



# Report and Recommendation of the President to the Board of Directors

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Project Number: 37697  
November 2006

## Proposed Loan Mongolia: Urban Development Sector Project

Asian Development Bank

## CURRENCY EQUIVALENTS

(as of 15 November 2006)

Currency Unit	–	togrog (MNT)
MNT1.00	=	\$0.000859
\$1.00	=	MNT1,164

## ABBREVIATIONS

ADB	–	Asian Development Bank
CBO	–	community-based organization
DED	–	Deutscher Entwicklungsdienst (German Development Service)
EIRR	–	economic internal rate of return
EMP	–	environmental management program
FIRR	–	financial internal rate of return
GAP	–	gender action plan
GTZ	–	Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation)
IA	–	implementing agency
ICB	–	international competitive bidding
IEE	–	initial environmental examination
JFPR	–	Japan Fund for Poverty Reduction
JICA	–	Japan International Cooperation Agency
LIBOR	–	London interbank offered rate
MCUD	–	Ministry of Construction and Urban Development
MOF	–	Ministry of Finance
NBFI	–	nonbanking financial institution
NCB	–	national competitive bidding
O&M	–	operation and maintenance
OLA	–	onlending agreement
PFI	–	participating financial institution
PIP	–	Public Investment Program
PIU	–	project implementation unit
PMU	–	project management unit
PPMS	–	project performance monitoring system
PSC	–	project steering committee
PUSO	–	public urban services organization
RD	–	Road Department
RF	–	resettlement framework
RP	–	resettlement plan
SLA	–	subsidiary loan agreement
TA	–	technical assistance
UMG	–	Ulaanbaatar municipal government
VOC	–	vehicle operating cost
WACC	–	weighted average cost of capital

## WEIGHTS AND MEASURES

lpcd	–	liters per capita per day
lpd	–	liters per day
m <sup>3</sup>	–	cubic meter

## GLOSSARY

<i>aimag</i>	–	province/provincial
<i>ger</i>	–	traditional tent
<i>hashaa</i>	–	residential plot
<i>soum</i>	–	district

## NOTES

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

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## LOAN AND PROJECT SUMMARY

<b>Borrower</b>	Mongolia
<b>Classification</b>	Targeting Classification: General intervention Sector: Multisector (water supply, sanitation and waste management; transport and communications; and finance) Subsectors: Water supply and sanitation, waste management, roads and highways, microfinance Themes: Inclusive social development, environmental sustainability Subthemes: Human development, urban environmental improvement
<b>Environment Assessment</b>	Category B. An initial environmental examination was undertaken.
<b>Project Description</b>	<p>The Project follows a sector lending approach and supports sector policies on urban development, including the Government's Action Plan for 2004–2008 and program to provide 40,000 households with opportunities to live in housing with improved basic services. The Project will consist of four components: (i) A: improvement of basic urban services, (ii) B: urban road improvement, (iii) C: small loans for water connections and on-plot facility improvements, and (iv) D: institutional development and training.</p> <p>Project implementation will start with two core subprojects: (i) improvement of the Hailaast road section in Ulaanbaatar; and (ii) water supply, sanitation, and solid waste management in Erdenet. The remaining subprojects will be identified and formulated during project implementation in accordance with rigorous procedures for screening, identification, selection, and appraisal of the subprojects. The Asian Development Bank (ADB) reviewed the two core subprojects and found that they are viable from a technical, institutional, social, financial, economic, and environmental perspective. For each of the remaining subprojects, the Ulaanbaatar municipal government and concerned <i>aimag</i> (province) governments and public urban services organizations (PUSOs) will prepare a feasibility study, including a resettlement plan and environmental impact assessment. For the water supply subcomponent, concerned <i>aimag</i> governments will be required to indicate strong political commitment to implement the tariff reforms to ensure repayment to the Government.</p>
<b>Rationale</b>	Mongolia experienced rapid urbanization during the second half of the 20th century, mainly because of rural-to-urban migration. The urban population is now 60% of the national population of 2.56 million. Urban areas in Mongolia present two very different and distinct patterns of residential accommodation: apartment areas and <i>ger</i> (traditional tent) areas. Apartment areas are formally laid out to include permanent housing based on socialist planning

practices and featuring multi-family housing surrounded by (vaguely defined) open space. These areas have the benefit of full utility services, including heating and hot water. By contrast, *ger* areas are typically long strips of large, unserviced plots with wide unpaved roads on one or two sides. Both types of layout are found in virtually all of the country's urban settlements. Following the withdrawal of Soviet support at the start of the 1990s, there has been relatively little extension of apartment areas but *ger* areas have experienced continued growth in most cities as most in-migrants live in *ger* areas.

Urban areas in Ulaanbaatar are growing rapidly because of substantial population migration from rural areas. The total population in Ulaanbaatar is estimated at over 1 million, including about 80,000 students and 60,000 non-registered residents. Some 60% of the total population lives in *ger* areas. In 2004, Ulaanbaatar's road network totaled about 376 kilometers (km), comprising 77 km (20.5%) of national roads, 190 km (50.5%) of city roads, and 109 km (29.0%) of district or municipal roads. Road construction has been increasing slowly by 1.2% per annum for the past 5 years. Most roads in Ulaanbaatar are poorly maintained asphalt or gravel roads. About 288 km of roads in the city need to be reconstructed or rehabilitated. Only 10% of the city roads have drainage systems, which often are clogged with trash.

The major issues in the urban development sector in Mongolia are (i) deficiency in the quality of urban infrastructure and services, especially in *ger* areas; (ii) lack of community participation in the management and operation of urban services; (iii) lack of cost recovery and inadequate financial management in public services; (iv) lack of financial and organizational autonomy of the PUSOs; (v) lack of capacity of local governments, through the PUSOs, to provide and operate urban infrastructure and facilities; (vi) reluctance of the Government to acknowledge the permanent status of *gers* or *hashaas* (residential plots); (vii) inadequate urban roads in Ulaanbaatar; (viii) poor management and maintenance of urban roads in Ulaanbaatar; and (ix) health problems and associated economic loss.

#### **Impact and Outcome**

The impact of the Project is to improve the living conditions and quality of life of the urban population, especially in *ger* areas. The outcome of the Project will be upgraded basic urban services, urban roads, and on-plot facilities.

#### **Project Investment Plan**

The investment cost of the Project is estimated at \$37.6 million equivalent, including taxes and duties of \$2.6 million.

## Financing Plan

(\$ million)

Source	Total	Percent
A. Asian Development Bank	28.2	75.0
B. State Government	4.9	13.0
C. Local Government	0.3	0.8
D. UB Roads Agency	2.1	5.6
E. Germany (DED)	1.2	3.2
F. Germany (GTZ)	0.2	0.5
G. Local Banks	0.7	1.9
<b>Total</b>	<b>37.6</b>	<b>100.0</b>

DED = German Development Service, GTZ = Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation), UB = Ulaanbaatar.

Source: Asian Development Bank estimates.

ADB will provide a loan of \$28.2 million equivalent from ADB's Special Funds resources. The loan will have a 32-year term, including a grace period of 8 years, an interest rate of 1% per annum during the grace period and 1.5% thereafter.

## Allocation and Relending Terms

The major portion of the loan proceeds will be relented by the Borrower, through the Ministry of Finance, to the participating *aimag* governments and Ulaanbaatar municipal government under subsidiary loan agreements (SLAs) based on the size of the subprojects under components A and B. *Aimag* governments will enter into onlending agreements (OLAs) with the respective PUSOs. SLAs and OLAs will carry an interest rate of ADB rate not exceeding 3.25 (1.50% plus 1.75%) per annum, a repayment period of 22 years including a 6-year grace period. For component C, the Borrower, through the Ministry of Finance, will relend funds to participating financial institutions (PFIs) under a series of SLAs. The SLAs to the PFIs will carry an interest rate determined on cost of the loan, foreign exchange and interest variation risks and the Project pro-poor objective and affordability of the poor subborrowers. The PFIs will onlend the loan proceeds to the subborrowers on the terms of an interest rate not exceeding 10% per annum a repayment period of two to ten years including a grace period of one year.

## Period of Utilization

Until 30 June 2013

## Estimated Project Completion Date

31 December 2012

## Implementation Arrangements

A project steering committee chaired by the state secretary of the Ministry of Construction and Urban Development will be responsible for project coordination and providing policy guidance during implementation. A project management unit (PMU) will serve as the secretariat of the project steering committee and will be responsible for coordinating the implementation of project activities. A working group will be established to stimulate participation of the principal stakeholders for each subproject. A

project implementation unit (PIU) will be established in each project town and Ulaanbaatar to coordinate the preparation and development of subprojects and support their implementation under the general direction of the PMU.

**Executing Agency**

Ministry of Construction and Urban Development

**Procurement**

ADB-financed civil works, equipment, and materials will be procured in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time). Major contracts for equipment and materials will be tendered through international competitive bidding, national competitive bidding, or shopping procedures, depending on the contract amount. Civil works contracts will be procured through national competitive bidding or international competitive bidding. In accordance with ADB's *Procurement Guidelines*, foreign contractors may participate in bidding for local competitive bidding contracts.

**Consulting Services**

The Project will require about 195 person-months of international and 82 person-months of national consulting services to support the PMU and PIUs in project implementation and management, the feasibility study for the urban road improvement component, detailed design and survey, institutional development, and education and training. The ADB loan will finance 31 person-months of international and 82 person-months of national consultants. The international consultants will have expertise in (i) project management and procurement, (ii) finance and microfinance, (iii) institutional development and financial management, and (iv) sanitation. The national consultants will have expertise in (i) resettlement; (ii) environment; (iii) legal aspects; (iv) database development; (v) financial management; and (vi) construction supervision, feasibility studies for the remaining subprojects under component B, and detailed designs of components A and B. The consultants will be selected and engaged in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time). All international consultants and the national consultants for project management will be selected and contracted individually. National consultants for feasibility studies and detailed designs will be selected and contracted as firms using ADB's quality and cost-based selection procedure among short-listed national consulting firms. German development cooperation through the German Development Service (DED) will provide 144 person-months of long-term international experts in community engineering (2 positions) and community development and training. German development cooperation through the German Agency for Technical Cooperation (GTZ) will provide a maximum of 20 person-months of short-term experts. These experts will be assigned at the PMU and PIUs, and guided by and report to the respective PMU and PIU directors. DED and GTZ will select these experts in accordance with their own guidelines.

## **Project Benefits and Beneficiaries**

The Project is designed to have multidimensional impacts on poverty reduction. The Project will provide or upgrade infrastructure, but will simultaneously (i) increase access to small loans for households and neighborhood improvements, (ii) create direct short-term employment for construction and indirect long-term income opportunities, and (iii) empower poor residents in decision-making processes through the establishment of community-based organizations to plan and implement community infrastructure improvements. The Project will have positive health benefits. Residents are expected to experience a reduction in the incidence of water- and vector-borne diseases—related to unsafe drinking water and poor sanitation—as well as medical costs and lost earnings incurred as a result of these diseases. Community participation is at the core of the project design. During project preparation, local communities were extensively involved in the design of the Project through a series of public consultation, focus group discussion, and surveys. The formation and participation of community-based organizations in the Project will be essential in achieving the outputs of the Project. Nongovernment organizations will play a facilitating role in the mobilization of communities and formation of community-based organizations. Capacity building and training needs will also be identified and where appropriate, training will be conducted by nongovernment organizations.

The Project will greatly improve community health and living conditions and reduce environmental pollution. On a per capita basis, the Project will decrease the demands on energy resources by replacing truck water tankers with a piped system. The adoption of composting toilets will reduce groundwater pollution and, with correct management, will produce organic compost for small farmers.

## **Risks and Assumptions**

Two potential risks have been identified. The first is the possibility of delays in the formulation of the remaining subprojects and project implementation caused by weak institutional capacity of the PIUs. Considerable preparatory work has been undertaken for the subprojects, and institutional development for the PIUs will be provided during project implementation to mitigate this risk. The second risk is the possibility of delays in undertaking operational improvements along with revision of the tariff structure for water supply and wastewater collection. To facilitate tariff collection based on the proposed tariff structure, a substantial number of water meters will be installed under the Project for apartment dwellers, public and private organizations, *ger* area water kiosks, and *ger* area households when they are connected. In addition, the project management consultants will assist the *aimag* governments in institutionalizing the tariff review process and conducting regular tariff reviews.

Assumptions include (i) the Government will remain committed to implement the Project, (ii) *ger* area communities and local banks

and non-banking financial institutions are willing to participate in the Project, (iii) *ger* area households are able and willing to save in order to establish creditworthiness and/or develop collateral for small loans, and (iv) land acquisition and resettlement will be implemented in a timely matter.



## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to Mongolia for the Urban Development Sector Project (the Project). The Project will help Mongolia achieve the Millennium Development Goals of environmental sustainability and increased access to safe drinking water and basic sanitation. This report is based on the findings of the loan Appraisal Mission and discussions with the central and local governments, relevant agencies, and community organizations. The design and monitoring framework is in Appendix 1.

## II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

### A. Performance Indicators and Analysis

2. Mongolia experienced rapid urbanization during the second half of the 20th century. This trend accelerated during the transition from central planning to a market-based economy. The urban population is about 1.54 million, equivalent to 60% of the national population of 2.56 million. The urban population is growing by about 2.4% annually while total annual population growth is about 1.4%. Urbanization is mainly due to rural-to-urban migration.

3. Urban areas in Mongolia present two very different and distinct patterns of residential accommodation: apartment areas and *ger* (traditional tent) areas. Apartment areas are formally laid out to include permanent housing based on socialist planning practices, featuring multi-family housing surrounded by (vaguely defined) open space. These areas have the benefit of full utility services, including heating and hot water. By contrast, *ger* areas are typically long strips of large, unserviced plots with wide unpaved roads on one or two sides. Both types of layout are found in virtually all of the country's urban settlements. Following the withdrawal of Soviet support at the start of the 1990s, there has been relatively little extension of apartment areas, but growth of *ger* areas has continued in most cities since most in-migrants live in *ger* areas.

4. The result is a growing disparity in the proportion of population benefiting from basic urban infrastructure. Water is mostly trucked into *ger* areas and supplied through sales kiosks located up to 1 kilometer (km) or more from the farthest households. Water use is limited by having to carry water over long distances and difficult terrain, often in adverse weather conditions. Consequently, the average quantity of water used by *ger* area residents is typically 4–10 liters per capita per day. Moreover, the cost of water obtained from sales kiosks is up to 20 times more than that paid by apartment dwellers for piped central supply. For sanitation, virtually all *ger* area households use basic pit latrines that are inconvenient and a growing hazard to human and environmental health. Over 70% of *ger* area households lack access to solid waste removal points.

5. Urban areas in Ulaanbaatar are growing rapidly because of substantial population migration from rural areas. The total population in Ulaanbaatar is estimated at over 1 million, including about 80,000 students and 60,000 non-registered residents. Some 60% of the total population lives in *ger* areas. In 2004, Ulaanbaatar's road network totaled about 380 km, comprising 77 km (22.4%) of national roads, 190 km (50.5%) of city roads, and 109 km (29.1%) of district or municipal roads. Road construction has been increasing slowly by 1.2% per annum for the past 5 years. Most of the roads in Ulaanbaatar are poorly maintained asphalt or gravel roads. About 288 km of roads in the city need to be reconstructed or rehabilitated. Only 10% of the city roads have drainage systems, which often are clogged with trash.

## B. Analysis of Key Problems and Opportunities

6. The major issues in the urban development sector in Mongolia are (i) deficiency in the quality of urban infrastructure and services, especially in *ger* areas; (ii) lack of community participation in the management and operation of urban services; (iii) lack of cost recovery and inadequate financial management of public services; (iv) lack of financial and organizational autonomy of the public urban services organizations (PUSOs); (v) lack of capacity of local governments, through the PUSOs, to provide and operate urban infrastructure and facilities; (vi) reluctance of the Government to acknowledge the permanent status of *gers* or *hashaas* (residential plots); (vii) inadequate urban road infrastructure facilities and services in Ulaanbaatar; (viii) poor management and maintenance of urban roads in Ulaanbaatar; and (ix) health problems and associated economic loss. The Government has requested the Asian Development Bank (ADB) to provide assistance to achieve Goal 7<sup>1</sup> and Target 10<sup>2</sup> of the Millennium Development Goals.

### 1. Key Problems and Opportunities

7. The Project addresses the growing concern for the effects of population and economic growth on the inadequacy of public services in the *aimag* (provincial) centers, particularly *ger* areas. Continuing urbanization has resulted in increasing water shortage as well as major deficiencies in other urban services. The 1995 medium-term strategy was the first important statement on urban development in Mongolia which recognized that the Government does not have the necessary resources to replace the growing number of *ger* area houses with subsidized apartments. The Government's 2003 Strategy for Economic Growth Support and Poverty Reduction called for reducing disparities in living conditions, and creating an enabling environment to support small and medium-sized enterprise development for both urban and rural settlements.

8. The Government's Action Plan for 2004–2008 has prescribed upgrading the quality of public services by (i) strengthening the capacity and accountability of public service institutions and civil servants; (ii) expanding civil participation at all levels of decision making; (iii) ensuring transparency; (iv) conducting social policy to improve living standards; (v) providing a favorable legal environment, adequate infrastructure, and financial environment to accumulate savings, and to own, possess, and dispose of immovable property such as land and houses; (vi) intensifying residential construction based on standards; and (vii) reducing harmful waste and providing ecological education to residents. Within the framework of this action plan, the Government has developed a program to provide 40,000 families with opportunities to live in housing with improved basic services (the 40,000 Houses Program). The Government has developed a series of plans to achieve its urban development objectives, estimated at a total of about MNT50 billion for 2006–2009. The Government's urban development sector policy and investment plan is in Appendix 2.

9. The Executing Agency for the Project, the Ministry of Construction and Urban Development (MCUD), has significant experience gained from the implementation of ADB-funded projects (Provincial Towns Basic Urban Services and Integrated Development of Basic Urban Services in Provincial Towns Project)<sup>3</sup> and has the technical, financial, and managerial capability to implement the Project (para. 20). Management of the project facilities will be delegated to the implementing

<sup>1</sup> Ensure environmental sustainability.

<sup>2</sup> Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation. Mongolia's total water supply and sanitation coverage was 62% and 59% in 2002.

<sup>3</sup> ADB. 1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Technical Assistance to Mongolia for Provincial Towns Basic Urban Services Project*. Manila (Loan 1560-MON); and ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Mongolia for Integrated Development of Basic Urban Services in Provincial Towns Project*. Manila (Loan 1907-MON).

agencies, i.e., the Road Department (RD) of the Ulaanbaatar municipal government (UMG), and the respective *aimag* governments and PUSOs. MCUD is equipped to provide the necessary capacity building programs for the *aimag* governments and PUSOs. UMG has the technical, financial, and managerial capacity to implement the urban road improvement component of the Project. MCUD currently satisfies ADB's financial management requirements and has the financial management capability to satisfactorily record all transactions and balances, support the preparation of regular and reliable financial statements and financial monitoring reports, and arrange for annual audits to be carried out in a manner acceptable to ADB.

## 2. Project Rationale

10. The Project will initially focus on Ulaanbaatar and Erdenet, the country's two large and rapidly growing urban centers. Subsequently, consideration will be given to relatively small towns or *aimag* centers. The Project will focus on providing improved urban services for growing population in the large urban centers. At the same time, it will selectively provide support for improving living conditions in the smaller towns, which would attract rural people and thus contribute to reduce further migration to the large urban centers.

11. The 1999 Ulaanbaatar Road Master Plan Study financed by the Japan International Cooperation Agency (JICA)<sup>4</sup> set out a road development master plan up to 2020. The master plan recommends major improvements to the capital city's road network, road maintenance system, traffic circulation system, public transport services, and institutional strengthening. The master plan used a population figure of 925,000 for 2020 and motor vehicle population levels significantly lower than current levels. The urban road improvement component under the Project is expected to contribute to improving access within the city, in particular for *ger* areas. Selection and design of the road sections will be determined in close coordination with UMG, considering future city development, to ensure compatibility with the updated master plan.

12. ADB has assisted the Government in developing a sustainable housing finance system in Mongolia.<sup>5</sup> However, access to such loans by low-income households is still limited. According to the demand survey conducted as part of the poverty and social analysis, the majority of households expressed interest in taking a small loan. About half of households surveyed expressed interest in using the loan for on-plot facility improvements. Those households that have taken loans in the past indicated that the loans were primarily used for income generation or general consumption. Thus, the Project is expected to fill a gap in loan demand by providing access to small loans for low-income households in *ger* areas for on-plot facility improvements.

## 3. Policy Dialogue

13. **Tariff Policy and Reform.** The Government and ADB agree that tariff reforms for water supply are necessary to enable the PUSOs to be financially sustainable. The tariff reforms aim to: (i) reduce differences in tariffs between beneficiaries, (ii) achieve full cost recovery of operation and maintenance (O&M) and depreciation, and (iii) establish a structured scheme to allow for minimum water consumption to guarantee basic living standards for the poor. The Government supports the decentralization of responsibility for tariff setting to *aimag* governments. MCUD will request participating *aimag* governments to provide MCUD with letters that indicate their commitment to implement the proposed tariff reforms in a timely manner, and enable the PUSOs to undertake management and operational improvements. Further, the *aimag* governments will request Ministry of Finance (MOF) to allocate the required tariff increases for the public organizations. Each

<sup>4</sup> JICA. 1999. *The Master Plan Study on Improved and Rehabilitation of Road Network in Ulaanbaatar*. Tokyo.

<sup>5</sup> ADB. 2001. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Mongolia for Housing Finance (Sector) Project*. Manila (Loan 1847-MON).

participating *aimag* government will institutionalize a tariff review process and conduct regular tariff reviews. The Project will provide education and training for local communities to increase awareness and understanding on the need for tariff reforms. It is important that (i) water tariff for both *ger* areas and apartment areas, including institutions, will be revised to a parity level to recover full cost; (ii) water meters will be installed in all apartment households, public and private organizations, water kiosks in *ger* areas, and *ger* area households when they are connected; and (iii) the *aimag* government's commitment to tariff reform will be included in the subsidiary loan agreement (SLA) between the Government and the *aimag* government. In particular, the Project will closely monitor implementation of the tariff reform in the smaller project towns, and provide guidance to ensure timely implementation of the tariff reforms.

14. **City Master Plans and Ger Area Development Planning.** Preparation and updating of city master plans is under the responsibility of *aimag* governments, but budget limitations often constrain their timely production. The Government considers that planning for cities, including *ger* areas, is necessary. To ensure that *ger* areas do not continue to be considered temporary in nature, the Government has adopted a structured planning approach based on projected population, economic activities and employment forecast, land zoning and land use, and demand for infrastructure support. This will allow infrastructure investments to play a proactive and facilitating role rather than being delayed reactive measures.

15. **Community and Private Sector Participation.** Government policy concerning community participation in urban development is still being formed. Community participation has been initiated under the Project through the social survey and public consultations conducted during project preparation. This process will continue and a feedback mechanism will be established during project implementation. Opportunities for private sector participation exist in recycling of rejected materials such as fuel ash, metals, plastics, and glass. Community and private sector participation will be supported by the proposed Japan Fund for Poverty Reduction (JFPR) project<sup>6</sup> which will be implemented in parallel with the Project.

#### 4. External Assistance

16. ADB has provided support for the urban development sector since 1998 through loan, technical assistance (TA), and grant projects for improvements to basic urban services in the provincial capitals, housing finance, living environment improvements in *ger* areas, cadastral survey and land registration, and regional development planning (footnotes 3 and 5).<sup>7</sup> ADB is one of the main sources of external assistance for the sector. The World Bank is also a major source of assistance in this sector. It has worked primarily in Ulaanbaatar and has provided two loans to upgrade basic urban services in *ger* areas there. The United Nations Development Programme is implementing a grant program for superinsulated, energy efficient houses. Among bilateral agencies, Germany is conducting an integrated urban development program, mainly in Ulaanbaatar. Japan is developing a master plan for solid waste management in Ulaanbaatar and rehabilitating the water source of Ulaanbaatar. Australia, France, and Sweden are also implementing projects with urban implications. Donor coordination in the urban development sector has been undertaken during project preparation through seminars and workshops. External assistance for urban development is described in Appendix 3.

<sup>6</sup> Proposed Grant Assistance to Mongolia for Community-Driven Development for Urban Poor in Ger Areas. Manila (funded from the Japan Fund for Poverty Reduction).

<sup>7</sup> ADB. 2000. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Technical Assistance to Mongolia for Cadastral Survey and Land Registration Project*. Manila (Loan 1736-MON); and ADB. 2002. *Proposed Grant Assistance to Mongolia for Improving the Living Environment of the Poor in Ger Areas of Mongolia's Cities*. Manila (JFPR 9015-MON).

## 5. Lessons

17. Lessons learned from ADB's experience in the urban development sector are reflected in the project design and policy dialogue with the Government. They will also be reflected in the engineering design of the project facilities and in institutional development programs.

18. The Project will be the first sector loan project for urban development in Mongolia. ADB's experience in other countries indicates that sector loans tend to be implemented more slowly than project loans. Lessons learned include the following: (i) subproject formulation needs to be undertaken during the project preparatory stage as much as possible, (ii) simple and affordable technologies should be applied for construction and improvement of facilities, and (iii) institutional development and training need to be provided during project implementation.

19. Small loans operations in *ger* areas are emerging initiatives in Mongolia. ADB has been supporting housing finance through the Housing Finance (Sector) Project (footnote 5) and the project for Improving the Living Environment of the Poor in *Ger* Areas of Mongolia's Cities (footnote 7). Lessons from these ongoing projects include the following: (i) a sound legal and regulatory environment is needed; (ii) individual savings before receiving loans help facilitate repayments;<sup>8</sup> and (iii) careful vetting and selection of participating financial institutions, based on comprehensive selection criteria, is important.

## 6. Sector Loan Approach

20. The Project has been formulated to support the Government's sector policies on urban development, including the Government's Action Plan for 2004–2008 and the 40,000 Houses Program. MCUD has demonstrated its capacity to implement externally funded projects supported by ADB (footnotes 3, 5, and 7). ADB has also provided advisory TA to help MCUD develop a strategy for the urban development and housing sector,<sup>9</sup> which helped to establish the policy foundation for this Project. Based on its experience in implementing sector activities, including externally funded projects, MCUD has the capacity to implement the sector investment plan. Building on MCUD's established implementation capacity, the Project will provide training for relevant government agencies to further strengthen their capacities to plan and implement the sector policies and plans. The Government meets the three requirements for sector lending: (i) appropriate sector policies, (ii) a sector investment plan, and (iii) the institutional capacity to implement the plan.

21. Project implementation will start with two core subprojects: (i) improvement of the Hailaast road section in Ulaanbaatar; and (ii) water supply, sanitation, and solid waste management in Erdenet. The Erdenet subproject will provide (i) improved water supply for about 6,600 *ger* area households, (ii) piped water supply and sewerage for public institutions, (iii) improved solid waste collection and disposal, and (iv) small loans for on-plot facility improvement for about 1,800 *ger* area households. The Hailaast subproject will upgrade 4.1 km of the existing road in *ger* areas, including drainage to improve (i) public transportation from Hailaast *ger* areas to the city center in Ulaanbaatar, and (ii) access to public services in Hailaast *ger* areas. The remaining subprojects will be identified and formulated during project implementation in accordance with rigorous procedures for screening, identification, selection, and appraisal of the subprojects described in Appendix 4. ADB reviewed the two core subprojects and found that they are viable from a technical, institutional, social, financial, economic, and environmental perspective. For each of the remaining subprojects, UMG and the concerned *aimag* governments and PUSOs will prepare a feasibility

<sup>8</sup> Land privatization is being implemented, but not all households can use their land as collateral for a loan.

<sup>9</sup> ADB. 2005. *Technical Assistance to Mongolia for Developing an Urban Development and Housing Sector Strategy*. Manila (TA 4632-MON).

study including a resettlement plan (RP) and an environmental impact assessment. For the water supply subcomponent, the *aimag* governments concerned will be required to indicate strong political commitment to implement the tariff reforms to ensure repayment to the Government (para. 13). The project management unit (PMU) will be responsible for the appraisal of the subprojects and will prepare subproject appraisal reports for consideration by the project steering committee (PSC). The subproject appraisal reports will then be sent to ADB for approval.

### III. THE PROPOSED PROJECT

#### A. Impact and Outcome

22. The impact of the Project is to improve the living conditions and quality of life of the urban population, especially in *ger* areas. The outcome of the Project will be upgraded basic urban services, urban roads, and on-plot facilities.

#### B. Outputs

23. The Project comprises four components: (i) A: improvement of basic urban services, (ii) B: improvement of urban roads, (iii) C: small loans for water connections and on-plot facility improvements, and (iv) D: institutional development and training.

24. Component A will rehabilitate and/or construct basic urban infrastructure in the project towns and includes subcomponents for water supply, sanitation, and solid waste management. The water supply subcomponent will improve the centralized water supply systems. It will include installation of new and repair of existing pumps and pipes, development of new boreholes and reservoirs, improved control of bulk water supply, and expansion of distribution networks in *ger* areas to connect existing and new water kiosks within 200 meters from the plots, and to provide connection boxes for future individual and kiosk connections. The sanitation subcomponent will rehabilitate existing pumps and pipelines, improve existing wastewater treatment plants and treatment lagoons, and connect public institutions such as schools and hospitals in *ger* areas to the centralized sewerage system. The solid waste management subcomponent will improve collection, transportation, and disposal of domestic solid waste through the provision of solid waste collection and transport trucks and basic landfill management equipment.

25. Component B will upgrade (i) existing unpaved roads that serve as the main access routes to *ger* areas and connect to the trunk roads to the city center, and (ii) street sections that hinder smooth traffic flow because of poor pavement conditions caused by lack of proper maintenance. It will include improvement of pavements; construction and rehabilitation of drainage; provision of surfaced sidewalks; and installation of streetlights, traffic signs, and road markings. Creation of a better environment for pedestrians to improve road safety and smooth movement of vehicles will be considered during detailed design.

26. Component C will make loans available to participating financial institutions (PFIs) (nonbanking financial institutions and commercial banks) so that they can establish small loans facilities to individuals and communities in *ger* areas. The individuals and communities will be the ultimate beneficiaries of small loans. The loans will be made available for three types of individual and community investments. First, loans will be offered to enable individual households to connect to the piped water supply system. Second, loans will be made available to purchase and install water meters in all apartments and *ger* area households when they are connected. Third, small loans will be offered to allow individual households to install on-plot or decentralized sanitation facilities, energy efficient stoves, and housing improvements (such as better insulation) and additions (such as bathrooms and extra rooms). Sanitation facilities will include septic tanks,

compost toilets, and other innovative solutions. Interested *ger* area households can select from among all available options for on-plot sanitation. Initial eligibility criteria of the PFIs and lending mechanisms and conditions were established to ensure that poor households will not be excluded.

27. Component D will comprise three subcomponents. The project management subcomponent will support increasing the efficiency and strengthening the capacity of implementing agencies in implementing the Project. The institutional reform subcomponent will assist the PUSOs to (i) be autonomous and financially sustainable operating entities, (ii) implement the proposed tariff reforms and operational improvements, and (iii) develop sound O&M plans for future service provision. This subcomponent will also assist the RD of UMG to (i) develop a road maintenance master plan; (ii) develop a road safety strategy, including a safety audit program; (iii) develop a comprehensive traffic management and control strategy; and (iv) update the 1999 Ulaanbaatar road master plan. The education and training subcomponent will help government agencies and local communities increase awareness of public health, environmental management, traffic safety, the need for tariff reforms, and alternative technologies for urban infrastructure and services.

### C. Special Features

28. The Project will be the first ADB project to focus on comprehensive *ger* area development. Past and ongoing ADB support, including the Provincial Towns Basic Urban Services Project and Integrated Development of Basic Urban Services in Provincial Towns Project (footnote 3), renovated infrastructure that serves mainly apartment areas. This Project will focus on expanding infrastructure networks into the surrounding *ger* areas. Further, the Project will improve access to funds for *ger* area residents to construct individual water connections and on-plot facilities. Ongoing land privatization by the Government and infrastructure upgrading by the Project is expected to give greater incentives to *ger* area residents to further invest in the improvement of their individual houses and neighborhood environment. In urban areas, 30% of the population is poor and 80–90% of the urban poor live in *ger* areas. Considering the high incidence of poverty in *ger* areas, the Project is expected to contribute substantially to poverty reduction.

29. The reduction of urban waste and its conversion into a useful and potentially marketable resource through ecologically sound, on-plot sanitation will be an important feature of the Project. It will potentially contribute to improved sanitation techniques through eliminating pit latrines and pollution of groundwater, reducing the infrastructure burden on public authorities, and turning human waste into a marketable commodity.<sup>10</sup> This approach will be piloted first and expanded later when the approach is confirmed to be feasible.

30. The Project will be implemented in cooperation and coordination with other external assistance agencies. German development cooperation through the German Development Service (DED) will provide grant parallel cofinancing for long-term experts to support the project activities. The experts will have expertise in training of trainers for community participation and in practical applications of improved technologies for service and housing improvements. German development cooperation through the German Agency for Technical Cooperation (GTZ) has agreed to work closely with ADB to coordinate and harmonize the approaches of the ADB project and the GTZ integrated urban development program. GTZ will also provide grant parallel cofinance for short-term experts in community participation.

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<sup>10</sup> This issue is also included in the model terms of reference prepared by ADB on planning urban sanitation and wastewater management.

## D. Project Investment Plan

31. The total project cost is estimated at \$37.6 million equivalent. A summary of cost estimates is in Table 1. The cost estimates are based on the two core subprojects in Erdenet and Ulaanbaatar, and the other candidate subprojects at mid-2006 prices.

**Table 1: Project Investment Plan**  
(\$ million)

Item	Amounts <sup>a</sup>
<b>A. Base Cost<sup>b</sup></b>	
1. Representative Subprojects	
Component A: Improvement of basic urban services	3.1
Component B: Urban road improvement	1.8
Component C: Small loans for water connections and on-plot facilities	1.1
<b>Subtotal (A1)</b>	<b>6.0</b>
2. Provision for Remaining Subprojects	22.5
3. Component D: Institutional development and training	2.9
4. Tax and duties <sup>c</sup>	2.6
<b>Subtotal (A)</b>	<b>34.0</b>
<b>B. Contingencies<sup>d</sup></b>	
1. Physical	2.4
2. Price	0.9
<b>Subtotal (B)</b>	<b>3.3</b>
<b>C. Financing Charges During Implementation<sup>e</sup></b>	
1. IDC - ADB	<b>0.3</b>
<b>Total</b>	<b>37.6</b>

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

<sup>a</sup> In 2006 prices, including taxes and duties of \$2.6 million financed by the Government.

<sup>b</sup> Computed at 15% for all civil works and 5% for equipment.

<sup>c</sup> Value added tax 10%; import duty 5%. This applies to items under components A, B, and D.

<sup>d</sup> Computed, based on foreign exchange inflation rate of 2.4% in 2007 and onwards, and local currency inflation rate at 6% in 2007 and onwards.

<sup>e</sup> Interest during construction for ADB loan has been computed at 1%.

Note: Columns may not add up because of rounding.

Source: ADB estimates.

## E. Financing Plan

32. The Government has requested a loan of \$28.2 million from ADB's Special Funds resources, representing 75.0% of total project cost. The loan will have a 32-year term, including a grace period of 8 years, an interest rate of 1.0% per annum during the grace period and 1.5% thereafter. The Government will contribute the equivalent of \$7.3 million through the state budget (\$4.9 million), local governments (\$0.3 million), and Ulaanbaatar Road Fund (\$2.1 million) as counterpart funds for components A and B. For component C, the PFIs will contribute \$0.7 million. DED and GTZ will provide grant parallel cofinance of \$1.2 million equivalent and \$0.2 million equivalent respectively to support project activities. The summary financing plan is in Table 2, and the detailed cost estimates and financing plan are in Appendix 5.

**Table 2: Financing Plan**  
(\$ million)

Source	Total	%
A. Asian Development Bank	28.2	75.0
B. State Government	4.9	13.0
C. Local Government	0.3	0.8
D. Ulaanbaatar Roads Agency	2.1	5.6
E. German development service (DED) Cofinancing	1.2	3.2
F. Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation) (GTZ) Cofinancing	0.2	0.5
G. Local Banks for Component C	0.7	1.9
<b>Total</b>	<b>37.6</b>	<b>100.0</b>

Note: Includes contribution from state budget allocation to Ministry of Construction and Urban Development and Ulaanbaatar road fund.

Does not include down payments and investment by borrowers and/or community-based organizations.

Source: Asian Development Bank estimates.

33. The major portion of the proceeds of the loan will be relented by the Borrower, through MOF, to participating *aimag* governments and UMG under SLAs based on the size of the subproject under components A and B. *Aimag* governments will enter into onlending agreements (OLAs) with the respective PUSOs in the project towns to implement the subprojects under component A. The SLAs and subsequent OLAs will carry an interest rate not exceeding 3.25 (1.50% plus 1.75%) per annum. The term of the subsidiary loans to the *aimag* governments, PUSOs, and UMG will be 22 years, including a 6-year grace period, during which only interest payments will be required. For component C, the Borrower, through MOF, will relend funds to the PFIs under a series of SLAs. The SLAs to the PFIs will carry an interest rate determined on cost of the loan, foreign exchange and interest variation risks and the Project pro-poor objective and affordability of the poor subborrowers. The PFIs will onlend the loan proceeds to the subborrowers on the terms of an interest rate not exceeding 10% per annum a repayment period of two to ten years including a grace period of one year.<sup>11</sup> The cost estimates do not include any additional investments made by individual households and communities receiving loans through component C. It is expected that, in addition to the loans, both households and communities will invest significant amounts in cash, kind, and labor. Appendix 6 illustrates the flow of funds and onlending arrangements.

## F. Implementation Arrangements

### 1. Project Management

34. MCUD will be the Executing Agency for the Project. A PSC chaired by the state secretary of MCUD will be responsible for project coordination and will provide policy guidance during implementation. The PSC will comprise representatives from MOF; MCUD; Ministry of Nature and Environment; Ministry of Road, Transport and Tourism; National Center for Construction, Urban Development, and Public Utilities; participating *aimag* governments; and UMG. A PMU will be established under MCUD to serve as the secretariat of the PSC and will be responsible for coordinating the implementation of project activities. The PMU will (i) ensure adequate interdepartmental cooperation and interagency coordination, (ii) monitor and report on the progress of project implementation, and (iii) coordinate communication with ADB and agencies concerned.

35. The participating *aimag* governments will be the Implementing Agency (IA) for component A and C, and UMG for component B. A working group will be established to stimulate participation of the principal stakeholders for each subproject. The working group will be led by the *aimag* governor or the mayor of Ulaanbaatar. The working group for components A and C will comprise

<sup>11</sup> The Government is considering the same level of the relending rate to PFIs as the Improving the Living Environment of the Poor in Ger Areas of Mongolia's Cities and the Housing Finance Sector Project (footnotes 5 and 7).

representatives from the *aimag* government, project implementation unit (PIU), PUSO, participating community-based organizations (CBOs), saving groups, and PFIs. Working groups for the remaining subprojects will be established as part of each subproject preparation. The working group for component B will comprise representatives from the RD of UMG, PIU, and participating district governments. A PIU will be established in each project town and Ulaanbaatar to coordinate the preparation and development of subprojects under the general direction of the PMU. The PIUs will be responsible for assisting and monitoring the PUSOs and the RD of UMG regarding all aspects of subproject implementation including working with project stakeholders, maintaining subproject accounts, clearing environmental examination, implementing resettlement, monitoring subproject performance, and submitting progress reports. All staff of the PMU and PIUs will be selected and contracted individually in accordance with ADB's *Guidelines on the Use of Consultants*. Detailed implementation arrangements are in Appendix 7.

## **2. Implementation Period**

36. The Project will be implemented over 6 years from 2007 to 2012. The implementation schedule is in Appendix 8.

## **3. Procurement**

37. The procurement of goods and works financed under the loan will be undertaken in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time). International competitive bidding (ICB) will be applied to supply contracts estimated to cost \$500,000 or more. Supply contracts with a value less than \$500,000 will follow national competitive bidding (NCB), and those less than \$100,000 will follow shopping procedures as reflected by particular circumstances of the contract packages. ICB will be used for civil works contracts valued at \$1 million or more. Civil works contracts valued less than \$1 million will be procured using NCB procedures. The selection and engagement of contractors will be subject to ADB approval. Before commencement of NCB procurement, ADB and the Borrower will review the Borrower's procurement procedures to ensure consistency with ADB requirements. Any necessary modifications or clarifications to the Borrower's procedures will be documented in the procurement plan. The internationally tendered equipment packages will include the necessary technical support for ensuring proper installation, testing, commissioning, and training of operational staff as part of the related contracts. In accordance with ADB requirements, foreign contractors may participate in bidding for NCB contracts. The procurement plan is in Appendix 9.

38. Because of the severe and long winters, the construction season in Mongolia is short (April–October). ADB approved MCUD's request for advance contracting for procurement and consultants to expedite project implementation. Advance contracting for procurement will include: (i) prequalification of contractors, tendering, and bid evaluation for civil works packages; and (ii) preparation of tender documents to procure materials and equipment. Advance contracting for consulting services will include short-listing of qualified consultants. MCUD also requested ADB for retroactive financing up to \$500,000 equivalent for expenditures incurred in establishing the PMU. All eligible expenditures should have been incurred no earlier than 12 months before the signing of the loan agreement. The issuance of invitations to bid or to prequalify under advance contracting and retroactive financing will be subject to ADB approval. All advance contracting and retroactive financing will be undertaken in conformity with ADB's *Procurement Guidelines* and *Guidelines on the Use of Consultants* (April 2006, as amended from time to time). The Government was advised that approval of advance contracting and retroactive financing does not commit ADB to finance the Project.

#### 4. Consulting Services

39. The Project will require a total of about 195 person-months of international and 82 person-months of national consulting services to support the PMU and PIUs in project implementation and management, feasibility study for the urban road improvement component, detailed design and survey, institutional development, and education and training. The ADB loan will finance 31 person-months of international and 82 person-months of national consultants. The international consultants will have expertise in (i) project management and procurement, (ii) finance and microfinance, (iii) institutional development and financial management, and (iv) sanitation. The national consultants will have expertise in (i) resettlement; (ii) environment; (iii) legal aspects; (iv) database development; (v) financial management; and (vi) construction supervision, feasibility studies for the remaining subprojects under component B, and detailed designs of components A and B. The consultants will be selected and engaged in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time). All international consultants and the national consultants for project management will be selected and contracted individually. National consultants for feasibility studies and detailed designs will be selected and contracted as firms using ADB's quality- and cost-based selection procedure among short-listed national consulting firms. German development cooperation through DED will provide 144 person-months of long-term international experts in community engineering (2 positions) and community development and training. German development cooperation through GTZ will provide a maximum of 20 person-months of short-term experts. These experts will be assigned at the PMU and the PIUs, and will be guided by and report to the respective PMU and PIU directors. DED and GTZ will select these experts in accordance with their own guidelines.

#### 5. Anticorruption Policy

40. ADB's *Anticorruption Policy* was explained to and discussed with the Government and MCUD. Consistent with its commitment to good governance, accountability, and transparency, ADB reserves the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the Project. To support these efforts, relevant provisions of ADB's *Anticorruption Policy* are included in the loan regulations and the bidding documents for the Project. In particular, all contracts financed by ADB in connection with the Project will include provisions specifying the right of ADB to audit and examine the records and accounts of MCUD; IAs; and all contractors, suppliers, consultants, and other service providers as they relate to the Project. Good governance in selecting subprojects will also be ensured by well-defined and carefully monitored selection criteria and process. For the Project, MCUD will undertake the following anticorruption actions: (i) introduce a dual-signing system in which the civil works contract winner also signs an anticorruption contract with the employer, and (ii) periodically inspect the contractor's activities related to fund withdrawals and settlements.

#### 6. Disbursement Arrangements

41. The loan will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2001). To expedite project implementation through timely release of loan proceeds, the PMU will establish two imprest accounts for components A, C, and D, and for component B promptly after loan effectiveness at a commercial bank acceptable to ADB. Disbursements from the imprest account will be supported by an appropriate withdrawal application and related documentation. Such documentation will demonstrate, among other things, that the goods and/or services are (i) procured from ADB's member countries, and (ii) eligible for ADB financing. The initial amount to be deposited in the imprest account will not exceed the estimated expenditures for the next 6 months, or 10% of the loan amount, whichever is lower. ADB's statement of expenditures procedure may be used to reimburse, liquidate, or replenish eligible expenditures.

## 7. Accounting, Auditing, and Reporting

42. The Government, through the PMU and PIUs, will: (i) maintain separate financial accounts for the Project, and (ii) have such accounts and related financial statements audited annually by independent auditors acceptable to ADB in accordance with the provisions of the Loan Agreement and as specified in ADB's *Financial Reporting and Auditing of Projects Financed by the Bank*.<sup>12</sup> The auditors should have qualifications, experience, and terms of reference acceptable to ADB. The use of the imprest accounts and statement of expenditures will also be part of the annual audit and a separate audit opinion will be submitted. The Government will submit to ADB certified copies (in English) of such audited accounts and financial statements, and the related reports and auditors, within 6 months after the close of each fiscal year.

43. For the purpose of complying with the requirements for the annual audited financial statements, the proceeds of this loan may be used to finance expenditures for private financial statements, sector auditors, and translations of auditor's reports into English. The PMU will submit consolidated quarterly progress reports to ADB (in English) and to the Government on all aspects of project implementation. The reports will include details on overall implementation progress, problems encountered during the reporting period, measures taken or proposed to be taken to remedy these problems, and the proposed program of activities for the following quarter. Within 3 months of project completion, the PMU will prepare and submit to ADB, in a format acceptable to ADB, a project completion report on (i) the utilization and impact of the loan; (ii) performance of the Project; (iii) economic and social benefits generated; and (iv) details about implementation, costs, resettlement, and other information requested by ADB.

## 8. Project Performance Monitoring and Evaluation

44. The project performance monitoring system (PPMS) will focus on targets and indicators identified in the design and monitoring framework including (i) public satisfaction with the neighborhood environment; (ii) relevant economic and health data to monitor project impacts; (iii) number of households served by the improved water supply; (iv) number of public institutions served by the improved water supply and sewerage; (v) improvements in solid waste collection and landfill site management; (vi) improvement in PUSO performance; (vii) reduction of traffic congestion; (viii) reduction of vehicle emissions; (ix) activities of CBOs; (x) number of *ger* area households and CBOs utilizing small loans; (xi) increase in public awareness of public health, environmental management, and road safety; and (xii) environmental compliance and monitoring reporting and National Inspection Agency reporting.

45. At the beginning of the Project, the PMU and PIUs, with assistance from the consultants, will develop PPMS procedures to generate data systematically on the inputs and outputs of the subprojects, as well as the agreed socioeconomic, environmental, and health indicators to be used to measure the project impacts; and obtain ADB's approval within the first 3 months after loan effectiveness. The PMU will (i) refine the PPMS framework, (ii) confirm achievable targets, (iii) firm up monitoring and recording arrangements, and (iv) establish systems and procedures no later than 6 months after loan effectiveness.

46. The PPMS—including the establishment of benchmarks, collection of baseline and progress data, monitoring of benefits, and evaluation of social impact—will be implemented by the PIUs in collaboration with the *aimag* governments, PUSOs, and RD of UMG. Data will be presented in simple formats that allow local inputs and respond to reporting formats. The PMU will

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<sup>12</sup> ADB. 1989. *Financial Reporting and Auditing of Projects Financed by the Bank*. Manila.

be responsible for analyzing and consolidating the resulting data through its management information system. The PPMS will be designed to permit adequate flexibility to adopt remedial action regarding project design, schedules, and activities. The PMU will report to ADB quarterly on both the physical implementation and financial aspects of the Project, to ensure that impacts are monitored and reported in line with ADB requirements.

## 9. Project Review

47. The Government and ADB will jointly review implementation progress at least once a year. In addition, the Government and ADB will undertake a comprehensive midterm review after 2 years of project implementation. The midterm review will include a detailed assessment of (i) scope, (ii) implementation arrangements, (iii) achievement of scheduled targets, (iv) progress made in policy and tariff reform, and (v) capacity building measures. A detailed assessment of component A will be undertaken, including the implementation status of the tariff reforms, institutional strengthening of the PUSOs, and unaccounted for water reduction programs. The relative proportion of the loan used for components A and B will also be reassessed at midterm review.

## IV. PROJECT BENEFITS, IMPACTS, ASSUMPTIONS, AND RISKS

### A. Social Dimensions

#### 1. Land Acquisition and Resettlement

48. It is anticipated that land acquisition and resettlement will not be very significant<sup>13</sup> and can be avoided for many subprojects. Some houses, *gers*, and fences will need to be relocated to nearby plots of land. To ensure that ADB policies on involuntary resettlement will be applied and affected people compensated, a resettlement framework has been prepared which sets out (i) the resettlement policy and Mongolian legal framework for land acquisition and resettlement, (ii) compensation standards and entitlements, (iii) procedures for formulating RPs, (iv) implementation arrangements, (v) consultation and participation, (vi) eligibility provision, (vii) a grievance redress mechanism, (viii) monitoring and evaluation, and (ix) provision of the resettlement budget. The PMU will be responsible for overall resettlement management and coordination, internal monitoring, and quarterly reporting to ADB. The PIUs will take primary responsibility for any resettlement consultation, notices, implementation, and timely delivery of entitlements. Because of limited experience with involuntary resettlement, some training and capacity building will be conducted under component D, and it was endorsed by the Government and disclosed to the affected people.

49. The draft RP was prepared for one of two core subprojects for the Hailaast road section.<sup>14</sup> MCUD and UMG implemented *The Public Communications Policy of the Asian Development Bank*.<sup>15</sup> During implementation, the PMU will prepare the RPs for the remaining subprojects that have resettlement impacts, based on the RF and detailed design. The PMU will review the remaining subprojects before the award of the civil works contracts to ensure there are no involuntary resettlement effects that would require compensation and other assistance under *Involuntary Resettlement* (1995). If impacts are identified and cannot be avoided, an RP will be required. The summary RF is in Appendix 10.

<sup>13</sup> "Significant" means 200 or more people will experience major impacts, which are defined as (i) being physically displaced from housing, or (ii) losing 10% or more of their productive assets (income generating).

<sup>14</sup> The Erdenet subproject does not require land acquisition or resettlement.

<sup>15</sup> ADB. 2005. *Public Communications Policy: Disclosure and Exchange of Information*. Manila.

## 2. Poverty Reduction, Health Benefits, Gender, and Community Participation

50. The Project is designed to have multidimensional impacts on poverty reduction. The Project will provide or upgrade infrastructure, but will simultaneously (i) increase access to small loans for water connections and on-plot facility improvements, (ii) create direct short-term employment for construction and indirect long-term income generating opportunities, and (iii) empower poor residents in decision-making processes through the establishment of CBOs to plan and implement community infrastructure improvements. The Project will have positive health benefits. Residents are expected to experience a reduction in the incidence of water- and vector-borne diseases—related to unsafe drinking water and poor sanitation—as well as medical costs and lost earning incurred as a result of these diseases. The Project will not increase the income gap between poor and affluent sectors, and is expected to reduce it. Community participation is at the core of the project design. During project preparation, local communities were extensively involved in the design of the Project through a series of public consultation, focus group discussion, and surveys. The formation and participation of CBOs in the Project will be essential in achieving the outputs of the Project. Nongovernment organizations will play a facilitating role in the mobilization of communities and formation of CBOs. The proposed JFPR project (footnote 6) will assist the Government to determine the legal aspects of the CBOs. Capacity building and training needs will also be identified, and where appropriate training will be conducted by nongovernment organizations. The summary poverty reduction and social strategy and the gender action plan are in Appendix 11 and 12.

### B. Environmental Impacts and Benefits

51. Initial environmental examinations (IEEs) were carried out for the core subprojects in accordance with ADB's *Environment Policy (2002)* and *Environmental Assessment Guidelines*.<sup>16</sup> It was determined that the Project will not have significant adverse environmental impacts. The Project will not adversely affect natural resources and will greatly improve community health and living conditions. The Project will reduce environmental pollution. No detrimental effects will be caused on the flora and fauna. On a per capita basis, the Project will decrease the demands on energy resources by replacing truck water tankers with a piped system. Negative environmental impact will occur during construction, but its extent will be minimized by careful design and specification of project construction through mitigation measures identified in the IEE. The adoption of composting toilets will reduce groundwater pollution and, with correct management, will produce organic compost for small farmers. Improvement of the urban roads will reduce dust and noise. Highlights of the summary IEE are in Appendix 13. The summary IEE includes the environmental assessment and review procedures.

### C. Institutional Aspects

52. There is a need for institutional strengthening, especially at the local government level, focusing on: (i) planning and financial management, (ii) O&M of basic urban infrastructure and facilities, (iii) maintenance planning for urban roads, (iv) community participatory structures and process, (v) environmental monitoring, and (vi) handling of resettlement issues. Institutional strengthening incorporated in the Project through component D includes training and awareness programs, consulting services for project management support, and institutional and financial strengthening of the PUSOs and RD of UMG.

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<sup>16</sup> ADB. 2003. *Environmental Assessment Guidelines*. Manila.

## D. Financial Evaluation

53. The financial evaluation of the Project was undertaken for the water supply and sanitation subcomponents in Erdenet in real terms using constant 2006 prices. The project cost estimates and financial projections in nominal terms were converted to real terms by adjusting for the projected effects of foreign and domestic inflation and currency fluctuation. Incremental revenue and cost were derived by evaluating the financial position of the PUSO under with- and without-project scenarios.<sup>17</sup> The financial projections take into account impact on receivables and costs of operational improvements, reduction in unaccounted-for water, and charging and receiving full cost recovery tariffs. The financial internal rate of return was computed on an after-tax basis of 8.10%, which compares favorably with the weighted average cost of capital in real terms of 0.25%. The financial analysis is in Appendix 14.

54. The sensitivity analysis for the subproject includes examination of the risk that project cost will increase by 10%, or that revenue will decrease by 10% without implementation of required tariff reform; the resulting financial internal rate of returns are 6.5% and 6.3%. An affordability analysis of the subproject showed that the proposed water supply tariffs should be set at the level affordable to average and poor households. These tariffs are 3.25% of the average poor household income of MNT82,923.<sup>18</sup>

55. Financial projections were prepared for the Erdenet PUSO in accordance with ADB's *Guidelines for the Financial Governance and Management of Investment Projects Financed by ADB*<sup>19</sup> to assess the financial viability and sustainability of the subproject. The projected financial statements indicate that financial revenue will be sufficient to cover the O&M costs and depreciation and debt service, whichever is greater, and provide a reasonable rate of return. Based on the financial projections, the PUSO will be in a position to maintain a minimum debt-service coverage ratio of 1.2:1.0, a maximum debt-equity ratio of 70:30, and a minimum current ratio of 2:1. The PUSO has agreed to minimum levels of financial performance, and these will be included as loan covenants covering capital structure (debt to equity), debt service cover, and liquidity. Financial projections estimate the tariff required for an appropriate level of financial performance. Periodic tariff reviews and approval of appropriate tariff reforms by the *aimag* government will be required to reduce the risk of poor financial performance. The Project is considered both financially viable and sustainable.

## E. Financial Management Assessment

56. The financial management assessment of MCUD, the PUSO in Erdenet, and the RD of UMG has been undertaken using the financial management assessment questionnaire provided by ADB. It determined the accounting and financial capacity needs of MCUD, the Erdenet PUSO, and the RD of UMG during project implementation and operations after project completion. The questionnaire was administered to MCUD, the finance departments of the Erdenet PUSO, and the finance division of the RD of UMG.

57. The assessment of MCUD's previous experience managing ADB-funded projects confirms that their financial management practices are fully adequate for implementation of the Project. In the case of the Erdenet PUSO and the RD of UMG, staff will need training in project management

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<sup>17</sup> The without-project scenario assumes that phased tariff restructuring, full metering, and unaccounted-for water reduction targets have not been implemented successfully. The with-project scenario assumes that they have been implemented successfully.

<sup>18</sup> Based on the socioeconomic survey conducted during project preparation.

<sup>19</sup> ADB. 2001. *Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank*. Manila.

and relevant ADB procedures during implementation of the Project. With the help of international and national consultants, capacity of the Erdenet PUSO and the RD of UMG will be strengthened in: (i) efficient operations of the physical facilities; (ii) functional areas covering administration, finance, accounting, and business planning; and (iii) management information system, and cost management and control.

## **F. Economic Aspects**

58. The economic analysis covers both the Project as a whole, and the individual core subprojects in Erdenet and Hailaast in Ulaanbaatar. For the Project as a whole, the analysis covers the economic rationale for public intervention, and goals and general design of the public investment plan. The economic rationale is sound, based on managing natural monopolies (water supply, wastewater management, and urban roads). The goals of the investment plan are to meet targets for water supply, sewerage, and sanitation coverage in the *ger* areas, and urban road improvement in Ulaanbaatar. Centralized water supply and sewerage facilities are part of a least-cost plan to achieve water service coverage targets under three basic conditions: (i) water connections and metering are to be provided in the *ger* and apartment areas, including budget and private organizations; (ii) water tariffs are to provide appropriate economic incentives for water conservation; and (iii) water supply and sanitation facilities are designed as least cost. The Project addresses the first two conditions through its assurances as well as policy dialogue. The third condition is part of the appraisal criteria for representative water supply and sanitation subprojects. Urban road improvement is a priority investment to ease traffic flow and reduce accidents, and designed as least cost in terms of physical improvements.

59. A quantitative economic analysis also demonstrated the value of the Project. The economic analysis was conducted for the core subprojects over a 25-year period inclusive of the project construction period, in accordance with ADB's *Guidelines for the Economic Analysis of Projects*.<sup>20</sup> The economic benefits and costs for the water supply subcomponent in Erdenet were estimated on a without- and with-project basis appropriately apportioned on the basis of being tradable or non-tradable, and with adjustments to the non-incremental and incremental project benefits. Incremental benefits were valued on the basis of willingness to pay and non-incremental benefits were valued on the basis of cost savings. The economic costs of urban road improvement reflect the incremental costs for investment and O&M under the with-project situation, and the costs involved in operating the existing facility under the without-project situation. The major economic benefits are savings in vehicle operating cost, including reduced maintenance costs and savings in travel time for passengers and goods. The economic internal rate of return (EIRR) for the Erdenet water supply subcomponent is 29.4%, higher than the economic opportunity cost of capital assumed at 12.0%. The overall EIRR of all subcomponents, including sanitation and on-plot facility improvements for Erdenet, is estimated at 40.9%, which includes water supply benefits as well as health and employment benefits. The EIRR for the Hailaast subproject for urban road improvement in Ulaanbaatar is 18.0%. The economic analysis is in Appendix 15.

## **G. Project Risks and Mitigation Measures**

60. The Project does not have any unusual technical risks. Conventional engineering designs with proven records of reliable performance are adopted for water supply, wastewater management, solid waste management, and roads. The ICB equipment procurement will include technical support for installation, testing, and commissioning as recommended by the manufacturer. During project implementation, the PMU will support the PIUs to ensure that equipment and civil works comply with design requirements and quality standards.

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<sup>20</sup> ADB. 1997. *Guidelines for the Economic Analysis of Projects*. Manila.

61. Two potential risks have been identified. The first is the possibility of delays in the formulation of the remaining subprojects and project implementation caused by weak institutional capacity of the PIUs. Considerable preparatory work has been undertaken for the subprojects and institutional development for the PIUs will be provided during project implementation to mitigate this risk. The second risk is the possibility of delays in undertaking operational improvements along with revision of the tariff structure for water supply and wastewater collection. To facilitate tariff collection based on the proposed tariff structure, a substantial number of water meters will be installed under the Project for apartment dwellers, public and private organizations, *ger* area water kiosks, and *ger* area households when they are connected. In addition, the project management consultants will assist the *aimag* governments in institutionalizing the tariff review process and conducting regular tariff reviews.

## V. ASSURANCES

### A. Specific Assurances

62. The Government has given the following assurances, in addition to the standard assurances, which will be incorporated in the legal documents.

63. Within 3 months of loan effectiveness, MCUD will cause the relevant *aimag* governments, in consultation with ADB to commence a review and provide recommendations on the revision of local regulations relating to management of the water supply and sanitation systems, effective tariff collection, and water loss reduction and metering.

64. Prior to entering into an OLA with a PUSO, the Government will cause, through the SLAs, each *aimag* government to improve each PUSO's overall effectiveness by developing a priority reform and efficiency policy, including such matters agreed between the Government and ADB. During project implementation, MCUD will review each current management contract between a PUSO and the relevant *aimag* government, and its surrounding policy and legal framework, and based upon such review make recommendations for reform.

65. MCUD will cause each *aimag* government to ensure that (i) water supply and wastewater tariffs for all users are restructured to cover all costs associated with the services provided; (ii) each PUSO undertakes annual reviews of tariffs and fees; (iii) no entity receiving water supply and wastewater collection services is exempt from payment of the tariff or excused for delays in payments without penalty; and (iv) a review is conducted of the impact of increased water and wastewater tariffs on the poor, taking into account the ability of consumers, particularly vulnerable people, to pay for such increases. After the review, MCUD will make recommendations on lifeline water tariffs to the poor.

66. For the Erdenet subproject, the Government will cause the *aimag* government to cause the City Maintenance Local State-owned Entity to (i) prepare an action plan and budget for improving solid waste collection and disposal in compliance with all environmental laws, and (ii) apply the solid waste collection trucks to be supplied under the Project to the action plan.

67. Within 3 months of loan effectiveness, UMG will commence preparation of the UMG road safety guidelines and action plan. UMG will implement such guidelines and action plan during project implementation. UMG will also ensure that vehicle axle weight limits are established and enforced to prevent overloaded vehicles from entering the project roads. Before opening the project roads, UMG will ensure that road safety measures identified in the action plan are applied to the improved sections.

68. Each PUSO and the RD of UMG will (i) be responsible for O&M of its project facilities and ensure that facilities are operated and maintained in accordance with sound practices; (ii) allocate and make available sufficient funds from its budget, in a timely manner for each fiscal year, for O&M of the project facilities; and (iii) ensure that such facilities are operated and maintained in accordance with sound practices.

69. The Government will ensure that (i) all land and rights-of-way required by the Project are made available in a timely manner; and (ii) to the extent possible, the subprojects will minimize land acquisition or involuntary resettlement. If land acquisition and/or involuntary resettlement are required for any subproject, the Government will prepare or will cause to prepare, an RP for such subproject in accordance with (i) applicable laws and regulations, (ii) ADB's *Involuntary Resettlement*, and (iii) the resettlement framework. Such RP will be submitted to ADB for approval, prior to any land acquisition being initiated. Any such RP will be based on the final detailed design for such subproject, and disclosed to affected people in accordance with ADB's information disclosure requirements. The Government will ensure that any relocation, resettlement and compensation of any persons who are adversely affected, or who will be relocated as a consequence of the Project, will be promptly and efficiently carried out in accordance with (i) the RP, and (ii) ADB's *Involuntary Resettlement*, such that the affected persons will at least maintain their standard of living at the same level as before implementation of the Project.

70. The Government will contract, operate, maintain, and monitor the project facilities in compliance with (i) applicable laws and regulations; (ii) ADB's *Environment Policy*, and (iii) the environmental mitigation and monitoring measures, environmental management program (EMP), and environmental assessment and review procedures in the approved IEEs. No category A subproject will be financed under the Project. The Government will ensure that if an IEE is required for a subproject, the IEE will be included in the subproject proposal; if the approval of the Ministry of Nature and Environment is required for any subproject, such approval will be obtained before contracts are awarded for the subproject; the PUSOs and the RD of UMG engage full-time personnel, and sufficient resources to monitor the implementation of the EMP; (iv) the PUSOs provide monitoring reports to the PMU, which will coordinate the preparation of a semiannual environmental report on implementation of EMP, and the annual reports will be submitted to ADB, by 31 March each year, until loan closure; and (v) all ADB-financed civil works contracts include provisions requiring the mitigation and monitoring measures identified in the IEE and the EMP for the respective subproject, and the allocation of a budget to cover such measures.

71. Each PUSO and RD of UMG will ensure that a gender action plan is implemented and monitored.

72. The Government will ensure that (i) the PFIs comply with the initial and ongoing eligibility criteria agreed between the Government and ADB, including the Prudential Norms issued by the Bank of Mongolia, the supervisory agency for nonbanking financial institutions, and a CAMELS rating of less than 3.0; (ii) loan proceeds are not relent to PFIs until an independent auditor's opinion acceptable to ADB has been issued, certifying that the PFIs are in compliance with Prudential Norms; and (iii) PFIs comply with ADB's environmental policy and involuntary resettlement policy to the extent required. The Government will ensure that (i) PFIs onlend the loan proceeds to eligible individuals and eligible households and communities in accordance with the eligibility criteria agreed between the Government and ADB; and (ii) subloan repayments under component C, after making the loan repayments, are used for making further subloans to eligible households and communities.

## **B. Conditions for Disbursement**

73. Prior to disbursement under the Project, the imprest account will have been established at a commercial bank acceptable to ADB, and the PMU will have established a financial management system that includes internal financial and accounting controls, in each case satisfactory to ADB.

74. Prior to disbursement under components A and C, the relevant *aimag* governments will enter into a project agreement with ADB.

75. Prior to disbursement under components A and B of the Project, the Government will have prepared or cause to be prepared, the relevant draft SLA(s) and OLA(s) satisfactory to ADB; obtained all necessary approvals and validly entered into such SLA(s) and OLA(s).

76. Prior to any disbursement under component C of the Project, the Government will prepare or cause to be prepared the relevant draft SLA(s) satisfactory to ADB; obtain all necessary approvals and validly entered into such SLA(s). Each PFI for which a subloan has been requested will have established a *ger* loan office and separate accounts for *ger* lending; and formulated loan underwriting, servicing, and field audit procedures to ensure that loans are made to poor and low income households.

## **VI. RECOMMENDATION**

77. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan in various currencies equivalent to Special Drawing Rights (\$28,200,000 equivalent) to Mongolia for the Urban Development Sector Project from ADB's Special Funds resources with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan and Project Agreements presented to the Board.

Haruhiko Kuroda  
President

27 November 2006

## DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b></p> <p>Improve the living conditions and quality of life of the urban population in the project towns</p>	<p>By 2015</p> <p>Public satisfaction with the living conditions increased (to be quantified when baseline established)</p> <p>Incidence of water- and vector-borne diseases reduced by 10% from 2005 levels (digestive was 743 and hepatitis was 2,185 per 10,000)</p>	<p>Socioeconomic surveys undertaken at the beginning and completion of the Project</p> <p>Government records</p> <p>ADB PPAR</p>	<p><b>Assumption</b></p> <ul style="list-style-type: none"> <li>Project facilities are adequately operated and maintained</li> </ul> <p><b>Risk</b></p> <ul style="list-style-type: none"> <li>Tariffs reforms are not implemented</li> </ul>
<p><b>Outcome</b></p> <p>Upgraded basic urban services, urban roads, and on-plot facilities</p>	<p>By 2012</p> <p>About 6,600 <i>ger</i> (traditional tent) area households in Erdenet served by new or improved water kiosks within 200 meters from their plots</p> <p>Five public institutions in <i>ger</i> areas in Erdenet—including schools, kindergartens, hospitals, and markets—benefit from improved water supply and sanitation</p> <p>About 81,000 households in Erdenet benefit from improved solid waste collection and disposal</p> <p>Public transportation to the city center improved in Hailaast <i>ger</i> area in UB (quantitative target will be established at baseline survey)</p> <p>Access to the public services improved in Hailaast <i>ger</i> area in UB (quantitative target will be established at baseline survey)</p> <p>An estimated 1,800 <i>ger</i> area households in Erdenet construct individual water connections and improve on-plot facilities using small loans</p> <p>Erdenet PUSO improve their operational efficiency</p>	<p>PUSO operational records ADB PCR</p> <p>PUSO operational records ADB PCR</p> <p>Operational record of city maintenance local state-owned entity ADB PCR</p> <p>UMG operational records ADB PCR</p> <p>UMG operational records ADB PCR</p> <p><i>Aimag</i> government records Socioeconomic surveys ADB PCR</p> <p>Project implementation and monitoring report ADB PCR</p> <p>PUSO operational record ADB PCR</p>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>Overall water supply system in Erdenet is properly operated and maintained</li> <li>Sewerage treatment plant in Erdenet is properly operated and maintained</li> <li>An action plan for solid waste collection and disposal is prepared</li> <li>Trunk roads in the city center of UB are properly maintained</li> <li>Main water supply networks are completed and available for individual connections</li> </ul>

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
	(Performance targets/indicators for the remaining subprojects will be identified when they are appraised during project implementation)		
<b>Outputs</b>			<b>Assumptions</b>
1.1 Water supply facilities	4 boreholes constructed or improved in Erdenet  2 reservoirs constructed in Erdenet  2 UV units provided in Erdenet  33.55 km of water mains constructed in Erdenet  30 sales kiosks rehabilitated or constructed in Erdenet	Project implementation and monitoring reports ADB loan review and midterm review missions ADB PCR	<ul style="list-style-type: none"> <li>• MCUD and <i>aimag</i> governments remain committed to implement the Project</li> <li>• <i>Ger</i> area communities and local banks and nonbanking financial institutions are willing to participate in the Project</li> <li>• Households are able and willing to save in order to establish creditworthiness and/or develop collateral for small loans</li> <li>• PFIs wish to engage in the Project on the terms and criteria proposed for the Project</li> <li>• Land acquisition and resettlement is implemented in a timely manner</li> </ul>
1.2 Sewerage facilities	3.9 km of trunk sewer constructed or repaired in Erdenet	Project implementation and monitoring reports ADB loan review and midterm review missions ADB PCR	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>• Formulation of the remaining subprojects are delayed</li> <li>• Unforeseen difficult construction conditions related to severe weather conditions</li> </ul>
1.3 Solid waste management facilities	10 collection tipper trucks, 1 backhoe loader, and 4 street sweepers provided	Project implementation and monitoring reports ADB loan review and midterm review missions ADB PCR	
2.1 Roads improvement	About 4.1 km of roads upgraded in Hailaast <i>ger</i> area in UB	Project implementation and monitoring reports ADB loan review and midterm review missions ADB PCR	
3.1 Small loans	An estimated 1,800 <i>ger</i> area households in Erdenet utilize small loans for construction of individual water connections, improvement of their houses, and installation of on-plot facilities	Project implementation and monitoring reports ADB loan review and midterm review missions ADB PCR	
4.1 IA staff trained	About 60 training sessions on financial management and operation and maintenance of the project facilities provided for staff of the IAs	Project implementation and monitoring reports ADB loan review and midterm review missions ADB PCR	
4.2 People trained in health and environment	About 120 sessions of public awareness training on public health, environmental	Project implementation and monitoring reports ADB loan review and midterm	

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
	management, and alternative technologies for urban infrastructure and services  (Performance targets/indicators for the remaining subprojects will be identified when they are appraised during project implementation)	review missions ADB PCR	
<b>Activities with Milestones</b>  1.1 Establish PMU, PIUs, PSC and all working arrangements, procedures, and responsibilities for each subproject (2007) 1.2 Finalize designs, award civil works contracts for all subprojects (2007–2008) 1.3 Finalize designs, award contracts for goods for all subprojects (2007–2010) 1.4 Construct and/or rehabilitate all subprojects for basic urban infrastructure and urban roads (2007–2011)  2.1 Establish CBOs (2007–2008) 2.2 Establish saving groups (2007–2010) 2.3 Provide small loans (2008–2012)  3.1 Develop training and awareness program (2007–2008) 3.2 Provide staff training for the IAs (2007–2011) 3.3 Provide public awareness training (2008–2012)			<b>Inputs</b>  ADB: <ul style="list-style-type: none"> <li>• Provide \$28.2 million (civil works; equipment; implementation, supervision, and training; financial charges during construction)</li> <li>• Undertake review missions</li> <li>• Provide training on ADB procedures</li> </ul> Government: <ul style="list-style-type: none"> <li>• Provide \$7.3 million counterpart funds (civil works; land acquisition and resettlement; environmental protection; contingencies)</li> <li>• Undertake onlending arrangements and loan management</li> <li>• Establish and maintain project offices at all levels</li> <li>• Provide operation and maintenance budget and staffing</li> </ul> Cofinancing: <ul style="list-style-type: none"> <li>• Banks and nonbanking financial institutions: \$0.7 million</li> <li>• DED: \$1.2 million</li> <li>• GTZ: \$0.2 million</li> </ul>

ADB = Asian Development Bank, CBO = community-based organization, DED = Deutscher Entwicklungsdienst (German development service), GTZ = Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation), IA = implementing agency, km = kilometer, MCUD = Ministry of Construction and Urban Development, PCR = project completion report, PFI = participating financial institution, PIU = project implementation unit, PMU = project management unit, PPAR = project performance audit report, PSC = project steering committee, PUSO = public urban services organization, UB = Ulaanbaatar, UMG = Ulaanbaatar Municipal Government, UV = ultraviolet.

## URBAN DEVELOPMENT SECTOR POLICY AND INVESTMENT PLAN

### A. Urban Development Sector Policy

1. The Government's urban development policies are expressed in a number of documents that relate to human settlement issues. The 1995 medium term strategy was the first important post-socialist statement on urban development in Mongolia. It recognized that the Government does not have the necessary resources to replace the growing number of *ger* (traditional tent) area houses with subsidized apartments, and concluded that greater encouragement of individual initiative in the urban development sector is needed if Mongolia's urban problems are to be addressed. The Government's 2003 strategy for economic growth support and poverty reduction called for narrowing income gaps, reducing disparities in living conditions, and creating enabling environments to support small and medium-sized enterprise development for both urban and rural settlements.

2. The urban policy implications from the Government's action plan for 2004–2008 call for: (i) upgrading the quality of public service by strengthening the capacity and accountability of public service institutions and civil servants, expanding civil participation at all levels of decision making, and ensuring transparency; (ii) deepening legal reforms in all spheres of political, economic, and social life; and substantially improving the standards to ensure human rights and create a safe living environment; (iii) sustaining private sector led, stable, and higher economic growth; (iv) conducting social policy targeted at improving the living standards of families and households, and providing them with a favorable legal environment, adequate infrastructure, and financial environment to accumulate savings; and to own, possess, and dispose of immovable property (such as land and houses); (v) carrying out human development policy aimed at educating citizens who respect education, culture, and national traditional heritage, and are highly conscious about protection of the environment; and (vi) intensifying residential construction based on standards, reducing harmful waste, and providing ecological education to residents.

3. Within the framework of the action plan, the Government has developed a program to provide 40,000 families with opportunities to live in houses with proper facilities (40,000 Houses Program). The program has three main components: (i) new apartments (10,000 units), (ii) moderately priced housing (15,000 units), and (iii) improvement in *ger* area housing and infrastructure (15,000 units). The Ministry of Construction and Urban Development has accorded high priority to the 40,000 Houses Program and plans to implement it through domestic resources and external assistance. The Project will contribute to achieving the target of improving infrastructure for 15,000 *ger* area households, but will also help achieve the 15,000 target of moderately priced housing through small loans for on-plot facility improvements.

4. The urban development and housing strategy, developed under technical assistance financed by the Asian Development Bank (ADB),<sup>1</sup> provides direct support to the Government's Action Program for 2004–2008 and its achievement of the 40,000 Houses Program. Both the strategy and the Government's program provide the basis for the Project, with particular focus on *ger* area upgrading. *Ger* area upgrading proposed under the strategy is expected to initiate a methodology that can be replicated across urban centers throughout Mongolia. The methodology aims to encourage local initiative, support public and private collaboration, share costs in an affordable and equitable manner, and enable the greatest physical improvement to be accomplished at the lowest possible cost. It links infrastructure and on-plot facility improvement in a

<sup>1</sup> ADB. 2004. *Technical Assistance to Mongolia for Developing an Urban Development and Housing Sector Strategy*. Manila.

manner that will produce an important psychological change in the way that both residents and government officials view these neighborhoods.

## **B. Sector Legal Aspects**

5. To broaden and increase public participation in the budgetary process, the Government passed the public sector management and finance law in June 2002, and implementation began in January 2003. The law took over 4 years to design under the public administration reform program, and marks a watershed in the national finance and budgeting process. It replaces the former bottom-up budgeting process from the *soum* (district) to *aimag* (province) to central Government, with a combined bottom-up and top-down approach. There are two main parts to the law: (i) improvement of the national finance and budgeting process, and (ii) overall improvement of public administration.

6. Under the law, the budgeting process is essentially a two-stage iterative process. The first stage is based on a national fiscal framework statement containing preliminary budget proposals. The second stage is comprised of final budget estimates and based on strategic business plans, the investment components of which are the budget organizations' Public Investment Programs (PIPs) and portfolio ministries' budgets approved by the Ministry of Finance (MOF). The first phase begins before 1 March of each year preceding the budget year, after MOF has developed a fiscal framework statement containing draft budget limitations based on macroeconomic indicators (e.g., consumer price inflation, per capita gross domestic product growth, etc.). The draft budget limitations are submitted to the portfolio ministries, *aimag* governments, the Prime Minister's office, and the governor of the Bank of Mongolia. Draft strategic business plans are also developed by all budget organizations and submitted to their respective portfolio ministries. After checking and refining the various strategic business plans, the portfolio ministries submit them to MOF along with their own budget proposals. MOF negotiates with each portfolio ministry on their draft strategic business plans and proposed budget, including their PIPs; finalizes the draft medium-term draft document of the fiscal framework statement and appreciation requests; and submits them to the Cabinet. After approval by the Cabinet, the medium-term fiscal framework statement is submitted to parliament no later than 1 May, parliament spring session. Once the fiscal framework statement and financial indicators are approved by parliament, they are sent back to the portfolio ministries.

7. The second phase begins when general managers of all budget organizations submit next year's appropriation estimates and draft strategic business plans to the portfolio ministries no later than 1 July. After negotiating with their budget organizations, portfolio ministries submit next year's final appropriation estimates and draft strategic business plans to MOF no later than 15 August. Relevant departments of MOF review the appropriation estimates and negotiate with each portfolio ministry. MOF subsequently compiles the portfolio appropriation estimates and medium-term economic and financial objectives, and submits them to Cabinet no later than 15 September. After it approves, Cabinet submits the draft general guidelines for socioeconomic development, and the state budget proposal and appropriation estimates for each portfolio ministry to Parliament no later than 1 October of the preceding fiscal year. Parliament must pass the budget no later than 1 December. Article 33.2.4 of the law also states that each component of the approved budget by Parliament must be approved.

## **C. Urban Development Sector Strategy for 2004–2008**

8. The primary objective of the urban development sector strategy is to support the government action plan for 2004–2008 and its goal of the 40,000 Houses Program. A major effort of the strategy is aimed at making visible, tangible, and affordable improvements in the living

conditions of urban households, especially *ger* area households. A multifaceted approach will be introduced, tested, and expanded by the application of the strategy. It will provide affordable and quality improvements to *ger* areas that meet legal requirements, and provide households with a recognized financial asset that can be used as collateral for obtaining a small loan. It will also support the Government's efforts to privatize urban land and improve the quality of urban development through understandable and affordable regulations. Simple, illustrated codes and zoning regulations will be applied, and local builders will be trained in their use. Finally, the strategy will target housing finance to moderate income households that are eager to improve their housing.

9. The five goals were established under the strategy: (i) implementation of the 40,000 Houses Program, (ii) restructuring *ger* area neighborhoods and their urban services, (iii) low cost alternative infrastructure and services, (iv) infill and mixed income housing areas, and (v) establishment of an independent housing finance institution.

#### D. PIP in Urban Development: 2006–2009

10. The Ministry of Construction and Urban Development prepared and submitted to the Government the following allotments under the PIP for specific urban investments from 2006–2009 as shown in Table A2.1.

**Table A2.1: PIP for Urban Development Sector (as of March 2006)**

Projects	Period of implementation	Budget (MNT million)	2006	2007	2008	2009
1. Water and sanitation system, pump station, reservoir 1st microdistrict – Orbit, UB	2005–2008	5,100	1,500	1,500	2,100	
2. Water system, technological renovation of pump station – Orkhon – Khutul, Selenge	2004–2008	1,110.0	200.0	300.0	610.5	
3. Urban services development in provincial towns	2005–2007	604	158	150	296	
4. Elevator renovation for apartment buildings project—UB	2006–2008	1,500	200	500	800	
5. Sanitation collector No. 25—UB	2006–2007	250	100	150		
6. Renovation of heating system, engineering system for 200 apartments building—Uliastai, Zavhan	2006–2007	180	100	80		
7. Water softening equipment for <i>soums</i> (district)	2006–2008	1,360	340	340	340	340
8. Water, sanitation and heating system, renovation of groundwater source—Ulaangom	2006–2007	300	150	150		
9. Water and sanitation system—2.5 km, Govisumber	2006–2007	180	100	80		
10. Sanitation system in Nalayh, engineering system in Yarmag, UB	2006	200	200			
11. Water system, reservoir Esunbulag, Govi-Altai	2006–2007	300	150	150		
12. Water and sanitation system in <i>ger</i> (traditional tent) area, UB	2006–2008	1,671.0	950.0	450.0	271.2	
13. Sanitation system in Nalayh, engineering system in Yarmag, UB	2009–2010	6,200				
14. 40,000 houses	2007–2009	30,777		6,000	10,000	14,777

km = kilometer, PIP = Public Investment Program, UB = Ulaanbaatar.

Source: Asian Development Bank estimates.

## EXTERNAL ASSISTANCE TO THE URBAN DEVELOPMENT AND HOUSING SECTOR

Project	Cost (\$ million)	Duration
<b>A. Loans</b>		
<b>1. Asian Development Bank (ADB)</b>		
Housing Finance (Sector)	31.10	2002–2007
Provincial Towns Basic Urban Services	8.50	1998–2003
Cadastral Survey and Land Registration	12.70	2003–2009
Integrated Development of Basic Urban Services in Provincial Towns	26.50	2003–2007
<b>2. World Bank</b>		
Ulaanbaatar Urban Services Rehabilitation	16.70	1997–2003
Second Ulaanbaatar Services Improvement	22.98	2004–2010
<b>B. Grants</b>		
<b>1. ADB</b>		
Small Business Development Corporation Accounting and Management Information Systems	0.33	1995
Provincial Towns Basic Urban Services	0.62	1996
Capacity Building for the Provision of Urban Services in Provincial Towns	0.89	1997
Housing Sector Policy	0.21	1999
Institutional Strengthening of the Housing Sector	0.88	1998
Capacity Building for Energy Planning	0.70	1999
Housing Sector Finance	0.60	2000
Capacity Building for Integrated Regional Development Planning	0.71	2002
Developing an Urban Development and Housing Sector Strategy Project	0.35	2004
Urban Development and Housing Project	0.75	2005
Improving the Living Environment of the Poor in <i>Ger</i> areas of Mongolia (Japan Fund for Poverty Reduction)	4.90	2003–2006
<b>2. United Nations Development Programme (UNDP)</b>		
Urban Poverty Pilot Project	0.15	2003–2006
<b>3. UNDP, Norwegian Government</b>		
Energy Efficient Housing	1.44	2002–2006
<b>4. Australia</b>		
Technical Assistance for Preparation of World Bank Financed Ulaanbaatar Services Improvement Project	0.60	1995–1996
Cofinancing of World Bank Financed Ulaanbaatar Services Improvement Project	4.90	1998–2003
<b>5. France</b>		
Water Supply Equipment Renovation	0.70	1998–2001
<b>6. Germany</b>		
Renovation of Combined Heat and Power Plant of Choibalsan	2.70	2001
Energy Training Project	2.30	2001
Rehabilitation of Land Management and Cadastral System	2.30	2005–2010
Integrated Urban Development Program	5.76	2006–2010
<b>7. Japan</b>		
Master Plan for Ulaanbaatar Water Supply	1.70	1993–1996
Feasibility Study for Groundwater Development in Gobi Altai	3.50	1996–1999
Rehabilitation of Ulaanbaatar Water Supply	20.80	1996–1999
Rehabilitation of Power Plants in <i>Soum</i> Centers	5.30	2002
Master Plan for Solid Waste Management in Ulaanbaatar	2.50	2004–2007
Rehabilitation of Water Source of Ulaanbaatar	14.40	2005–2007
Master Plan for Improvement and Rehabilitation of Road Network in Ulaanbaatar	1.70	1998–1999
Improvement of Roads in Ulaanbaatar	17.00	2000–2003
<b>8. Sweden</b>		
Land Sector Development and Capacity Building	1.50	2005–2007

Source: Asian Development Bank.

## SCREENING, IDENTIFICATION, SELECTION, AND APPRAISAL OF SUBPROJECTS

### A. Step 1: Identification and Selection

1. The Ministry of Construction and Urban Development (MCUD) will invite *aimag* (province) governments and the Ulaanbaatar municipal government (UMG) to express their interest in participating in the Project to be financed by the Asian Development Bank (ADB) and to propose subprojects for financing. In issuing this invitation, MCUD will refer to the following basic selection criteria:

- (i) Component A: Improvement of Basic Urban Services
  - (a) There is a prospect for rapid population growth or significant population lives in *ger* areas in the proposed subproject town.
  - (b) The subproject's components are included in city or sector master plans for the relevant *aimag*.
  - (c) The subproject is not categorized as category A or category B environmentally sensitive under ADB's *Environmental Policy* (2002).
  - (d) The subproject avoids or minimizes resettlement temporary or permanent.
  - (e) Plots in *ger* areas have been privatized or the legal right for residents to acquire legal title to such plots exists.
  - (f) Raw water sources are or will be available from an aquifer with a reliable and adequate yield and acceptable quality of supply, except to the extent it requires disinfection.
  - (g) The relevant PUSO delivers a certificate of incorporation, or equivalent establishment document (including an explanation of its ownership).
  - (h) The relevant *aimag* government provides a demonstrated ability and willingness to implement tariff reforms that ensure cost recovery and affordability for poor households.
  - (i) The relevant *aimag* government provides a demonstrated ability and willingness to finance and provide adequate funds for operation and maintenance of the project facilities.
- (ii) Component B: Urban Road Improvement
  - (a) The subproject's components are included in city or sector master plans for Ulaanbaatar city.
  - (b) The subproject is not categorized as category A or category B environmentally sensitive under ADB's *Environmental Policy* (2002).
  - (c) The subproject avoids or minimizes resettlement temporary or permanent.
  - (d) The proposed subproject connects a *ger* area in the outskirts of the city with the city center or is located in the city center.
  - (e) The proposed road section has sufficient road users to justify the economic viability of the proposed subproject and is expected to have a significant traffic volume upon completion, sufficient for its economic viability.
  - (f) UMG is committed to finance to provide adequate funds to operate and maintain the project roads.

2. For those subprojects meeting all of the above selection criteria, MCUD will ask the relevant local *aimag* governments and UMG to undertake detailed subproject preparation as follows:

## B. Step 2: Subproject Preparation

3. Selected *aimag* governments and UMG will prepare a detailed subproject proposal, feasibility study, initial environmental examination, and resettlement plan, where applicable, to standards necessary to meet both domestic and ADB requirements. *Aimag* governments and UMG will also determine suitable institutional arrangements for subproject implementation and prepare cost estimates and a detailed financing plan. To facilitate an orderly and consistent appraisal of the subprojects, MCUD will require an integrated feasibility study in a common format for each proposed subproject. Such format has been used for preparation of the core subprojects and includes (i) a deficiency analysis and options study for sustainable solutions; (ii) preliminary engineering designs and cost estimates; (iii) an assessment of financial and economic viability and sustainability; (iv) the identification of necessary reforms; (v) environmental screening, and the preparation of an initial environmental examination where necessary; and (vi) a social impact assessment and resettlement plans where necessary.

## C. Step 3: Appraisal and Approval

4. Separate evaluation criteria were developed for water supply, wastewater, and solid waste management subprojects, and urban road improvement subprojects, to ensure that individual subproject appraisal is conducted in accordance with ADB standards. The evaluation criteria are described below.

### 1. Component A: Improvement of Basic Urban Services

5. The criteria include the following:

- (i) The proposed subproject responds to major project policy dialogue issues of (a) promoting improved infrastructure in *ger* areas; (b) raising living conditions in *ger* areas; (c) providing institutional strengthening, public awareness, and training; and (d) conserving water resources and reducing environmental pollution.
- (ii) Institutional arrangements to implement the proposed subproject, that are satisfactory to the Government and ADB have been proposed.
- (iii) The proposed subproject's technical plans and designs respond to the Project's objectives and anticipated benefits.
- (iv) The proposed subproject's preliminary engineering design applies the least-cost solution.
- (v) The proposed subproject complies with (a) ADB's *Environment Policy* and associated operational procedures, (b) the Government's environmental laws and regulations, and (c) the environmental assessment review framework.
- (vi) An initial environmental examination has been prepared for the proposed subproject in accordance with (a) ADB's *Environment Policy* and associated operational procedures, (b) the Government's environmental laws and regulations; and (c) the project's environmental assessment review framework; and approved by the Government and ADB. Appropriate and adequate mitigation measures and monitoring plans are established to avoid, minimize, mitigate and/or compensate for any environmental impacts.
- (vii) The proposed subproject will not have a significant<sup>1</sup> involuntary resettlement impact, and if land acquisition is required for a proposed subproject, a Resettlement Impact Plan will be prepared for the subproject in accordance with (a) ADB's *Involuntary*

<sup>1</sup> "Significant" means 200 or more people will experience major impacts, which are defined as (i) having physically displaced from housing, or (ii) losing 10% or more of their productive assets (income generating).

*Resettlement* and associated operational procedures, (b) Mongolia's laws and regulations, and (c) the resettlement framework, in order to avoid, minimize, compensate, or rehabilitate any non-resettlement related impacts.

- (viii) The proposed subproject has viable economic cost-benefit and economic internal rates of return.
- (ix) The proposed subproject has a viable financial internal rate of return.
- (x) The financial sustainability of the proposed subproject has been established by a financial management assessment of the relevant public urban services organization.
- (xi) The sustainable operation and management of the proposed subproject has been established by an institutional capacity assessment of the relevant public urban services organization.

## 2. Component B: Urban Road Improvement

6. The criteria include the following:

- (i) The proposed subproject responds to major project policy dialogue issues of raising living conditions in *ger* areas.
- (ii) Institutional arrangements to implement the proposed subproject, that are satisfactory to the Government and ADB have been proposed.
- (iii) The proposed subproject's technical plans and designs respond to the Project's objectives and anticipated benefits.
- (iv) The proposed subproject's preliminary engineering design applies the least-cost solution.
- (v) The proposed subproject complies with (a) ADB's *Environment Policy* and associated operational procedures, (b) the Government's environmental laws and regulations, and (c) the environmental assessment review framework.
- (vi) An initial environmental examination has been prepared for the proposed subproject in accordance with (a) ADB's *Environment Policy* and associated operational procedures, (b) the Government's environmental laws and regulations, and (c) the Project's environmental assessment review framework, and approved by the Government and ADB. Appropriate and adequate mitigation measures and monitoring plans are established to avoid, minimize, mitigate and/or compensate for environmental impacts.
- (vii) The proposed subproject has viable economic cost-benefits and economic internal rates of return.
- (viii) The financial sustainability of the proposed subproject has been established by a financial management assessment of UMG.
- (ix) The sustainable operation and management of the proposed subproject has been established by an institutional capacity assessment of the UMG.

7. The project management unit will be responsible for subproject appraisal in accordance with the evaluation criteria. The project management unit will prepare a subproject appraisal report for consideration by the project steering committee. Those subprojects approved by the project steering committee will be forwarded to ADB for approval.

8. Rejected subprojects are to be referred to the relevant local governments with an indication of the areas where the preparations and proposals were deficient. If the subproject has a realistic chance of meeting the agreed evaluation criteria, they will be returned for additional preparation work.

**DETAILED COST ESTIMATES AND FINANCING PLAN**  
(\$ million)

Component	Cost Estimates			Foreign	ADB		Germany		State Govt. Budget	Financing Plan		Bank/NBFI Local
	Foreign Exchange	Local Currency	Total Cost		Local	Total	DED	GTZ		Local Govt. Budget	UB Road Fund	
<b>A. Base Cost<sup>a</sup></b>												
1. Representative Subprojects												
1.1 Erdenet												
a. Basic Urban Services												
1. Civil Works	0	1,887,890	1,887,890	0	1,431,346	1,431,346		456,544	0	0	0	0
2. Equipment	1,167,295	0	1,167,295	1,167,295	0	1,167,295		0	0	0	0	0
3. Resettlement and Land Acquisition	0	0	0	0	0	0		0	0	0	0	0
4. Environmental (EMP Monitoring)	0	18,879	18,879	0	14,313	14,313		4,565	0	0	0	0
b. Small Loans for On-plot Facilities	440,000	660,000	1,100,000	440,000	540,000	980,000		0	0	0	120,000	
c. Institutional Development	9,663	81,697	91,360	9,663	81,697	91,360		0	0	0	0	0
d. Taxes and Duties <sup>b</sup>	0	378,307	378,307	0	0	0		378,307	0	0	0	0
<b>Subtotal (1.1)</b>	<b>1,616,958</b>	<b>3,026,772</b>	<b>4,643,730</b>	<b>1,616,958</b>	<b>2,067,356</b>	<b>3,684,314</b>		<b>839,416</b>	<b>0</b>	<b>0</b>	<b>120,000</b>	
1.2 UB (Hailaast) Road Improvement												
a. Road Improvement												
1. Civil Works	767,704	938,304	1,706,008	767,704	684,459	1,452,163		0	0	253,845	0	0
2. Equipment	0	0	0	0	0	0		0	0	0	0	0
3. Resettlement and Land Acquisition	0	92,312	92,312	0	0	0		0	92,312	0	0	0
4. Environmental (EMP Monitoring)	0	17,060	17,060	0	14,501	14,501		0	0	2,559	0	0
b. Institutional Development	15,994	29,846	45,840	15,994	29,846	45,840		0	0	0	0	0
c. Taxes and Duties <sup>b</sup>	0	17,452	17,452	0	0	0		17,452	0	0	0	0
<b>Subtotal (1.2)</b>	<b>783,698</b>	<b>1,094,974</b>	<b>1,878,672</b>	<b>783,698</b>	<b>728,806</b>	<b>1,512,504</b>		<b>17,452</b>	<b>92,312</b>	<b>256,404</b>	<b>0</b>	<b>0</b>
2. Provision for Remaining Subprojects												
2.1 Urban Infrastructure												
a. Basic Urban Service												
1. Civil Works	0	4,568,410	4,568,410	0	3,654,773	3,654,773		913,637	0	0	0	0
2. Equipment	1,537,730	0	1,537,730	1,537,730	0	1,537,730		0	0	0	0	0

Component	Cost Estimates			Foreign	ADB Local	Total	Germany		State Govt. Budget	Financing Plan		
	Foreign Exchange	Local Currency	Total Cost				DED	GTZ		Local Govt. Budget	UB Road Fund	Bank/NBFI Local
3. Resettlement and Land Acquisition	0	8,000	8,000	0	0	0			0	8,000	0	0
4. Environmental (EMP Monitoring)	0	45,685	45,685	0	36,548	36,548			9,137	0	0	0
b. Small Loans for On-plot Facilities	1,078,000	1,617,000	2,695,000	1,078,000	1,078,000	2,156,000			0	0	0	539,000
c. Institutional Development	1,515,250	682,880	2,198,130	130,750	682,880	813,630	1,152,000	232,500	0	0	0	0
d. Taxes and Duties <sup>b</sup>	0	823,762	823,762	0	0	0			823,762	0	0	0
<b>Subtotal (2.1)</b>	<b>4,130,980</b>	<b>7,745,737</b>	<b>11,876,717</b>	<b>2,746,480</b>	<b>5,452,201</b>	<b>8,198,681</b>	<b>1,152,000</b>	<b>232,500</b>	<b>1,746,536</b>	<b>8,000</b>	<b>0</b>	<b>539,000</b>
2.2 Urban Roads												
a. Road Improvement												
1. Civil Works	5,127,312	7,205,067	12,332,379	5,127,312	5,627,403	10,754,715			0	0	1,577,664	0
2. Equipment	570,728	0	570,728	570,728	0	570,728			0	0	0	0
3. Resettlement and Land Acquisition	0	626,718	626,718	0	0	0			382,688	244,030	0	0
4. Environmental (EMP Monitoring)	0	123,324	123,324	0	100,105	100,105			0	0	23,219	0
b. Institutional Development	234,335	314,836	549,171	234,335	314,836	549,171			0	0	0	0
c. Taxes and Duties <sup>b</sup>	0	1,374,584	1,374,584	0	0	0			1,374,584	0	0	0
<b>Subtotal (2.2)</b>	<b>5,932,375</b>	<b>9,644,529</b>	<b>15,576,904</b>	<b>5,932,375</b>	<b>6,042,344</b>	<b>11,974,719</b>			<b>1,757,272</b>	<b>244,030</b>	<b>1,600,883</b>	<b>0</b>
<b>Subtotal (A)</b>	<b>12,464,011</b>	<b>21,515,012</b>	<b>33,976,023</b>	<b>11,079,511</b>	<b>14,290,707</b>	<b>25,370,218</b>	<b>1,152,000</b>	<b>232,500</b>	<b>4,306,676</b>	<b>344,342</b>	<b>1,857,287</b>	<b>659,000</b>
<b>B. Contingencies<sup>c</sup></b>												
1. Physical	349,643	2,046,433	2,396,076	349,643	1,520,881	1,870,524			362,647	0	162,905	0
2. Price	251,291	701,865	953,156	197,711	468,015	665,726	48,000	5,580	155,570	0	78,280	0
<b>Subtotal (B)</b>	<b>600,834</b>	<b>2,745,298</b>	<b>3,349,232</b>	<b>547,354</b>	<b>1,988,896</b>	<b>2,536,250</b>	<b>48,000</b>	<b>5,580</b>	<b>518,217</b>	<b>0</b>	<b>241,185</b>	<b>0</b>
<b>C. Financing Charges during Implementation</b>												
1. Interest during Construction - ADB	293,583	0	293,583	293,583	0	293,583			0	0	0	0
<b>TOTAL (A+B+C)</b>	<b>13,358,528</b>	<b>24,260,310</b>	<b>37,618,837</b>	<b>11,920,447</b>	<b>16,279,603</b>	<b>28,200,050</b>	<b>1,200,000</b>	<b>238,080</b>	<b>4,878,893</b>	<b>344,342</b>	<b>2,098,472</b>	<b>659,000</b>

ADB = Asian Development Bank, DED = Deutscher Entwicklungsdienst (German development service), EMP = environmental management program, Govt. = government, GTZ = Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation), NBFI = non-banking financial institutions, UB = Ulaanbaatar.

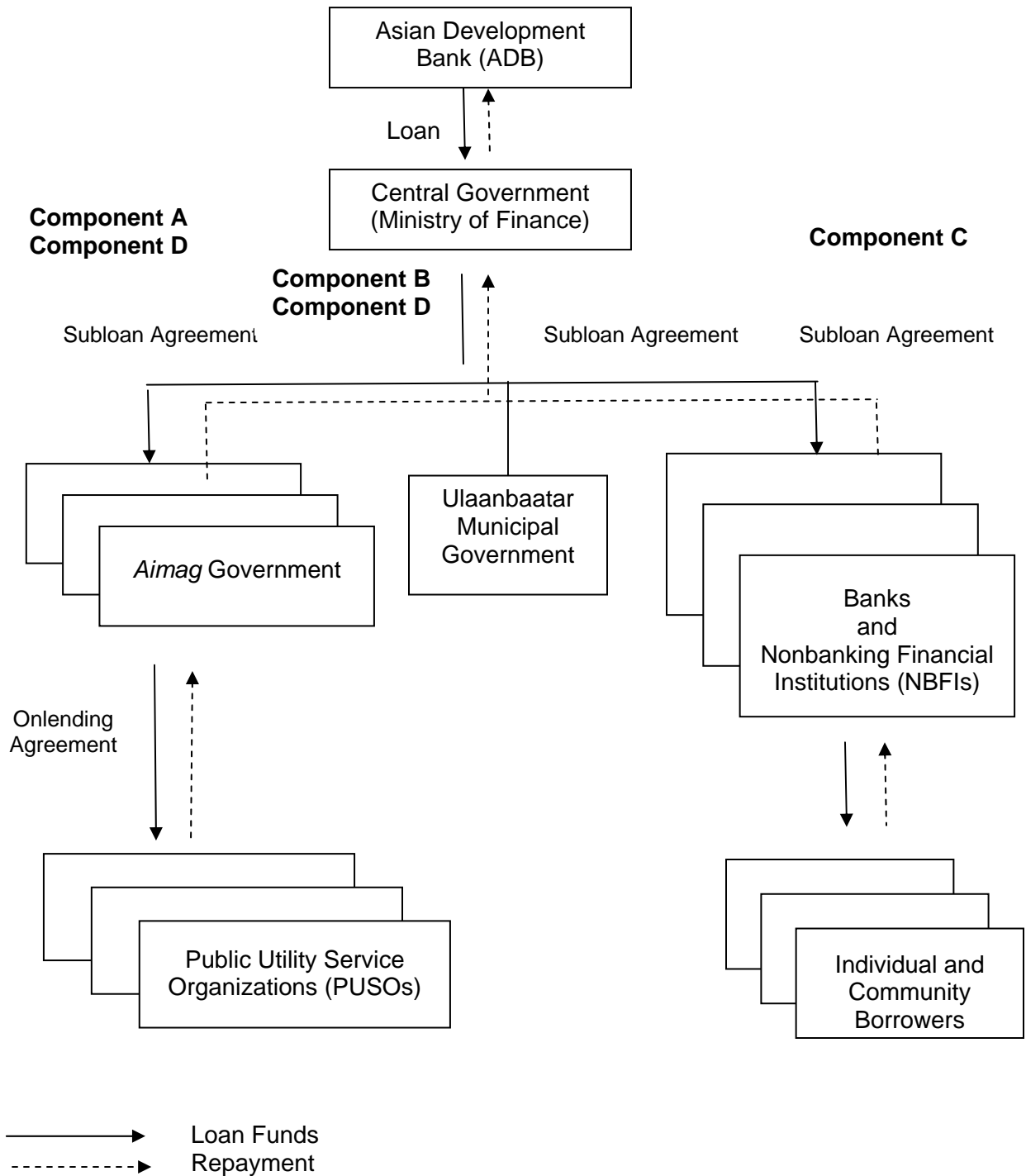
<sup>a</sup> Physical contingencies are 5% of foreign exchange cost and 15% of local cost.

<sup>b</sup> Value-added tax: 10%; import duties: 5%. This applies to items under part A and part C.

<sup>c</sup> Assumes local cost escalation of 6% per annum, and foreign exchange cost escalation of 2.4% on the ADB loan per annum.

Source: ADB estimates.

### FLOW OF FUNDS AND ONLENDING AND RELENDING ARRANGEMENTS



## **IMPLEMENTATION ARRANGEMENTS**

1. Implementation arrangements will follow procedures that have been successfully used by the Asian Development Bank (ADB) and the World Bank for previous urban development projects in Mongolia.

### **A. Project Management**

#### **1. Executing Agency**

2. The Ministry of Construction and Urban Development (MCUD) will be the Executing Agency and will have overall responsibility for project coordination, implementation, and liaison with ADB, other government ministries and departments, and external assistance agencies. MCUD has five main departments, including a newly formed Department for Finance, Investment and Cooperation. MCUD currently manages four loan projects and seven grant projects supported by external assistance.

#### **2. Project Steering Committee**

3. A project steering committee (PSC), under the leadership of MCUD, will be established to provide policy guidance during project implementation, and to ensure close coordination of the Project with ongoing urban infrastructure projects in Mongolia. The PSC will comprise representatives from MCUD; Ministry of Finance; Ministry of Nature and Environment; National Center for Construction, Urban Development, and Public Utilities; Ulaanbaatar municipal government (UMG); and participating *aimag* (province) governments. In particular, the PSC will be responsible for (i) setting policy guidelines for improving project implementation, (ii) coordinating at the policy level with other government departments, (iii) reviewing and approving annual implementation plans, (iv) monitoring project implementation progress, and (v) overseeing procurement activities and awarding of contracts.

#### **3. Project Management Unit**

4. A project management unit (PMU) will be established in MCUD to manage the Project as a whole and to coordinate the work of the project implementation units (PIUs) for each subproject. The PMU will comprise a staff of six full-time professionals and three support staff, based in Ulaanbaatar. Professional staff will include (i) a project manager and urban planner, (ii) a microfinance specialist, (iii) a construction and supervising engineer, (iv) a community organizer and trainer, (v) a procurement specialist, and (vi) an accountant. Primary functions of the PMU will be to provide the focal point for reporting to the Government and ADB on project implementation; to guide and monitor the performance and outputs of the PIUs; and to arrange procurement processing for civil works and equipment, particularly in respect of goods required under the Project.

#### **4. Project Implementation Units**

5. PIUs will be established in each project town and UMG to coordinate the preparation and development of the subprojects under the general direction of the PMU. The PIUs will be responsible for all aspects of subproject implementation, including working with project stakeholders, maintaining subproject accounts, clearing environmental examinations, monitoring subproject performance, and submitting timely progress reports. The PIU in Erdenet will be staffed by (i) a director and construction manager, (ii) a finance and accounting specialist, (iii) a construction supervisor and inspector, (iv) a community development specialist, and (v) a secretary

and translator. The PIU for the urban road improvement component in Ulaanbaatar will comprise (i) a director and roads engineer, (ii) a construction engineer, (iii) an accountant, and (iv) a secretary and translator.

6. The PIUs will be supported by international and national consultants to (i) carry out public awareness and education campaigns, (ii) provide technical and practical training, (iii) establish and support the development and operation of community groups, (iv) promote community participation, (v) encourage financial planning, and (vi) conduct participatory monitoring and evaluation.

### **5. Subproject Working Groups**

7. Each subproject will involve continuous participation by the principal stakeholders. A working group will be formed to facilitate communication among subproject participants and interface with the local government on a regular basis. The working group for components A and C will be chaired by the *aimag* governor and includes representatives from the *aimag* government, PIU, public urban services organization (PUSO), local governments, nongovernment organizations, community-based organizations, and local banks and nonbanking financial institutions (NBFIs). The working group for component B will be chaired by the mayor of Ulaanbaatar and includes representatives from the Road Department of UMG, PIU, and participating district governments. The working groups will report on subproject progress and resolve any minor difficulties that might occur during implementation. The working groups will also serve as the first arbiter to address and resolve any problems or grievances with residents, including issues related to temporary resettlement.

### **6. Local Governments**

8. The Road Department of UMG and *aimag* governments in the subproject towns will be responsible for timely disbursements from the ADB loan to implement their subprojects and for providing local government support and counterpart staff to work with the PIUs. Local governments will also be responsible for maintaining an open dialogue with the community and for increasing public awareness about the subproject.

### **7. Public Urban Service Organizations**

9. The local PUSOs will be responsible for all water resource, supply and distribution, and sewerage and wastewater treatment subcomponents of the subprojects, and, in some cases, management of solid waste. They will be the ultimate borrowers of funds for the facilities improved under component A of the Project. The capacity of these local institutions to implement their parts of the subprojects will be strengthened under component D of the Project.

### **8. Community-Based Organizations**

10. Implementation of community and household initiatives under component C will require a lead time of 1–2 years to allow time for the mobilization and strengthening of the participating institutions (community-based organizations, NBFIs, nongovernment organizations, savings groups, etc.). Time will also be required to instill community awareness and responsibility for small-scale improvements to be financed by the community and individual loans (individual water connections, minor housing improvements, on-plot sanitation and heating improvements, greenhouses, etc.).

## 9. Savings Groups

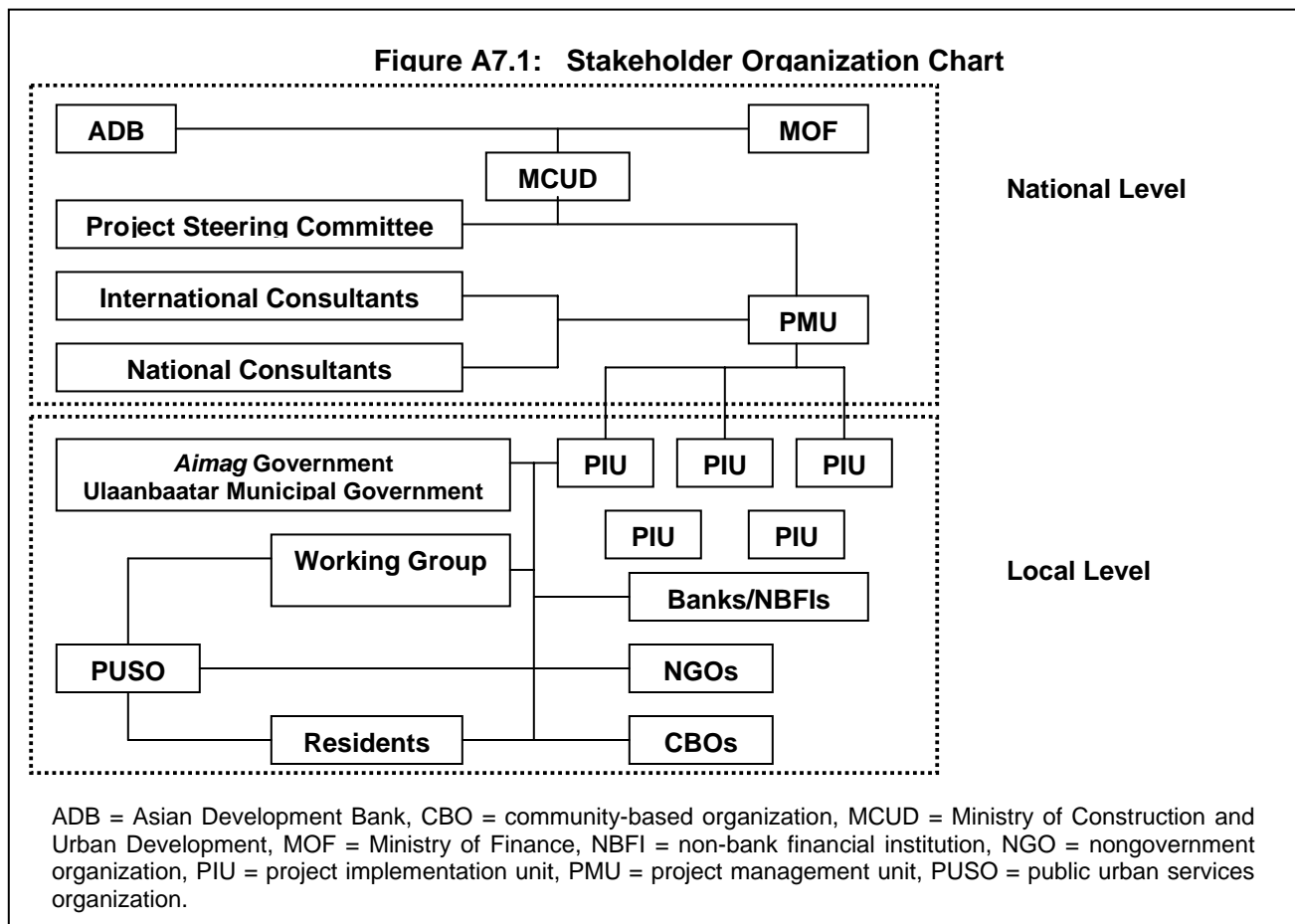
11. Savings groups are a recent and growing phenomenon in *ger* (traditional tent) area communities. They provide an important new vehicle through which to empower women and finance very small scale housing improvements. They will be instrumental in making the small loans for energy efficient stoves and compost toilets.

## 10. Commercial Banks and Nonbanking Financial Institutions

12. Under component C, loans will be made available to commercial banks and NBFIs to establish small loan facilities to individuals and communities in *ger* areas. The PMU will determine and finalize initial eligibility criteria for the participating banks and NBFIs, and terms and conditions of small loans for end users during project implementation. They will be reviewed and endorsed by the Ministry of Finance and MCUD, and submitted to ADB for approval.

### B. Stakeholder Organization Chart

13. The following (Figure A7.1) indicates the basic relationships among stakeholders at both the national and local levels. The PIUs will help form the bridge between the national and local levels through regular communication with the PMU. They will be responsible for much of the subproject level monitoring. Both the PMU and PIUs will have designated staff responsible for the Project. The working groups will ensure that subproject issues and progress are addressed on a regular basis, communicated to local government authorities, and any disputes are resolved. They will also help ensure the coordination of activities among all stakeholders.



## IMPLEMENTATION SCHEDULE

Item	2006	2007	2008	2009	2010	2011	2012
<b>Activity</b>							
Project Preparation							
- Establish PMU & PIU							
- Recruit Consultants							
- Complete SLA and OLAs							
- Preliminary Study for Ulaanbaatar Roads							
<b>Component A: Basic Urban Services</b>							
<b>Component B: Urban Roads</b>							
<b>Erdenet and Hailaast in Ulaanbaatar</b>							
1. Design and Tender Documentation							
2. Land Acquisition and Resettlement Works							
3. Civil Works Prequalification, Tender Invitation, Assessment, Contract Award							
4. Civil Works Construction Contracts							
5. Goods Prequalification, Tender Invitation, Assessment, Contract Award							
6. Pipe Supply							
7. Equipment and Material Equipment Installation							
8. Testing and Commissioning							
9. Project Completion							
<b>Remaining Subprojects</b>							
1. Design and Tender Documentation							
2. Land Acquisition and Resettlement Works							
3. Civil Works Prequalification, Tender Invitation, Assessment, Contract Award							
4. Civil Works Construction Contracts							
5. Goods Prequalification, Tender Invitation, Assessment, Contract Award							
6. Pipe Supply							
7. Equipment and Material Equipment Installation							
8. Testing and Commissioning							
9. Project Completion							
<b>Component C: Small Loans</b>							
1. Establish Community-Based Organizations							
2. Establish Savings Groups							
3. Community Awareness and Education							
4. Provision of Small-Scale Loans							
<b>Component D: Institutional Development</b>							
1. Identify Training Needs							
2. Institutional Capacity Building							
3. Training of Communities							
4. Off-site Training							

PIU = project implementation unit, PMU = project management unit, OLA = onlending agreement, SLA = subsidiary loan agreement.

## PROCUREMENT PLAN

Project Information	
Country	Mongolia
Name of Borrower	Ministry of Finance
Project Name	Urban Development Project
Loan or TA Reference	TA 4632-Mongolia
Date of Effectiveness	TBA
Amount (\$)	28.2 million
Of which Committed, (\$)	
Executing Agency	Ministry of Construction and Urban Development
Approval date of Original Procurement Plan	TBA
Approval of most recent Procurement Plan	TBA
Media for Publication for Local Advertisements	TBA
Period Covered by the Plan	2007–2012

TA = technical assistance, TBA = to be advised.

### Procurement Thresholds for Goods and Related Services, Works and Supply and Installation

Procurement Method	Estimated Contract Value (\$)
ICB Works	> 1,000,000
ICB Goods	> 500,000
NCB Works	≤ 1,000,000
NCB Goods	≤ 500,000
Shopping Works	≤ 100,000
Shopping Goods	< 100,000
Exceptional Methods	

ICB = international competitive bidding, NCB = national competitive bidding.

### Procurement Thresholds for Consulting Services

Procurement Method	To be used above (Value \$)
Quality and Cost-Based Selection	200,000
Consultants Qualifications Selection	100,000
Least-Cost Selection	10,000
Individual Consultant Selection	PMU and PIU staff, and international and national consultants for project management

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

## List of Contract Packages in Excess of \$100,000, Goods, Works, and Consulting Services

Contract Description	Estimated Cost (\$'000)	Procurement Method	Expected Date of Advertisement	ADB Review Required <sup>a</sup>	Comments
Design Services (Basic Urban Services)	131.5	CQS	Dec 2006	Prior	ADB review prior to each stage of procurement procedure is required
Feasibility Studies (Urban Roads)	400.0	CQS	Dec 2006	Prior	ADB review prior to each stage of procurement procedure is required
Civil works – Pipeline Construction (Basic Urban Services)	1,992.0	ICB	Dec 2007	Prior	ADB review prior to each stage of procurement procedure is required
Boreholes/Structures/Groundworks (Basic Urban Services)	246.0	NCB	Dec 2008	Post	
Pipes and fittings (Basic Urban Services)	527.3	NCB	Oct 2007	Prior	ADB review prior to each stage of procurement procedure is required
Pumping equipment (Basic Urban Services)	107.8	NCB	Dec 2008	Post	
Civil works – Road Improvement and Lighting and Signage (Urban Roads)	1,881.5	ICB	Dec 2008	Prior	ADB review prior to each stage of procurement procedure is required
Consultant – Project Management and Procurement	114.0	ICS	Nov 2006	Prior	
Consultant – Finance and Microfinance Specialist	114.0	ICS	Nov 2006	Post	
Consultant – Institutional Development and Financial Specialist	266.0	ICS	Nov 2006	Post	

ADB = Asian Development Bank, CQS = consultant's qualification selection, ICB = international competitive bidding, ICS = individual consultant selection, NCB = national competitive bidding.

<sup>a</sup> ADB review required either prior to contract or post-contract as defined above. All review stages and procedures included in guidelines on procurement will be followed. The first draft English language version of the procurement documents should be submitted for ADB review regardless of the estimated contract amount.

Other contract packages will be identified during project implementation.

Source: ADB estimates.

## SUMMARY OF RESETTLEMENT FRAMEWORK

### A. Introduction

1. The resettlement framework (RF) sets out compensation and other entitlements for all affected persons. It also outlines the necessary steps to prepare satisfactory subproject resettlement plans (RPs). Core subprojects have been conceived and planned to avoid or minimize resettlement. All resettlement impacts for the core subprojects will be updated based on the detailed engineering design. RPs for noncore subprojects will be prepared based on detailed design.

### B. Resettlement Impacts

2. It is anticipated that land acquisition and resettlement will not be very significant. Some houses, *gers* (traditional tents), and fences will need to be relocated for the core subproject in Hailaast for the urban road improvement component in Ulaanbaatar. The Hailaast core subproject will affect 38 households in total. There will be no resettlement in the core subproject in Erdenet for the water supply, sanitation, and solid waste management subcomponents. For the noncore subprojects, some will require RPs to address minor resettlement impacts.

### C. Policy and Legal Framework

3. The RF has been prepared in accordance with the Asian Development Bank's (ADB's) *Involuntary Resettlement* (1995) and the Government's two recent laws related to land: (i) the Law of Mongolia on Land, effective 7 June 2002; and (ii) the Law on the Allocation of Land to Mongolian Citizens for Ownership, effective 27 June 2002. Neither existing legislation in Mongolia nor ADB's policy require formal legal title to land for affected persons to be eligible for entitlements or assistance. Market values will be used to compensate for acquiring plots and buildings. A participatory approach will be adopted to grievance resolution through information disclosure and discussions with affected communities.

### D. Entitlements

4. The household occupying the plot will be entitled to full compensation from resettlement. The households will be compensated for their relocation costs, given assistance to find suitable housing, or allocated a plot without charge. Local governments will identify, consult with, and formulate special measures for vulnerable residents; and include these in the RPs.

### E. Procedures for Formulating Resettlement Plans

5. The key procedures and steps for preparation of the RPs for the noncore subprojects include the following: (i) identify scope (check categorization); (ii) conduct investigation and inventory survey; (iii) prepare draft RP; (iv) disclose the draft RP and consult with the affected persons; (v) finalize the RP, obtain local government endorsement, and submit to ADB for review and approval; (vi) disclose the approved RP (locally and on ADB's website); and (vii) pay compensation and relocate people to new plots prior to award of civil works.

### F. Implementation Arrangements

6. The project management unit (PMU) will ensure that participating local governments and Ulaanbaatar municipal government (UMG) formulate satisfactory RPs, and are responsible for overall resettlement management and coordination, internal monitoring, and quarterly reporting to

ADB. The project implementation units (PIUs) will take primary responsibility for any resettlement consultation, notices, implementation, and timely delivery of entitlements.

### **G. Consultation and Participation**

7. Local governments and UMG will meet and consult with the affected households to incorporate their concerns and suggestions into the RPs. Decisions reached by these consultations will be recorded with responsibility and timelines for their implementation. Each RP will include a list of the public consultations conducted and planned. Resettlement information will be disclosed to all affected households during RP preparation, and their views and opinions will be incorporated in finalizing the RPs. Affected persons will be closely consulted and will participate in the selection of new plots and restoration of livelihoods.

### **H. Eligibility Provisions**

8. All affected persons will be entitled to compensation and rehabilitation. Nevertheless, eligibility to receive compensation and other assistance will be limited by a cutoff date. This date will correspond to the approval date by the Citizen's Representative Khural (assembly) for each subproject. Notification of the cutoff date, which defines "eligibility" and "affected persons", will be posted in the affected neighborhoods.

### **I. Grievance Redress Mechanism**

9. Related Mongolian laws provide a mechanism for affected persons to present their grievances. The working group to be established in each project town and Ulaanbaatar will serve as the initial committee for grievance redress, and will provide an open forum for raising objections and holding discussions to resolve conflicts. The working group will record its deliberations and inform the concerned parties within 1 week of its findings and recommendations. These findings will be presented for action to the *aimag* (province) and *soum* (district) governors for the water supply, sanitation, and solid waste management subcomponents; and the city mayor and district governors for the urban road improvement component in Ulaanbaatar.

### **J. Monitoring and Evaluation**

10. The PIUs will monitor implementation of the RPs. Each RP will include indicators for internal and external monitoring. The PIUs will conduct their own internal monitoring of resettlement implementation and submit monthly reports to the PMU. The PMU will include the results of the internal monitoring in its quarterly reports to ADB. The PMU will engage a private firm or nongovernment organization as an external monitor. External monitoring reports will be submitted to ADB semiannually. Investigation should be carried out during resettlement implementation and evaluations should be conducted 1 year after the affected households have been resettled.

### **K. Resettlement Budget**

11. Local governments and UMG will be responsible for providing adequate funds for land acquisition and resettlement related to the Project. Detailed estimates will be prepared during detailed subproject design, verified by the PMU, and included in the budget of local governments and UMG as part of their contributions to the Project. The resettlement budget will include the costs for land acquisition, compensation, relocation, and livelihood and income restoration and improvement. The estimate of resettlement costs for the Hailaast core subproject at the time of appraisal is about \$89,000.

## SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

### A. Linkages to the Country Poverty Analysis

Is the sector identified as a national priority in country poverty analysis?	<input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No	Is the sector identified as a national priority in country poverty partnership agreement?	<input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No
<b>Contribution of the urban development sector to reduce poverty in Mongolia:</b>			
<p>Given that the majority of poor urban households live in <i>ger</i> (traditional tent) areas, the Project will have a significant impact on poverty reduction. To reduce poverty, the primary objective of the Project is to improve the living conditions and quality of life for the poor living in <i>ger</i> areas. The Project will do so through the (i) expansion and provision of basic urban services to <i>ger</i> areas where well over half of Mongolia's urban poor residents live; (ii) tariff reform to lower service charges to affordable levels for <i>ger</i> area residents; and (iii) promotion of low-cost, alternative infrastructure solutions, including compost toilet systems and energy efficient stoves, which are affordable to poor <i>ger</i> area residents. The Project is designed to have multidimensional impacts on poverty reduction. While infrastructure is provided, the Project will simultaneously (i) increase access to micro-credit for on-plot improvements, (ii) create direct short-term employment for construction and indirect long-term income generating opportunities, and (iii) empower poor residents in decision-making processes through the establishment of community-based organizations (CBOs) to plan and implement community infrastructure projects.</p> <p>The expected outcomes of the Project satisfy several of the goals for poverty reduction of the Government and Asian Development Bank (ADB). ADB's country strategy and program for Mongolia (2006–2008)<sup>a</sup> adopts the Government's two key objectives of higher private sector led growth and inclusive social development, the latter of which encompasses the Government's priority goals of improving the quality of public services and their accessibility for the poor. These goals derive from the Economic Growth Support and Poverty Reduction Strategy, finalized in 2003. Improved access to urban services is among the immediate targets that the Project will help to realize. Specifically, the Project will (i) reduce the numbers of urban poor in substandard housing by 2008; and (ii) increase coverage of water, improved sanitation, heating, and improved transportation.</p> <p>The proposed Project will also contribute to the achievement of the Millennium Development Goals, to which the Government and ADB are committed. In particular, the Project will move Mongolia closer towards achieving Millennium Development Goal 7: Ensure environmental sustainability. The Project will help achieve the three main targets of Goal 7: (i) Target 9: Provide information, education, and communication in the proper use of water and sanitation; (ii) Target 10: Extend safe water supply networks to underserved urban areas, benefiting <i>ger</i> area households without proper water supply; and (iii) Target 11: Achieve a significant improvement in the lives of the <i>ger</i> area population by implementing a comprehensive and coordinated public and private investment approach, and subproject towns will undergo a major transformation of their <i>ger</i> areas.</p> <p>The use of small loans to buy or improve existing stoves, following on the experience of the World Bank project for smokeless stoves, will reduce fuel consumption and have a direct impact on reducing poverty by increasing the disposable income of poor households. The World Bank's Improved Stove Project demonstrated that low-cost stove improvements can reduce carbon dioxide (CO<sub>2</sub>) emissions by 54% and coal consumption by 35–40%. Households currently consume 5–10 tons of coal per year for an average cost of \$22 per ton. With an improved stove, annual coal consumption will be reduced to 3–6 tons, which will result in a savings of \$44–\$88 per year per family, or overall annual savings of \$1.82 million.</p> <p><b>Labor Savings:</b> Improvement in water supply under component A will ensure the availability of water on a daily basis and eliminate the need for an additional two hours to fetch water per family per week. On an annual basis, the time savings would amount to approximately 0.43 person-months for each household, which translates to an economic value of \$40 per family. These labor savings would be felt most acutely by children and women, who are primarily responsible for gathering water. Households will also experience labor savings with improved stoves. They currently spend on average 6.9 hours per week collecting and preparing fuel for heating. Assuming that reduction in fuel consumption by 40% equates to a comparable reduction in the time spent collecting and preparing fuel, the improved stoves would result in an estimated labor saving of 0.59 person-months per family per year. Assuming that the amount of time saved is used for productive purposes, the resulting 0.59 person-months of saved labor could generate an average earning of \$54 per family.</p> <p><b>Direct Employment:</b> Under components A and B of the Project, an estimated 30% of \$20 million (about \$6.0 million) will be used for construction-related labor. Given the average annual salary of \$1,100 for an unskilled laborer, an expected 5,455 person-years will be created for components A and B. For component C of the Project, about 30% of the \$3.8 million investment (about \$1.1 million) will be used for labor; this amounts to 993 person-years of employment, of which about 20% will be unpaid labor of homeowners to construct individual water connections. The direct economic value of the 3,631 person-years of wage employment is thus equivalent to approximately \$4.0 million, or roughly \$145 per household.</p>			

**Health Benefits:** Assuming that the project improvements could result in a 40% reduction in morbidity starting in 2012,<sup>b</sup> the net present value of savings in the medical costs and foregone income associated with the absence from work for the beneficiary population as a whole is an estimated \$3.35 million, or roughly \$122 per household (Supplementary Appendix K: Health Benefits and Monitoring Plan). Women and, in particular, children, who are more susceptible to infectious diseases, will benefit greatly from the improved water supply and sanitation.<sup>c</sup>

**Indirect Employment:** Improved basic infrastructure and services, and provision of small loans through the Project can have a direct impact on reducing poverty by helping to increase household income and productivity through home-based work. About 62% of surveyed households expressed the desire for on-plot income generating activities. The estimated multiplier for income generation is \$8 for every \$1 of investment.<sup>d</sup> Given total ADB investment of \$28.2 million, an estimated \$226 million in income generation will result, or \$581 per household. It is expected that these benefits will accrue equally to working age men and women, which means that each working age woman can realize an estimated \$2,892 in income generation.

**Quality of Life:** In addition to the quantifiable benefits, many intangible improvements in the overall quality of life can also result from the Project. These benefits will include but not be limited to reduced overcrowding, better health, increased productive capacity, better prospects for education and employment for children, enhanced sense of personal and community safety, and enhanced sense of social and economic participation.

## B. Poverty Analysis

### Proposed Classification: General Intervention

More than 36% of the total population of Mongolia lives below the poverty line, which varies from \$18.58 to \$25.00 per capita per month.<sup>e</sup> While Ulaanbaatar has the lowest percentage of poor—27.3%—of the urban centers, it has the greatest number of poor people in the capital city. The average incidence of poverty in all *aimag* (province) centers is 33.9%. In Mongolia, housing is highly correlated with poverty in urban areas. Almost 90% of the poor live in *ger* areas in Ulaanbaatar and the figure is just over 80% in *aimag* centers. An average of 78.3% of the cities' poor residents lives in *ger* areas.

In urban areas, only a quarter of the poor have access to piped water from central sources compared with half of the nonpoor. Among project beneficiaries, 88% rely on trucked water (either to kiosks or delivered to houses) as their primary source of water, which is lower quality and less reliable than the central piped water supply. *Ger* area residents pay disproportionately high tariffs for water—anywhere from MNT0.5 to MNT2.0 per liter of water, compared with MNT0.10 to MNT0.20 per liter among apartment dwellers. Meanwhile, per capita water consumption in *ger* areas is significantly lower—about 4.7 liters per day (lpd) compared with the normative 240 lpd among apartment dwellers.<sup>f</sup> Moreover, *ger* area residents spend from 12–34 minutes on average gathering water from kiosks located an average of 284 meters away.

Heating is another differentiating factor for the rich and poor. *Ger* area residents primarily use highly-polluting stoves for heating and cooking, burning 5–10 tons of coal per year at an average cost of \$21.67 per ton and 4–16 cubic meter (m<sup>3</sup>) of wood at an average cost of \$12.14 per m<sup>3</sup>. Average household monthly expenditure on heating is about 6% of expenditure or \$10.36 in Erdenet.<sup>g</sup> By contrast, nonpoor families, which are predominantly apartment dwellers, spend 3–4% of their expenditure on heating.<sup>h</sup> In addition, *ger* area residents also spend about 7 hours per week on average to collect and prepare their fuel.

Other basic infrastructure lacking in *ger* areas includes sanitation, paved roads, street lighting, and drainage. Virtually all households use unimproved, and in many cases, dilapidated pit latrines. *Ger* area households suffer the negative health consequences associated with unsafe drinking water, poor sanitation, little to no solid waste management, and air pollution created by the stoves.

The average income of poor households in *aimag* centers is an estimated \$84.25, compared to nonpoor households, whose incomes are about \$221.77 on average. A breakdown of monthly income shows that households rely extensively on informal sector income—sale of agricultural and nonagricultural products together comprise almost half (48%) of average income. Formal sector wages comprise just 12% of income, followed by noncash income (9%) and pension (8%). The unemployment rate is about 23% among the working age beneficiary population.

Almost all interviewed households agreed that infrastructure improvements are required in the community. The top priority for neighborhood improvement among all subproject areas is water supply, which is the primary intervention proposed under component A. Other main priorities include roads, street lighting, solid waste, and sanitation. Focus group discussions reaffirmed the results of the survey. An overwhelming majority (93%) of households expressed willingness to join a CBO to help plan and manage neighborhood improvements.

## C. Participation Process

Is there a stakeholder analysis?  Yes  No

Is there a participation strategy?  Yes  No

An analysis of the key stakeholders informed both the project preparation and design. These include: (i) *ger* area residents, (ii) CBOs, (iii) savings groups, (iv) local governments, (v) public urban service organizations (PUSOs), (vi) Ministry of Construction and Urban Development, and (vii) Ministry of Finance. The stakeholder analysis defined the roles of each of the stakeholders and established the framework for participation at the local level of authorities and communities from the subproject selection stage through implementation.

The Project adopted a bottom-up approach in which local governments and communities were requested to confirm their willingness to participate in the Project by fulfilling a series of pre-project conditions. The submission of a project proposal that included *ger* area improvement and community participation was essential to be selected as one of the core subprojects. Once core subprojects were selected, communities were engaged in project preparation through a household survey and focus group discussions, which revealed community needs, priorities, and willingness to pay for improved infrastructure and services. Other stakeholders—including local government officials, community leaders, and the local PUSOs—were consulted extensively during field visits to develop subproject proposals that reflect the priorities and capacities of all key stakeholders.

The project design is based on a community-driven approach, at the core of which is the establishment and strengthening of CBOs under component C of the Project. The primary role of the CBOs will be to serve as the community representative to the local government, the PUSO, and the project implementation unit. The CBOs will be the essential facilitator for the block loans available under component C. They will serve as the intermediary between blocks of households that wish to take a loan from the Project for the installation of individual water connections (and on-plot sanitation facilities and energy efficient stoves for the individual households if desired) and the local PUSO, which will install the tertiary pipelines.

The Project will strengthen the CBOs' capacity to plan and implement community infrastructure and income generation projects. The CBOs will empower community members to make decisions about the type, location, and design of community amenities—including, initially, water kiosks, and later, income generation activities, such as community centers, greenhouses, and compost facilities. As the capacity of the CBOs grows, each will evolve over time and adopt further roles based on the demands of its members. Public awareness activities and community trainings under component D of the Project related to micro-finance, alternative sanitation and heating solutions, and improved health and hygiene will further engage community members and enhance the sustainability of the Project. Community mobilizers in each project implementation unit will assist in implementing the community participation and public awareness subcomponents of the Project.

#### D. Gender and Development

The provision of potable water and other basic infrastructure will have a direct positive impact on women and children, and will reduce women's labor inputs and promote more effective time budgeting. Women and children, who are more susceptible to infectious diseases, will experience significant health benefits with improved water supply and sanitation. Women will become empowered decision makers at the household and community levels with access to credit to make housing and other on-plot improvements and representation through CBOs to improve neighborhood amenities. Specific steps in the Project to ensure that the intended benefits will accrue to women and that they participate fully in the Project include: (i) ensuring equal representation of women on the CBO Council to ensure that women are empowered decision makers in the community, (ii) promoting health and hygiene awareness equally among men and women, (iii) ensuring that qualified women have the same opportunity for construction-related labor, (iv) providing training to women in entrepreneurial activities on a demand-driven basis, and (v) engaging a community and gender specialist to help monitor and evaluate implementation of the gender action plan.

Has an output been prepared?  Yes  No

#### E. Social Safeguards and other Social Risks

Potential Social Issues	Significant/ Not significant/ None	Strategy to address issues	Plan Required
Resettlement	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	Project design minimizes land acquisition and resettlement. A resettlement plan for one of the two core subprojects <sup>1</sup> and a resettlement framework for the whole project have been prepared	<input type="checkbox"/> Full <input type="checkbox"/> Short <input type="checkbox"/> None one resettlement plan and resettlement framework

<b>Affordability</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	<p>Poor beneficiary households will experience actual cost savings for improved water supply. The average monthly household expenditure on water in surveyed <i>ger</i> areas is approximately \$1.93, which amounts to approximately 1% of average monthly household income. Tariffs will be lowered to MNT0.50 per liter from the current rates, which range from MNT0.5 to MNT2.0 per liter. Assuming an increase of water consumption per person from the current average of 4.7 lpd up to 10.0 lpd, water expenditure will be reduced to 0.8% of poor household income, which is well within the internationally acceptable norm for water costs.<sup>i</sup> The total savings per family would be approximately \$20.22 per year.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Labor</b>	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	<p>The Project will have no negative impacts on employment at Ministry of Construction and Urban Development, local governments, or local PUSOs.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Indigenous peoples</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	<p>No ethnic minority issues are envisaged in the Project.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Other risks and/or vulnerabilities</b>	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	<p>No other risks or vulnerabilities are envisaged in the Project.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

<sup>a</sup> ADB. 2005. *Country Strategy and Program: Mongolia (2006-2008)*. Manila.

<sup>b</sup> The assumed reduction of 40% in morbidity is an estimate established by the World Bank in the *World Development Report: Investing in Health*, 1993, for improvements in water supply, sanitation, hygiene, drainage, garbage disposal, indoor air pollution, and crowding.

<sup>c</sup> According to Human Development Mongolia 2003, the major causes of mortality and morbidity for infants and children under 5 years of age are respiratory infections and diarrhea.

<sup>d</sup> The estimated multiplier is based on similar upgrading experiences around the world.

<sup>e</sup> National Statistical Office.

<sup>f</sup> Water in apartments is typically not metered, so actual consumption is unknown; 240 liters per day is the normative standard on which apartment water tariffs are currently based. The *ger* area consumption figures were calculated based on public urban services organization (PUSO) sales.

<sup>g</sup> Project preparatory technical assistance Household Survey, 2006.

<sup>h</sup> National Statistical Office Income and Expenditure Survey, 2002–2003.

<sup>i</sup> The other core subproject does not require land acquisition or resettlement.

<sup>j</sup> According to international norms, water costs should not exceed 4% of household income.

## GENDER ACTION PLAN

### A. Background

1. The Urban Development Sector Project (the Project) will benefit *ger* (traditional tent) area households that live in *aimag* (province) centers and are largely poor. Based on the socioeconomic survey, there is no significant evidence that female-headed households are poorer than male-headed households. However, there is evidence that women share a disproportionate load of household responsibilities. In addition to financial contributions, women are also responsible for most of the household work, including cooking, cleaning, washing, shopping, and looking after children and the elderly. Men have taken a lesser role in household activities, usually fetching fuel and doing some minor repairs in *ger* areas.<sup>1</sup> This demonstrated that women are the main users of infrastructure services. In *ger* areas, the burden on women is compounded by a lack of basic infrastructure that would normally make household work easier and more efficient. A gender action plan (GAP) is prepared to maximize the project impact on women.

### B. Preparation

2. The primary users of infrastructure will maintain it more effectively and should therefore be involved in design, operation, and management of upgrading activities. Women were actively engaged in the planning processes of the Project. Based on the issues identified by the gender assessment of project preparation, gender concerns were woven into two main components of the poverty and social analysis: (i) household survey; and (ii) focus group discussions, to establish a baseline on gender disaggregated data that is related to informal settlement (*ger* area) upgrading and to help determine how gender concerns should be incorporated into the project design. The household questionnaire included several questions intended to elicit specific information related to gender roles, perceptions, and expectations. Focus group discussions among women in the community allowed the study team to disaggregate responses by gender and ensure that the voices of women in target beneficiary communities were heard.

### C. Project Benefit to Women

3. Women are expected derive particular benefit from the Project's proposed improvements in community infrastructure and services as they and their children spend most of their time at home and in the neighborhood. The proposed Project will provide opportunities to (i) relieve time and labor burdens on women created by the lack of access to basic infrastructure and services; (ii) improve women's living conditions, health, and hygiene; (iii) create employment and income generation opportunities for women; and (iv) empower women as decision makers through access to finance and active involvement in community-based organizations (CBOs).

4. The improved daily living environment, as a result of the Project, will reduce the risk of infectious diseases for women and children, while time and labor savings will result in reduced household workloads for women and children. In turn, they will have more time to engage in productive income-generating activities, home-based work, and caring for family members. Female heads of household will derive particular benefit from the Project.

5. Sanitation in *ger* area is a big challenge for women, who are primarily responsible for maintaining hygiene in the home. New sanitation solutions proposed by the Project will ease the burdens faced by women in undertaking their household duties. By engaging men equally in

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<sup>1</sup> National Statistical Office. 2004. *Main Labor Force Survey Report*, 2004. Ulaanbaatar.

training related to sanitation, health, and hygiene, the Project will also attempt to alleviate the imbalance between women and men in bearing the burden of household responsibilities.

6. Access to affordable loans for on-plot facility improvements will provide women with important physical and financial assets that will substantially increase their status and security within the household as well as within the community. Women will become empowered decision makers at the household and community levels with access to credit to make housing and other on-plot improvements and representation through CBOs to improve neighborhood amenities.

#### D. Proposed Gender Action Plan

7. To address gender impacts and promote women's active involvement in the Project and direct access to project benefits, a gender action plan has been prepared. A summary of proposed gender action plan for components A, B, C, and D is presented in Table A12.1.

**Table A12.1: Proposed Gender Action Plan**

<b>Project</b>	<b>Actions Proposed</b>
<b>Component A:</b> Improvement of Basic Urban Services	<ul style="list-style-type: none"> <li>Qualified females will have equal access to employment opportunities during improvement of urban infrastructure</li> </ul>
<b>Component B:</b> Urban Road Improvement	
<b>Component C:</b> Small Loans for Water Connections and On-Plot Facility Improvements	<ul style="list-style-type: none"> <li>Ensure equal representation of women on the community-based organization governing councils</li> <li>Women should be encouraged to be members of community groups that apply for small loans</li> <li>Women/women's groups will be encouraged to participate in the application process of microfinance, and projects directed to women's groups will be given particular attention</li> <li>Women will be equally considered with men for all type of management and project implementation work</li> <li>Training will be open to men and women equally and training materials will be sensitive to gender issues</li> <li>Community group trained should comprise at least 40% women</li> <li>Awareness building and consultation program should be directed at least 40% toward women, using gender disaggregated groups as required to ensure women participate fully</li> <li>Ensure equal participation among men and women in sanitation, health, and hygiene training</li> <li>Provide entrepreneurial advice and training for women for potential community improvement profit-making enterprises (i.e., humus sales, recycling) on a demand driven basis</li> <li>Engage community development specialists to monitor and evaluate project impacts on women</li> </ul>
<b>Component D:</b> Institutional Development and Training	

Source: Asian Development Bank.

#### E. Implementation Arrangements

8. Community development specialists to be hired under the Project will design, monitor, and evaluate project impacts on women, and to ensure implementation of the GAP in project sites.

#### F. Monitoring and Evaluation

9. The project management unit will monitor implementation of the GAP on an annual basis. The project implementation units will work with the CBOs to collect gender disaggregated data

through household surveys and other research methods for evaluation on a periodic basis. Sample indicators or data to measure impacts of the Project on women are presented in Table A12.2.

**Table A12.2: Sample Indicators for Monitoring and Evaluation**

<b>Outcome</b>	<b>Sample Indicator</b>
Relieve time and labor burdens on women created by lack of access to infrastructure	– Number of men and women participating in public awareness and training activities
Improve health and hygiene among women	– Incidence of infectious disease caused by insufficient hygiene (viral hepatitis; tuberculosis; respiratory, digestive, urinary, and skin diseases) among women and children – Associated medical costs for women and children
Empower women in local decision making processes	– Number of female CBO members – Number of women on the governing councils of CBOs – Number of savings groups active in the community – Number of female members of savings groups
Increase women's access to credit through small loans for on-plot improvements	– Number of loans given to women – Number of loans given to female heads of household
Create employment and income generation opportunities for women	– Number of women employed in construction, operation and maintenance of infrastructure – Number of women employed by CBO revenue generating activities – Number of women's home-based businesses created after the provision of infrastructure

CBO = community-based organization.  
Source: Asian Development Bank.

## HIGHLIGHTS OF SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

### A. Introduction

1. The Project will support the Government's strategy for improvement of *ger* (traditional tent)<sup>1</sup> areas and will be financed under a sector loan; a similar approach will be replicated across a number of secondary towns. Erdenet has been selected as a representative core subproject location where the subcomponents of water supply, sanitation, and solid waste management will be developed. The primary road to Hailaast *ger* district of Ulaanbaatar has been chosen as the core subproject for improvement of urban roads. Initial environmental examinations (IEEs) have been carried out to assess the potential environmental impacts and risks that may arise through project preparation, implementation, and operation.

### B. Sector Assessment

2. The Government's medium term strategy adopted in 1995 recognized that the necessary resources are not available to replace the growing number of *ger* area houses with subsidized apartments. It concluded that greater encouragement of individual initiative in the urban development sector is needed if Mongolia's urban problems are to be addressed. The Government's action plan 2004–2008 has developed a program to provide 40,000 families with opportunities to live in houses with proper facilities. The Project will focus on urban development in urban areas scattered across Mongolia, characterized by open landscapes with minimal vegetation in steppe or desert locations. Different climatic zones result in annual precipitation varying from 400 millimeter to 120–200 millimeter. The dominant physical environment is summarized as moderate to harsh.

3. Towns typically comprise a formal urban centre with institutional buildings, residential apartment blocks, roads, and service infrastructure. They also include extensive and sprawling *ger* areas of informal *hashaas* (residential plots) which are provided with only rudimentary infrastructure. Up to 90% of the total population of a town is, or in the medium term will be, resident in such *ger* areas, and approximately 70% of total households are considered poor.<sup>2</sup> The urban environment is degrading as a result of low density of dwellings—leaving much open space which is not maintained, lack of sufficient infrastructural amenities and facilities, unconfined animal husbandry, unemployment, and poor socioeconomic conditions. The primary source of potable water is tanker-supplied kiosks. The average distance to collect water is 275 meter and queuing times of up to 1 hour are experienced. *Ger* plots typically include a simple pit latrine. Apart from inconvenience, the latrines cause groundwater pollution. The incidence rate for housing and sanitation related diseases in Mongolian is 4,276 persons per 10,000.<sup>3</sup>

4. A total of 12 species of wildlife have been registered as potentially endangered but none of their habitats is located near project areas. There are no adjacent cultural or historic sites.

### C. Overview of Sector Loan

5. The strategy for the Project will be to fully support the urban upgrading policies of the Government by addressing those aspects of urban infrastructure most in need of attention to

<sup>1</sup> *Ger* refers to the Mongolian circular tent but the term is also applied to nonformal areas of residential accommodation in which tents and timber structures predominate.

<sup>2</sup> Poverty is defined as a per capita income of not greater than \$30 per month.

<sup>3</sup> 2005 data from National Center Health Development, Ministry of Health include digestive (741 per 10,000), genitourinary (676 per 10,000), and hepatitis (2,185 per 10,000).

(i) arrest further decline in conditions, and (ii) introduce basic services where there are none. The primary objective of the loan will be to maintain at least current levels of service and, thus, incorporate the means whereby residents have the choice and facility for self-help improvements.

6. Components under the sector loan will support themes which target the following:

- (i) Potable water supply by (a) ensuring the source is good quality and sustainable, (b) providing a piped connection to each sales kiosk and major institutional establishment to ensure continuous supply and prevent reliance on tanker trucks that are old and costly to maintain, (c) providing numerous connection points from which individuals or groups of residents may construct direct plot connections, and (d) reducing losses and wastage through repair and metering.
- (ii) Sewerage connections for main institutional buildings (schools, clinics, etc.) where this can be achieved by extending existing municipal wastewater systems.
- (iii) Solid waste collection and transport to landfill in order to reduce or eliminate fly-tipping.
- (iv) On-plot sanitation by suitable technologies and training to prevent reliance on pit latrines.
- (v) Creation of mechanisms for small loans for house improvements which will improve thermal efficiencies and reduce heating costs.
- (vi) Improvements to main access routes in Ulaanbaatar to improve access to public services for urban residents.

7. The project funds will be allocated according to individual subproject components and have a total budgeted value of \$37.6 million.

#### **D. Summary Initial Environmental Examinations**

8. The potential environmental consequences of each subproject have been screened to assess the likely impacts that should be monitored and which form the basis for the environmental management plan. This screening was assessed under stages of project development: (i) project preparation and design phase; (ii) project construction phase, and (iii) operation and management of the completed works. The environmental assessment included consideration of alternative technologies and options for solution, including water resources, the means of water distribution in *ger* areas, domestic sanitation and grey water disposal, sanitation and sewerage to institutional establishments, and the disposal of domestic solid wastes. Least-cost solutions compatible with effective and sustainable service provision were selected. The IEEs also assessed the impacts that were most likely to cause construction problems. These considered the creation of dust; noise; conflicts of traffic movements; restricted access; and the impact on the town of numerous construction workers, including health and safety requirements. Mitigating measures are required mainly during the construction period and these have been identified and costed in the IEEs. The total cost allocated for these measures under the construction budgets is \$342,000.

#### **E. Environmental Assessment and Review Procedures**

9. The environmental assessment and review procedures of potential subprojects will, among other things, ascertain if the subproject:

- (i) involves either water supply, wastewater, or solid waste management for the *aimag* (province) capitals, and urban roads connecting *ger* area with the city center or located in the city center in Ulaanbaatar;
- (ii) conforms to an adopted relevant city or sector master plans;
- (iii) does not have potential for significant adverse environmental impact;

- (iv) is not environmentally sensitive and will not result in increased generation of wastewater or solid waste; and
- (v) does not require any significant resettlement, either temporary or permanent, and in any case not greater than 200 affected persons.

10. The Ministry of Nature and Environment is responsible for screening and approvals during the subproject preparation and implementation stage while that for subsequent inspection and enforcement lies with the State Inspection Agency. The Asian Development Bank will review the IEEs and summary initial environmental examination.

#### **F. Environmental Management Program**

11. The environmental management program (EMP) covers all phases of the Project from preparation and construction to commissioning and operation, and aims to ensure control of potential environmental impacts through monitoring and mitigation implementation. Separate EMPs will be prepared for each subproject and will be incorporated into the construction and operation management plans of the subproject as appropriate. The project management unit will ensure that the Project's progress and impacts are monitored. Costs related to mitigation measures for the construction phase will be borne by contractors while costs for the operation phase will be borne by the implementing agencies.

12. Direct public and stakeholder participation was conducted as an ongoing element of project preparation. Three workshops were held in Ulaanbaatar and one in Erdenet. Plans for public involvement during the design, construction, and operation phases have been developed during the project preparation stage. These plans include public participation in: (i) monitoring impacts and mitigation measures during the construction and operation stages; (ii) evaluating environmental and economic benefits and social impacts; and (iii) interviewing the public after the Project is completed.

#### **G. Conclusions**

13. On a per capita basis, the Project will decrease the demands upon energy resources by the replacement of a truck tanker by a piped system. The Project will specifically not increase the income gap between poor and affluent sectors. It is concluded that the sector Project comprises subprojects that may be classified as category B for the purpose of environmental impact. However, because of the environmentally sensitive components such as potential for raw water quality, wastewater treatment, and solid waste management aspects, the EMP will be fully implemented.

## FINANCIAL ANALYSIS

### A. Introduction

1. The financial analysis was prepared in accordance with the Asian Development Bank (ADB) *Guidelines for the Financial Governance and Management of Investment Projects Financed by ADB*.<sup>1</sup> Details of the financial analysis and financial projections are in Supplementary Appendix P. An assessment of financial performance was completed for the public urban services organizations (PUSOs) which currently operate as enterprises providing water supply and sanitation services in the urban areas. The analysis was undertaken for the core subproject in Erdenet. For the urban roads which are non-revenue generating, financial sustainability was assessed based on the financial capacity of the Road Department, Ulaanbaatar municipal government (UMG) to provide sufficient funds for the operation and maintenance (O&M) of the project roads in the future.

### B. Financial Internal Rate of Return and Sensitivity Analysis

#### 1. Objective and Approach

2. The financial evaluation assessed the financial performance of the PUSO following implementation of the water supply and sanitation subcomponents. The evaluation determines the level of cost recovery from water users that is required to service the ADB loan and achieve financial sustainability. The financial evaluations of the subproject were carried out in real terms using 2006 prices over 27 years of operations, including a 6-year implementation period. The residual value of physical assets is assumed to equal the remaining book or depreciated value at the end of the evaluation period.

#### 2. Weighted Average Cost of Capital

3. The weighted average cost of capital (WACC) was calculated in real terms for the Project. Funding sources for the water infrastructure subcomponent are the ADB loan (72%) and counterpart funds from the Government (28%).<sup>2</sup> The Ministry of Finance will relend the ADB loan to PUSOs at 3.25% (ADB rate of 1.5% plus 1.75%).<sup>3</sup> The local inflation rate is 6.0% per annum and the international inflation rate is 2.4%. The WACC was determined to be 0.25% for the base case analysis.

#### 3. Tariffs and Affordability

4. The Government has a decree that provides guidelines to PUSOs on water tariff calculation and setting.<sup>4</sup> However, there are no established tariff setting bodies that will review and undertake consultations with users on the appropriateness of any proposed tariff increase. Hence, whenever PUSOs request *aimag* (province) approval for tariff changes, in most cases the required tariff

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<sup>1</sup> ADB. 2002. *Guidelines for the Financial Governance and Management of Investment Projects Financed by ADB*. Manila.

<sup>2</sup> The water infrastructure cost includes well fields, booster pumping stations, water distribution lines and water mains. The ADB loan has interest rate of 1.5%, payable in 32 years with grace period of 8 years.

<sup>3</sup> Based on onlending terms of the Ministry of Finance to public enterprises such as PUSOs, contained in Guidelines on Onlending of Foreign Loans. Ministry of Finance. 26 July 2006. The onlending is the ADB rate + 1.75% minimum to 3.00% maximum.

<sup>4</sup> Based on Decree on Methodology for Tariff Calculation and Setting by Ministry of Infrastructure in 2004, the Government has provided guidance on tariff calculations that PUSOs have to follow. However, their proposed tariff increases have not been fully implemented by *aimags*, mainly for political reasons.

increases have not been fully implemented. Thus, *aimags* have to subsidize any shortfall in PUSOs' tariff revenues to sustain operations or pay debt obligations.

5. In Erdenet, the Erdenet PUSO currently obtains water from Erdenet Mining Corporation's well field and transmission lines to supply apartments and public and private organizations, which consume approximately 1,193,896 cubic meters ( $m^3$ ) (2005).<sup>5</sup> The *ger* (traditional tent) areas are supplied from small deep wells, with annual supply of about 78,191  $m^3$ . Private organizations (39% of total consumption) and apartments (35%) are the largest consumers, followed by budget organizations (20%) and *ger* areas (6%). Based on the tariff schedule, people in *ger* areas pay about MNT2,000/ $m^3$  or about 10 times more than those in apartments who pay MNT210/ $m^3$ .<sup>6</sup> While the high tariff is due in part to the high cost of transporting water to *ger* areas by tanker trucks, the pattern of *ger* area households paying on average 14 times more for water than apartment dwellers is common in all provincial towns.

6. As shown in Table A14.1, according to existing tariffs and consumption data, the PUSO's gross tariff revenues are highest for private organizations with MNT235 million (with highest consumption) and *ger* areas of MNT156.38 million (with highest tariff but lowest consumption). Apartment users consume 5.7 times more than people in *ger* areas but pay only MNT93.5 million. Since the PUSO pays MNT196.6 million to Erdenet Mining Corporation for apartment water consumption, about MNT103 million is subsidized by the *aimag*, or some MNT230/ $m^3$ .

**Table A14.1: Existing Tariffs and Projected Tariffs for the FIRR Analysis (MNT/ $m^3$ )**

Item	Erdenet	
<b>Actual Tariff</b>		
Apartments	210.0	(230 lpcd)
Public Organizations	449.3	
Private Organizations	479.3	
<i>Ger</i> (traditional tent) Areas	2,000.0	
<b>Payment to Mining Company</b>		
Apartments	440.3	<i>Aimag</i> (province) subsidizes about MNT230/ $m^3$
Public Organizations	383.0	
Private Organizations	408.6	
<i>Ger</i> Areas	—	
Apartments	484.3	(100 lpcd)
Apartments	500.0	
Public Organizations	500.0	
Private Organizations	500.0	
<i>Ger</i> Areas	500.0	
Tariff Based on Full Cost Recovery	2,012.0	
Apartments	500.0	
Public Organizations	600.0	
Private Organizations	700.0	
<i>Ger</i> Areas	500.0	

lpcd = liter per capita per day,  $m^3$  = cubic meter.

Source: Asian Development Bank estimates.

7. Existing PUSO tariff revenues are not adequate to support services considering that (i) apartment users are subsidized at rate of about MNT230/ $m^3$ ; (ii) institutions and apartment dwellers do not fully pay the water bills to PUSOs, resulting in high accounts receivables; and

<sup>5</sup> Data used is 2005 consumption levels in Erdenet. Budget organizations are schools, hospitals, and government offices. They obtain their budget (including payment for water bills) directly from the state budget.

<sup>6</sup> Water billing is based on normative consumption for apartments of 230 liters per capita per day (MNT1,453 person/month). Budget and private organizations are billed based on individual contracts (e.g., schools based on school population, etc.). Estimated consumption per person is 6.9  $m^3$ /month. Budget organizations and apartments are charged lower water rates than private organizations.

(iii) the unaccounted for water is estimated at 60% since water is not metered and billing is based on normative consumption rates for apartment users.

8. Under the Project, a new water supply source will be developed, and water mains and distribution lines will connect the major apartment areas and water kiosks in *ger* areas.<sup>7</sup> Project completion will be 2012, and it is anticipated that it will lower the cost of supplying water to *ger* areas and other water users. Considering the current distortions in tariff setting, with apartments heavily subsidized, apartment tariffs will be gradually increased during project implementation to eliminate subsidies and adjust tariffs to full cost recovery levels for O&M and depreciation during construction. By 2009, when loan repayment begins, tariffs must cover interest repayments. After 2012, tariffs should cover principal repayments (or depreciation, whichever is higher) to ensure that the PUSO can finance operations and debt repayment and become commercially viable enterprises. This is reasonable since the Project will improve (i) service delivery, (ii) efficiency gains, (iii) tariff restructuring and reforms, and (vi) education and awareness of tariff increases. The affordability of households in *ger* areas and apartments are analyzed based on the socioeconomic survey results of household income and estimated water consumption in *ger* areas. Table A14.2 shows that poor households in *ger* areas with an average income of MNT82,923/month (\$71.5) pay about 2.7% of their income for water while nonpoor households with MNT270,300/month (\$232.8) pay less than 1% of their income based on actual low water consumption. Willingness to pay is up to MNT3,000/m<sup>3</sup> if better service, in terms of water quantity and quality, is provided.

**Table A14.2: Tariffs and Affordability**

Item	Erdenet
<b>Existing: Ger area</b>	
HH monthly consumption	1 m <sup>3</sup> at 4.7 lpcd
HH monthly water expense	MNT2,000
Nonpoor HH income	MNT270,030
Poor HH Income	MNT82,923
Nonpoor affordability (5% of income)	MNT13,500
Poor affordability (5% of income)	MNT4,150
Willingness to pay	Up to MNT3/m <sup>3</sup>
Affordability based on current water expense/ month	
Nonpoor HH	<1%
Poor HH	2.4%
<b>Ger Area Proposed Minimum, Monthly Consumption</b>	
HH proposed minimum monthly consumption	4.5 m <sup>3</sup> at 30 lpcd
HH monthly water expense (MNT)	MNT2,250
% to poor HH Income	2.7%
<b>Apartments</b>	
Existing monthly expense on water@MNT210/m <sup>3</sup> and 230 lpcd	MNT7,245
% of water expense to average HH income	2.7%
HH proposed average water consumption	15m <sup>3</sup> at 100 lpcd
HH monthly water expense	MNT7,500
% of water expense to average HH Income	2.8%

HH = household, lpcd = liters per capita per day, m<sup>3</sup> = cubic meter.

Source: Asian Development Bank project preparatory technical assistance Socioeconomic Survey, 2006.

9. People in apartments who have higher affordability and can pay up to MNT13,500/month (5% of household income) are paying MNT7,245/month or 2.7% of their affordability but consuming more than three times the liters per capita per day (lpcd) as people in *ger* areas.<sup>8</sup>

<sup>7</sup> For sanitation, PUSO will connect schools, hospitals, and private organizations to main sewerage and PUSO will continue to pay to the mining company which owns the sewerage treatment plant.

<sup>8</sup> With the water supply improvements, people in *ger* areas are assumed to consume a minimum of 30 lpcd at MNT500/m<sup>3</sup> or MNT2,250/month) which is 2.7% of their monthly income.

#### 4. Financial Rate of Return

10. Estimates of the financial internal rate of return (FIRR) were made for base case and sensitivity scenarios which assume the required gradual tariff increases at the outset of project implementation (Table A14.1). The recommended tariff increases are required to ensure that they cover the full cost of O&M and depreciation, interest, and principal during loan repayment. The *aimag's* tariff review committee will institute public consultations to meet the required tariff increases of the PUSO. The financial analysis assumes that the PUSO will be able to charge the full cost recovery tariffs and undertake the operational improvements, such as reducing system losses and unaccounted for water to increase water revenue, reduce accounts receivable, and undertake individual connections and metering during project implementation. These measures must be initiated prior to project implementation to ensure the financial sustainability of the PUSO's operations. Base case FIRR and financial performance indicators for the subproject are provided in Table A14.3. The after-tax FIRR results for Erdenet water supply compare favorably to the WACC of 0.25%. The subprojects are therefore financially viable based on returns to net assets, and the debt-service coverage ratios are adequate.

**Table A14.3: Summary of Financial Economic Rate of Return and Sensitivity Analysis (%)**

Item	Erdenet
Base Case	8.1
Project Costs, and Operation and Maintenance Costs +10%	6.5
Revenues -10%	6.3
Cost +10% and Revenue -10%	4.7

Source: Asian Development Bank estimates.

#### C. Financial Projections of PUSO

11. The financial ratios are those for which specific assurances are being covenanted: (i) minimum debt-service coverage ratio of 1.2, (ii) maximum debt over debt plus equity ratio of 70/30, (iii) and minimum current ratio of 2. Table A14.4 shows the results of projected financial performance targets, assuming the proposed tariff reforms and operational improvements are implemented.

**Table A14.4: Estimated Financial Performance Ratios of Erdenet PUSO**

Item	2012	2020
Profitability Ratio	20.90%	43.30%
Minimum DSCR	1.99	5.73
Current Ratio	1.96	26.60
Debt Equity Target Level	70:30	70:30

DSCR = debt service coverage ratio, PUSO = public urban services organization.

Source: Asian Development Bank estimates.

#### D. Financial Sustainability of the Road Department, Ulaanbaatar Municipal Government

12. The construction and rehabilitation of urban roads in Ulaanbaatar is principally financed by the road fund that was established in 1991 to deposit a portion of user taxes and appropriations from the state budget, which consists of funds from fuel taxes on gasoline and diesel, state budget allocations, other donations and contributions, fines and fees, and miscellaneous revenues. The road fund increased from MNT2.59 billion in 2000 to MNT2.82 billion in 2005; the allocation from the state budget accounted for about 3% and road users' taxes accounted for about 97%. The road fund revenues are mainly used for road construction, rehabilitation, and maintenance of city roads; and partly to form part of counterpart funds for foreign-assisted road projects. In 2006, MNT3.03 billion (about \$2.6 million) has been requested by Road Department of UMG, of which MNT2.12

billion is earmarked for road construction and rehabilitation while MNT909 million is earmarked for road maintenance. UMG will ensure that road maintenance funding from the road fund is increased by at least 5% per annum from MNT909 million in 2006 to MNT1.22 billion in 2012 to be able to meet the projected increase in O&M costs of the project roads, which is estimated at about MNT40.70 million per year (about \$41,000).

## ECONOMIC ANALYSIS

### A. Introduction

1. The economic analysis covers both the Project as a whole and the individual key subprojects. It was undertaken in accordance with the Asian Development Bank (ADB) *Guidelines for the Economic Analysis of Projects*, the *Handbook for the Economic Analysis of Water Supply Projects*, and *Framework for Economic and Financial Appraisal of Urban Development Sector Projects*.<sup>1</sup> For the Project as a whole, the analysis covers (i) the rationale for public intervention; (ii) the goals of the investment plan; and (iii) the general design of the plan, including selection criteria for subprojects. The economic analysis then evaluates the typical key subprojects relative to the selection criteria, focusing on the least-cost analysis. During the design of the Project, alternative locations and specifications for the water supply and urban roads components were considered within the project area. The detailed economic analysis and least-cost analysis are in Supplementary Appendix L.

### B. Rationale for Public Intervention

2. The primary motivation for the Project results from increasing concern over the effects of population and economic growth on the inadequacy of public services in provincial towns, particularly the *ger* (traditional tent) areas. Continuing urbanization has resulted in increasing water shortages as well as major deficiencies in urban road network and services. The 1995 medium-term strategy was the first important statement on urban development in Mongolia and the Government's 2003 Strategy for Economic Growth Support and Poverty Reduction called for reducing disparities in living conditions, and creating enabling environments to support small and medium-sized enterprise development for both urban and rural settlements.

3. The Government's Action Plan for 2004–2008 has prescribed upgrading the quality of public services by strengthening the capacity and accountability of public service institutions and civil servants, expanding civil participation at all levels of decision making and ensuring transparency and conducting social policy targeted at improving living standards of families and households, providing adequate infrastructure, reducing harmful waste, and providing ecological education to residents.<sup>2</sup> In support of this plan, ADB and the Ministry of Construction and Urban Development (MCUD) developed the Urban Development and Housing Strategy which focused on *ger* upgrading that can be replicated across urban centers throughout Mongolia. The strategy links infrastructure and on-plot facility improvement in a more cost-effective manner, encourages local initiatives, and supports public and private collaboration in sharing improvement costs in a more equitable and affordable manner.<sup>3</sup>

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<sup>1</sup> ADB. 1997. *Guidelines for the Economic Analysis of Projects*. Manila; ADB. 1999. *Handbook for the Economic Analysis of Water Supply Projects*. Manila; and ADB. 1994. *Framework for the Economic and Financial Appraisal of Urban Development Sector Projects*. Manila.

<sup>2</sup> A consultative approach to urban development has been introduced in Ulaanbaatar and five secondary cities and sponsored by Cities Alliance and the World Bank. Cities Alliance and the United Nations Human Settlements Programme (UN HABITAT) are currently undertaking a second project for Ulaanbaatar that will focus on developing the guidelines for upgrading *ger* areas based on a collaborative, community driven approach.

<sup>3</sup> Targets 10, 11, and 12 of Mongolia's Millennium Development Goal Number 7, to "Ensure Environmental Sustainability" impact on housing and urban development, e.g., the use of smokeless stoves to reduce air pollution, promotion of energy efficient housing, provision of safe and dependable piped water supply, and environmentally sound means of sanitation.

## C. Sector Policies, Sector Investment Plan, and Institutional Capacity

### 3. Sector Policies

4. Within the framework of the 2004–2008 Action Plan, the Government has developed a program to provide 40,000 families with opportunities to live in houses with proper facilities. The program has three main components: (i) new apartments (10,000 units), (ii) moderately priced housing (15,000 units), and (iii) improvement of *ger* area housing and infrastructure (15,000 units). MCUD has accorded high priority to the program and plans to implement it through domestic resources and external assistance. On 27 June 2005, parliament passed the “40,000 Houses” Program Law approving the 40,000 Houses Program and making it official sector policy. The law sets out in detail the rationale for the Program and how it will be implemented. While previous government strategies voiced support for investment in urban development, including the 1999 Housing Policy Law, the 40,000 Houses Law provides a detailed program for provision and improvement of on-plot facilities and urban infrastructure with particular focus on *ger* areas. By providing water supply and sanitation facilities to 27,000 plots, the Project will overachieve the target of improving the infrastructure and housing for 15,000 *ger* area units and, through small loans for on-plot facility improvement, go a long way towards achieving the 15,000 target of moderately priced housing.

### 2. Sector Investment Plan

5. From 2006 to 2009, the Government laid out the required budget requirements for urban development sector, which include key improvements in urban infrastructure and services in the provincial towns. The goals most directly relevant to the investment plan were formulated by the Government and approved by provincial governments in 2004. As called for in the Public Sector Management and Finance Law, 2003, all provincial governments have developed three-year action plans under the public investment program, which have become the basis for urban infrastructure investments. MCUD has proposed allotments for MCUD under the Public Investment Program for specific urban investments from 2006–2009 are shown in Appendix 2. Within the Plan, the Project is an integrated urban improvement project for the *ger* areas and will bring about affordable and quality improvements to *ger* households that can: (i) provide households with a sustainable and recognized financial asset, (ii) support government efforts to privatize land, (iii) improve the quality of urban services in water supply, sanitation and road networks, and (iv) stimulate increased local private investment.

6. The Project involves government intervention at several different levels. The Government through MCUD is promoting urban development in the provincial towns in a more coordinated and cost-effective manner, and integrating local government and beneficiary efforts for more sustainable investments in public infrastructure. Involvement of the Government is justified since the urban development program spans several provinces. The local *aimag* (province) governments are coordinating and implementing the elements of the urban master plans. The public urban services organizations (PUSOs) are making individual investments in the water supply and sanitation works, and will be involved in owning and managing the completed facilities.<sup>4</sup> Further, the Project promotes a multifaceted effort that combines city level improvement in urban infrastructure with community and household initiatives that are largely financed through small loans.

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<sup>4</sup> The Company Law (1999) provided for the corporatization of PUSOs to become financially and managerially autonomous enterprises.

### 3. Institutional Capacity

7. Since MCUD is a central government ministry, the investment plan will be implemented mainly through Ulaanbaatar municipal government (UMG) and *aimag* governments through local PUSOs. Since construction capacity is limited in outlying *aimags*, project implementation is usually carried out by Ulaanbaatar-based construction firms. Through the system of *aimag* government and PUSOs, private contractors, and engineering consultants, MCUD has adequate capacity and experience to implement the investment plan. However, for the investment plan as well as the Project, there is a need for institutional strengthening at the local government level, especially in: (i) operation and maintenance of urban infrastructure and facilities; (ii) community participatory structures and process; (iii) environmental monitoring issues; (iv) functional areas covering administration, finance, accounting, and business planning; and (v) management information system, and cost management and control. Institutional strengthening incorporated in the Project through component D (institutional development and training) will include training and awareness programs, consulting services for project management support, and institutional and financial strengthening of the PUSOs and UMG Road Department.

#### D. Analysis of Individual Subprojects

##### 1. Least-Cost Analysis of Individual Subprojects

8. The least-cost analysis ensures that each subproject is optimally designed to meet the goals of the subproject and does not involve unnecessary extra costs. Since there is no unique, least-cost plan to achieve the urban development targets, any plan that minimizes cost is acceptable, in principle. The water improvements will be achieved at least cost through a centralized water supply for *ger* area communities, which will be connected to the main water system. To vastly reduce unaccounted for water and eliminate subsidies over time, all customers in each of the subprojects will have metered connections. The least-cost analysis covers all feasible alternatives for a given subproject, including variations in location and technology, and covers the planning horizon or capacity of the system.<sup>5</sup> For each subproject, about four alternatives were assessed based on the options presented in the feasibility study reports, with various additions and variations by the project preparatory technical assistance study team.

9. In addition to being least-cost, each individual subproject must be economically justified through applying standard benefit-cost analysis. Therefore, economic internal rates of return (EIRRs) were derived for the representative subprojects in water supply and urban roads components. The main benefits for water supply were quantified under the following categories: (i) water supply: (a) non-incremental benefits, (b) beneficiaries' willingness to pay for improved and expanded (incremental) water services, (c) user cost savings, (d) user time savings;<sup>6</sup> and (ii) urban roads: (a) vehicle operating costs (VOC), (b) time savings, and (c) maintenance cost savings.

#### E. Economic Parameters and Assumptions

10. Economic analysis of the Project was conducted over 25 years inclusive of project construction. Project construction will commence in 2007 and be completed in 2012. Economic benefits and costs were denominated in terms of the domestic price numeraire and expressed in

<sup>5</sup> Based on the least-cost analysis, major decisions were made to revise the overall design of the Bayankhongor subproject to account for lower cost electricity rates at night and drop a proposed booster pumping station. The high cost of buying water from the Erdenet Mining Corporation in Erdenet also led to a lower cost solution to develop a new well field closer to the subproject.

<sup>6</sup> Other indirect benefits include (i) beneficiaries' willingness to pay for improved and expanded (incremental) water services, (ii) employment generation, and (iii) health benefits.

constant 2006 prices. International costs were converted to local currency costs using an exchange rate that started at MNT1,200 per \$1. Tradable components were adjusted to economic prices using a shadow exchange rate factor of 1.017, and nontraded components were valued at domestic market prices.<sup>7</sup> A shadow wage rate factor of 1.2 and 0.8 was applied to the wages of skilled and unskilled labor, respectively, at the domestic price level.

11. Base costs plus physical contingencies of the representative subprojects were estimated and apportioned on the basis of tradable, non-tradable, and skilled and unskilled labor costs. Similarly, operation and maintenance costs for each subproject were estimated on the basis of skilled and unskilled labor valued in economic prices, i.e., shadow wage rate factors.

12. **Water Supply.** Major benefits associated with improved water sources and distribution services include reduced water costs for *ger* area households, the provision of more water kiosks to *ger* areas as well as the opportunity to obtain individual connections in the future. Water system improvements also include significant reductions in unaccounted for water, enhanced system pressure, increased security of supply, improved drinking water quality, and reduced risk of exposure to waterborne pathogens. Indirect benefits of the overall Project for *ger* area beneficiaries include increased employment and productivity because of subproject construction and operation. Time savings from improved water accessibility are also substantial. Direct and indirect health benefits of the Project are significant because less days are lost at work and school, and there is a general increase in the overall quality of living.

13. **Urban Roads.** Economic benefits comprise savings in VOCs, including reduced road maintenance costs and travel time savings for both passengers and cargoes for existing and potential road users. VOC savings used are from the Road Department under UMG: MNT42,000 for cars, MNT15,000 for minibuses, MNT39,000 for buses, MNT65,000 for trucks, and MNT13,000 for other vehicle types. The VOCs include fuel, lubricants, tires, maintenance labor cost, depreciation, wages of driver, and other costs (overhead, administration, and interest). VOC savings accruing from generated traffic have been evaluated at half of the existing traffic benefits. Various road users and businesses will benefit from better mobility and access to work, and markets; and better social integration with institutions such as schools, hospitals, and communication centers. There will be employment creation during project implementation. The generated time savings are estimated based on the passengers' annual average wage and interest cost of the average cargo value; half converted to \$0.5 per hour and applied to the actual driving time saved by using the project road. Travel time from Hailaast to Ulaanbaatar City will be reduced by about 15 minutes for light vehicles. Maintenance cost savings are also considered as benefits once the proposed roads are improved. Unquantifiable benefits include health and environmental benefits to commuters and residents.

14. **Sanitation.** The Project is pioneering an on-plot, inside sewage disposal technique through simple compost toilets, which can be built and sold in the community. The indoor compost toilet will be a vast improvement over the present, unimproved pit latrines, which are not only unsanitary but also barely accessible in the winter months. *Ger* residents will be able to purchase those toilets with the proposed loans under component C of the Project. It is evident that the improvement over the existing pit latrines will have significant health benefits for the project population.

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<sup>7</sup> Since the shadow exchange rate factor is so close to unity, it does not appear that project costing, which is presently at a preliminary engineering stage, is very sensitive to shadow exchange rates. This assessment is supported by the fact that the difference between the official exchange rate and the "street rate" over the past year has been an average of only 3%.

15. **Heating.** Individual heating stoves will also be improved under the subproject. Small loans provided under component C will finance the purchase or improvement of existing stoves to “smokeless” stoves either through retrofitting existing stoves or purchasing new ones in the project areas. Such stoves will not only improve heating in the winter time, but will reduce overall smoke pollution in the core towns, providing significant health benefits, improving fuel efficiency, and reducing the cost of heating for poor households.

16. **Solid Waste.** The provision of more convenient collection points by the local governments and a people managed solid waste collection system will substantially improve the quality of people’s lives in the subproject area. Through the efforts of community-based organizations under the Project, a decline in casually discarded waste will lead to a cleaner and higher standard urban environment. In addition, fencing and separation of toxic waste at the solid waste landfill will vastly reduce environmental pollution in and around existing landfills.

## F. Economic Internal Rate of Return

17. The basic rates of return for the representative water supply subproject is 29.4% in Erdenet. In the case of Hailaast Road subproject, the EIRR is estimated to be 18.0% and is economically viable under various sensitivity scenarios (Table A15.1). Sensitivity analyses of the subprojects indicate that simultaneous increases in costs and reduction in benefits as well as substantial increases in project costs (20%) have the greatest impact on the EIRR. Delaying implementation by 1 year does not have a significant impact. In general, these factors are not enough to overturn the judgment that the Project is socially beneficial.

**Table A15.1: Estimated EIRR for Water Supply and Road Components**

<b>EIRRs and Sensitivity Analysis</b>	<b>Erdenet Water Supply</b>	<b>Hailaast Road</b>
Base Case EIRR	29.4	18.0
10% increase in capital costs (1)	26.0	16.3
10% decrease in benefits (2)	25.6	16.1
Combination of 1 and 2	22.7	14.6
Implementation delay – 1 year	29.3	15.3
20% increase in capital costs	23.2	14.9

EIRR = economic internal rate of return.

Source: Asian Development Bank estimates.