSO) were also sent to Canada on a study tour to give them a better understanding of customer service and financial management in a market economy. The TA consultants were originally scheduled to serve for a term of 3.5 years intermittently, but the term was extended for nine months until June 2002 (i) to synchronize the physical completion and outputs of the loan Project, and (ii) to revisit the knowledge gained from the training and apply it. Eight TA review missions were undertaken in conjunction with the review of the loan Project.</p>				
<p>The consultants worked closely with the MOI, the Executing Agency for the loan Project, and with the Project Management Office for the loan Project set up under the Government Implementation Agency for Construction, Urban Development and Public Utility (GIACUDPU). Less than satisfactory coordination between the loan and the TA consultants led to the transfer of the TA under GIACUDPU at a later stage. Counterpart personnel, office accommodation and facilities, and local transportation costs for PUSO staff were provided as planned.</p>				
<p>The terms of reference covered the major aspects of the TA and were generally adequate for achieving the objective of strengthening the PUSOs' capacity. The consultants performed satisfactorily, and all the items in the terms of reference were generally addressed. But the objective of developing MOI's benchmarking capacity proved</p>				

too ambitious in view of the unclear scope of the Management Information System (MIS) and the burden of data collection falling on the PUSOs under the scope of the loan consultants work. At a later stage, work outside the scope of the original TOR was done to strengthen the MIS computer program. Overall, the capacity building training provided by the consultants was well received and effectively supported the loan Project in improving the efficiency of PUSOs' service delivery.

Evaluation of Outputs

The consultants submitted four progress reports, a final report, and manuals for accounting, customer service, water and wastewater tariff rate setting, and financial accounting for users. The consultants achieved six milestones; they (i) diagnosed the business environment of the PUSOs to determine the operational environment appropriate for it; (ii) helped the Government corporatize the PUSOs under the Company Law by developing articles of association for each PUSO; (iii) installed a financial and management accounting system; (iv) helped PUSOs draft corporate business plans; (v) conducted a study tour; and (vi) installed MIS benchmarks. Despite delays in the delivery of outputs due to the need to coordinate with the loan Project in computer procurement, data collection, and assessments, training was generally comprehensive and helped the PUSO staff understand better the concepts and practice of delivering basic urban services based on market principles. Local consultants provided additional service in improving the MIS. The financial management system using Dynamics software, as a tool for accounting, seemed too advanced, given the small size of the service coverage in provincial towns. However, repeated training over four years has increased the PUSOs' learning capacity and given them a better understanding of accounting and service delivery functions under market-based principles.

Overall Assessment and Rating

The TA was instrumental in establishing PUSOs under the Company Law and preparing them to act like business entities operating on the basis of market principles. All six Project milestones were met, and comprehensive training in accounting, business planning, and other new concepts was continuously implemented for PUSO staff. The TA is expected to have a beneficial effect on other provincial towns pursuing similar objectives of service delivery under market principles and corporatization. During the review missions, the Government emphasized the need for further assistance in implementing similar urban development TAs. Overall, the TA is rated as successful.

Major Lessons Learned

The TA was attached to the loan, which was, however, implemented with some delay, hindering the availability of data and information for the TA. Future ADB projects should consider more closely integrating TA components under loans to improve coordination and effective implementation.

Recommendations and Follow-Up Actions

Although GIACUDPU is responsible for the use and management of the MIS, it has not assigned any member of its staff to monitor the MIS. GIACUDPU should pay more attention to strengthening and increasing the use of the MIS by assigning a technically qualified staff member to the task. ADB and the Government should closely monitor the progress of the MIS.

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EVALUATION OF THE FINANCIAL PERFORMANCE OF PUBLIC URBAN SERVICES ORGANIZATIONS

A. Financial Performance During Project Implementation

1. The accounting staff of public utility services organizations (PUSOs) started recording Asian Development Bank (ADB) loans and assets in 2001.¹ PUSOs had much lower operational revenues and expenditures during project implementation than forecasted at appraisal. The gap was due to delays in physical construction and overly optimistic assumptions about water and sanitation sales revenues at appraisal. At appraisal, balance sheets showed that revaluation assumptions of the PUSOs' assets were too optimistic compared with the actual figures, projecting better debt service ratios and cash balances. Revaluation of assets was an important assumption for full cost recovery, targeted by 2001 at appraisal. However, at completion, all the PUSOs achieved positive net income to cover operation and maintenance (O&M), without revaluation of assets or generation of more depreciation. Details of the results of the income statements, balance sheets, and cash flow during implementation periods are kept in the project file.

2. Table A7.1 compares key financial ratios at the completion with those at appraisal. No specific target ratios were proposed at appraisal. In 2001, all PUSOs have resulted in higher operational ratios (ranges from 0.88 to 1.03) compared with the projection at appraisal (from 0.69 to 0.82), but still acceptable since positive cash flows for O&M were generated.² Current ratios (measuring the short-run liquidity) were projected to be over 6 at appraisal. Actual current ratios of all PUSOs, except Hovd, hardly reached the ideal level of 2 in 2001. Long-term debts to equity ratios were also projected as ranging between 0.3 and 0.5 at appraisal, expecting assets revaluation. During the project implementation, no assets revaluation had been carried out. As a result, all the PUSOs came up with very high long-term debt to equity ratios.

Table A7.1: Comparison of Key Financial/ Operational Ratios

Selected Indicators	Moron	Ulaangom	Olgii	Hovd	Uliastay
At appraisal					
1. Operational ratio	0.72	0.74	0.70	0.82	0.69
2. Current ratio	9.0	6.9	6.4	8.7	7.0
3. Long-term debt to equity ratio	0.5	0.4	0.5	0.3	0.5
Actual achievement in 2001					
1. Operational ratio	1.00	1.01	1.00	1.03	0.88
2. Current ratio	0.77	1.19	1.45	5.5	1.34
3. Long-term debt to equity ratio	9.04	4.82	1.85	2.00	7.79

B. Projected Revenues and Expenditures

3. **Water Sales.** Total revenues from water sales were projected by multiplying the proposed tariff rates for the three groups of customers—organizations, apartments, and informal areas—by the respective forecasts for annual water sales. Institutions with installed water meters were assumed to pay bills based on actual measured consumption from 2003. A zero growth rate in population was assumed.

¹ At the Project Completion Review, financial information on the PUSOs as of June 2002 was available. For consistent comparison, actual data at the end of 2001 were used for the projections.

² The operating ratio indicator expresses operating expenses, including adequate maintenance and depreciation, as a percentage of revenues. The lower the ratio, the better is the borrower's financial performance.

4. **Other Revenues.** Other revenues consist of sanitation, solid waste, and bathhouse (plus heating for Moron only). Sanitation revenues were projected by multiplying the proposed tariff rates for organizations and apartment dwellers. Solid waste revenue calculations were based on by tons for organization, by person for apartment customers, and by household for informal areas. Bathhouse revenues were assumed to be constant.

5. **O&M Costs Without Depreciation.** This analysis assumes that the O&M costs without depreciation will remain constant in real terms. However, inflation would cause them to increase.

6. **Depreciation.** Depreciation of fixed assets was calculated using the straight-line method based on the nature of fixed assets. No salvage value was assumed in the projections. Equipment and vehicles were depreciated on the basis of an average asset economic life of 10 years. Buildings, pipes, and other fixed assets were depreciated at 40 years. The existing fixed assets will continue to be recorded and depreciated at historical cost. Major rehabilitation and repairs are expected from 2015.

7. **Interest Expenses.** Interest expense of 4.5% per year was assumed, with the loan principal being repaid over 15 years starting in 2004. Repayments of the loan principal were assumed to increase in real terms during the repayment period. The foreign exchange risk will be borne by the Government. The current portion of long-term loans, being the amount payable within a year, was included as a current liability on the balance sheet.

8. **Tax.** Value-added tax (VAT) was excluded from PUSO revenues. The financial analysis used current tax rates of 15% for taxable income of up to MNT100 million, 40% for taxable income exceeding MNT100 million, and were based on the assumption that there would be no change in tax rates during the forecast period.

9. **Inflation and Exchange Rate.** Local inflation of 5% per year during the forecast period was assumed. The exchange rate was assumed to be constant throughout the forecast period.

C. Financial Evaluation

10. The income statement, cash flow statement, and balance sheet projections were based on the expectation that the Government would implement the real tariff increase rates agreed and reported in the Memorandum of Understanding of the Project Completion Review Mission. PUSOs were operating with positive net incomes by 2001. Debt service of loans will start in 2004. The financial projections show that most of the PUSOs will be financially sustainable over the forecast period. With the projected increases in tariffs and operational revenues, financial performance of the all PUSOs will be improved gradually eliminating negative returns on assets, attaining the full cost recovery with appropriate composition of current assets and liabilities, and generating the sufficient cash for loan repayments and assets rehabilitation. However, because of new asset depreciation, all the PUSOs will have negative retained earnings until sometime between 2011 and 2015. Projected financial evaluation ratios are summarized in Table A7.2 below.³

³ Detailed projections are found in Tables A8.17–31 of the Memorandum of Understanding for the Project Completion Review Mission.

Table A7.2: Projected Financial Evaluation Ratios

Financial Indicator	2002	2005	2009	2012	2015	2018
A. Hovd						
Operating ratio, %	107.89%	109.65%	96.68%	88.23%	70.44%	65.88%
Percentage growth in revenue	(-43.40%)	7.02%	6.76%	6.81%	6.87%	6.92%
Return on fixed assets %	(-2.75%)	(-4.29%)	(-1.03%)	2.10%	7.49%	10.36%
Current ratio	6.67	0.77	0.61	1.43	4.68	1.79
Long-term debt/equity ratio	2.09	2.19	2.47	1.37	0.32	0.00
Debt to assets ratio	0.69	0.71	0.74	0.63	0.32	0.09
Debt service ratio		0.66	1.17	1.78	2.67	4.03
B. Moron						
Operating ratio, %	127.71%	98.79%	94.85%	93.50%	82.52%	81.31%
Percentage growth in revenue	(-39.77%)	5.49%	5.49%	5.50%	5.50%	5.51%
Return on fixed assets %	(-6.02%)	(-2.29%)	0.82%	2.57%	9.15%	11.67%
Current ratio	0.41	0.34	0.54	1.33	3.04	1.39
Long-term debt/equity ratio	9.04	8.81	5.93	2.13	0.36	0.00
Debt to assets ratio	0.91	0.92	0.89	0.74	0.38	0.13
Debt service ratio		0.87	1.35	1.73	2.96	4.10
C. Olgyi						
Operating ratio, %	120.50%	116.30%	108.61%	103.12%	75.64%	71.95%
Percentage growth in revenue	(-29.26%)	6.69%	6.72%	6.74%	6.75%	6.77%
Return on fixed assets %	(-1.44%)	(-5.44%)	(-3.80%)	(-1.83%)	6.06%	8.36%
Current ratio	27.20	4.65	3.04	2.87	3.94	0.50
Long-term debt/equity ratio	1.60	1.57	2.28	2.81	0.26	0.00
Debt to assets ratio	0.62	0.63	0.73	0.78	0.31	0.29
Debt service ratio		0.54	0.76	1.03	2.18	3.22
D. Ulaangom						
Operating ratio, %	132.41%	110.92%	107.90%	77.75%	76.19%	74.65%
Percentage growth in revenue	(-48.31%)	5.69%	5.70%	5.71%	5.71%	5.72%
Return on fixed assets %	(-7.22%)	(-2.98%)	(-1.59%)	6.44%	7.99%	10.26%
Current ratio	1.32	1.88	1.02	1.54	3.52	0.70
Long-term debt/equity ratio	4.82	2.59	2.83	1.45	0.34	0.00
Debt to assets ratio	0.83	0.74	0.77	0.64	0.33	0.20
Debt service ratio		0.49	0.57	1.14	1.53	2.10
E. Uliastay						
Operating ratio, %	71.42%	104.99%	101.69%	99.26%	60.63%	59.31%
Percentage growth in revenue	58.65%	5.75%	5.76%	5.77%	5.77%	5.78%
Return on fixed assets %	23.67%	(-3.64%)	(-2.33%)	(-1.20%)	6.91%	8.63%
Current ratio	2.02	1.94	0.91	0.73	2.08	0.13
Long-term debt/equity ratio	2.72	3.72	13.39	(-8.05)	1.12	0.00
Debt to assets ratio	0.74	0.80	0.94	1.11	0.61	0.27
Debt service ratio		0.80	0.92	1.08	2.03	2.72

1. Projected Financial Performance

11. Projected operating ratios for the five PUSOs range from 99% for Moron to 116% for Olgiy. Five PUSOs have ratios higher than accepted norm of 80%, showing that their operating costs are high. Operating ratios in the project towns will improve gradually to 80% by 2013. Percentage growths in revenue range from 5.5% for Moron to 6.7% for Hovd and Olgiy. The percentage growth figure shows that operating revenues for all PUSOs will increase over the forecast period. All the towns have negative return on fixed assets in 2005 because of increased depreciations. The return on fixed assets for four PUSOs will become positive in between 2009 and 2013 and continue to improve throughout the forecast period.

2. Projected Financial Position

12. The projected current ratio for PUSOs in Olgiy is above 2:1 throughout the debt service period. For Uliastay, Hovd, Ulaangom, and Moron the current ratio will exceed 2:1 by 2013–2014. The current ratios show that all PUSOs will have adequate financial liquidity to meet short-term debts. Debt-to-equity ratios are high because the project costs are mainly from ADB loan financing. Once the Project is complete, the debt ratios will improve through revenue realization and repayment of loans.

3. Projected Cash Position

13. Cash flow projections show that all five PUSOs will have a positive cash position throughout project implementation and the loan repayment period. Projected debt service ratios for the towns, based on the total of loan interest and principal repayments, are all below 1 for 2005. A ratio of 1.3 will be attained by 2009 for Moron, 2013 for Uliastay, 2018 for Ulaangom, 2010 for Hovd, and 2013 for Olgiy.

D. Tariffs and Cost Recovery Analysis for Water Component

14. Summary of tariff increases (i) envisaged at appraisal, (ii) actual, and (iii) required percentage for cost recovery, are in Table A7.3 below. The appraisal target tariff increase of 35% in real terms was generally pursued only for apartment residents, and contributed to reducing the inequality of water tariff charges between formal and informal areas. Tariff charges for the water users in institutional organizations and public buildings were not increased as appraised. To facilitate the achievement of the target tariff increase for water users in institutional buildings, and thus strengthen the financial capacity of PUSOs to pay back the subloans, the tariffs for institutional buildings needs to be increased by 1–3% annually in real terms.

15. Actual water cost recovery by each PUSO for 1997–2001 and projected recovery for 2002–2024 (with assumed inflation of 5%) was analyzed.⁴ Actual nonrevenue water (NRW) was estimated by PUSOs and NRW projections were based on the assumption that NRW will be reduced by 1% over the 10-year period from 2003. Savings in electricity expenses resulting from the reduction in NRW were included. Average tariff was estimated by dividing projected water sales revenues by projected water consumption. Average water unit cost was estimated at four levels: (i) O&M without depreciation, (ii) O&M with depreciation, (iii) O&M plus interest payment, and (iv) O&M without depreciation plus debt service, including both principal and interest payments, resulting in four different scenarios of water cost recovery. All data are in current prices.

⁴ The detailed information was reported in the memorandum of understanding of the project completion mission.

16. A condition of the Project was that the PUSOs should have enough revenues to meet O&M costs and at least 50% of the depreciation of revalued assets by the first loan disbursement, and that they should recover O&M, depreciation, and interests payment by the end of the Project. Long-term projections show that water tariffs will generally cover costs at all levels and generate cash for major rehabilitation of assets. Without accounting depreciation, all five PUSOs will comfortably recover O&M costs and debt service including principal and interest payment. However, Uliastay is expected to have insufficient revenue to cover O&M and debt service for the first 3 years of debt service, starting in 2004, which requires a particular attention from the provincial government. In general, sustainable cost recovery is confirmed through the projections, and depreciation will be the major factor determining the level of cost recovery throughout the debt service period.

Table A7.3: Tariff Increases^a

Town	Water Supply				Sanitation		
	Apt (MNT/ p-m)	Ger (MNT/ m ³)	Inst. Metered (MNT/m ³)	Inst. Not Metered (MNT/m ³)	Apt (MNT/p /m)	Inst. Metered (MNT/ m ³)	Inst Not Metered (MNT/ m ³)
A. Hovd							
Appraisal (1997)	74	600	325	140	80	385	220
Current (2002)	196	600	1,304	137 ^b	204	1,411	219
Real increase (1997–2002)	61.5%	(39.0%)	144.6%	(40.3%)	55.4%	123.4%	(0.4%)
Nominal increase (1997–2002)	164.9%	0.0%	301.2%	-2.1%	155.0%	266.5%	(0.5%)
Real increase from 2003 (%)^c	0	(0)	1	3	0	1	3
B. Moron							
Appraisal (1997)	220	800	550	500	260	650	600
Current (2002)	287	870	1,887	992	387	2,261	2,226
Real increase (1997–2002)	(20.5%)	(33.7%)	109.1%	20.9%	(9.3%)	112.0%	126.2%
Nominal increase (1997–2002)	30.4%	8.8%	243.0%	98.4%	48.8%	247.8%	271.0%
Real increase from 2003 (%)^d	0	(0)	0	0	0	0	0
C. Olgyj							
Appraisal (1997)	180	300	300	300	210	700	700
Current (2002)	61 ^e	870	600	600	61	900	900
Real increase (1997–2002)	NA	76.8%	21.9%	21.9%	NA	(21.6%)	(21.6%)
Nominal increase (1997–2002)	NA	190.0%	100.0%	100.0%	NA	28.6%	28.6%
Real increase from 2003 (%)	0	(0)	2	2	0	2	2
D. Ulaangom							
Appraisal (1997)	200	600	900	900	250	1300	1300
Current (2002)	450	800	900	900	450	1300	1300
Real increase (1997–2002)	37.2%	(18.7%)	(39.0%)	(39.0%)	9.7%	(39.0%)	(39.0%)
Nominal increase (1997–2002)	125.0%	33.3%	0.0%	0.0%	80.0%	0.0%	0.0%
Real increase from 2003 (%)	0	(0)	1	1	0	1	1
E. Uliastay							
Appraisal (1997)	150	870	450	450	140	450	450
Current (2002)	500	870	854	854	500	854	854
Real increase (1997–2002)	103.2%	(39.0%)	15.7%	15.7%	117.7%	15.7%	15.7%
Nominal increase (1997–2002)	233.3%	0.0%	89.8%	89.8%	257.1%	89.8%	89.8%
Real increase from 2003 (%)	0	(0)	1	1	0	1	1

m³ = cubic meters, p-m = person-months.

Note:(0) indicates not just zero but negative in real terms.

^a Tariffs are without value-added tax.

^b Of 66 institutional consumers in Hovd, 47 are not metered.

^c Applying metered consumption in bills from 2003. Annual average % tariff increase schedule agreed with Government.

^d Applying metered consumption in bills from 2003 and assuming 1% real increase in tariffs for heat supply to institutions.

^e MNT/m³

FINANCIAL AND ECONOMIC EVALUATION

1. This appendix presents the results of financial and economic analyses of the water supply and sanitation components of the project towns; Hovd, Moron, Olgij, Ulaangom, and Uliastay. Financial and economic internal rates of return were reestimated for the completed Project. The methodology adopted for economic and financial reevaluation is similar to the one in the Report and Recommendation of the President. The assumptions and data used at appraisal were reexamined and revised, based on recent economic development, the actual project performance during implementation.

A. Financial Evaluation

1. Scope and Assumptions

2. The project construction was generally completed in 2001. The financial and economic evaluations were carried out in real terms, in constant 2002 togrog, by converting actual yearly prices for 1997–2001 into constant 2002 prices. Investment costs were based on the actual figures, and operation and maintenance (O&M) costs were estimated and projected based on nearly a year of project operating experience. Due to short period of base data for projection, the same assumption used at appraisal, constant O&M costs, was adopted. An evaluation period of 25 years (1997-2022), including project implementation, was used for the Project at appraisal. The recalculation of financial internal rate of return (FIRR) and economic internal rate of return (EIRR) is, therefore, based on the 25-year period considering delayed investment.

3. Actual capital cost in togrog was used in the analysis. Physical water loss was projected to decrease by 1% annually, and annual savings in electricity expenses subsequent to improvement were estimated. Other operating costs without depreciation were projected to be at the same level in real terms after the construction period. The depreciation period used for the estimates was 10 years for equipment and 40 years for building and facilities. No residual value was assumed.

4. The population was assumed to remain at the 2002 level. The average annual growth rate over the forecast period was assumed to be zero. No additional water consumption by institutions and companies was assumed, apart from requests already made to the public urban services organizations (PUSOs) for new connections to the centralized water supply and sanitation network. Estimates of annual revenues were based on the proposed tariff increases for apartments and institutions and decreases in real terms for *ger* (informal settlement) residents, and on the expectation that billing based on actual measured consumption of institutions will replace norm-based billing, starting in 2003. Collection was assumed to be 80–90% of the total billing. Current tariffs and proposed tariff increases in real terms are shown in Table 2 of the main text. The weighted average cost of capital was estimated at 2.72% (Table A8.1).

Table A8.1: Reestimated Weighted Average Cost of Capital

Financing Source	Weight (%)	Nominal Cost (%)	Weighted Cost (%)
ADB	81.8	4.5	3.68
PUSO	0.0	14.0	0.00
Government	18.2	14.0	2.55
WACC nominal			6.23
WACC real – foreign^a			2.26
WACC real – local^b			0.46
WACC real			2.72

ADB = Asian Development Bank; PUSO = public urban services organizations,
WACC = weighted average cost of capital.

^a 60.46% foreign currency, 2.4% foreign inflation.

^b 39.34% local currency, 5.0% local inflation.

5. Mongolia imposes value-added tax (VAT) of 15% on all sales and services. The financial analysis was based on current tax rates of 15% for taxable income of up to MNT100 million and 40% for taxable income exceeding MNT100 million, and assumed no change in tax rates during the projections.

2. Financial Internal Rate of Return

6. The results of the financial evaluation showing a comparison with the appraisal values are summarized in Table A8.2. Details of estimation are kept in the project file. The FIRR's vary between 6.0% for Ulaangom and 11.8% for Hovd. The FIRR's at completion are still at acceptable levels in relation to the real WACC of 2.72% for the Project overall.

7. FIRR's were lower at completion than at appraisal because of the following: (i) too optimistic assumptions about water and sanitation sales at appraisal (actual water and sanitation sales revenues in 2001, for example, were much lower than the appraisal projections; the projected values were about 2.7 times the actual values for Olgiy and about 3.7 times for Hovd); (ii) actual tariff increase to the water users in institutional and public buildings was lower than the appraisal projections; and (iii) fewer savings in electricity expenses at completion, compared with a 5% annual reduction in real terms at appraisal.

8. Three scenarios like those used at appraisal were tested to evaluate the implications of uncertainty for estimating financial viability. The switching value shows a percentage change in the variable required to reduce the net present value to zero at the discount rate (WACC). In general, FIRR's at completion indicate that the Project is less sensitive to the changes in operation costs or revenue changes, than it was anticipated at appraisal.

Table A8.2: Financial Internal Rates of Return and Sensitivity Tests

Scenarios for Sensitivity Test	FIRR at appraisal	FIRR at completion	Switching Value (%)	Comment on sensitivity
A. Hovd: base case	20.5	11.8		
1. Increase O&M by 10%	21.1	9.8	47.2	Insignificant
2. Reduce revenues by 10%	18.0	9.1	-32.7	Insignificant
3. Combination of 1 and 2	19.6	7.1	-	Insignificant
B. Moron: base case	12.3	7.7		
1. Increase O&M by 10%	12.5	6.1	30.9	Insignificant
2. Reduce revenues by 10%	10.9	5.7	-22.4	Insignificant
3. Combination of 1 and 2	11.4	4.0	-	Insignificant
C. Olgiy: base case	12.3	9.0		
1. Increase O&M by 10%	12.6	6.6	25.7	Insignificant
2. Reduce revenues by 10%	11.1	6.2	-21.6	Insignificant
3. Combination of 1 and 2	11.7	3.7	-	Insignificant
D. Ulaangom: base case	13.2	6.0		
1. Increase O&M by 10%	na	4.3	19.0	Insignificant
2. Reduce revenues by 10%	na	3.2	-11.7	Insignificant
3. Combination of 1 and 2	na	1.3	-	Marked impact, below WACC
E. Uliastay: base case	15.4	7.8		
1. Increase O&M by 10%	15.3	6.4	37.9	Insignificant
2. Reduce revenues by 10%	13.6	6.0	-27.3	Insignificant
3. Combination of 1 and 2	13.8	4.7	-	Insignificant

FIRR = financial rate of return, O&M = operation and maintenance, WACC = weighted average cost of capital.

3. Financial Analysis of Solid Waste Disposal Component

9. Financial analysis of the solid waste disposal component was not carried out at appraisal. At the time, a tariff of MNT250 per household per month was proposed to recover the full cost of solid waste collection services using animal carts in ger areas. The project design was adjusted during implementation. Instead of animal carts each PUSO was provided a solid waste truck and a backhoe. PUSO receives a rental income from the equipment, if other institutions request their use.

10. Cost recovery for solid waste collection and disposal services varies among the PUSOs, depending on institutions such as local government and condominium associations providing the same services in formal and informal areas. The Hovd PUSO fully recovers costs collecting solid waste from ger area (serviced only at request from residents) at MNT8,500 per trip. (The Hovd PUSO serves only 12% of residents, while the local government serves 77% and condominium associations serve 11%.) The PUSO in Moron, which became a sole service provider in early 2002, had losses of MNT40 million from operations in the first half of 2002 because of poor revenue collection. In Olgiy the local government is fully responsible for solid waste collection and disposal. Generally, the cost recovery is highly relevant with the collection rate and rental charge of equipment, and PUSOs would need to improve fee collections.

4. Financial Analysis of Bathhouse Component

11. Bathhouse utilization rate was estimated at 15% at appraisal and was projected to increase gradually, resulting in full cost recovery and elimination of the subsidy for bathhouse services after 2001. Bathhouses in each PUSO were estimated to require a subsidy of MNT3 million in 2001. The user fee of public bathhouses was estimated at MNT500 at appraisal, at a utilization rate of 15%.

12. Generally, the bathhouse utilization rate improved during project implementation to 35–40% on average; however, at this utilization rate a cross-subsidy for bathhouse services was still necessary despite an average tariff of MNT750. New hires for new bathhouses and increases in salary-related expenses (in Hovd, for example, bathhouse salary expenses rose from MNT6.9 million in 2000 to MNT7.8 million in the second quarter of 2002), as well as increases in coal and transportation prices, will require higher rates of utilization to recover cost.

B. Economic Evaluation

1. Scope and Methodology

13. Economic analysis was carried out for the water supply component only through (i) identification and valuation of quantifiable economic benefits, (ii) estimation of economic costs and benefits using the domestic price numeraire, (iii) estimation of a shadow exchange rate factor and a wage rate factor, and (iv) calculation of the EIRR. Estimates of the quantifiable benefits of the water supply component are based on incremental water consumption in ger areas and in apartments and offices, and on cost savings in time spent by ger area residents collecting water.

14. Economic costs were estimated from the financial costs with the following adjustments:¹ (i) a shadow exchange rate factor (SERF) estimated at 1; (ii) a shadow wage rate factor (SWRF) of 0.5 for unskilled labor; (iii) adjustments for value-added tax, import, and corporate income taxes; and (iv) economic opportunity cost of capital (EOCC) of 10%.

2. Economic Internal Rate of Return

15. The results of the economic evaluation are summarized in Table A8.3. Detailed analysis tables are kept in the project file. The EIRRs range from 10.8% for Uliastay to 18.5% for Hovd. Base EIRRs of all five towns are higher than EOCC, indicating economic viability. Improved supply of water at lowered water tariffs and reduced walking time to sources of potable water raised EIRRs in three towns over their appraisal values. A sharp reduction in the ger population of Uliastay resulted in a lower EIRR.

16. Three scenarios, like those used at appraisal, were tested to evaluate the implications of uncertainty for estimating EIRR. Overall, EIRRs are stable and sustained over EOCC with changing costs and benefits, except Uliastay. The switching value shows a percentage change in the variable required to reduce the net present value to zero at the discount rate (EOCC). The economic returns appear to be responding quickly if benefits decline. It is important to shorten the walking distance to water kiosks, so that ger residents can accrue higher benefits.

¹ Taken from ADB Loan No. 1907-MON: Integrated Development of Basic Urban Services in Provincial Towns Project, approved in 2002.

Table A8.3: Economic Internal Rates of Return and Sensitivity Tests

Scenario Sensitivity test	EIRR at appraisal	EIRR at completion	Switching Value (%)	Comment on switching value
A. Hovd: base case	15.7	18.5		
1. Increase costs by 10%	—	16.8	40.1	Insignificant
2. Reduce benefits by 10%	—	15.0	(19.6)	Insignificant
3. Combination of 1 and 2	—	13.4		Insignificant
B. Moron: base case	11.0	14.6		
1. Increase costs by 10%	11.7	13.4	21.4	Insignificant
2. Reduce benefits by 10%	10.2	12.0	(9.8)	Significant
3. Combination of 1 and 2	10.9	10.7		
C. Olgiv: base case	11.2	16.1		
1. Increase costs by 10%	12.2	14.3	22.5	Insignificant
2. Reduce benefits by 10%	10.6	12.5	(11.5)	Insignificant
3. Combination of 1 and 2	11.7	10.7		
D. Ulaangom: base case	18.4	14.0		
1. Increase costs by 10%	16.9	12.5	13.1	Insignificant
2. Reduce benefits by 10%	15.2	10.9	(6.5)	Significant, risky
3. Combination of 1 and 2	16.3	9.4		
E. Uliastay: base case	22.4	10.8		
1. Increase costs by 10%	23.0	10.0	16.2	Insignificant
2. Reduce benefits by 10%	20.5	8.6	(5.9)	Significant, risky
3. Combination of 1 and 2	20.7	7.8		

EIRR = economic internal rate of return.

3. Sanitation, Solid Waste, and Bathhouse Components

17. The sanitation improvement, solid waste collection and disposal, and bathhouse components were not subjected to economic evaluation at appraisal because (i) their benefits relate primarily to health and the environment and are difficult to evaluate, and (ii) there was no reliable information on willingness to pay for improvements in these services. EIRRs for these components at project completion were not estimated for the same reasons. However, during the completion review mission, it was observed that substantial health benefits and environmental improvement exist as a result of better solid waste collections and landfill site management.

ASSESSMENT OF INITIAL PROJECT PERFORMANCE

Criterion (a)	Weight (%) (b)	Assessment (c)	Rating Value (d)	Weighted Rating^a (b x d)
Relevance	20	Highly relevant	3	0.6
Efficacy	25	Efficacious	2	0.5
Efficiency	20	Efficient	3	0.6
Sustainability	20	Likely sustainable	2	0.4
Environmental, Sociocultural, and Other Impacts	15	Moderately successful	2	0.3
Overall Rating		Successful		2.4

^a Highly successful = overall weighted average (OWA) > 2.5, and no criteria less than 2; successful = OWA 1.6-2.5, and no criteria less than 1; Less than successful = OWA 0.6-1.6, and not more than 1; unsuccessful = OWA < 0.6.