PPIAF

Mongolia: Exploring Options for Management Contracting-out in Water Supply and Sanitation Services for Ger Areas in Ulaanbaatar

Final Report

March 2009
Introduction

Background

The Municipality of Ulaanbaatar (MUB) and the Water Supply and Sewerage Authority (USUG) are working with the World Bank USIP II task team to develop a sustainable approach to improved and affordable water and sanitation services for the peri-urban poor in the ger areas.

The World Bank/PPIAF have contracted the present study 'Exploring Options for Management Contracting-out in Water Supply and Sanitation Services for Ger Areas in Ulaanbaatar' with the objective of examining options for using performance-based subsidy approaches to increase access to services for the peri-urban poor, exploring options for mobilising the private sector for construction and operation of communal water services in the peri-urban areas and proposing a regulatory framework to govern these services.

The study provides recommendations on performance-based subsidies and private sector participation as a way to improve kiosk, tanker and bathhouse services in ger areas, and presents the scope for a GPOBA pilot project for affordable water services in ger areas based on the recommendations. The study is not a technical study and does not provide new technical solutions to the challenges of water and sanitation in ger areas.

Process

The study has been based on data collected between March and May 2008, where extensive site visits were conducted to the ger areas, and interviews were performed with stakeholders including USUG, USIP II, MUB, public and private kiosk and bathhouse operators, truck drivers, customers, contractors, NGOs and banks. Furthermore, the national and company level regulation and policies were reviewed, and investment and operational costs were analysed.

A workshop to consult on preliminary findings and recommendations was performed with the key stakeholders in May 2008, after which the draft reports were circulated to the key stakeholders in English in July 2008 and in November 2008 in Mongolian. Finally a workshop to present the draft final findings and recommendations was conducted with the key stakeholders in March 2009.

Structure

This report constitutes the final report under the study. The report is structured in four separate sections:

A Alternative management arrangements for improved services in ger areas
B  Performance-based subsidies for improved services in ger areas

C  Policies and regulations governing services to ger areas

D  Next steps for private sector involvement in service improvements in ger areas

Furthermore:

- Appendix A contains draft term sheets for management contracts for contracting-out/IDAMCs
- Appendix B contains a GPOBA concept note for the project 'Output-Based Aid for improved water and sanitation services for Ulaanbaatar's peri-urban poor'.
Executive summary

Service provision to ger areas face significant technical and economic challenges that are not easily overcome. Difficult logistics and harsh climate conditions present significant technical challenges for improved services. Furthermore, the present system of service provision to the ger areas is expensive to operate, with piped kiosks being much more expensive to operate than piped household connections (due to high staff costs), and trucked kiosks being even more expensive to operate than piped kiosks (due to fuel and additional staff costs).

In the long term, individual household connections to water and sewerage networks are the right solution in all but the most remote areas. In the short to medium term, ger areas classified for comprehensive or minimal upgrading (rather than redevelopment) will continue to rely mainly on kiosks and on-site sanitation.

Experience with private operation of a limited number of USUG kiosks has been positive. The operation costs are lower, the customer responsiveness is higher, and there are examples of additional employment creation through synergies with other small-scale businesses. The success has, however, not led to any large-scale adoption of the concept, and there is uncertainty about the legality of private operations for kiosks registered as municipal property and which additional services kiosk operators may offer without jeopardising health regulations.

The existing contractual framework for water and sanitation services and significant experience with administrating donor funded investments provides a good starting point for improved service provision through performance-based subsidies and contracting-out in peri-urban areas.

A key challenge for the development of water and sanitation services in ger areas is, however, the financial situation of the sector. Although the legislation clearly calls for tariffs to be prepared on a full-cost recovery basis, the additional provision that all tariff adjustments are subject to approval by the town governor, has led to tariffs being politicised, resulting in a significant decline in real water tariffs in central areas in Ulaanbaatar.

The study recommends the following key initiatives:
• Connection of existing tanker served kiosks to piped system
  (which will lead to improved water quality, improved supply regularity and
  reduced operational costs)

• Increased outsourcing of kiosk operation
  (which, based on the positive experience from USUGs own pilot, will lead
  to significant operational savings, increased customer responsiveness and
  employment creation through synergies with other services)

• Independent regulatory authority for the water sector
  (which, based on the positive experience from the Mongolian electricity
  sector and international best practices, will provide USUG with more fi-
  nancial stability)

• Improved contractual framework
  (where the existing contracts in the sector are strengthened through in-
  creased delegation of responsibility with explicit performance indicators
  and supported by a bonus/penalty system).

The unit costs of service extensions in Ulaanbaatar’s ger areas are high and ser-
vice extension to the underserved ger areas is not financially viable for USUG
without an investment grant. At the same time, provision of water supply and
sanitation services to the peri-urban poor is socially desirable.

An output-based aid project has been structured on the basis of i) co-funding of
the connection of presently trucked water kiosks to the piped system, improv-
ing supply regularity and water quality as well as reducing operational losses
and ii) co-funding the establishment of new, privately operated bathhouses with
public toilets, improving access to sanitary facilities. It is estimated that an 80
per cent investment grant would be required to make a conversion from trucked
to piped kiosks financially sustainable (FIRR of 15 per cent and a payback pe-
riod of six years).

Due to limited private sector experience with investment in and management of
water services, a relatively simple approach is proposed for water supply where
a DB contract would be tendered among reputable contractors with previous
experience in the sector, and an O&M contract would be awarded on a competi-
tive but simple basis to private individuals in the ger areas.

In the bathhouse market, where there is some experience with private sector
investment and operation, it is proposed to use a more ambitious approach, ten-
dering a number of new bathhouses on a DBFO basis to consortia of contrac-
tors and operators (individuals, NGOs/CBOs or companies). This would, how-
ever, need to be supported by capacity building for contractors and potential
operators (on legal and contractual issues, business planning and applying for
investment loans) and possibly with local banks (on lending to consortia, lend-
ing on a limited recourse basis).
Policies and regulations governing services to ger areas

In order to provide an adequate regulatory framework for the sector in general and the GPOBA pilot in particular, parliamentary adoption of the 2008 Draft Amendment to the Law on Utility of Water Supply and Sanitation Services in Urban Areas is strongly encouraged. Parliamentary adoption of the 2008 Draft Law on BOT and Concessions would also be useful for the sector, but is not a prerequisite for the GPOBA project. Finally, it is proposed to reconsider the prescriptive elements in MNS 5775 - Drinking water distribution service in settlement area.

At the water utility level it is proposed to confirm the legality of outsourcing kiosk operation, irrespective of the origin of financing for individual kiosks, and to facilitate establishment of a positive list of additional services that private operators of water kiosks may offer. It is furthermore proposed to formulate outsourcing as explicit success criteria, make company level procedures for contracting private kiosk operators, and to introduce an availability payment or minimum revenue guarantee for private kiosk operators in less populated areas.

Recommended next steps for private sector involvement in water supply and sanitation services for ger areas

At the end of the report an action plan is drawn up, containing a list of activities in the following areas:

1. Improved management arrangements for services in ger areas that will improve incentives through delegated authority, reduce operating costs and ensure better service for customers

2. A GPOBA pilot for affordable water services in ger areas that will enable a grant funded demonstration project documenting the potential of the improved management arrangements and performance-based subsidies

3. Revisions of national regulations and policies that will improve the long-term financial sustainability of the utility through timely tariff adjustments

4. Revisions of utility level regulations and policies that will remove internal barriers to realising the potential of the improved management arrangements.
# List of abbreviations

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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<td>BOT</td>
<td>Build Operate Transfer</td>
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<tr>
<td>CBO</td>
<td>Community Based Organisation</td>
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<td>DB</td>
<td>Design Build</td>
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<td>DBFO</td>
<td>Design Build Finance Operate</td>
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<td>GPOBA</td>
<td>The Global Partnership for Output Based Aid</td>
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<td>HRD</td>
<td>Human Resource Department (of USUG)</td>
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<td>IDAMC</td>
<td>Internally Delegated Area Management Contracts</td>
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<tr>
<td>lpcd</td>
<td>Litre per capita per day (water consumption)</td>
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</table>
| MNT          | Mongolian Tugrik (the currency of Mongolia)  
   In May 2008, 1 USD was 1,135 MNT |
| MUB          | The Municipality of Mongolia |
| NGO          | Non-Governmental Organisation |
| NSO          | The National Statistical Office of Mongolia |
| O&M          | Operations and Maintenance |
| OBA          | Output-Based Aid |
| PO           | Private Operator (of water supply kiosk or bathhouse) |
| PPIAF        | The Public Private Infrastructure Facility |
| UB           | The City Ulaanbaatar |
| USIP I       | The First Urban Services Improvement Project |
| USIP II      | The Second Urban Services Improvement Project |
| USUG         | The Water Supply and Sewerage Authority of Ulaanbaatar |
| VIP          | Ventilated Improved Pit |
| WB           | The World Bank |
| WS           | Water Supply |
| WW           | Wastewater |
Mongolia: Exploring Options for Management Contracting-out in Water Supply and Sanitation Services for Ger Areas in Ulaanbaatar

Final Report - Task A - Alternative management arrangements for improved services in ger areas

March 2009
Introduction - Final Report Task A

The present report constitutes the final reporting for Task A - Alternative management arrangements for improved services in ger areas.

The report is structured as follows:

• Section A1 - Baseline description section, provides an overview of the existing service level and business model for service provision in ger areas of Ulaanbaatar
• Section A2 - Options for improved management of service provision, identifies alternative technical, organisational and contractual options for improved water supply and sanitation services in the ger areas
• Section A3 - Organisational and financial impacts on USUG, assesses the likely impact of the preferred options on the economics and staff of USUG
• Section A4 - Impacts on consumers, assesses the likely social impact of the preferred options on consumers in terms of improved access and affordability
• Section A5 - Transaction structure, contractual framework and action plan, outlines required steps and the necessary input for implementing the recommended options.

Furthermore:

• Appendix A contains draft term sheets for management contracts for contracting-out/IDAMCs.

Finally:

• Annex A1 includes a map of the present water supply infrastructure in ger areas of Ulaanbaatar
• Annex A2 includes the 2007 accounts of USUG
• Annex A3 includes an overview of changes in the water tariff since 1990.
A1 Baseline description

The present section provides a baseline description of the existing service level and business model for service provision in the ger areas of Ulaanbaatar.

A1.1 The ger areas of Ulaanbaatar

The ger areas are informal, unplanned, peri-urban settlements that surround the major cities of Mongolia including Ulaanbaatar. The area gained its name from the type of dwelling settlers live in, namely the traditional Mongolian tent or 'ger'. Today, ger area residents live in self-built houses and/or gers on a fenced plot of land, known as khashaa. Until recently, these areas were considered as fully informal housing areas. Land privatisation has been ongoing and has partly contributed to the formalisation of residence in the ger areas, through the provision of private entitlements of the land plots which settlers have identified as their own.
Although a number of residents still live there informally, the master plan for Ulaanbaatar City for 2020 has acknowledged these housing areas by including them in the city's long-term urban planning for the districts of Khan Uul, Bayanzurkh, Bayangol, Sukhbaatar, Chingeltei and Songino Khairikan. The plan classifies these ger areas in three categories that will be subject to infrastructure improvements, including water supply and sanitation, based on a phased approach:

- Redevelopment, where ger areas close to the existing city centre will gradually be replaced by apartment blocks
- Comprehensive upgrading, where extensive infrastructure improvements will be made to improve living conditions in the ger areas
- Minimal upgrading, which concerns the areas farthest from existing infrastructure, often extending up the hillside, and where infrastructure improvements are difficult and the long-term status is uncertain.

A1.2 Existing service provision and social conditions in ger areas of Ulaanbaatar

This section is primarily based on findings from i) the recent study report on the current provision of public utility services of the Ger areas in Ulaanbaatar (Centre for Social Development, 2006), including a survey of 1,000 households and 36 focus group meetings in all UB districts, including 14 khoroo1 (later referred to as the survey), ii) structured interviews carried out by the consultant covering a total of 35 kiosks in USIP II areas, ten bathhouses and five truck drivers, and iii) meetings with relevant stakeholders. Other statistical data was obtained from USUG and the National Statistical Office (NSO).

A1.2.1 Socio-economic conditions in ger areas

Geographic scope
Ger areas in Ulaanbaatar are located around the city centre and are spread out around all the central administrative districts of the capital2. In each district, there are a range of smaller numbered administrative units, known as khoroo. As a rule, a khoroo administers approximately 10,000 residents, and is often divided into two when the number of residents exceeds this number, in order to make it more manageable.

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1 These include all the khorooos covered by USIP II in addition to Nailakh khoroo 5.
2 There are nine districts in total in UB, six of which are central districts and three of which are suburban districts. USUG is responsible for all nine districts.
As shown in the map below, USIP II operates in five of the six central districts, covering a total of 13 khorooos at the time of the survey. Today, USIP II encompasses 17 khorooos. These include:

- Songinokhairkhan district including Bayanhoshuu ger area (khorooos 7, 8, 9, 10, 24, 25)
- Sukhbaatar district including Dambardarjaa (khorooos 15)
- Bayangol district including Naran (khorooos 9, 10, 11)
- Bayanzurkh district including Dari-Ekh (khorooos 2, 21) and Uliastai (khorooos 10, 23)
- Chingeltei district including the Chingeltei ger area (khorooos 17, 18).

The socio-economic characteristics of each ger district may vary between the individual khorooos, as will be shown in the sections below. It is therefore crucial that generalisation about a ger area is avoided.

**Population**

The population of Mongolia is estimated at 2.5 million (2006), of whom 1.2 million reside in Ulaanbaatar. Around 50 per cent of households in the capital city live in ger areas, i.e. approximately half a million.

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3. The sixth central district, Khaan Uul was covered by USIP I (1997-2003).

4. The terms household and family are used interchangeably.
USIP II ger areas cover a population of approximately 130,000\(^5\), 40 per cent of whom reside in Bayanhoshu, which is also the largest ger district in terms of surface area.

\[\text{Chart: Population distribution in USIP II areas}\]

Population growth is estimated at 2-3 per cent per year. Using the creation of new khorooos as an indicator of the increase in population size within a ger area, it appears that the number of residents has mainly grown in Bayanhoshu, where two newly formed administrative units are observed (khoroo 24 and 25). Other expanding areas include Uliastai (new khoroo 23) and Dari-Ekh (new khoroo 21).

\section*{Poverty}

According to NSO, approximately one third of the population in Mongolia live below the national poverty line. In May 2008, the latter was set at MNT 73,300 per capita per month, compared to a minimum monthly wage of MNT 108,000. At the national level, the average household size is 4.1. In UB, it is 4.4.

The survey shows that in USIP II ger areas, the average household size is 4.8, where 31 per cent of households have six or more members. Although the average household size is higher than the national and UB averages, approximately one third of the surveyed households earn less than MNT 70,000 per household, indicating poverty. The ger population experiencing the highest incidence of poverty, where approximately 50 per cent of households have a monthly income of less than MNT 70,000 are from the Naran ger area (khoroo 10 and 11).

Prices of goods have rapidly increased in Mongolia over time, but have not been systematically matched by an equivalent income adjustment to the minimum wage. It is therefore likely that the poverty has been further exacerbated after the survey was carried out.

\footnote{USUG data.}
Other dimensions of poverty of relevance to this study include access to water and sanitation, which will be further elaborated below. As the legal status of many ger residents is unclear, access to some of the basic social services, for instance health services, is limited. In the survey, 25 per cent of ger families who could not get emergency medical assistance say the reason was that their addresses were not registered.

Furthermore, the type of dwelling could be an indicator of affordability. At the time of the survey, half of ger residents live in gers. This is most prevalent in Naran, Dari-Ekh and Ulaastai. Ger residents living in houses reside in Bayanho-shuu, Chingeltei and Damabardarjaa.

**Unemployment**

According to NSO, one third of the very poor are unemployed. In February 2008, the registered unemployment rate was 30 per cent, and women constituted 56 per cent of the registered unemployed.

Informal sources indicate a higher unemployment rate in ger areas. The survey indicates that most families have at least one member who is unemployed and/or receiving social welfare benefits. There is, however, no information on the percentage of residents engaging in informal versus formal employment, on a part-time or full-time basis. Approximately one fourth of households did not have any members who were employed. Moreover, 10 per cent of households had neither an employed member nor a member who received benefits. This vulnerability is primarily seen in Bayanho-shuu (khoroo 7), Naran (khoroo 9) and Dari-Ekh (khoroo 2).

**Legal status**

Despite ongoing land privatisation, the survey shows that 25 per cent of households have not privatised their property. On average, 14 per cent of households do not have a formal residence permit. In Ulaastai, approximately 25 per cent of households did not have an official permit.

Informal residence affects the residents' poverty status, as it reduces access to basic social services that require formal registration. This includes eligibility for applying for a private water and sewerage connection, access to formal jobs offering social insurance and insurance benefits, as well as access to bank loans for starting up or expanding businesses. This could be a hindrance for improved income opportunities, given the high unemployment in the ger areas.

**A1.2.2 Present service provision: water supply**

The ongoing rural urban migration has resulted in a rapid and unplanned expansion of the ger population in areas surrounding the city centre. These areas are often difficult to reach. The need for basic infrastructure services to serve a growing population, including water and sanitation, has therefore increased over time.

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6 This could include child allowances.
This section presents the current service provision context.

**Water supply to ger residents**

Water supply to ger areas is mainly provided through 556 water kiosks distributed across the six UB districts, covering a population of approximately 550,600\(^7\). The primary provider of water is USUG by means of its 458 kiosks, of which two thirds are trucked kiosks and one third are connected to the piped network. Furthermore, 98 kiosks are privately owned and either supplied by a local well or by trucks from the USUG sources.

The table below provides an overview of the kiosk distribution by ger area. A map showing the water supply infrastructure in the ger areas is attached as annex A1.

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\(^7\) USUG data - July 2008.
### Table: Water supply by ger area - July 2008

<table>
<thead>
<tr>
<th>District</th>
<th>Total population</th>
<th>Ger area</th>
<th>Total number of kiosks</th>
<th>Truck supplied USUG kiosks</th>
<th>Pipe supplied USUG kiosks</th>
<th>Private kiosks</th>
<th>Red cross kiosks</th>
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<td>Songino Khairkhan</td>
<td>149,294</td>
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<td>143</td>
<td>91</td>
<td>21</td>
<td>26</td>
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<tr>
<td>Total</td>
<td>555,603</td>
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<td>561</td>
<td>297</td>
<td>161</td>
<td>84</td>
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</table>
Significant infrastructure improvements have been completed and are still ongoing under the USIP I and USIP II projects.

The focus areas for USIP I and USIP II and their key content in relation to water supply are shown in the table below.

Table: Investments in water supply in ger areas under USIP I

<table>
<thead>
<tr>
<th>District</th>
<th>Ger area</th>
<th>Master plan zoning</th>
<th>USIP I</th>
<th>USIP II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khan Uul</td>
<td>Nisekh</td>
<td>Redevelopment</td>
<td>2 new kiosks, 32 rehab, 34 connected, 2.4 km main</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yarmag</td>
<td>Redevelopment</td>
<td>1 new kiosk</td>
<td></td>
</tr>
<tr>
<td>Bayanzurkh</td>
<td>Dari-Ekh</td>
<td>Comprehensive upgrading</td>
<td>11 new kiosks, 5 rehab, 16 connected, pipe, pumping station</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shar Khad</td>
<td>Comprehensive upgrading</td>
<td>6 new kiosks, 8 rehab, 14 connected, 0.8 km main</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uliastai</td>
<td>Comprehensive upgrading</td>
<td>2 new kiosks</td>
<td></td>
</tr>
<tr>
<td>Bayangol</td>
<td>Gandan</td>
<td>Redevelopment</td>
<td>4 new kiosks, 1 rehab, 4 connected</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Naran</td>
<td>Comprehensive upgrading</td>
<td>1 kiosk connected</td>
<td>2 new kiosks</td>
</tr>
<tr>
<td>Sukhbaatar</td>
<td>Dambadarjaa</td>
<td>Minimal upgrading</td>
<td>11 new kiosks, 7 rehab, 18 connected, pipe</td>
<td></td>
</tr>
<tr>
<td>Chingeltei</td>
<td>Chingeltei</td>
<td>Comprehensive upgrading</td>
<td>13 new kiosks, 6 rehab, 19 connected, 11.3 km pipe, reservoir, pumping station</td>
<td></td>
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<tr>
<td></td>
<td>Denjiin Myanga &amp; Zuragt</td>
<td>Comprehensive upgrading</td>
<td>5 new kiosks, 29 rehab, 34 connected</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Khailaast</td>
<td>Comprehensive upgrading</td>
<td>3 new kiosks, 26 rehab, 29 connected, 6.5 km main</td>
<td></td>
</tr>
<tr>
<td>Songino Khairkhan</td>
<td>Bayanhoshuu</td>
<td>Minimal upgrading</td>
<td>29 new kiosks, 25 rehab, 54 connected, 40.2 km pipe, reservoirs, pumping station</td>
<td></td>
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<tr>
<td></td>
<td>Tolgoit</td>
<td>Redevelopment</td>
<td>1 new kiosk, 19 rehab, 20 connected</td>
<td></td>
</tr>
</tbody>
</table>
Approximately one third of USUG kiosks are located in USIP II ger areas, primarily in Bayanhoshuu. The majority of USUG kiosks in USIP II areas (96 per cent) are trucked as elaborated in the chart below.

**Chart: Distribution of USUG kiosks in USIP II ger areas: trucked versus piped**

Source: USUG, March 2008

Currently, reliance on USUG kiosks is high in USIP II areas. 80 per cent of the surveyed households get their water from USUG kiosks, as opposed to 14 per cent from private/NGO kiosks or other sources. High reliance is further underlined by the limited availability of alternative sources of water, should water supply disruption take place. This was particularly visible in Naran (khoroo 10) and Chingeltei (khoroo 17), where 74 per cent and 65 per cent of households respectively said they had no other option.

Most of the surveyed ger area households get their water from tanked kiosks, primarily in Bayanhoshuu (khoroo 8, 10, 11) which shows between 94 per cent and 100 per cent reliance, and Naran (khoroo 10), where 98 per cent of households rely on tanked kiosks. The lowest reliance on tanked kiosks is found in Dambardarjaa, where approximately half of households rely on such kiosks.

Despite the increase in the number of piped kiosks in ger areas in recent years to 166 piped kiosks in May 2008, the general access of ger residents to piped kiosks in USIP II areas remains limited. Only 2 per cent of surveyed households obtain their water from piped kiosks. These are primarily from Naran (khoroo 11, 9), Dari-Ekh (khoroo 2) and Chingeltei (khoroo 18). The latter is the only area that hosts a piped kiosk.
It is worth mentioning that reliance on untreated sources of water, including wells, rivers, ponds and springs, is visible. More than one eighth of households in the survey use wells as their main source of water. This is particularly common in Dambardarjaa, Uliastai, Dari-Ekh, Bayanhoshuu (khoroo 7 and 9) and Naran (khoroo 11). Approximately 3 per cent of households have wells in their khoroo. A minimal number of household still rely on rivers, ponds and springs in Dari-Ekh and Bayanhoshuu (khoroo 7).

Water supply to water kiosks
As mentioned above, tanked kiosks are the most used source of water. The distribution of water to these kiosks relies on 60 USUG trucks, operated by 64 drivers and 10 technicians. The trucks are based at one parking place located in the Sharkhad ger area.

Interviews show that an average of two water delivery trips are made per day to the same kiosk upon request, loading from the same piped kiosk to deliver water to a predefined number of kiosks (5-7 per day). Interviews with kiosk operators confirm that 46 per cent of trucked kiosks are re-filled twice a day.

The key challenges highlighted in relation to the provision of water to trucked kiosks relate to:

- **Maintenance** of the 60 trucks, an average of four trucks are out of operation each day due to breakdown caused by difficult road conditions, thereby reducing USUG’s capacity to deliver water regularly. A challenge is the ongoing replacement of Russian trucks with Chinese trucks, which might require a revision of the current threshold for maintenance coverage below which drivers would have to bear the financial cost.
• **Long queuing time** at the loading kiosks, which also serve non-USUG kiosks. This lost time is an opportunity cost for drivers (as they are remunerated on water delivery and not compensated for waiting time at feeder kiosks) and to residents (irregularity of supply). During our field trips to ger areas, it was visible that some ger residents returned home empty-handed from their visit to the water kiosks.

• **Location of parking space** which is the eastern part of UB (Sharkhad). This makes it necessary for drivers to pick up their trucks and drive them to the loading kiosk at the other end of town. This has been considered lost time at the expense of serving additional kiosks or the same kiosks more frequently.

**Water coverage**

USUG has a target coverage of 1,000 ger residents per kiosk. The chart shows a coverage gap in Dambardarjaa and Uliastai where residents are underserved.

**Distance to nearest source of water**

According to the WHO programme in Mongolia, water is considered easily accessible if the location of the water source is within a 30-minute trip from home, at a maximum distance of 1,000 metres.

The average distance for households to travel from home to the nearest water point is approximately 350 metres, the nearest being 246 metres in Naran (khoroo 9) and the furthest 465 metres in Dari-Ekh. The time spent on fetching water depends on the season and road conditions. In spring and summer, the majority spend less than 30 minutes. In winter, they may spend up to one hour, due to slippery roads and hilly and rocky surfaces.
While the WHO minimum requirement for water consumption per person per day is 20 litres, the survey reveals an average daily water consumption per ger area resident to be 9 litres. This falls within the estimates of the UNDP Human Development report for Mongolia (2003), where consumption was estimated at approximately 8-10 litres. This is a very low level, also when compared with the apartment buildings of Ulaanbaatar, where residents consume 240-250 litres per capita per day on average.

The chart below shows that Naran (khoroo 9 and 10) has the highest consumption rate of approximately 12.5 litres per day per person. These are also the two areas with the lowest average distance to the nearest water point.

**Chart: Average daily consumption of water per capita versus distance to nearest water point in USIP II ger areas**

Source: Centre for Social Development, Study report, 2006
The lowest average per capita consumption of 6.2 litres per day is found in Bayanhoshuu (khoroo 7, 9 and 10). These areas coincide with the areas with a longer-than-average distance to the nearest water point. No firm conclusions can be drawn about the relationship between proximity and water consumption from the chart. However, informal interviews during field visits indicate that proximity is a key factor for collecting water. This is particularly due to the difficult conditions of fetching water during winter. The survey notes that 63 per cent of respondents face difficulties related to snow/frost, 60 per cent have to climb hills, and approximately 30 per cent have to pass slippery or rocky surfaces. In some instances, the closest road to the water point is not accessible (e.g. due to solid waste disposed outside), and longer roads need to be used, making the trip longer.

Water consumption does not seem to depend on the type of dwelling, household income levels or the price of water. 51 per cent of families living in a ger and 47 per cent of families living in a house with a heating stove consumed between 5 to 10 litres per day per person. This implies that water consumption needs do not necessarily increase with better housing conditions.

Moreover, 54 per cent of households earning less than MNT 70,000 and 49 per cent of households earning more than MNT 120,000 equally consume between 5 and 10 litres per day per person. This indicates that water consumption is not substantially defined by income levels, as only 2 per cent of higher income ger families consume more than 20 litres per day per person.

Even when water is obtained at zero cost, none of the families consumed more than 20 litres, possibly indicating price inelasticity of water demand to water prices, difficulties in fetching water regardless of water availability and/or relatively low prices of water. According to the survey findings, 49 per cent of households paying the USUG price for water (MNT 0.5 at the time of the survey), and 50 per cent paying double the USUG price or more for water, still consumed between 5-10 litres per day per person. It is interesting that more
households consumed more than 10 and 20 litres per person per day, even at prices that are more than the double of USUG prices. This indicates that there might be an inherent affordability to pay more than the USUG price for water.

![Chart: Average daily consumption of water versus unit price of water in USIP II ger areas](chart.png)

Source: Centre for Social Development, Study report, 2006

The survey shows that many households in Uliastai and Dari-Ekh pay more than double the USUG price to obtain water. They are also the areas where water is visibly obtained at zero cost by some households.

![Chart: Distribution of households (%) per price paid for water in USIP II ger areas](chart.png)

Source: Centre for Social Development, Study report, 2006

**Water collection frequency**

The survey shows that the majority of households fetch water at an average frequency of three times a week, at a capacity of 70 litres per trip. The survey carried out by the Centre for Social Development does not show disaggregated data by district and khoroo number in the report, which would have made it
possible to detect a relationship or trend between distance to nearest kiosk and frequency of water connection.

Approximately 75 per cent of families use carts to transport the water home. Only 2 per cent use vehicles, possibly due to low car ownership and difficult road conditions for cars. However, those using cars are typically households which are more than 600km away from the water collection point.

**Availability of water services**

USUG has a standard opening hour schedule for kiosks. According to the survey, kiosk managers do not always comply with this schedule, which affects the regularity of water supply to ger residents. The lowest regularity is observed in Naran (khoroo 9) and Bayanhoshuu (khoroo 10), where one third of households say that water providers do not follow the schedule. The main reasons stated are disruptions in water supply, according to 79 per cent of households. Only 7 per cent of families mention breakage in equipment as a main cause for not following the schedule.

Interviews with kiosk operators, however, show that the main problems with following the opening hours schedule relate to inadequate heating and breakage of pumps. This often results in closing down the kiosk for a full day or half a day.

If the schedule was followed regularly, 88 per cent of families would consider that suitable. However, many expressed dissatisfaction with Monday being a full non-working day and with midday closure, revealing a preference for a working schedule from 9am to 9pm. Interviews reveal that Saturday and Sundays are the busiest days. Generally, evenings are the preferred time for collecting water.

Recently, USUG has experimented with using private operators to run their kiosks. Today, a total of 31 kiosks are sub-contracted to private individuals. The contract structure between USUG and private operators is sales promoting, with revenues and profit sharing determined according to sales level. This gives an incentive for private operator to have longer opening hours, seven days a week. Assuming that trucks are able to deliver water, this would concurrently increase the likelihood of an improved availability of water services to ger residents.

**Water distribution to households**

Vendors do not seem to be a common feature in water supply in ger areas. However, 51 per cent of kiosk operators find that households would like to have water delivered at their home, mainly because it would reduce household chores. Furthermore, 46 per cent of kiosk operators believe that some persons would be interested in delivering such a service. This could be the case given the high unemployment rate in the ger areas and the need to generate extra income to the household.
Quality of water
On average, the majority of households say that USUG water complies with health and sanitary requirements; 85 per cent believe that piped kiosks comply with standards, as opposed to 81 per cent of tanked kiosks.

Households which were not satisfied with the quality of water mention that the water has a bad taste or smell, and that the transportation/distribution facilities are not compliant with health requirements. This implies that trucked kiosks represent a higher health risk hazard than piped kiosks, particularly because 75 per cent of households do not purify the water procured from USUG tanked kiosks.

In 2007, 120 cases of contamination were recorded from water tanked kiosks, suggesting that health risks may be reduced if tanked kiosks were converted to piped kiosks. Interviews reveal that nine of the interviewed kiosks receive customer complaints. 88 per cent of these kiosks were trucked kiosks, of which 87 per cent had received complaints related to water having a bad taste. In one kiosk, water was contaminated.

A1.2.3 Present service provision: sanitation
Sanitation services
Presently, close to half a million people live in the ger areas. Almost all of them use on-site pit latrines used only for urine and faeces. Some households dispose of their grey water in simple, separate soak pits within the khashaa. Owing to a number of problems with such grey water pits, frost during winter, poor soak away conditions and hygiene problems many people just discharge their grey water on the street.

The pit latrines are simple, mostly self-constructed, 2-3m deep hand-dug holes without any form of lining covered with a wooden slab. Superstructures are in most cases simple, self-constructed wooden structures. The pits are made of a size to last 3-5 years before they are filled up. When they have been filled, a new pit will be dug nearby.

In many of the oldest and smallest khashaas, digging new pits is often problematic because of limited space. Limitation on land has worsened, as there are no traditions for using mineralised waste from a pit latrine for soil conditioning. Therefore, new places have to be found every time a pit has been filled. An old pit will not be emptied and reused.

Many of the people in the ger areas are former nomads and have no traditions for gardening, and hence no need for gardening areas or soil conditioning.

Alternative latrines mentioned during the visits are twin pit latrines and dry latrines. Twin latrines have two pits. When one pit is filled, it is left for composting when the other one is used and vice versa. The dry latrines separate the urine from the faeces. Urine is used as a nutrient for gardening. Faeces dry up and, when composted, are used as a soil conditioner. Such alternative latrines
exist only as small pilot projects in a few households (see further description below).

An ADB pilot project in the Dar-Ekh ger area has constructed sewer pipes. But, as is the case for the water supply system in the area, no connections have been made yet because of administrative problems.

Generally, people in the ger areas are reluctant to invest in improved sanitation systems, as they are unsure about their future in the areas. In the areas near the city centre they believe that areas will be developed and urbanised, which has indeed been planned for many of the areas. Others are afraid that they could be forced to move out.

The poor sanitation system causes health and environmental problems such as:

- Presence of flies during summer, transferring diseases
- Odours because of lack of ventilation
- Slippery surface in winter
- Lack of basic hygiene conditions after toilet visits.

**Bathhouses**

Unlike water supply, the supply of bathhouses has been mainly driven by private initiatives, rather than by government. Some donor projects have also built bathhouses. These were handed over to MUB or the khoroo. Overall ownership of bathhouses has recently been transferred from MUB to the district government, which now owns non-private public bathhouses.

Based on interviews with bathhouse operators, we identified the following modalities for running a bathhouse:

- Privately owned bathhouses run directly by the owners or sub-contracted to a private individual operator
- Publicly owned bathhouses owned by the Municipality of Ulaanbaatar and sub-contracted to private operators, notably private commercial companies through a tender process
- Publicly owned bathhouses owned by the khoroo administration and run by a private individual operator.

It should be noted that there is no real overview of how many bathhouses are registered and operating, who owns them and where they are located. Documentation from the district government offices suggests a total of 64 bathhouses operating in the ger areas of UB, 25 of which are located in USIP II ger areas, mainly in Bayanhoshuu.

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8 Ulaanbaatar water and wastewater master plan, Seureca April 2005
Interviews with bathhouse operators indicate that there is a boom in the bathhouse business. One interviewee said that he was approached by around 20 people who enquired about how to start up a bathhouse. He reckons that three people have actually started up a bathhouse. Two new bathhouses were under construction nearby.

As running a bathhouse is not perceived to be a lucrative business in its own right, bathhouse operators often supply complementary business activities such as laundry services and hairdressing. In some instances, the bathhouse complements an existing business activity such as internet services.

The majority of the bathhouse operators interviewed were not linked to a piped system. They primarily rely on USUG for water delivery via trucks at a price of MNT 15,000 per m³. However, wastewater is disposed of via private collection tanks (or own tanks) at almost half the price charged by USUG of MNT 40,000 for 5 m³.

No problems were perceived with procuring water or disposing of wastewater. The main perceived challenges in running a bathhouse relate to:

- High running costs due to high utility and energy prices
- Electricity cuts and inability to provide warm water and operate at full capacity
- Water loss and water cuts (for connected bathhouses)
- Ongoing compliance with the Inspection Agency and limited access to loans to rehabilitate, to continuously comply with requirements.

The use of bathhouses is not widespread, as indicated in the survey. Currently, approximately 30 per cent of households use public bathhouses. The same percentage chooses to bathe at home. A slightly larger number of families (38 per
According to the survey, 60 per cent of households) resort to a relative who lives in an apartment building. A minority bathes at their workplace.

According to the survey, the majority of households take a bath once or twice a month. Interviews indicate that younger residents tend to bathe more often than the older residents. This suggests that a possible change of attitudes towards sanitation in general and personal hygiene in particular is underway.

While reliance on bathhouses and frequency of bathing are somewhat low, the lack of bathhouse services seems to be felt by residents. When asked to prioritise the most pressing issues needed in ger areas, households in the survey highlighted the provision of public bathhouses as the second priority of six.

According to the survey, the three main reasons for not using a bathhouse include:

- **Affordability**: 46 per cent of households perceive bathhouses to be expensive
- **Demand**: 44 per cent of households do not perceive the need to resort to a public bathhouse, although bathhouses were listed as a second priority
- **Location**: 40 per cent of families find that bathhouses are located far away.

Interviews with bathhouse operators show that the price for a 30-minute bath is neither standardised nor regulated. The price differs regardless of ownership and ranges from MNT 1,000 to MNT 1,500 per adult. Prices are differentiated for children (also within the children categories) and other groups in some instances (e.g. retired/elderly).

The use of bathhouses is seasonal and increases during summer. On average, between 20 and 200 customers are noted. The strategic location of a bathhouse seems to be key for attracting interested residents. Additional business services could also act as an incentive to use bathhouses.
Proximity was repeatedly mentioned in interviews with bathhouse operators as a main reason for households preferring the use of bathhouses rather than a relative’s apartment. The survey shows that the average walking distance to the nearest bathhouses is 1,820 metres. The longest distance was approximately 3,000 metres and the closest approximately 600 metres.

Survey findings corroborate the interviews. They show a reduced tendency to rely on public bathhouses when the distance to the bathhouse becomes larger. The preference then seems to go to using a relative's apartment instead, as shown in the chart below.

As pointed out in the interviews and revealed in the survey, households seem to prefer to rely on bathhouses rather than a relative's apartment when the number of household members is larger.
Interviews with bathhouse operators show that it makes more financial sense to use a bathhouse as a family rather than to incur transport cost to relatives in town when the number of household members increases.

A1.3 Existing business model for service provision in ger areas of Ulaanbaatar

A1.3.1 Organisational set-up for water services in ger areas

All water sector assets are owned by the Ulaanbaatar City Government, represented by the Agency for Capital Property relations. The incorporated Water Supply and Sewerage Authority of Ulaanbaatar (USUG) manages the water supply and wastewater assets on behalf of the City Government.

The relation between the Municipality of Ulaanbaatar and USUG is regulated by two parallel contracts:

- **The management of assets contract**, entered between the Head of the Capital Property Department, representing the City Mayor and the Director of USUG

- **The performance contract**, entered between the City Mayor and the Director of USUG.

Internally in USUG, the management of assets is delegated by the Planning, Financing and Economics Department to the individual Head of Department (eg. of the Trucked Water to Ger Areas Department and the Piped Water to Ger Areas Department) through a simple *internally delegated asset management contract*.

Finally, the management of specific kiosks with private operators is delegated by the Heads of the Trucked Water to Ger Areas Department and the Piped Wa-
ter to Ger Areas Department to private operators under **management contracts for private operators**.

In parallel, the Capital Property Department of the City has delegated the management of bathhouses to private operators under separate **management contracts for private operators of bathhouses**.

The contractual structure is shown in the chart below, and subsequently the key elements of the individual contracts are described.

**The management of assets contract**

The management of assets contract - actually called 'contract to be concluded with the director of state-owned industrial enterprise' - transfers the responsibility for management of USUG's assets to the Director of USUG for a period of two years, starting on 1 July 2006.

The contract defines the rights and obligations of the Capital Property Relations Department and the Director:

- The director is to develop a draft business plan, type and scope of activity, accounting policy, financial expectations, expected profit, shares to be collected for budget and supposed investments and submit it to the Property Relations Department for review and approval.
The director is to provide stable financial activity, improving technology, expanding production, increasing productivity, reducing costs, decreasing payables and receivables, and improving the quality of products.

- For contracts at an amount above MNT 5.0 million, the director is to get approval from the Property Relations Department.
- In case of rental of equipment and properties belonging to the city, to entities or individuals in accordance with relevant laws and regulations, rental contract are to be approved by the Property Relations Department, with subsequent transfer of 60 per cent of the rental fee to an account of the Property Relations Department.
- The director should not involve a third party in the performance of his duties, and he is personally responsible for contractual duties in relation to the Property Relations Department.

The contract does not explicitly state that the director has the mandate to subcontract the responsibility for a sub-set of the assets. In practice, however, this is the legal basis on which the internally delegated area management contracts and the private operator contracts for kiosks are signed.

**The performance contract**

The performance contract is an annual contract (1 January 2007 to 31 December 2007) made in accordance with the law on management and financing of state companies. The business plan of USUG forms part of the contract.

The obligations of the director of USUG (Clause 3) are:

- To deliver a specific amount of water and wastewater in accordance with quality standards in accordance with strategy plan.
- To implement a number of listed priority actions for the year:
  - 11 different infrastructure development goals by district and source of funds.
  - Three service extension goals (9 new water kiosks in ger areas - 9 jobs, 10 new fresh water trucks, 5 new sewerage trucks) and sources of funds.
  - Various workplace improvements (construction of petrol station with two attendants, two doctors for the health of employees).
  - Skills improvement (MIS improvement and training).

The obligations of the mayor (Clause 4) are:

- To control the delivery of items under Clause 4.
- To fund agreed investments from the city budget.
- To pay for unpaid interest on USIP I WB loan (3.2 billion Tugrik) from the city budget and revise plan for repayment of loan and interest under USIP I.
To "receive and review proposals from the Water Supply Sewage Authority on pricing for drinking and sewage water and issue decisions on fixing fees".

Furthermore the contract specifies joint obligations of the parties (Clause 5), change procedures (Clause 6), reporting requirements (Clause 7) and bonus/penalty upon fulfilment of responsibility (vaguely defined in Clause 8).

**Internally delegated asset management contract**
The contract transfers the responsibility for management of a subset of USUG's assets to the head of department.

The contract defines the rights and obligations of the parties and dispute resolution procedures.

Clause 3.3.2 states that the head of department can transfer the operation of cash, goods, materials, equipment and spare parts to a third party. It is not fully clear from the wording whether this includes a mandate to sub-contract the responsibility for management of a water kiosk. In practice, however, this is the legal basis on which the private operator contracts are signed.

**Management contracts for private operators of kiosks**
The contract for private management of water supply kiosks in ger areas includes the following key provisions:

- The supplier (USUG) transfers the management responsibility for a list of specific assets to the seller (private operator) for a specified period of time
- The rights and duties of the supplier and the seller are defined
- The tariff is defined by the supplier (3.1)
- The seller is remunerated with a defined (to be negotiated) percentage of the water sales (3.2)
- The seller may offer additional services within the frame of effective laws and regulations, provided that necessary permits are given from relevant authorities (5.1.2), but running unauthorised production and activities is a cause for contract termination (7.1)
- Minimum working hours are 10-14 and 16-20, Mondays and Thursdays off, for USUG operated kiosks, but the seller may extend kiosk working hours beyond the defined minimum (5.1.3)
- The seller carries the main operational expenses (own salary, social insurance, food, working clothes, electricity) and minor repairs (spare parts, current repair of building), while the supplier carries heating costs and costs related to repair of equipment
- Both parties may terminate the contract with a 14 days' notice (7.3).

**Management contracts for private operators of bathhouses**
The contract is a one-year management contract for two bathhouses constructed with donor assistance under USIP I.

The rights and obligations of the Capital Property Relations Department are to:
• Inspect the public bathhouse, its facilities and equipment item by item, and to determine their quality level and to issue a hand-over certificate
• Control operation of the property being used under the contract, in cooperation with a project management unit of the Second Ulaanbaatar Services Improvement project
• Control implementation of daily activities of the public bathhouse, quality of works and take measures to eliminate complaints from customers
• Take measures in case of violation of the contract and technical requirements
• Control whether the service fee is dominant in the market (procedures and criteria not defined)
• Share in the net income according to the fixed rate approved by the citizens' representatives meeting within the 25th of the month after the reporting quarter (retroactive and without clear procedures or limits).

The rights and obligations of the contractor are to:

• Operate the public bathhouse in accordance with designation indicated in design drawings and bid documents
• Follow hygienic and health regulations strictly
• Arrange his daily operation according to fixed regulations, resolving complaints from customers without delay, taking prompt measures to remedy deficiencies revealed
• Prepare a financial report to the Property Relations Department.

The contractor is to carry out repair works, but may apply to the relevant authorities with proposals for modification or investments.

The contractor may run other business activities which are not prohibited by law, based on existing building, machines and equipment (without hindering major services).

Any modification in either services or rooms is to be approved by the Property Relations Department and other authorities concerned.
A2 Options for improved management of service provision

The present section identifies alternative technical, organisational and contractual options for improved water supply and sanitation services in the ger areas.

The existence of management contracts between the City and USUG, between USUG and private water kiosk operators in ger areas, and between the City and private bathhouse operators in ger areas provides a good starting point for an incentive-based programme for improving the operation of existing water kiosk, tanker services, and bathhouses in ger areas, e.g. through developing an improved set of contracts with clear and equitable distribution of rights and obligations between the parties.

A2.1 Viable options for improved service

Based on interviews with key public, private and community stakeholders, the consultant has identified the following technical (T), organisational (O) and contractual (C) options for improved water supply and sanitation services in the ger areas (the ones that we view as highest priority in the scope of the present consultancy are marked in bold):

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Service extension to presently un-served areas</td>
<td>Establishment of new tanker served kiosks in peri-urban ger areas and the remaining un-served spots in middle ger areas</td>
</tr>
<tr>
<td>T2</td>
<td>Increased kiosk density in served areas</td>
<td>Reduce the average walking distance to nearest kiosk in served areas from the present maximum 500m to approximately 250m through increased density of kiosks</td>
</tr>
<tr>
<td>T3</td>
<td>Connection of existing tanker served kiosks to piped system</td>
<td>Extension of piped system to areas with tanker served trucks, rehabilitation of the kiosks (removing water tank, etc.) and connection of the kiosks to the piped system</td>
</tr>
<tr>
<td>T4</td>
<td>Individual consumer connections in piped areas</td>
<td>Connection of individual khashaas to existing piped system (extension of main pipes, feeder pipes, internal plumbing)</td>
</tr>
</tbody>
</table>
### Introduction of prepaid meters in kiosks in piped areas

T5 Introduction of prepaid meters in kiosks in piped areas

T2 Based on prepaid meters rather than manned kiosks

### Joint sanitation solutions

T6 Joint sanitation solutions

Improving sanitation services in ger areas through connection to piped sewerage network or improved on-site solutions

### Increased outsourcing of kiosk operation

O1 Increased outsourcing of kiosk operation

Extend present pilot programme with private kiosk operators to cover all new kiosks established and all existing kiosks where operator retires or leaves USUG

### Independent regulatory authority for water sector

O2 Independent regulatory authority for water sector

Improve compliance with existing tariff adjustment principles through less politicised procedures like the ones presently applied in the heat and electricity sectors

### Privatisation of operation and maintenance of truck fleet

O3 Privatisation of operation and maintenance of truck fleet

Privatisation of the present truck fleet together with service contract for provision of water truck services to USUG

### Improved performance-based contract between MUB and USUG

C1 Improved performance-based contract between MUB and USUG

Establish performance-based contract between MUB and USUG which imposes strict time-bound performance targets (level and quality of service, management and operational efficiency, financial and investment requirements) against increased autonomy for USUG

### Internal performance contracts

C2 Internal performance contracts

Support C1 by establishing internally delegated area management contracts for the ger area departments and the central area department

### Increased risk transfer to private kiosk operators

C3 Increased risk transfer to private kiosk operators

Shift maintenance risk and possibly design and build risk to private operators under long-term private kiosk operator contracts

### Increased risk transfer to private bathhouse operators

C4 Increased risk transfer to private bathhouse operators

Design, build, finance, operate (DBFO) contracts for new public bathhouses receiving a donor/public investment subsidy

### Assessment of the financial, economic, institutional and legal viability of the identified options

We have assessed the financial, economic, institutional and legal viability of these options, taking into account ger residents' preferences:
T1  Service extension to presently un-served areas
Positive aspects of this option:

- Provides water supply to citizens who presently rely on less safe sources (springs) or far-away sources.

Challenges related to the implementation of this option:

- Only the remote peri-urban ger areas with low population density, difficult access conditions and uncertain long-term status have truly un-served areas
- The cost of service provision to these areas is very high.

Conclusion on the viability of the option:

- Probably necessary from a purely social point of view, but it is financially non-viable and therefore not recommended as part of an OBA project.

T2  Increased kiosk density in served areas
Advantages:

- The present targets of maximum 1,000 persons per kiosk and maximum 500m walking distance to the nearest kiosk are rather high in international terms
- Higher kiosk density will be perceived as a service improvement by residents, as walking distance is reduced.

Challenges related to the implementation of this option:

- New kiosks will partially undermine the customer base for existing nearby kiosks
- Will not increase coverage, as citizens in the area are already served
- Difficult to find land plots for new kiosks in the denser areas.

Conclusion on the viability of the option:

- Not viable.

T3  Connection of existing tanker served kiosks to piped system
Positive aspects of this option:

- Improved water quality

Trucked water supply increases the risk of contamination. The trucked kiosks had 120 incidents of contaminated water during 2007, which were
caused by the truck/tank approach. Conversion to piped kiosks will improve water quality.

• Improved supply regularity

The trucked kiosks have problems with tanks being empty before the truck arrives, and difficult access in winter resulting in customers being turned away. Conversion to piped service will increase supply regularity significantly.

• Reduced operational costs

Trucked water supply is expensive due to high fuel costs and part reliance on piped network.

Challenges related to the implementation of this option:

• Redundant mechanics and drivers

Large-scale conversions of trucked kiosks will make truck drivers and mechanics employed by the trucked water department redundant. Some may be transferred to new ger areas, some will leave due to natural attrition.

• Technical challenges

May require booster pumping. May also require long and expensive transmission main partly across private land.

Conclusion on the viability of the option:

• Connection of existing tanker served kiosks to the piped system is recommended as a key element in relation to an OBA project.

T4 Individual consumer connections in piped areas

Positive aspects of this option:

• Will provide a significant service improvement for the households covered.

Challenges related to the implementation of this option:

• The connection cost (estimated at USD 2,000) is prohibitively expensive for most ger area residents

• Will result in significantly increased water consumption and therefore need for joint wastewater solution.

Conclusion on the viability of the option:
• Long-term option which should mainly be seen in the context of urban renewal in the central ger areas.

T5 Introduction of prepaid meters in kiosks in piped areas
Positive aspects of this option:

• Can in principle remove the need for a kiosk attendant and thereby result in significant salary savings.

Challenges related to the implementation of this option:

• The harsh climate will require a heated building around the prepaid meter. This is a risky approach if the meter is left open and unattended for long periods.

Conclusion on the viability of the option:

• Probably not viable in the special climatic context.

T6 Joint sanitation solutions

The possibilities for improving sanitation services in ger areas through connection to piped sewerage network or improved on-site solutions are covered in Section 2.4 below.

O1 Increased outsourcing of kiosk operation
Positive aspects of this option:

• Positive experience in pilot phase

USUG has mainly positive experience with the pilot introduction of private operators in 31 kiosks since 2006

• Significant operational saving

Privately operated kiosks have a operating cost of about 33 per cent less than the USUG operated kiosks

• Increased customer responsiveness

Both the household survey and interviews conducted by the consultant have shown that private kiosk operators have increased customer responsiveness, e.g. in terms of adapting opening hours to customer demand

• Synergies with other services

Several private operators have engaged in or plan to provide additional business services to the ger community
• Converted kiosks may enhance opportunities for such other services

There is an obvious option when a truck operated kiosk is transferred to a piped kiosk, where the trucked kiosk is much larger than the piped kiosk and the initial building is maintained.

Challenges related to the implementation of this option:

• Not all kiosks are viable for POs

More remote kiosks are not viable for the private operators, as income from the revenue-sharing arrangement is insufficient to sustain a living due to low population density

• Limits to other allowable activities

The opportunity for creating synergy with other SME activity seems to represent a key incentive for some of the private operators to undertake water service provision, but this opportunity may be limited by state inspectors for hygiene concerns. USUG is seeking to obtain a positive list of activities which can be undertaken in conjunction with water sales

• Labour concerns

Large-scale conversion of USUG operated kiosks to private operation would make USUG kiosk attendants redundant

• Uncertainty about legal basis

Parts of the management are uncertain about the legal implications of the law on utilisation of state and municipal property, and the use of private operators has therefore focused on grant-financed kiosks being turned over to USUG

Therefore, in spite of the positive initial experience, USUG is reluctant to roll out the private operation ideas for existing USUG operated kiosks and still tends to hire new staff when operators retire.

Conclusion on the viability of the option:

• Increased outsourcing of kiosk operations is recommended as a key element of an OBA project.

O2 Independent regulatory authority for water sector

Positive aspects of this option:

9 Or alternatively an independent regulatory authority covering several utility sectors
• The experience from the heat and electricity sectors in Mongolia is that an independent regulatory authority can detach the approval of justified tariff adjustments from political interference

• This will help USUG attain long-term viability and comply with the loan covenants

• Is included in draft amendment (2008) to law on water supply.

Challenges related to the implementation of this option:

• The MUB may be reluctant to give up the right to exercise political control over water tariffs

• Parliamentary approval may be difficult, as the issue tends to become politicised.

Conclusion on the viability of the option:

• Is strongly recommended and could become a condition precedent for effectiveness of a GPOBA grant agreement.

O3 Privatisation of operation and maintenance of truck fleet

Positive aspects of this option:

• Reduces management resources spent on non-core truck maintenance business

• Could solve the long-term excess capacity when trucked kiosks become piped kiosks.

Challenges related to the implementation of this option:

• Present truck operation appears to be reasonably efficient and hence operational saving may be limited or even negative

• Is not directly linked to the interventions proposed for the OBA project.

Conclusion on the viability of the option:

• Should be considered as the long-term strategy when most trucked kiosks become connected to the piped network.

C1 Improved performance-based contract between MUB and USUG

Positive aspects of this option:

• The existing contract is a good starting point for a management contract with explicit performance indicators supported by a bonus/penalty system for the fulfilment of the explicit performance indicators
• This could also encompass a mechanism with automatic tariff adjustments compensating for inflation (if no independent regulatory authority is established) and financial compensation if tariff adjustments are withheld for social reasons.

Challenges related to the implementation of this option:

• Should not be so ambitious that it will become impossible to administer and distract management time from operational needs

• MUB may be unwilling to relinquish the right to withhold tariff increases.

Conclusion on the viability of the option:

• An improvement in the existing performance contract between MUB and USUG is proposed.

C2 Internal performance contracts
Positive aspects of this option:

• The existing contract is a good starting point for a management contract with explicit performance indicators supported by a bonus/penalty system for the fulfilment of the explicit performance indicators.

Challenges related to the implementation of this option:

• Should not be so ambitious that it will become impossible to administer and distract management time from operational needs.

Conclusion on the viability of the option:

• An improvement in the existing internal performance contract is proposed.

C3 Increased risk transfer to private kiosk operators
Positive aspects of this option:

• The existing contract is a good starting point for a contract with a minimum income guarantee, so that it could also be used in less dense areas

• A positive list with allowable non-water services would enhance synergies with small and medium enterprises.

Challenges related to the implementation of this option:

• Uncertainty about the legality of outsourcing the operation of state/municipal property may limit implementation.

Conclusion on the viability of the option:
• An improvement in the existing management contract between USUG and private kiosk operators is proposed.

**C4 Increased risk transfer to private bathhouse operators**

Positive aspects of this option:

• The experience with private bathhouse operation is a good starting point for piloting additional risk transfer under a design, build, finance, operate (DBFO) contract.

Challenges related to the implementation of this option:

• May require some capacity building with contractors, operators and banks.

Conclusion on the viability of the option:

• The development of a DBFO contract based on the existing contract between MUB and private bathhouse operators is proposed.

**A2.3 The recommended options for improved management of service provision**

In summary, the following options are recommended for implementation:

• Connection of existing tanker served kiosks to piped system

  Described in further detail below

• Increased outsourcing of kiosk operation

  Described in further detail below

• Independent regulatory authority for water sector

  As included in the draft amendment (2008) to the law on water supply

• Improved performance-based management contract between the Municipality of Ulaanbaatar and USUG, delegating management autonomy to USUG management for key operations and investments managed by USUG on behalf of MUB

  Draft term sheet is included in appendix A1

• Internally delegated area management contract, delegating management autonomy to the USUG Department of Piped/Trucked Water to Ger Areas for key operations managed by the department on behalf of USUG

  Draft term sheet is included in appendix A1
• Increased risk transfer to private kiosk operators under an improved management contract for water kiosks, where the supplier (USUG) transfers the management responsibility for a USUG water kiosk to the seller (private operator) for a specified period of time.

Draft term sheet is included in appendix A1.

• Increased risk transfer to private bathhouse operators under a DBFO contract for bathhouses, where the contractor will design, build, finance and operate one or several bathhouses with public toilet facilities for up to ten years, after which they are returned to the Capital Property Department of the Municipality of Ulaanbaatar.

Draft term sheet is included in appendix A1.

**A2.3.1 Connection of existing tanker served kiosks to piped system**

Currently, almost two thirds of the population in the ger areas get their water from kiosks served by trucked tankers. It seems surprising that such a large part of the ger population is served by what was originally meant as a temporary supply option. There are a number of obvious reasons, out of which the following could be mentioned:

• The speed with which the areas developed took the MUB by surprise. They were not prepared and did not have the capacity to develop the utilities, including water supply services, at the same speed.
• Limited financial resources contributed to the delayed extension of appropriate services.
• As more and more people settled in the ger areas, more and more complicated areas from a piped water supply point of view were settled. They settled further and further away from the central water supply system, settled on steep slopes, settled scattered etc.
• The uncontrolled expansion in the ger areas has made access by pipes very difficult, as in many cases they will have to cross private land, which is very cumbersome. Alternatively, the pipe alignment will be very uneconomic.
• Solutions meant as temporary solutions at implementation have a tendency to be more long-term solutions than planned, especially in societies with limited resources.

The mentioned challenges do not mean that the piped water supply to such areas is not possible or feasible, but it requires time for planning, negotiation with landowners and design.

**Advantages of the conversion**

The conversion, however, has a number of advantages and positive impacts for the water utility, as indicated above.
The tanker trucks supplying the kiosks with water get water from a special filling kiosk. This filling kiosk is constructed with outdoor overhead pipes for filling the tank on the trucks. The filling system is an open system where the water is filled through a manhole in the tank top (see picture below).

When the tank is filled up, the truck transports the water to the supply kiosk, where the 5m³ tank inside the kiosk building is filled through a filling pipe. The filling pipe is extended to a truck ramp outside the kiosk. A flexible hose connected to the bottom of the truck tank is simply put into the kiosk tank filling pipe, making a semi-open system.
Transport of water in this way poses a number of contamination risks. Last year (2007), some 120 cases of contamination were reported from the trucked tanker supply. Contamination was also reported from the piped system.

The USUG truck department and laboratory department both agree that they have contamination problems with the trucked water supply. They mention that the tanks on the trucks are regularly cleaned with chlorine solutions, and they have never had any contaminations in the truck tanks. The contamination is explained to arise from the kiosk tanks, as they are old, and often not emptied for old water and bottom sediments, as it is considered an income loss by the kiosk operators.

Irrespective of what the contamination problem is, it will be reduced by converting the system to a piped system.

Truck water supply is not a continuous supply. Therefore, there can be periods with no water between truck supplies.

Some ger areas are difficult or not feasible for piped water supply systems. This does not necessarily mean that they are easy or feasible for trucked water supply. In many cases, the two systems will have the same problems. The main difference is that trucked supply can be established relatively fast as a temporary system, and can also be transferred to other areas relatively fast, when a more permanent system is established in the area where they have been working. The systems are flexible and easy to establish and move, whereas a piped system is permanent and not feasible to establish before a permanent or long-term need is confirmed.
Difficult ger areas include remote areas and areas on steep slopes, where access, mainly during periods with frost and/or snow, is cumbersome and in periods often inaccessible. Piped systems to such areas will greatly improve the services regularity when feasible.

The operating costs of piped kiosks are estimated at MNT 140,000 (2007 accounts) less than trucked kiosks per month. This is due to the high cost of fuel and salaries related to the truck operation.

**Challenges**
The conversion has challenges of both social and technical natures. The truck department today employs 63 truck drivers and 3 mechanics.

Large-scale conversion of trucked kiosk areas to piped water supply areas could leave a number of truck mechanics and drivers redundant. However, there is no indication that the migration from the countryside and smaller towns to Ulaanbaatar, necessitating more ger areas, will stop in the near future. Natural population growth in the ger areas also contributes to this requirement. Today approximately half a million residents live in the ger areas. A population growth of 2-3 per cent will require further 10-15 new water kiosks annually. Inclusion of new migrations from the countryside could, as a conservative estimate, increase the estimate of required new kiosk up to 15-20.

Owing to the flexible nature of the trucked water supply, together with the almost immediate way the supply can be established, it is obvious that such new areas in the short term will be supplied by trucks. Normal attrition among staff should also be expected.

Conversion of trucked to piped water supply is therefore not assessed to be a significant problem. Possible reemployment in connection with normal attrition will have to be planned to prevent redundancy.

The conversion has a number of technical challenges such as:

- Does the existing reticulation system have sufficient pressure for the connection, or does it require booster pumping?
- Are there any obvious connection points, or will a long and expensive transmission main be required?
- Is it possible to identify an alignment for such a possible transmission main?
- Is all land between the connection point and the supply area private land?

**Conclusion**
Overall, the conclusion on viability is that the conversion from a trucked water supply system to a piped system has a number of positive impacts and only very few, if any, negative impacts.
A2.3.2 Increased outsourcing of kiosk operation

Currently, seven contracts on piped water kiosks and 24 on trucked water kiosks are active. Two of the original contract holders have resigned, as they could not make enough profit. These were, however, easily replaced by new private operators.

Privately operated kiosks are estimated to be MNT 120,000 cheaper to operate per month than USUG staff operated kiosks. Other advantages include more flexible opening hours and synergies with small-scale services.

Existing USUG kiosk operators have been approached about their interest to be transferred from an USUG employee to a private operator under an USUG contract. None of the approached staff have expressed interest in such a change, which would mean giving up the privileges they have as public employees. Also, the experience shows that it is difficult for a private operator to get an income matching the salary of an USUG employee.

To attract private operators other incentives beside the income from the sale of water may therefore have to be introduced. Such incentives will have to be made so that they do not affect the water services in a negative direction.

In order to introduce such other incentives, USUG has (in paragraph 5.1.2 of the management contract) allowed private operators to offer additional services within the frame of effective laws and regulations. Identification of services falling within the frame of effective laws has apparently been a problem, as most of such other services have had problems with State Inspectors because of hygiene concerns. A number of the started services have been stopped. USUG is presently working on a positive list of services which it is possible to combine with selling water.

An obvious problem when a positive list is identified is the size of the kiosk buildings, which limits the scope of a number of other services. An option could, therefore, be to consider the redesign of the existing standard kiosk design, making extra room for allowed side activities/services.

An option naturally appears when a tanker truck service area is converted to a piped service area. Kiosks in a tanker truck service area are much larger than kiosks connected to a piped system, as the first type of kiosks have a relatively large tank room. Generally, this tank room will not be required when the kiosk is connected to the piped system. The tank could be removed and the room rehabilitated for other purposes. It is assessed that such a kiosk building could be an extra incentive and could attract potential private operators.

Unfortunately, USUG intends to keep some of the tanks intact after the conversion for service safety reasons. The tanks have a reservoir in case of power cuts and during periods with low pressure, which increases service regularity. Many of the existing tanks are old, corroded steel tanks not worth maintaining. It is assessed that these tanks will not be replaced by new tanks. In such cases the kiosks could be rehabilitated and transferred to private operators.
A2.4 Improved sanitation options

A2.4.1 Piped sewerage system

Improved water supply with individual household connections is seen as the ultimate factor in any modern society. It is, however, equally important that the used household water can be transported to the final recipient in an environmentally justifiable way. The most feasible system for transport of the used water is a piped sewerage system.

In this way, a sewerage system functions as a transport system. Not only to dispose of used water from a household, but also to dispose of kitchen and toilet waste from households. As the transport media in a sewer system is water, a certain quantity of water is required for the operation of a sewer system. It is difficult to assess the amount of water required to operate a fully constructed sewerage system, but it is significantly more than the present household consumption of some 7-8 l/cd.

Problems with low household consumption are often solved by combined systems transporting both household wastewater and storm water, using the storm water to flush the system. The precipitation in Ulaanbaatar is very limited, with several dry months, especially in winter.

A fully implemented sewerage system is therefore not assessed as a feasible system for the Ulaanbaatar ger areas. Construction of such a system would give USUG a tremendous further operational load to flush and maintain sewer pipes. The ADB project in the Dar-Ekh ger area is a good example of such a project. The USUG is unwilling to take over the project, as it does not have the financial means for the operation.

The USIP II project plans to fully develop an area with piped water supply systems, trying to make people connect through private connections. In such areas sewerage systems are recommended, so as not to create hygienic problems from wastewater. Alternatively, septic tanks with soak-away pipes could be used in areas with no risk of groundwater pollution.

A2.4.2 Improved on-site sanitation systems

Until the ger areas have been developed and/or urbanised with piped water supply systems and individual house connections to the major part of the population, on-site sanitation systems are assessed as being the only feasible, technically as well as financially, systems.

Several on-site wastewater treatment systems have been developed over the years. Systems which could be used in the ger areas include:

- Ventilated improved pit (VIP) toilet
- Composting toilet
- Twin-pit toilets
• Septic tanks.

The two first toilets are dry toilets, which means that no water is used for flushing. The third type can be made both as a dry toilet and a pour flush toilet. The toilet connected to a septic tank will, as a minimum, require a pour flush system.

In the ger areas where water consumption is low, a dry toilet is assessed to be the optional solution. Dry toilets are also assessed to cause least pollution to the groundwater reservoirs. The most common and simple improved dry toilet is the VIP toilet.

Control of odour and insects is important with a pit latrine\textsuperscript{10}. This is achieved by having a vented pit. The vent draws odour and insects into the pit and up the vent. Gases produced by decomposition of the excreta also leave through the vent. Natural convection can be relied upon by ensuring that the vent protrudes well above the roof of the housing.

The twin pit toilets made as a dry toilet could consist of two VIP toilets, where the two pits are separated by a partition wall. The two pits are used alternately. When one pit has been filled, it is left for approximately two years until it becomes rich in organic humus, which is innocuous and free of pathogens and smell. When convenient, the filled-up pit can be emptied and the contents used as fertiliser and soil conditioner. The pit is then ready to be taken back into use, when the second pit becomes full in turn.

The decomposition of faeces in the above toilets takes place under anaerobic conditions. It can be promoted by aerobic conditions in an above-ground latrine. Air can be introduced through an opening to pass through the sludge and exit through the vent, while excess liquid is allowed to drain for collection and/or evaporation. With two adjoining composting chambers or vaults used alternately, the process for composting in an already full chamber can be allowed to proceed until the chamber is to be used again, and produce mature compost for direct re-use in the garden.

A septic tank is a watertight tank receiving both black and grey water. It can be used with pour flush toilets and cistern flush toilets. It functions as a storage tank for settled solids and floating materials. The storage time of the wastewater in the tank is usually between two and four days. The overflow from a septic tank is directed to a seepage pit or a French drain system (system of perforated pipes for seepage).

The quantity of water to be used in a toilet connected to a septic tank does not make such a toilet the most obvious solution in the ger area, and is suitable only in exceptional cases with improved housing. The first three dry toilet options could all be used.

\textsuperscript{10} IWA publishing: Environmentally sound technologies for wastewater and storm water management. Technical publication series [15]
A2.4.3 Other sanitation systems

The German aid organisation, gtz, has implemented a pilot project with dry toilets in the ger areas, which is still ongoing. The project uses a toilet option very much like the composting toilet option described above. It uses pre-fabricated structures constructed to separate urine and faeces. The project is relatively new and no experience can be used from the project yet.

There are a number of other on-site systems, which are mainly smaller or larger modifications of the above-mentioned system. Such systems will not be further discussed here. What could be of interest in the Mongolian context is the small bore sewer system.

The small bore sewer system is an intermediate system between a pure on-site system and a fully sewered system. The systems are designed to receive only the liquid portion of household waste for off-site treatment and disposal. All large solids are separated from the waste flow in the “interceptor tanks” upstream of the connection to the sewers, normally on the sewerage producer's property. The accumulated solids are removed periodically for safe disposal.

As the sewer pipes only transport liquid, they can be constructed at relatively small diameters. The small bore pipes connect the “interceptor tanks” to a 100mm or 150mm diameter collector sewer, which runs in the lane or street outside the compounds. The collector sewers are either connected to a wastewater treatment plant or to a collector tank, from where it is collected by tankers for transport to a central treatment plant.

The small bore sewer systems have proved to be especially suited to the following situations:

- Sewered pour-flush toilet systems
- Sewered septic tank systems.

The system has the same limitations as mentioned above for septic tanks. Another problem is the long periods with heavy frost. However, if such problems could be solved by e.g. insulation, deep pipe trenches or electrical heating, the bore sewer system could be an option for a possible pilot project.

A2.4.4 Financial constraints

From an international donor point of view, on-site wastewater treatment systems are private systems, and hence not subject to grant finance.

Donors could, however, be involved in softer projects such as:

- Training in the construction and maintenance of improved latrines
- Campaigning for proper hygiene
- Campaigning for the use of composted materials from latrines etc.
Although a small bore sewer system could be of interest to donors, it should be seen in the context of individual household connections to water supply.

**A2.4.5 USUG involvements**

Involvement by USUG in sanitation issues with regard to on-site dry toilets is limited. They could be the organiser of some of the mentioned soft projects.

If ger residents are not interested in the re-use of composted materials from the dry toilets, they could transport the materials to controlled municipal dump sites or to controlled fields of farming and/or reforestation.

For households with septic tanks, USUG could have a service for emptying the septic tanks.

A small bore sewer system could involve USUG in the same way as the construction of fully sewered system. Furthermore, the residue sewerage from such a system would have to be collected in a number of collection tanks to be emptied by USUG evacuation trucks.
A3 Organisational and financial impacts on USUG

This section surveys the staff currently employed in the delivery of tanker, kiosk and bathhouse services, as well cost and revenue structure, to identify the likely impact of the recommended options for reforms on the economics and staff of USUG.

A3.1 Economics of current service provision in ger areas

A3.1.1 USUG accounts

The table below provides an overview of the USUG accounts for 2007.

<table>
<thead>
<tr>
<th></th>
<th>Trucked water supply to ger area</th>
<th>Piped water supply to ger areas</th>
<th>Central system</th>
<th>Total USUG WS &amp; WW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff expenses</td>
<td>1,028,214</td>
<td>715,958</td>
<td>2,085,496</td>
<td>3,829,669</td>
</tr>
<tr>
<td>Material costs</td>
<td>837,840</td>
<td>103,218</td>
<td>298,656</td>
<td>1,239,714</td>
</tr>
<tr>
<td>Operations costs</td>
<td>44,714</td>
<td>143,140</td>
<td>3,886,262</td>
<td>4,074,117</td>
</tr>
<tr>
<td>Maintenance costs</td>
<td>105,503</td>
<td>46,547</td>
<td>209,030</td>
<td>360,680</td>
</tr>
<tr>
<td>Office costs</td>
<td>7,652</td>
<td>5,993</td>
<td>371,743</td>
<td>385,388</td>
</tr>
<tr>
<td>Safety</td>
<td>18,219</td>
<td>15,314</td>
<td>34,594</td>
<td>68,128</td>
</tr>
<tr>
<td>Lab expenses</td>
<td>1,525</td>
<td>1,527</td>
<td>16,006</td>
<td>19,086</td>
</tr>
<tr>
<td>Other expenses</td>
<td>31,643</td>
<td>23,661</td>
<td>111,927</td>
<td>167,233</td>
</tr>
<tr>
<td>Total cash costs</td>
<td>2,075,310</td>
<td>1,055,358</td>
<td>7,013,714</td>
<td>10,144,015</td>
</tr>
<tr>
<td>Depreciation</td>
<td>351,361</td>
<td>438,131</td>
<td>4,485,896</td>
<td>5,275,388</td>
</tr>
<tr>
<td>Total costs</td>
<td>2,426,671</td>
<td>1,493,489</td>
<td>11,499,610</td>
<td>15,419,403</td>
</tr>
<tr>
<td>Profit (loss)</td>
<td>(1,951,180)</td>
<td>(1,167,186)</td>
<td>(3,182,610)</td>
<td>(6,300,609)</td>
</tr>
<tr>
<td>Cash profit (loss)</td>
<td>(1,599,819)</td>
<td>(729,055)</td>
<td>1,303,286</td>
<td>(1,025,221)</td>
</tr>
</tbody>
</table>
The operation of the central system operated at a positive cash flow in 2007, but did not cover depreciation charges. In contrast, the trucked and piped water to ger area departments operated at a cash loss due to high labour costs in both departments, and high fuel and maintenance costs in the trucked water department.

The 2007 accounts of USUG are attached as annex A2.

A3.1.2 Staffing of ger area services
The table below shows the staffing of water distribution in ger areas compared to water distribution in the central areas.

<table>
<thead>
<tr>
<th></th>
<th>Trucked water supply to ger area</th>
<th>Piped water supply to ger areas</th>
<th>Central system, administration and wastewater</th>
<th>Total USUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population served</td>
<td>306,000</td>
<td>148,000</td>
<td>334,297</td>
<td>788,297</td>
</tr>
<tr>
<td>Volume sold (m³)</td>
<td>740,362</td>
<td>420,170</td>
<td>41,704,000</td>
<td>42,864,532</td>
</tr>
<tr>
<td>Average water consumption (lpcd)</td>
<td>7</td>
<td>8</td>
<td>342</td>
<td>149</td>
</tr>
<tr>
<td>Employees</td>
<td>437</td>
<td>312</td>
<td>572</td>
<td>1,321</td>
</tr>
<tr>
<td>Kiosks as of May 2008</td>
<td>297</td>
<td>166</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Of which private operator contracts</td>
<td>24</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population served per employee</td>
<td>700</td>
<td>474</td>
<td>584</td>
<td>597</td>
</tr>
<tr>
<td>Water sales per employee</td>
<td>1,694</td>
<td>1,347</td>
<td>72,909</td>
<td>32,449</td>
</tr>
</tbody>
</table>

Although the population served per employee is comparable, the low water consumption in ger areas and the labour-intensive kiosk and truck operations contribute to making the unit cost per m³ water sold much higher than in the central areas.

A3.1.3 Tariff structure
The table below shows the changes in the tariffs for water supply to households in the central areas of Ulaanbaatar and in the ger areas.
It is noteworthy that the tariff for the central areas has not changed in nominal terms since 1990. This effectively means that the tariff in the central areas has declined by almost 40 per cent in real terms since 1990.

The tariff in ger areas, in contrast, has increased by almost 40 per cent in real terms over the same period.

Today, the water supply tariff in ger areas (MNT 0.909/l excl. VAT) stands at approximately five times the tariff in the central areas (MNT 0.167/l excl. VAT).

While this does reflect that water supply is much more expensive in the distant ger areas, it does not reflect the social nature of basic infrastructure provision and the relative poverty of the average ger area resident compared to the residents in the central areas.

The changes in the tariffs since the early nineties are included as annex A3.

A3.1.4 The economics of water supply to ger areas

The unit costs of water supply to ger areas are illustrated in the table below. The table shows total cost (MNT/m³), cash cost (same without depreciation), average tariff (based on revenue per m³), cash margin (how much is earned per m³ sold prior to depreciation) and volume (in million m³ water sold).

These figures are shown for:

- The Trucked Water to Ger Areas Department
PPIAF

Mongolia: Exploring Options for Management Contracting-out in Water Supply and Sanitation Services for Ger areas in Ulaanbaatar
Final Report - Task A - Alternative management arrangements for improved services in ger areas - March 2009

- The Piped Water to Ger Areas Department
- The central areas
- USUG as a company (including wastewater treatment).

The cost of water supply in 2007

<table>
<thead>
<tr>
<th></th>
<th>Total cost</th>
<th>Cash cost</th>
<th>Average tariff</th>
<th>Cash margin</th>
<th>Volume (mill.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trucked water to Ger areas</td>
<td>3.28</td>
<td>2.80</td>
<td>0.64</td>
<td>-2.16</td>
<td>0.74</td>
</tr>
<tr>
<td>Piped water to Ger areas</td>
<td>3.55</td>
<td>2.52</td>
<td>0.78</td>
<td>-1.74</td>
<td>0.42</td>
</tr>
<tr>
<td>Central areas</td>
<td>0.28</td>
<td>0.17</td>
<td>0.20</td>
<td>0.03</td>
<td>41.7</td>
</tr>
<tr>
<td>Total USUG (incl. WWT)</td>
<td>0.40</td>
<td>0.24</td>
<td>0.34</td>
<td>0.10</td>
<td>42.8</td>
</tr>
</tbody>
</table>

Although water supply in central areas and USUG as a company covered the cash operational costs by the average tariff during 2007, the average tariff did not cover depreciation.

For the water supply in ger areas the cash margin is, however, strongly negative due to very high unit operating costs, in particular in the trucked water services.

Although the conclusion is clear, it should be noted that the above calculation actually understates the true cost of service provision in ger areas, as the operation of both ger area departments depends on the central areas for water production and bulk water supply, and the Trucked Water Department to Ger Areas Department depends on the pipe and kiosk infrastructure of the Piped Water to Ger Areas Department for access to the bulk water supply.

The table below provides details on the cost structure of the water supply services in ger areas compared to the central system.
Cost structure 2007

<table>
<thead>
<tr>
<th></th>
<th>Trucked water supply to ger area</th>
<th>Piped water supply to ger areas</th>
<th>Central system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff expenses</td>
<td>1.39</td>
<td>1.70</td>
<td>0.05</td>
</tr>
<tr>
<td>Material costs (mainly fuel)</td>
<td>1.13</td>
<td>0.25</td>
<td>0.01</td>
</tr>
<tr>
<td>Operations costs</td>
<td>0.06</td>
<td>0.34</td>
<td>0.09</td>
</tr>
<tr>
<td>Maintenance costs</td>
<td>0.14</td>
<td>0.11</td>
<td>0.01</td>
</tr>
<tr>
<td>Office costs</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Safety</td>
<td>0.02</td>
<td>0.04</td>
<td>0.00</td>
</tr>
<tr>
<td>Lab expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Other expenses</td>
<td>0.04</td>
<td>0.06</td>
<td>0.00</td>
</tr>
<tr>
<td>Total cash costs</td>
<td>2.80</td>
<td>2.51</td>
<td>0.17</td>
</tr>
<tr>
<td>Average unit price</td>
<td>0.64</td>
<td>0.78</td>
<td>0.20</td>
</tr>
<tr>
<td>Margin</td>
<td>(2.16)</td>
<td>(1.74)</td>
<td>0.03</td>
</tr>
</tbody>
</table>

It is obvious from this overview that the most significant cost drivers of the service provision in ger areas are staff expenses (drivers and kiosk attendants) and material costs (mainly fuel costs in the trucked services).

The table below compares the cost of three different types of kiosks:

- Trucked kiosks with USUG employed operators
- Piped kiosks with USUG employed operators
- Piped kiosks with private operators under management contracts with USUG.
Water kiosks operating costs

<table>
<thead>
<tr>
<th>Unit</th>
<th>Operated by USUG employee</th>
<th>Privately operated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trucked</td>
<td>Piped</td>
</tr>
<tr>
<td>Kiosk attendant</td>
<td>230,000</td>
<td>230,000</td>
</tr>
<tr>
<td>Fuel</td>
<td>1,013</td>
<td>51</td>
</tr>
<tr>
<td>Truck driver</td>
<td>250</td>
<td>0</td>
</tr>
<tr>
<td>Other costs</td>
<td>402</td>
<td>757</td>
</tr>
<tr>
<td><strong>Total operating cost</strong></td>
<td><strong>500,000</strong></td>
<td><strong>361,000</strong></td>
</tr>
</tbody>
</table>

This indicates that:

- The operating costs of piped kiosks are estimated at MNT 140,000 less than trucked kiosks per month
- Privately operated kiosks are an additional MNT 120,000 cheaper to operate per month.

Hence, when looking for strategies for medium-term reduction of the cost of water supply in ger areas, the conversion from trucked to piped kiosks and the increased use of private operators under management contracts are obvious candidates.

### A3.2 Socio-economic aspects of staff involvement in current service provision in ger areas

The current provision of water to ger areas relies on USUG water kiosks, primarily trucked but also piped kiosks. Water supply is managed and administered by the USUG Kiosk Department, which employs approximately 721 staff as mentioned above, 506 of whom work as kiosk operators. This section primarily focuses on the core pool of staff involved in water service provision in ger areas, notably kiosk operators. It also describes briefly the involvement of USUG truck drivers in water delivery.

#### A3.2.1 Kiosk operators

This sub-section is mainly based on information obtained from USUG and 35 interviews which the consultant carried out with kiosk operators. The latter included 28 USUG kiosk operators, of whom 16 were USUG’s own staff.
Recruitment
As a rule, kiosk operators employed by USUG as own staff must be residents in the area where the kiosk is located. These operators are commonly mobilised through notices put on kiosks, and through contacts established with the head of brigade who then relays the matter to USUG.

The hiring and firing of kiosk staff has been delegated to the Trucked and Piped Kiosk Departments since 2007. Before that, the USUG Human Resources Department (HRD) had the responsibility.

Employment status
Interviews with kiosk operators show that USUG staff do not hold a contract. Nevertheless, they are permanently employed and they receive social and health insurance benefits. About two thirds of interviewed USUG attendants work full-time and approximately one third work part-time.

Deducting the number of USUG kiosks contracted out to 31 private individual operators (PO), the USUG kiosk employees serve 427 water kiosks in ger areas. It is unclear whether the 79 additional kiosk staff are reserve staff summoned up on a on-call basis, or whether they are part-time of full-time employed by USUG.

HRD at USUG estimates the current monthly base salary of kiosk operators to be approximately MNT 115,000. In addition to their base salary, USUG employed kiosk operators have a number of benefits, which brings the total labour cost to the double of the base salary:

- Daily lunch allowance
- Transport allowance
- Uniforms
- Social insurance coverage
- A bonus of up to 40 per cent of sales revenues (interviews with kiosk operators reveal that USUG kiosk staff earn a bonus ranging from MNT 17,550 per month to MNT 50,000 per month, with approximately half of operators getting a monthly bonus between MNT 30,000 and MNT 35,000)
- An extra month's salary is paid at the end of the year
- Support to the employee's children in the form of e.g. gifts and clothes.

Despite the differences in salaries and bonus levels, all interviewed staff said that USUG staff working as kiosk attendants earn the same salary, although according to USUG HRD, this is not the case.

According to HRD, the incentives for seeking a job as USUG kiosk attendants are the compensation package and the fact that there are no requirements on one's professional background or education.

Interviews indicate that half of USUG's kiosk operators wish to work as kiosk attendants for USUG because it is close to home. Others could not find another...
job or were offered the job by USUG. The majority of USUG kiosk staff prefer to be employed as USUG staff rather than as a private operator. The main reasons include:

- Regularity of income
- Insurance coverage
- Other benefits such as provision of uniforms
- All kiosk expenses are covered by USUG (not the case for private operators).

Interestingly, approximately half of USUG's own kiosk operators are potentially interested in running an extra side business. It should, however, be noted that it is not clear whether this was assumed to take place at the expense of forgoing employment with USUG.

**Socio-economic characteristics**

According to USUG's HRD, kiosk operators are typically the breadwinners in their families. A large segment of operators, approximately 60 per cent, are women, typically women whose husbands are unemployed. The average age of kiosk operators varies between 18 and 55 years. However, the majority are between the ages of 25-30 years.

Interviews with USUG kiosk operators confirm most of the above. 94 per cent of USUG staff interviewees are women. USUG private operators are mixed, while private kiosk operators are mainly men.

**Chart. Distribution of interviewed kiosk operators by gender**

![Chart showing distribution of interviewed kiosk operators by gender](chart.png)

*Source: Consultant interview data*

Half of USUG kiosk attendants are between 25 and 40 years old. 44 per cent of USUG staff attendants are between 40 and 60 years old. The latter could indicate that an increasing number of current attendants will soon retire.
However, and contrary to the perception of USUG, 38 per cent of USUG kiosk attendants are breadwinners in their families.

The household size of USUG kiosk attendants ranged between three and seven members, with more than one third having a family with three members and one third families with six members.

**A3.2.2 Truck drivers**

63 drivers use USUG’s 60 trucks to deliver water to approximately 300 USUG tanked kiosks, i.e. an approximate coverage of five kiosks per truck. Interviews with five truck drivers indicate that all are employed on a full-time basis, working five days a week. USUG HRD pointed out that drivers were previously employed on a yearly contract basis, but have now become permanent employees of USUG. All interviewed drivers are men, four out of five between the ages of...
40 and 60. Two out of five are breadwinners. Their average household size ranges between four and nine members.

According to USUG HRD, drivers have a base salary equivalent to 120 tons of water delivered, equalling approximately MNT 220,000 per month. Deliveries beyond the 120 tons are paid out as bonus. The remuneration per trip is MNT 1,250. Transportation to the workplace is also covered. On average, drivers say that they earn between MNT 190,000 and MNT 250,000 per month. Their household income stands between MNT 220,000 and MNT 550,000 per month.

All interviewed drivers are satisfied with the current contract they have with USUG. The benefits highlighted include social insurance coverage and payable overtime. However, many experience maintenance problems due to poor road conditions and heavy load. They expressed their concern about the current USUG policy of maintenance thresholds based on the use of Russian trucks, which overlooks the fact that there is currently a transfer to Chinese trucks which are less sturdy. This implies that if maintenance costs exceed the USUG limit or occur before the maintenance ceiling is reached (e.g. tires are changed at 55,000 km by USUG, but might need to be changed before this threshold is reached), the drivers will have to bear the cost. This calls for a revision of USUG's maintenance limits to fall in line with the quality of the vehicles used.

Most drivers are willing and able to work more, provided that queuing time is reduced at the loading kiosk, which currently translates into lost income due to a lower number of trips.
### A3.3 Financial viability of preferred options

The table below presents the assessed financial viability of the preferred options, their long-term tariff implications and possible transitional requirements.

<table>
<thead>
<tr>
<th>Preferred options</th>
<th>Financial viability</th>
<th>Long-term tariff implications</th>
<th>Transitional requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection of existing tanker served kiosks to piped system</td>
<td>Will reduce operating costs</td>
<td>Reduce the need for future tariff increases</td>
<td>Severance payment for USUG drivers if implemented on full scale in short term (unlikely)</td>
</tr>
<tr>
<td>Increased outsourcing of kiosk operation</td>
<td>Will reduce operating costs</td>
<td>Reduce the need for future tariff increases</td>
<td>Severance payment for USUG kiosk operators if implemented on full scale in short term (unlikely)</td>
</tr>
<tr>
<td>Independent regulatory authority for water sector</td>
<td>Will secure that timely tariff increases reflecting inflation are granted and that tariff structure takes social needs into account</td>
<td>Real increase in tariffs for residents in central areas. Stable or falling real tariffs for ger area residents</td>
<td>May require temporary subsidy to become politically acceptable</td>
</tr>
<tr>
<td>Improved performance-based management contract between the Municipality of Ulaanbaatar and USUG</td>
<td>Improved governance will reduce costs</td>
<td>Reduce the need for future tariff increases</td>
<td>A simple improvement based on the existing contract structure will be easier to implement in the short term</td>
</tr>
<tr>
<td>Internally delegated area management contract</td>
<td>Improved governance will reduce costs</td>
<td>Reduce the need for future tariff increases</td>
<td>A simple improvement based on the existing contract structure will be easier to implement in the short term</td>
</tr>
<tr>
<td>Increased risk transfer to private kiosk operators under an improved management contract for water kiosks</td>
<td>Scope for wider application of private operators will reduce operating costs</td>
<td>Reduce the need for future tariff increases</td>
<td>Severance payment for USUG kiosk operators if implemented on full scale in short term (unlikely)</td>
</tr>
<tr>
<td>Increased risk transfer to private bathhouse operators under a DBFO contract for bathhouses</td>
<td>Will require minor co-financing from MUB</td>
<td>Competition between bathhouses will work to control tariffs</td>
<td>May need partial risk guarantee and capacity building</td>
</tr>
</tbody>
</table>
A3.4 Social impacts of preferred options

The two preferred options that will have social implications to USUG kiosk attendants are:

- Connection of existing tanker served kiosks to the piped system
- Increased outsourcing of kiosk operations.

Connection of existing tanker served kiosks to the piped system

The conversion of existing trucked kiosks to piped kiosks will entail an automatic increase in the number of piped kiosks staff and a decrease in trucked kiosks staff. According to USUG, this will involve a transfer of staff from the Trucked Kiosk Department to the Piped Kiosk Department, including administrative staff. Reduction or release of staff was not foreseen as an option.

For kiosk attendants currently employed by the Trucked Kiosk Department, the implications would merely be administrative in nature, as they would be employed by the Piped Kiosk Department and refer to that department instead. No implications are foreseen on their salary levels and hence their income contribution to their households, provided that their terms of employment and salaries remain the same. Consequently, the change will not be felt by the existing employees.

For truck drivers, the reduction in the number of trucked kiosk will make more drivers and truck maintenance staff redundant if a corresponding increase in trucked kiosks to serve underserved areas does not fully take place. As noted above, a truck driver serves an average of five kiosks. USUG plans to build new trucked kiosks under USIP II in the coming years, though the total number is still to be compiled. Since truck drivers are currently permanent employees at USUG, the Trucked Kiosk Department has the right to discharge them according to terms stated in the law. However, interviews with the department did not reveal any intention to do so. Opportunities on how to utilise the existing drivers should be examined for those who are not about to retire. For instance, increasing and improving water supply services via trucks to ger businesses that are not connected, using them as drivers in the wastewater collection department or offering them (or alternatively a family member) to act as private operators in USUG kiosks. If drivers see a value in acquiring tanked trucks, idle trucks could also be offered at discounted prices. Moreover, re-training of mechanics currently serving in the Trucked Kiosk Department on how to monitor the maintenance of piped kiosk could also be considered.

Increased outsourcing of kiosk operations

USUG has piloted the use of private operators to run their kiosks. The preferred options suggest the extension of the present pilot to cover all new kiosks built and existing kiosks, whose USUG attendant is about to retire or has already left.
The experience so far is that the use of private operators (POs) has not taken place at the expense of existing USUG attendants. POs have mainly been allocated to newly built kiosks. USUG has no intention of replacing current staff with POs. In view of this, expanding this pilot will not have a direct negative impact on existing USUG attendants.

One indirect impact could be a reduction in sales of water by USUG attendants, and thus reduced monthly bonuses and income due to competition. A key factor is that the POs have the right to engage in additional business activities that are not allowed for USUG staff. USUG and POs are aware that the contractual terms of POs are not favourable, as all risks and most operational costs are transferred to and borne by the PO. As an incentive, the contract gives POs the right to engage in additional income-generating business activities (USUG is currently getting a positive list). This means that a PO can potentially attract more customers as s/he is offering an additional service. Customers might perceive this as time-saving and develop a preference to go to an USUG PO instead. However, interviews show that this is highly unlikely. 81 per cent of USUG attendants did not think that having an USUG PO nearby offering an extra business would result in customer loss. Based on the information at hand, we assess that outsourcing new kiosks to PO will not have tangible negative impact on USUG staff at water kiosks.
A4  Impacts on consumers

In this section, we assess the likely social impact of three preferred options on consumers in terms of improved access and affordability of services.

Because of the disruptions brought about by the elections in June 2008, planned focus group meetings were not held. The team therefore relied on data collected during the missions to Mongolia to provide insight into affordability and willingness to pay, as well as potential impacts on consumers.

A4.1 Affordability and willingness to pay

Estimates based on data collected from USUG show that the cost of water in ger areas constitutes approximately one per cent of household income, possibly due to low water consumption. The table below shows the present cost of water as a percentage of income for the different service areas.

<table>
<thead>
<tr>
<th></th>
<th>Ger area</th>
<th>Central area (individual meters)</th>
<th>Central area (no meters)</th>
<th>Central area (block meter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household size</td>
<td></td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Household income</td>
<td>109,000</td>
<td>250,000</td>
<td>250,000</td>
<td>250,000</td>
</tr>
<tr>
<td>Water consumption</td>
<td></td>
<td>7</td>
<td>87</td>
<td>230</td>
</tr>
<tr>
<td>lpcd</td>
<td></td>
<td>1.00</td>
<td>0.18</td>
<td>0.18</td>
</tr>
<tr>
<td>Unit price of water (incl. VAT)</td>
<td>1.050</td>
<td>1,921</td>
<td>5,078</td>
<td>7,065</td>
</tr>
<tr>
<td>Cost of water per month</td>
<td>1.0%</td>
<td>0.8%</td>
<td>2.0%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Cost of water as percentage of income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This suggests that the cost of water in all areas is significantly below the generally applied rules on affordability; notably that the total cost of water supply and sanitation as a share of household income should not be above 4 per cent in general and 6-10 per cent for the poorest.

The table below shows the same information as above, but for a stylised example where all households have the same water consumption as a metered apartment in the central areas (87 lpcd).
Assuming all households consume 87 lpcd

<table>
<thead>
<tr>
<th></th>
<th>Ger area</th>
<th>Central area (individual meters)</th>
<th>Central area (no meters)</th>
<th>Central area (block meter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household size</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Household income</td>
<td>109,000</td>
<td>250,000</td>
<td>250,000</td>
<td>250,000</td>
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<td>Water consumption lpcd</td>
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<td>87</td>
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<td>Unit price of water (incl. VAT)</td>
<td>1.00</td>
<td>0.18</td>
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<td>Cost of water per month</td>
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<td>1,921</td>
<td>1,921</td>
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</tr>
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<td>Cost of water as percentage of income</td>
<td>12.0%</td>
<td>0.8%</td>
<td>0.8%</td>
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</tbody>
</table>

This indicates that the present tariff in the central areas is significantly below the affordability limit. However, the tariff in the ger areas is much higher, and will most likely act as a barrier for significant expansion of water consumption in the ger districts.

Since the proposed preferred models in this study do not include private household connections or tariff increases in ger areas, affordability and willingness to pay are of a lesser concern.

However, the future legal and financial ability of households to apply and obtain a private household connection (both water and sewerage) are a long-term issue in relation to the option of conversion of trucked kiosks into piped kiosks, which opens the way for direct household connections to a main pipe. Issues relating to property concessions and willingness to do so could be brought up.

### A4.2 Socio-economic impacts on consumers and subsidy eligibility

As mentioned above, private household connections do not represent one of the preferred options that will be examined in this study. Therefore, subsidy eligibility for households will not be looked at. The perceived socio-economic impacts on consumers of three preferred options are presented below.

**Connection of existing tanker served kiosks to the piped system**

The conversion of existing trucked kiosks to piped kiosk implies an increase in the number of piped kiosks, which currently accounts for one third of total kiosks in ger areas. As noted in the baseline overview for water supply services (section 1.2), the majority of ger area households get their water from tanked kiosks. The main issues highlighted for trucked kiosks include:

- Long queuing time at kiosks, particularly because consumers queue with loading trucks servicing tanked kiosks
- Disruptions in water supply limits supply regularity to consumers, due to insufficient volume of loaded water into trucked kiosk and limited number of loads to tanked kiosks per day. This results in some consumers being sent home empty-handed
Lower quality of water in trucked kiosks, which bears a higher health risk hazard than piped kiosks due to the transportation of water from and to different containers.

The consultants therefore assess that gains from converting to piped kiosks are likely to positively affect consumers in the following ways:

- Less queuing time will reduce the time spent on fetching water, which is mainly difficult in the winter season and could take up to one hour.
- More regularity in water supply, assuming that the system is well maintained and not subject to disruptions in water supply from central distribution. This could create an increase in the demand for water, if the habit of consuming more water is established, pending proximity of the kiosk as indicated in section 1.2.2. It could also lead to less reliance on untreated sources of water, improving health in the long run.
- Improved quality of water, as water is directly distributed without being transported. In the short and long terms, this could have positive health consequences because of less contamination from waterborne diseases, particularly because most households do not purify their water before consumption.
- In the long term, proximity to piped kiosks and hence networks could give consumers access to own household connections, if affordability and willingness to pay are met.

**Increased outsourcing of kiosk operations**

As mentioned above, USUG opening hours are regularly not observed, which affects the regularity of water supply. To date, USUG contracted 31 private operators, a majority of whom were unemployed prior to becoming kiosk operators. From USUG’s perspective, this option is financially less burdensome. On the one hand it creates local employment. On the other, it does not involve hiring USUG employees.

Experience shows that with the current contractual structure between MUB and private operators, kiosks run by private operators have an incentive to maintain more flexible and often longer working hours. Private operators may also engage in other business activities in addition to selling water to consumers.

During our mission to Mongolia, we noted that some private operators sold goods purchased in the city or provided other services to ger district residents. From the consumer's perspective, this is a service improvement compared to only being able to obtain the goods and services in the city. This also indicates an emergence of some form of local economic activity in the ger areas.

The impact on consumers from heavier reliance on private kiosk operators is expected to include:
• More flexibility in terms of opening hours in line with the needs of consumers, securing improved regularity of water supply, provided that there are no disruptions in the water supply centrally.

• Additional goods and services are locally provided to the ger community, in the event where private operators undertake a side business within the framework of the law. This could also lead to savings in transportation time for procuring certain goods from the city.

• Increased likelihood of employment generation for unemployed ger area residents as private water kiosk operators.

**Independent regulatory authority for water sector**

The third proposed option is to institutionalise a structure in the water sector that could improve compliance with existing tariff adjustment principles in a less politicised manner, based on experiences from the heat and electricity sectors.

As noted in section 3.3 on financial sustainability, the inception of such a regulatory authority would secure a gradual increase in tariffs to compensate for inflation, assuming that this is politically acceptable.

The baseline overview suggests that some households pay double the USUG tariff to procure water from non-USUG kiosks. However, it is the team’s assessment that any real increase in tariffs would be perceived as a reduction in purchasing power by many households. As shown in section 3.3, real tariffs paid by ger residents are then expected to remain the same or decline (while they are foreseen to increase for central area residents).
A5 Transaction structure, contractual framework and action plan

The present section outlines the required steps and the necessary inputs for implementing the recommended option.

A5.1 Draft transaction design

A5.1.1 Scope

The scope of the proposed transaction is an OBA scheme for improved water supply and sanitation coverage for Ulaanbaatar's peri-urban poor in the ger areas.

The OBA scheme will:

- Co-fund the connection of presently trucked water kiosks to the piped system, improving supply regularity and water quality as well as reducing operational losses

- Support increased use of private kiosk operators (based on the pilot project implemented in recent years by USUG), further reducing operating losses and creating synergies with employment creation in small private businesses

- Co-fund establishment of privately operated bathhouses with public toilets, improving access to sanitary facilities.
A5.1.2 Contracting strategy by service area

The following contracting strategy is proposed:

- Conversion of trucked kiosks to piped kiosks to be on a design-build basis
- Increased use of use of private operators to be based on a modification of the existing management contract for private operators
- Establishment of privately operated bathhouses with public toilets to be based on piloting a design, build, finance, operate (DBFO) concept.

A5.1.3 Tendering strategy

The following tendering strategy is proposed:

- Conversion of trucked kiosks to piped kiosks to be tendered on output-based specifications in cooperation with the USIP II project, with the lowest price being the evaluation criteria
- Increased use of use of private operators to be implemented by the Departments for Trucked and Piped Water to Ger Areas supported by USUG management, with all new kiosks and kiosks where a change of operator is being offered for private operation
- Establishment of privately operated bathhouses with public toilets to be tendered on output-based specifications by the Capital Property Department of MUB, with the lowest GPOBA subsidy required being the evaluation criteria.

A5.1.4 Key commercial terms

The key commercial terms proposed are:

- The investment for water kiosks is divided between USUG and GPOBA in the following way:
  - USUG: 100 per cent of extension of the piped water distribution system to reach new kiosks (not included in above estimate) and 10-30 per cent of the cost of the conversion and connection of trucked kiosks to the piped system
  - GPOBA: 70-90 per cent of the investment cost of the conversion and connection of new kiosks
- The investment in new public bathhouses is divided between GPOBA, the Municipality of Ulaanbaatar and the private operators in the following way:
- Municipality of Ulaanbaatar: Fixed, predefined investment subsidy per new public bathhouse (e.g. 10 per cent of estimated construction costs or USD 6,000), to confirm MUB demand for the service and reflect that the asset will revert to MUB after the end of the contract period

- GPOBA: Investment subsidy to be bid by private operator during tender (bid criteria for bathhouses will be the lowest subsidy required for construction, operation and maintenance under predefined contract terms)

- Private operator: Remaining part of investment cost, including any overruns.

A5.2 Draft term sheets

Appendix 1 includes draft term sheets for:

- An improved performance-based management contract between the Municipality of Ulaanbaatar and USUG, delegating management autonomy to USUG management for key operations and investments managed by USUG on behalf of MUB

- An internally delegated area management contract, delegating management autonomy to USUG Department for Piped/Trucked Water to Ger Areas for key operations managed by the department on behalf of USUG

- An improved management contract for water kiosks, where the supplier (USUG) transfers the management responsibility for a USUG water kiosk to the seller (private operator) for a specified period of time

- A DBFO contract for bathhouses, where the contractor will design, build, finance and operate one or several bathhouses with public toilet facilities for up to ten years, after which they are returned to the Capital Property Department of the Municipality of Ulaanbaatar.

A5.3 Implementation strategy

The following implementation strategy is proposed:

1. USUG confirmation of agreement with project scope for conversion of trucked kiosks to piped kiosks

2. MUB confirmation of agreement with project scope for establishment of new bathhouses

3. Identification of focus areas for investments in water supply under GPOBA project
4 Finalisation of GPOBA concept note and submission to GPOBA

5 Elaboration of new contract documents based on the draft term sheets.

Further steps should await GPOBA approval of assistance for project development.
Annex A1 - Map of water supply in ger areas
Annex A2 - USUG 2007 accounts
<table>
<thead>
<tr>
<th>Year 2007</th>
<th>Department</th>
<th>Trucked water supply to ger area</th>
<th>Piped water supply to ger areas</th>
<th>Osnaaug</th>
<th>Water extraction and transmission</th>
<th>Administration</th>
<th>Customer relations</th>
<th>Monitoring</th>
<th>Waste water</th>
<th>International Childrens Camp</th>
<th>Bagakhangai</th>
<th>Central system</th>
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Annex A3 - Developments in water tariffs since 1990
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<td><strong>Water distribution by truck</strong></td>
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PPIAF

Mongolia: Exploring Options for Management Contracting-out in Water Supply and Sanitation Services for Ger Areas in Ulaanbaatar

Final report - Task B - Performance-based subsidies for improved services in ger areas

March 2009
Introduction - Final Report Task B

The present report constitutes the final reporting for Task B Performance-based subsidies for improved services in ger areas.

The report is structured as follows:

- Section B1 - Market study for private sector participation, presents the results of interviews with contractors, NGOs and banks concerning their possible participation under the preferred options for service improvement
- Section B2 - Options for explicit performance-based subsidies, makes recommendations on options for using explicit subsidies to improve water supply and sanitation services in ger areas
- Section B3 - Current barriers to household connections and possible remedial measures, presents the identified barriers to improved water supply and sanitation in ger areas
- Section B4 - Design of a sustainable subsidy scheme, presents the design for an output-based subsidy scheme for improved water supply and sanitation services for Ulaanbaatar's peri-urban poor
- Section B5 - Key commercial terms and contracting principles, presents the key commercial terms for the proposed OBA scheme.

Furthermore:

- Appendix B contains a GPOBA concept note for the project 'Output-Based Aid for improved water and sanitation services for Ulaanbaatar's peri-urban poor'

Finally:

- Annex B1 includes a Cost catalogue of key cost items used in the estimations
- Annex B2 includes an indicative Bill of quantities for conversion of trucked to piped water supply in areas with increasing length-width ratio
- Annex B3 includes an indicative Bill of quantities for piped water supply designed for individual house connections in areas with increasing length-width ratio
- Annex B4 includes an indicative Bill of quantities for household connection.
B1 Market study for private sector participation

This section examines the option for enhancing private sector participation under the framework of an OBA scheme for the preferred options for improving water supply presented under Task A, namely converting trucked kiosks into piped kiosks to complement USIP II in less served areas, and enhancing reliance on private operators. In relation to sanitation, bathhouses were looked upon as the preferred option. Private sector operators are broadly defined to include private sector contractors, companies, NGOs and CBOs.

The objectives are threefold. First, to identify potential private sector operators and solicit their views on performance-based approaches for improving water supply and sanitation services in ger areas of UB. Second, to examine the financing environment in which private sector contractors operate and to assess banks’ willingness to provide financing under an OBA arrangement. Finally, to identify barriers for the implementation of such a scheme to subsequently highlight the actions required to raise private sector interest in expanding access to services.

B1.1 Potential private sector contractors

We have identified private contractors and NGOs as potential private operators for the purpose of this study. Private companies other than contracting companies (e.g. supermarkets, which could have synergies with water supply sales points) were not considered as a potential option, as only few companies physically operate in these areas today, not to mention the limited land availability in the ger districts. Similarly, CBOs were not included. On the one hand, interviews point out that they seem to lack the legal and organisational capacity to undertake performance-based contracts. On the other hand, the community-led infrastructure development component under USIP II is already working with capacity building of CBOs and other unorganised community groups in that respect. Time will show whether this new experience with delegated management will be successful in the ger areas and replicable in the future.

Finally, it is worth noting that we have mainly considered registered legal entities, as it is not legally possibly for informal companies or associations to engage in public tendering.
B1.1.1 Private sector contractors

To identify private operators we have relied on the list of private contractors that had tendered for and were selected by USIP I or USIP II to carry out construction and/or rehabilitation works of water kiosks. Our assumption is that the list would give an indication of the type of contractors interested in providing water supply and sanitation in the ger areas of UB, focusing on those with some degree of experience within the field.

The consultant carried out interviews with three private contractors to assess their interest and willingness to engage in water supply and sanitation services in ger areas under an OBA scheme. The conditions presented to private contractors included the following:

- The contract will be tendered out for the construction and operation of a water kiosk or bathhouse (a consortium including companies/NGOs could be formed in order to cover both works and services)
- The OBA grant will subsidise between 60 per cent and 80 per cent of investment cost
- Investment cost will only be reimbursed once the construction of the kiosk/bathhouse is completed (bulk payment) and operation has been ongoing for one year (remaining amount)
- The contractor has to obtain a loan or rely on own funds to fund the construction and operation of the kiosk/bathhouse until the grant payment is made
- Ownership of the kiosk/bathhouse will lie with the MUB/district government. However, the contractor will have the right to use the property and run water service provision or bathhouse services for up to ten years. As a principle, we assume that the operator can keep the income generated from the sale of water
- Private operators could potentially run a side business to generate additional income.

The interviewed private contractors seemed generally more interested in the construction and/or rehabilitation of water kiosks or bathhouses than in operation and maintenance. Legally, as holders of a business license, they are able to engage in both activities. However, there is a general reluctance to manage the facilities. Lack of willingness primarily emanates from the following:

- Running a water kiosk or bathhouse is not perceived as a profitable pursuit. On the one hand, there is political influence in the implementation of management contracts for water kiosks. Private operators are not able to increase the price of the service, which is currently low, to cover their investment within a reasonable period of time and running costs. Neither are
bathhouses perceived as a lucrative business, particularly if they cannot be connected to the sewerage network.

- Ownership of the kiosk or bathhouse will lie with the state. This could otherwise be an attractive investment, if ownership is transferred to the private operator.

- Uncertainties about the ownership of land where the kiosk will be constructed, if the kiosk was privately owned by the contractor.

More specifically, when assessing the opportunity to engage in constructing and managing a water kiosk or bathhouse under an OBA scheme, where the investment cost would be mostly recovered within a reasonable period of time, the following concerns were voiced:

- Uncertainties about what the tender document will describe and require

- Uncertainties about reimbursement at actual market prices if the price of building materials increases after grant determination (an example was given of the unit price of a brick which increased from MNT 67 in 2007 to MNT 300 in mid-2008).

While the contractors interviewed had the capacity to build and potentially run a water kiosk or bathhouse, they are somewhat reluctant to engage in the operation and maintenance.

**B1.1.2 NGOs**

We have prioritised interviews with NGOs that are currently working in the ger area and are or would like to be involved in providing water and sanitation services in these areas. Two NGOs were interviewed during the second mission. The interviews focused on assessing the interest and willingness of NGOs to engage in water supply and sanitation services in ger areas under an OBA scheme in relation to water kiosks and bathhouses. The conditions presented to NGOs are the same as those presented to private contractors.

It appears that NGOs are more open to the idea of constructing and managing water kiosks than private contractors, although they say that their input would most likely cover the management part. The pool of NGOs interviewed comprises international NGOs and local NGOs linked up to an international network (e.g. Red Cross). They therefore have the necessary organisational capacity to carry out the task, and have accumulated experience with sub-contracting others companies to complement their experience, for instance building kiosks. However, the main concerns revolved around the following:

- Uncertainties about the tender document's content, focus and requirements
• Feasibility and workability of forming a consortium. Who will be lead and sign on behalf of the consortium, how will quality assurance be ensured for works and services, how will the grant and profits be shared since it mainly covers investment/construction costs, who is the receiver of the grant, who will take up an investment loan, bear the risk and be liable for it?

• Inability to borrow money from banks to fund the investment

• Issues of ownership of the property have to be clarified

• Difficulties in the maintenance of own trucks and kiosks

• Challenges on the price paid for buying water from USUG. Red Cross currently has a special rate with USUG for obtaining water from deep wells at MNT 0.25 per litre versus an USUG sales price of MNT 1 per litre.

B1.2 Access to finance

We have conducted supplementary interviews with local financial institutions and banks to access their willingness to extend financing to the water sector under an output-based subsidy scheme, as well as to examine the legal scope and feasibility of such financing schemes to private sector and NGOs/CBO operators subject to Mongolian regulations.

During the second mission, we met with three banks. The types of loans considered included investment loans and working capital loans. Overall, the interviewed banks did not reject the idea of extending loans under an OBA project to improve water supply and sanitation in the ger areas, and were relatively open, provided that risks are manageable.

Positive findings include the following:

• Experience with cash-flow based loans for investments have generally been positive

• Lower interest rates could be obtained in certain banks if the loan serves a social purpose

• A grace period can be negotiated for investment loans which could coincide with the grant payment period

• Banking law gives banks the right to use the physical investment to be constructed and its equipment as collateral. This could cover part of the collateral requirement, although banks have had negative experience with unfinished works as collateral

• Some banks manage large lending project to support SMEs (JBIC) and private sector development (World Bank).
The main challenges in extending loans under an OBA scheme related to risk management are presented below:

- Collateral requirements, for all loans, including cash-flow based loans, require collateral, though the percentage of coverage differs. A contract with the World Bank could act as collateral if the content of the contract reduces the risk to the bank (e.g. a tripartite agreement) and a number of criteria are fulfilled. For instance that the bank is part of the tender evaluation committee or that the designs are approved, so that the physical asset can be used as collateral. However, this requires that the World Bank discusses the matter with the board of the bank.

- Requirement for good credit history, which reduces access to companies with limited loan history.

- Project cash flow should be secured in order to pay back the loan including interest.

- Banks do not have experience with extending loans to NGOs and are not clear about the legal feasibility of loan granting to such entities.

- Banks have limited experience with providing loans to consortia.

**B1.3 Barriers to private sector participation**

The following barriers to private sector participation including NGOs and CBOs have been identified:

- Perception that managing water and sanitation services is not profitable.

- Some private contractors could be interested in building kiosks or bath-houses. However, they are not interested in managing them on behalf of the municipality of UB/district government, as it is not perceived to be a lucrative business.

- NGOs and CBOs are more interested in operating, but - with the exception of some international or local organisations linked to an international network - they have limited organisational and management capacity to deliver such services on behalf of the municipality of UB/district government.

- Uncertainties about the workability of a consortium composed of a contractor and a civil society organisation or a private individual operator. Experience with joint investments is limited. It is not certain that private contractors and NGO/CBOs wish to contractually enter into joint liability agreements.

- NGOs/CBOs cannot borrow money to finance an OBA scheme.
• Banks do not have experience with lending money to NGOs/CBOs or to consortia

• Banks will still require collateral for cash-flow based loans and demand fulfilment of standard bank requirements

• Legal issues concerning contract liabilities and practical issues relating to contract implementation, payments, profit sharing, ownership of land and property.

The following alleviation strategy is proposed:

• Divide procurement for water kiosks into two separate tenders:
  - a DB contract to be tendered among reputable contractors with previous experience in the sector
  - an O and M contract to be awarded on a competitive but simple basis to private operators (individuals as today or possibly NGOs/CBOs) in the ger areas

• Test the market for DBFO in bathhouses through:
  - tendering a number of new bathhouses on DBFO-basis to consortia of contractors and operators (individuals, NGOs/CBOs or companies)

• Support this by capacity building of contractors and potential operators (on legal and contractual issues, business planning, and applying for investment loans)

• In parallel provide capacity building to local banks (on lending to consortia, lending on a limited recourse basis)

• Consider providing a partial risk guarantee scheme to reduce the banks' perception of the project risk.
B2 Options for explicit performance-based subsidies

This section makes recommendations on options using explicit subsidies to improve water supply and sanitation services in ger areas.

B2.1 Most appropriate geographical areas for an OBA scheme

With regard to water and sanitation service provision, the most deprived areas in UB are ger areas. The master plan for Ulaanbaatar City for 2020 acknowledges these temporary and informal housing areas as permanent by including them in the city's long-term urban planning for the districts of Khan Uul, Bayanzurkh, Bayangol, Sukhbaatar, Chingeltei and Songino Kharikan.

The plan classifies ger areas into three categories subject to infrastructure improvements, including water supply and sanitation, based on a phased approach:

- Redevelopment, where ger areas close to the existing city centre will gradually be replaced by apartment blocks
- Comprehensive upgrading, where extensive infrastructure improvements will be made to improve living conditions in the ger areas
- Minimal upgrading, which concerns the areas farthest from existing infrastructure, often extending up the hillside, and where infrastructure improvements are difficult and the long-term status is uncertain.

To minimise risk, we propose that areas classified for redevelopment are excluded from an OBA project, as any investment in supporting the existing structure might be lost.

The same would be the case for some of the more remote areas classified for minimal upgrading. However, the master plan also categorises Bayanhoshuu and Dambardarjaa as minimal upgrading, although these areas include significant ger areas of a relatively permanent nature.
Keeping this classification in mind, a closer examination of indicators relating to water supply, such as coverage per kiosk, distance to nearest water point, availability of water services and quality of water should be considered. In relation to sanitation, bathhouse coverage could be looked at. Moreover, poverty indicators such as average household income, unemployment and type of dwelling are also relevant.

Finally, a consideration to the future expansion trend of the ger areas should also be accounted for. As migration has increased around UB, the geographic limitation set by the mountains in the northern and southern ends of UB suggests that future geographic expansion is likely to take place in the eastern and western ends, though in terms of density, population could grow in the northern and southern parts in the short term.

The consultant favours complementing USIP II areas by extending services to underserved areas that will not be covered by USIP II as regards converting trucked kiosks into piped kiosks. Converting trucked kiosks into piped kiosks would improve access to water in a more sustainable manner and improve the quality of water, thus reducing risks for the currently underserved ger population.
The proposed location for the water kiosks is in areas where they supplement USIP I and II. The tentative location is shown in the table below.

<table>
<thead>
<tr>
<th>District</th>
<th>Ger area</th>
<th>Master plan zoning</th>
<th>Terrain</th>
<th>Drainage problems</th>
<th>Right of way</th>
<th>USI I</th>
<th>USI II</th>
<th>Remaining trucked kiosks after USI I and II</th>
<th>GPOBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayanzurkh</td>
<td>Dari-Ekh</td>
<td>Comprehensive upgrading</td>
<td>Hilly</td>
<td>Severe</td>
<td>Narrow</td>
<td>11 new kiosks, 5 rehab, 16 connected, pipe, pumping station</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shar Khad</td>
<td></td>
<td>Comprehensive upgrading</td>
<td>Rolling</td>
<td>Severe</td>
<td>Wide</td>
<td>6 new kiosks, 8 rehab, 14 connected, 0.8 km main</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uliastai</td>
<td></td>
<td>Comprehensive upgrading</td>
<td>Steppe</td>
<td>Moderate</td>
<td>Narrow</td>
<td>2 new kiosks</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bayangol</td>
<td>Naran</td>
<td>Comprehensive upgrading</td>
<td>Hilly</td>
<td>Severe</td>
<td>Narrow</td>
<td>1 kiosk connected</td>
<td>2 new kiosks</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Sukhbaatar</td>
<td>Dambadar-jaa</td>
<td>Minimal upgrading</td>
<td>Steppe</td>
<td>Moderate</td>
<td>Narrow</td>
<td>11 new kiosks, 7 rehab, 18 connected, pipe</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chingeltei</td>
<td></td>
<td>Comprehensive upgrading</td>
<td>Hilly</td>
<td>Severe</td>
<td>Narrow</td>
<td>13 new kiosks, 6 rehab, 19 connected, 11.3 km pipe, reservoir, pumping station</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chingeltei</td>
<td>Denjiin Myanga and Zuragt</td>
<td>Comprehensive upgrading</td>
<td>Hilly</td>
<td>Severe</td>
<td>Narrow</td>
<td>5 new kiosks, 29 rehab, 34 connected</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Khailaast</td>
<td>Comprehensive upgrading</td>
<td>Hilly</td>
<td>Severe</td>
<td>Narrow</td>
<td>3 new kiosks, 26 rehab, 29 connected, 6.5 km main</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Songino Khairkhan</td>
<td>Bayanho-shuu</td>
<td>Minimal upgrading</td>
<td>Rolling</td>
<td>Severe</td>
<td>Wide</td>
<td>29 new kiosks, 25 rehab, 54 connected, 40.2 km pipe, reservoirs, pumping station</td>
<td>31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The location of bathhouses is subject to discussions with MUB.

**B2.2 Pro-poor targeting of the subsidies**

The geographic focus on ger areas is in its own right pro-poor oriented, as the majority of the population residing in these areas is perceived to be poorer than
the average population of UB. This however does not mean that all residents living in ger areas are poor. Therefore, self-selection based targeting is important in accessing the poorer segments of ger residents.

Supporting the conversion of trucked kiosks into piped kiosks in underserved areas means that an OBA scheme will support public water points. This will introduce a degree of self-selection based targeting in the OBA pilot through a technology choice which is attractive to the poor but not to the better off, who would rather pay for their own connection, particularly when a main pipe is in place.

**B2.3 Investment budget**

**B2.3.1 Introduction**

The ger areas have developed spontaneously in recent years over a relatively short period. A large number of people have moved in, which, among others, has required that immediate decisions had to be made to bring water supply services to these areas, in order to prevent waterborne health problems and epidemic outbreaks.

The first areas were established adjacent to the existing urban areas, with existing utilities. Services to these areas could therefore in many cases be made by extension from existing utilities. The main portion of these areas are placed in the central ger areas earmarked for urban development in MUB's town plan.

As more people have moved in, they have settled in areas further away from the town proper, which has increased service difficulties, and other service types, often of a temporary character, have had to be developed. Regarding water supply services to households, a system of water kiosks filled by water from trucked tankers was developed. The tanker trucks got their water from a number of filling kiosks connected the town reticulation system.

From the beginning, the tanker service system was, however, considered a temporary system, which would be converted to piped systems when possible from both financial and technical points of view. The first step would be to connect the trucked kiosks to the piped system after renovation.

The last and ultimate step would be to convert the kiosk system to an individual service system with house connections. The cost of such a service level and the present income level in the ger areas, however, make such solution very unlikely, at least in the short term. It is unlikely to be feasible until the areas are developed into urban housing areas in the long term.

The following will give an estimate of the mentioned conversions and for establishment of services in new areas.
B2.3.2 Unit costs

In order to assess the cost of the conversion, a number of unit costs have been developed. These unit costs are based on recent similar projects tendered by the USIP II in May 2007. The unit cost of supplying and laying of an HDPE pipe in dimensions from Ø110mm to Ø280mm has been calculated as shown in annex B1. The cost of construction of a piped kiosk and rehabilitation/conversion of a trucked kiosk has been taken directly from the above-mentioned tender. It is, of course, difficult to generalise the cost of rehabilitation, as it is very specific to the kiosk in question.

The summary of the unit prices as developed in annex B1 and the kiosks is shown in Table 1 below.

<table>
<thead>
<tr>
<th>Supply and laying of HDPE, PN10 pipes (1000 MNT/m)</th>
<th>Ø110mm</th>
<th>Ø125mm</th>
<th>Ø160mm</th>
<th>Ø200mm</th>
<th>Ø225mm</th>
<th>Ø250mm</th>
<th>Ø280mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piped kiosk, construction</td>
<td></td>
<td></td>
<td></td>
<td>68</td>
<td>82</td>
<td>95</td>
<td>113</td>
</tr>
<tr>
<td>Trucked kiosk, rehabilitation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The cost of an Ø25mm HDPE pipe has been developed in order to assess the cost of a household connection. It is assumed that such a pipe is laid in mainly private land with no hard surfacing. The cost of such pipe is calculated at 19-MTN 20,000/m.

B2.3.3 Conversion of trucked service area to piped service area

Almost two thirds (64 per cent) of the kiosks in the ger areas are truck served kiosks. The major challenge in the near future will therefore be to convert these areas, or most of them, into piped served kiosks.

A general cost setting of such conversion requires a number of assumptions. The assumptions made are:

- The internal pipes can be connected to the existing town system close to the area. Any possible connection pipe outside the area beyond 30-50m is not included in the estimate
- The pressure in the existing system is sufficient to supply the area without further boosting
- A housing plot is 700m² as a standard
- A household consists of 5 persons on average
- The water demand is 20 lcd, and not the present consumption of 5-10 lcd
- One kiosk services 1000 persons
The areas are fully built-in. This means that no more people will move to the area, and that the 1000 persons/kiosk at present will also be the future number.

- 15-20 per cent of the existing kiosks require reconstruction. The remaining 80-85 per cent of the kiosks will be rehabilitated at a cost of approximately 50 per cent of the establishment value.
- Pipe trenches will be dug to frost free depth of approximately 4m.
- The pipe trench will be 0.75m wide for all pipe sizes.
- All pipes are HDPE, PN 10 in dimensions from Ø110mm to Ø225mm.
- An extra 10 per cent is added to the pipe price for possible insulation and electrical tracing.
- Road surfacing is added as 20 per cent of the earth work.

The cost of a water supply network depends on a number of parameters such as population density and geographic layout of the settlement. As one of the assumptions was that the areas are already fully built-in, the main parameter to consider is the layout of the system.

In order to assess the layout consequence on the per capita cost, three areas with increasing length-width ratio have been developed, each with a population of 15-16,000 people. All areas have been built up by “standard blocks” with 200 households and one kiosk. Hydraulic calculations for each area have been made together with the overall bill of quantities.

The bill of quantities is included in annex B2.

Figure 1 below shows the influence of the layout of the supply area on the per capita cost to convert the area.

The figure indicates that there is a lower limit to the per capita cost of approximately MNT 25,000 (May 2008 prices) for the conversion. To confirm this, one standard block with 1000 persons was connected directly to the existing network, as it is considered the most simple and close to the cheapest conversion. The cost estimate for such layout confirmed that the lower value is around the indicated MNT 25,000/cap (USD 22/cap).

The costs indicated may, of course, increase drastically if the area is far away from the existing network, requiring a long transmission main, and if the water has to be pumped into the area. Such extra cost will have to be included from area to area. A number of other factors, such as hilly areas, rocks, high groundwater table etc. will also influence the cost.

B2.3.4 Piped water supply system designed for individual household connections

The ultimate water supply service level in any society is piped supply with individual household connections. The following gives a cost estimate of such a fully developed piping system, designed to service the customers by individual connections with the subsequent consequences on consumption.
As was the case for the above conversion scheme, a number of assumptions are made for this piped system. The assumptions are made to provide the best comparison possible to the cost of the conversion system. The assumptions made are:

- The internal pipes can be connected to the existing town system close to the area. Any possible connection pipe outside the area beyond 30-50 m is not included.
- The pressure in the existing system is sufficient to supply the area without further boosting.
- A housing plot is 700 m² as a standard.
- A household consists of 5 persons on average.
- The water demand is 80 l/cd.
- The areas are fully built-in. This means that no more people will move to the area.
- Pipe trenches will be dug to frost free depth of approximately 4 m.
- The pipe trench will be 0.75 m wide for all pipe sizes.
- All pipes are HDPE, PN 10 in dimensions from Ø110 mm to Ø280 mm.
- An extra 10 per cent is added to the pipe price for possible insulation and electric tracing.
- Road surfacing is added as 20 per cent of the earth work.

For this system as well, it is assessed that the main parameter to consider is the layout of the system. The same main blocks built together to the same length-width ratio have housing units with a population of 15-16,000 people each. Hydraulic calculations for each area have been made together with the overall bill of quantities.

The bill of quantities is included in annex B3.

Figure 1 below shows the influence of the layout of the supply area on the per capita cost to convert the area. A comparison to the conversion system is furthermore shown.
The figure indicates that there is a lower limit to the per capita cost of approximately MNT 80,000 (May 2008 prices) for the piping system designed for individual household connections. This is three or four times the cost of the piping system supplying kiosks only. It is not expected that such a piping system will be affordable and feasible for the time being; possibly not before the areas are fully urbanised. It should be kept in mind that a fully piped water supply system will have to be followed by sewer systems which are likely to add at least 100 per cent to the water system.

**B2.3.5 Individual house connections**

The USIP II project has indicated that an individual household connection would cost approximately MNT 3 million, depending on the length of the pipe and the system selected. The USIP II operates with different connection types, including a number of manholes for the operation of valves.

Figure 2 below shows the estimated cost of a simplified house connection, where valves are operated by a telescopic extension without chambers. The cost is set as a function of the pipe length. With a 100m long connection pipe, the cost will be between MNT 2 and 2.5 million (May 2008 prices) or approximately USD 2,000 excluding VAT.
The assumptions for the calculations are:

- Pipe trenches will be dug to frost free depth of approximately 4m
- The pipe trench will be 0.5m wide
- An extra 10 per cent is added to the pipe price for possible insulation and electric tracing
- The pipe is laid in an area with no surfacing.

The bill of quantities for the connection is included in annex B4.

### B2.4 Subsidy level and financial sustainability

The table below shows a simple financial model for the conversion of a trucked kiosk to piped services.

It is seen that the project is not viable for USUG without an investment grant. Assuming that no additional investments in extending the piped network are required (e.g. because these are covered by USIP II) a grant rate of 80 per cent would give a financial internal rate of return (FIRR) of 15 per cent and a payback period of six years. This is considered to be financially sustainable.
## GPOBA investment in conversion of trucked to piped kiosk

### Operating loss trucked kiosk

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
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<tbody>
<tr>
<td>Population covered by kiosk</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Water consumption (lpcd)</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Water sales (m³/year)</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
</tr>
<tr>
<td>Tariff (MNT/l excl VAT)</td>
<td>0.91</td>
<td>0.91</td>
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<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
</tr>
<tr>
<td>Revenue (MNT million)</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
</tr>
<tr>
<td>Unit operating cost (2007 MNT/l)</td>
<td>2.80</td>
<td>2.80</td>
<td>2.80</td>
<td>2.80</td>
<td>2.80</td>
<td>2.80</td>
<td>2.80</td>
<td>2.80</td>
<td>2.80</td>
<td>2.80</td>
</tr>
<tr>
<td>OPEX (MNT million)</td>
<td>8.18</td>
<td>8.18</td>
<td>8.18</td>
<td>8.18</td>
<td>8.18</td>
<td>8.18</td>
<td>8.18</td>
<td>8.18</td>
<td>8.18</td>
<td>8.18</td>
</tr>
<tr>
<td>Unit operating loss (MNT/l)</td>
<td>(1.89)</td>
<td>(1.89)</td>
<td>(1.89)</td>
<td>(1.89)</td>
<td>(1.89)</td>
<td>(1.89)</td>
<td>(1.89)</td>
<td>(1.89)</td>
<td>(1.89)</td>
<td>(1.89)</td>
</tr>
<tr>
<td>Annual operating loss (MNT million)</td>
<td>(5.52)</td>
<td>(5.52)</td>
<td>(5.52)</td>
<td>(5.52)</td>
<td>(5.52)</td>
<td>(5.52)</td>
<td>(5.52)</td>
<td>(5.52)</td>
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<td>(5.52)</td>
</tr>
</tbody>
</table>

### Operating loss piped kiosk

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population covered by kiosk</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Water consumption (lpcd)</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Water sales (m³/year)</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
<td>2,920</td>
</tr>
<tr>
<td>Tariff (MNT/l excl VAT)</td>
<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
</tr>
<tr>
<td>Revenue (MNT million)</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
<td>2.65</td>
</tr>
<tr>
<td>Unit operating cost (2007 MNT/l)</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
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</tr>
<tr>
<td>OPEX (MNT million)</td>
<td>7.30</td>
<td>7.30</td>
<td>7.30</td>
<td>7.30</td>
<td>7.30</td>
<td>7.30</td>
<td>7.30</td>
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<td>7.30</td>
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<tr>
<td>Unit operating loss (MNT/l)</td>
<td>(1.59)</td>
<td>(1.59)</td>
<td>(1.59)</td>
<td>(1.59)</td>
<td>(1.59)</td>
<td>(1.59)</td>
<td>(1.59)</td>
<td>(1.59)</td>
<td>(1.59)</td>
<td>(1.59)</td>
</tr>
<tr>
<td>Annual operating loss (MNT million)</td>
<td>(4.65)</td>
<td>(4.65)</td>
<td>(4.65)</td>
<td>(4.65)</td>
<td>(4.65)</td>
<td>(4.65)</td>
<td>(4.65)</td>
<td>(4.65)</td>
<td>(4.65)</td>
<td>(4.65)</td>
</tr>
</tbody>
</table>

### OBA project with 80% grant

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced operating loss (MNT million)</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
</tr>
<tr>
<td>Project investment need (MNT million)</td>
<td>(25.00)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USUG network extension (MNT million)</td>
<td>20.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>GPOBA grant (MNT million)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash flow (MNT million)</td>
<td>(4.12)</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
</tr>
<tr>
<td>Accumulated cash flow (MNT million)</td>
<td>(4.12)</td>
<td>(3.25)</td>
<td>(2.37)</td>
<td>(1.50)</td>
<td>(0.62)</td>
<td>0.26</td>
<td>1.13</td>
<td>2.01</td>
<td>2.88</td>
<td>3.76</td>
</tr>
<tr>
<td>FIRR (10 years)</td>
<td>15.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pay back</td>
<td>6 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grant rate (excluding network renovation)</td>
<td>80%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
B2.5 **Strategy for explicit performance-based subsidies**

We propose a two-stringed strategy for explicit performance-based subsidies for delivery of basic water supply and sanitation services for Ulaanbaatar's peri-urban poor, as shown in the table below.

<table>
<thead>
<tr>
<th>Strategy component</th>
<th>Performance-based subsidies for conversion of trucked to piped kiosks</th>
<th>Performance-based subsidies for establishing new public bathhouses with public toilets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why is the subsidy provided?</td>
<td>To co-fund connection of presently trucked water kiosks to the piped system, thereby improving supply regularity and water quality as well as reducing operational losses</td>
<td>To co-fund establishment of privately operated bathhouses with public toilets, thereby improving access to sanitary facilities</td>
</tr>
<tr>
<td>Who receives the subsidy?</td>
<td>USUG (the Water Supply and Sewerage Authority of Ulaanbaatar), who will in turn tender the works on a DB basis in cooperation with the USIP II project</td>
<td>Private contractors working under DBFO contract with the Capital Property Department of the Municipality of Ulaanbaatar</td>
</tr>
<tr>
<td>What is subsidised?</td>
<td>Direct investment costs related to conversion and connection of trucked kiosks to the piped network</td>
<td>Investment costs related to the establishment of new public bathhouses with public toilets</td>
</tr>
<tr>
<td>How is the size of the subsidy determined?</td>
<td>Investment subsidy to be determined as level which provides USUG with a reasonable return on their co-funding</td>
<td>Investment subsidy to be bid by private operator during tender (bid criteria will be lowest subsidy required for a batch of bathhouses fulfilling output-based requirements)</td>
</tr>
<tr>
<td>How is the payment of the subsidy linked to the output of the project?</td>
<td>Subsidy to USUG will be an output-based investment subsidy, which will be disbursed as follows: - 70-90% upon commissioning of piped kiosks - 10-30% remaining payment after one year of successful USUG operation of the piped kiosks</td>
<td>Subsidy to private contractor will be an output-based investment subsidy, which will be disbursed as follows: - 15% advance against bank guarantee upon contract signature - 75% main payment and release of bank guarantee upon commissioning - 10% remaining payment after one year of successful operation (as documented by annual reporting to the municipality by bathhouse operators)</td>
</tr>
<tr>
<td>Linked initiatives</td>
<td>Increased use of private kiosk operators, further reducing operating losses and creating synergies with employment creation in small private businesses</td>
<td>Capacity building among operators and banks</td>
</tr>
</tbody>
</table>

An OBA project for implementing the strategy is presented in section 4 below.
B3 Current barriers to improved water supply and sanitation in ger areas

This section presents the identified barriers to improved water supply and sanitation in ger areas.

B3.1 Identified barriers to service provision

B3.1.1 Technical and administrative barriers

The construction of water supply services in the ger areas faces a number of challenges of an administrative, technical, climatic and geographic character. Many of the problems have supervened, as a result of the way the ger areas have developed.

Since the fall of the Soviet Union in the early nineties and the resulting changes in Mongolia, the populated area of Ulaanbaatar has more than doubled due to immigration of people from rural areas. Most of these people have settled in ger areas in the periphery of the city, and today more than half of the Ulaanbaatar population live in the ger areas.

Due to lack of spatial planning, and the uncontrolled way people have moved in and established themselves in the ger areas, utility access has been made very difficult, and in many areas close to impossible. The high allowance of “free” land of up to 700 m² per household, has led to rapid expansion of the ger areas. A consequence of the land allowance is that approximately 90 per cent of the people in the ger areas have privatised their housing plots, which makes future planning for infrastructure and city development extremely difficult. Free areas available for development are only at the periphery of the ger areas, or far away from the city.

Such unplanned development of the ger areas has resulted in complicated access for water supply services, and many people have to walk long distances, on average 350m, to get water. A result of this collection hardship is that many people in the ger areas still collect water from unsafe traditional sources.

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1 Cities Alliance, GER AREA UPGRADE STRATEGY OF ULAANBAATAR CITY, Version 3.0 Sept. 2007
The relatively high “free” land allocation of up to 700 m² per household has resulted in large areas with low population density, which makes piped water supply expensive. Further problems are a lack of sufficient access roads for truck tankers to bring water to the kiosks and laying of water pipes in areas where piped water could be a feasible option. Pipe laying on private land is cumbersome and time-consuming.

The comprehensive immigration to the city over a relatively short time period, and the wish to live near the city and its services, has also had the result that people have settled in areas not suitable for housings, as e.g. on steep slopes and on groundwater reservoirs.

With a few exceptions, all water supply services in the ger areas are from USUG constructed water kiosks, getting their water from either the water reticulation system or from truck tankers. Undoubtedly, the most reliable and feasible supply to the kiosks is piped supply, as long as it is designed and constructed according to internationally acknowledged construction codes, taking into account the harsh climatic conditions of Ulaanbaatar. Most reports made on water supply and sanitation in the ger areas, and interviews with ger households, indicate a number of problems with tanker-fed water kiosks. Problems mentioned are:

- Water shortage in winter due to difficult access
- Periods during the day without water, as water brought by tanker is not continuous
- Water quality not as good as piped water.

Beside the mentioned problems, distribution of water by trucks is also an expensive solution. The truck option should therefore only be considered a temporary solution (although probably for an extended period of time), implemented to solve an immediate supply problem.

The piped option, on the other side, also has a number of technical challenges, e.g. caused by the severe weather conditions and the mountainous landscape.

Depending on the soil conditions, the frost-free depth was reported to be between 2.8 and 4.2m. In the town this problem is overcome by laying the potable water pipes in the same trench as the hot water pipe. But as there is no supply of hot water to the ger area, such a solution is not possible there. The problem is generally solved by laying the pipes at frost-free depth. In areas where this is not feasible or possible, insulated pipes with electrical heat trace will be used. Another option proposed is to circulate the water by pumps, so that it flows permanently in the pipes.

If full water reticulation pipes are constructed in the areas with connection to individual houses, it will also be necessary to consider sewerage systems. Such systems will have similar challenges as the water system despite the fact pipes at the same depths will not be required due to frost. The problem here is that sewer pipes are gravity pipes. In a hilly area, such as the ger areas, it could re-
sult in either water piping at deeper depths or the introduction of a number of pumping stations. Treatment of the sewerage will be another problem.

**B3.1.2 Financial barriers**

There are a number of financial barriers to improved water supply and sanitation in the ger areas:

- The decline in real tariffs since 1990 has reduced the possibilities for internally financed investments in the sector, and today the sector fully depends on donor funds and investment subsidies from the municipality.

- Some kiosks are in less populated areas, where the full tariff revenue combined with revenues of possible side businesses is insufficient to sustain a living. This hinders the attraction of private operators under the present revenue-sharing contract.

- The banking sector is inexperienced with providing loans to small, private sector operators in the infrastructure sectors, and require collateral which most potential operators have difficulties providing.

- Real interest rates are very high, making it difficult to source funding for projects with low but stable returns.

For the identified preferred options for service improvement this will mean:

- The long-term sustainability of USUG depends on an improved regulatory regime for tariff determination (either through an independent regulator or a stronger contractual mechanism for inflation indexation).

- The ability to attract private sector bidders for the bathhouse DBFO contracts may require capacity building among both operators and their banks, as well as provision of a partial risk guarantee.

**B3.1.3 Barriers to enhanced private sector participation**

Perceived challenges in relation to enhancing private sector involvement in water service provision include:

- The contractual terms between USUG and private operators (mainly individuals, not companies) are standardised, but the conditions differ for different operators. These contracts are not perceived as favourable, as risks (e.g. theft or damages) and running costs are borne by the private operator. The operator only earns a percentage of the profit generated from the sales of water, the price of which is set at a fixed rate of MNT 1 per litre incl. VAT. USUG is in the process of getting a positive list from the district authorities on what kind of business POs can undertake from the kiosk. If the POs use their right to engage in an income-generating side business activ-
ity as granted by the contract, they will be able to supplement their income provided from the water sales

- The conversion of trucked kiosks into piped kiosks requires rehabilitation or re-construction of the kiosk. The construction design of all new piped kiosks is half the size of the initial tanked kiosk. This does not leave much space available for POs to provide additional services to residents, unless the design is changed.

- MUB have PO contracts with private companies to run bathhouses. However, these companies seem to be interested in acquiring the property and land upon privatisation. This imposes a risk that the bathhouse business might be forgone, once the property is privatised, in favour of another lucrative business.

- Private contractors and companies are interested in building kiosks or bathhouses but not in managing them on behalf of the municipality of UB/district government, as they are not perceived to be lucrative businesses.

- NGOs and CBOs (with the exception of a few international or local organisations linked to an international network) have limited organisational and management capacity to deliver such services on behalf of the municipality of UB/district government.

- Experience with joint consortium is limited. It is not certain that private contractors and NGO/CBOs wish to contractually enter into joint liability agreements.

### B3.2 Strategy options for alleviating identified barriers

The following measures are proposed as strategy options for alleviating the identified barriers:

- The legality of outsourcing kiosk operation for kiosks which are municipal property should be confirmed.

- A positive list of acceptable side businesses for kiosk operators should be established.

- Reconstruction works when converting a trucked kiosk to a piped kiosk should take into account the benefits of having an additional room for alternative uses of the kiosk building (i.e. keeping the size of the trucked kiosk).

- Provision of a minimum revenue guarantee for private kiosk operators in less populated areas.
• Capacity building with private operators and banks in relation to the bath-house DBFO component

• Possible provision of a partial risk guarantee for the financing under the DBFO component.
B4 Design of a sustainable subsidy scheme

This section presents the design for an output-based subsidy for improved water and sanitation services for Ulaanbaatar's peri-urban poor.

B4.1 OBA scheme design

We have designed an output-based aid (OBA) scheme based on:

- The incumbent public provider (USUG) working under an internally delegated area management contract for water service provision in ger areas and outsourcing the operation of the selling points (kiosks)

- Private sector participation under an output-based DBFO contract for sanitation services (bathhouse and public toilets) in ger areas.

The project sponsors are:

- USUG (the Water Supply and Sewerage Authority of Ulaanbaatar) for the improved water supply

- The Capital Property Department of the Municipality of Ulaanbaatar for the bathhouses.

The overall objective of the OBA scheme is improved water supply and sanitation coverage for Ulaanbaatar's peri-urban poor in the ger areas. The immediate objective is improved access to regular nearby supply of potable water and bathhouse services.

The OBA scheme will:

- Co-fund connection of presently trucked water kiosks to the piped system, improving supply regularity and water quality as well as reducing operational losses

- Support increased use of private kiosk operators (based on the pilot implemented in recent years by USUG), further reducing operating losses and creating synergies with employment creation in small private businesses
• Co-fund establishment of privately operated bathhouses with public toilets, improving access to sanitary facilities.

The outputs of the projects will be:

• 50 presently trucked water kiosks converted and connected to piped water supply
• 20 new bathhouses with public toilets constructed in areas with presently low density of bathhouses and operated by private operators
• Increased use of private operators for trucked and piped water kiosks from the present level of 24 out of 297 trucked kiosks and 7 out of 166 piped kiosks to a target of no less than 25 per cent in each category by 2012
• Reduction of unit operating costs of the kiosks converted and connected to piped water supply
• Reduction in unit operating costs of the kiosks converted to private operators
• A new, improved contract concept for internally delegated asset management contracts which establishes unit cost reduction and private kiosk operator involvement as explicit goals for the trucked and piped water services
• A new, improved contract concept for private kiosk operators which includes a positive list of other business activities that may legally be conducted from the premises of the water kiosk
• A new, improved contract concept for private bathhouse operators which provides greater incentives for the private operator to take on investment and maintenance responsibilities.

In parallel, USUG will, subject to parliamentary approval of the 'Draft amendment to the law on utility of water supply and sanitation services in urban area (2008)' work with the proposed 'Committee for coordination of operation and services of centralised water supply and sewage systems' to obtain approval for a tariff determination model which ensures regular inflation adjustment of tariffs and takes into account the need for sufficient coverage of depreciations.

Subject to the draft amendment being approved prior to the finalisation of an OBA scheme, a transitional subsidy to help ease the transition to full-cost tariffs may be included in the final scope for the GPOBA project.

The project targeting will rely mainly on a combination of geographical targeting (focusing on relatively poor peri-urban areas) and self-selection based targeting (supporting communal solutions such as water kiosks and public bath-
houses which are relatively less attractive for the richest segment of the population).

**B4.2 Confirming project objectives against GPOBA focus and criteria**

The consultant evaluates the project objectives against GPOBA focus and criteria as follows:

- **Consistency with eligibility criteria - Compliant**
  The requested OBA subsidy funding will complement user funding in the water sector in a DAC I country

- **Commitment of the host government to the proposed OBA scheme - Compliant**
  The Government of Mongolia is committed to the OBA concept with a parallel OBA project for rural telecommunication. The management of USUG will, in coordination with the Municipality of Ulaanbaatar, finalise and submit the GPOBA grant application. It is our understanding that this does not require separate Government of Mongolia endorsement, as long as no Government of Mongolia funding is requested

- **Availability of co-financing - Compliant**
  USUG is implementing the USIP II project with funding by the World Bank. The present project is related to the USIP II project. The final commitment of USUG/MUB co-funding for the GPOBA project is subject to the final scope and investment budget

- **Value for money - Compliant**
  The project provides value for money (i.e. the lowest cost strategy consistent with appropriate standards and quality), with a total investment cost per person given access to clean water of USD 20/pop and a proposed GPOBA grant of USD 16-18/pop (excluding transaction costs and TA).

Hence, the project objective is confirmed against GPOBA focus and criteria.

**B4.3 Flow of funds**

A tentative flow of funds arrangement is shown in the chart below.

It is assumed that:

- **GPOBA enters a joint grant agreement with MUB for both project components**

- **USIP II, on behalf of USUG, contracts the private contractors for the conversion of trucked kiosks to piped kiosks**
• MUB contracts the private contractors for the bathhouse DBFOs directly
• The GPOBA funds are disbursed through an escrow account (possibly administered by a fiduciary agent)
• The GPOBA contracts an independent monitoring and verification agent who will verify project outputs prior to grant disbursement.

B4.4 Monitoring and verification strategy
It is proposed that an independent monitoring and verification engineer monitors and verifies the delivery of the key outputs:

- Conversion and connection of 50 trucked water kiosks to piped water supply, bringing improved regularity and water quality for an estimated 50,000 residents
- Construction of 20 new bathhouses with public toilets in areas with low density of bathhouses, bringing access to improved sanitation to an estimated 20,000 residents
The following additional expected impacts could also be included in a monitoring programme:

- Improved regularity and quality at new piped kiosks
- Increased customer responsiveness at privately operated kiosks
- Improved access to sanitation services at new bathhouses
- Reduced operational cost at USUG
- Private sector employment creation in small-scale businesses and services.

B4.5 Risk assessment and mitigation strategy

The OBA project will mainstream the (limited) pilot experience with private kiosk operators in Ulaanbaatar's ger areas and provide an improved contractual framework for private sector involvement in both water supply and bathhouse services. Furthermore, innovative combinations of water supply and bathhouse services with other small-scale businesses and services will be promoted by the project.

The OBA project is a natural add-on to the World Bank financed USIP II project, and both planning and implementation of the OBA project should be closely coordinated with the USIP II management.

The OBA project furthermore builds on pilot experience gained by USUG in recent years with conversion of trucked to piped kiosks and use of private operators.

Finally, the OBA project will, through its contribution to lowering the unit operating costs of water supply in ger areas, contribute to the overall financial viability of USUG in general and the financial viability of water supply in ger areas in particular.

The contract concept and business models for private sector involvement in both water supply and bathhouse services used under the project will be immediately applicable to donors and municipalities in Mongolia. Furthermore, the OBA approach could in principle be applied to the annual investment support provided by the Municipality of Ulaanbaatar to USUG.

The key project risks and mitigation strategy are shown in the table below.
### Key project risks

| Competition for limited USUG investment funds | USUG will have to contribute to both the conversion cost and to the backbone infrastructure extension | Final project scope and selection of areas and kiosks to be coordinated closely with USUG and USIP II |
| Ability to legally take on side activities in outsourced kiosks | A key incentive is the ability to take on other small-scale business activities from the water sales premises. There is uncertainty today about the legality of various existing and potential side activities | Establishment of a positive list which will be annexed to the private operator contract |
| Private operator interest in outsourcing of financially marginal kiosks | Some kiosks are located areas with low population density which reduces revenue base for both water sales and side business | New contract concept with minimum revenue guarantee |
| Private sector interest during tendering of bathhouses | The DBFO requires contractors to team up with operators and take on new risks in a sector which is perceived as non profitable | Longer term contracts, investment subsidies and capacity building |
| Private sector ability to source investment funding | Banks are not used to providing loans to consortia or to the water sector | Capacity building and partial risk guarantee |

### B4.6 Draft GPOBA Concept note

Appendix 1 includes a draft GPOBA concept note for the project 'output-based aid for improved water and sanitation services for Ulaanbaatar's peri-urban poor'.

The key commercial terms and contractual set-up for the proposed GPOBA project are presented in the next section.
B5 Key commercial terms and contracting principles

The present section presents the key commercial terms for the OBA scheme.

B5.1 Key commercial terms

The total project investment cost is estimated at USD 2.5 million based on:

- USD 25,000 unit cost of conversion and connection of a trucked kiosk to the piped network (including local extension of the piped water distribution system, but not main extension into the ger area)
- USD 60,000 unit cost of construction of a new public bathhouse with public toilets.

In comparison it is assessed that an individual household connection to an existing main pipe would cost USD 2,000. The unit costs are relatively high due to the climatic and logistic conditions of Ulaanbaatar's ger areas (deep digging, insulation and heat trace), high transportation costs to landlocked Mongolia and limited international competitive pressures for the relatively small works contracts.

It is proposed that the investment for water kiosks is divided between USUG and GPOBA in the following way:

- USUG: 100 per cent of extension of the piped water distribution system to reach new kiosks (not included in above estimate) and 10-30 per cent of the cost of the conversion and connection of trucked kiosks to the piped system
- GPOBA: 70-90 per cent of the investment cost of the conversion and connection of new kiosks.

It is proposed that the investment in new public bathhouses is divided between GPOBA, the Municipality of Ulaanbaatar and the private operators in the following way:
• Municipality of Ulaanbaatar: Fixed, predefined investment subsidy per new public bathhouse (e.g. 10 per cent of estimated construction costs or USD 6,000) to confirm MUB demand for the service and reflect that the asset will revert to MUB after the end of the contract period

• GPOBA: Investment subsidy to be bid by private operator during tender (bid criteria for bathhouses will be lowest subsidy required for construction, operation and maintenance under predefined contract terms)

• Private operator: Remaining part of investment cost including any over-runs.

It is proposed that the project implementation is coordinated with the implementation of USIP II.

GPOBA payments could be made in several tranches:

• Advance against bank guarantee upon contract signature (for individual batch of kiosk connections or bathhouse constructions)

• Main payment and release of bank guarantee upon commissioning (of connected kiosks or new bathhouses)

• Remaining payment after one year of successful operation (as documented by water sales and operational costs for water kiosks and by annual reporting to the municipality by bathhouse operators).

B5.2 Contractual set-up for OBA scheme

The contractual set-up will be based on improved versions of the existing contracts in the sector, where targeted improvements based on international best practice are proposed as gradual adjustments.

It is the experience of the consultant that this provides a higher degree of ownership and smoother implementation than the alternative approach, where an international best practice contract is applied directly.

The key contracts for the conversion of trucked kiosks to piped kiosks will be:

• Design, build contract for conversion and connection of trucked kiosks to the piped network

  This could be FIDIC (Fédération Internationale des Ingénieurs-Conseils) short form of contract (ISBN 2-88432-024-5) or conditions of contract for plant and design-build (ISBN 2-88432-023-7)

• Private operator contract for kiosk operation
This will be based on relatively minor changes in the existing contract format in the sector

• Improved performance contract between MUB and USUG

  Based on adapting the existing contract format in the sector to international best practice

• Improved internally delegated area management contract

  Based on relatively minor changes in the existing contract format in USUG to reflect international best practice

The key contracts for the bathhouses with public toilets will be:

• A design, build, finance, operate (DBFO) contract signed between the MUB and the private contractor/operator

  This could be a brief DBFO agreement with two separate contracts annexed; a FIDIC design build contract for the construction and an operations contract based on adapting the existing contract format in the sector to international best practice

In addition to this a GPOBA project will require:

• A GPOBA grant agreement (most likely to be signed by the Municipality of Ulaanbaatar)

• An agreement with an independent monitoring and verification agent.
Annex B1: Cost catalogue

Unit cost of supplying and laying of Ø25mm HDPE, PN 10 pipes for individual house connections (May 2008 prices)

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost, (MNT) VAT excluded</th>
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Unit cost of supplying and laying of Ø125mm HDPE, PN 10 pipes (May 2008 prices)

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Unit cost of supplying and laying of Ø160mm HDPE, PN 10 pipes (May 2008 prices)

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Unit cost of supplying and laying of Ø200mm HDPE, PN 10 pipes (May 2008 prices)

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## Unit cost of supplying and laying of Ø225mm HDPE, PN 10 pipes (May 2008 prices)

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### Unit cost of supplying and laying of Ø250mm HDPE, PN 10 pipes (May 2008 prices)

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Annex B2: Bill of quantities for conversion of trucked to piped water supply in areas with increasing length-width ratio
Area with a 0.066 L/W ratio (May 2008 prices)

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<td>10,000,000</td>
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<tr>
<td></td>
<td>Total nr. 2, kiosks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Contingencies, 15% of points 1 and 2</td>
<td>sum</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total, unit 1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cost per person: 34,000

Area with a 0.44 L/W ratio (May 2008 prices)

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost, (MNT) VAT excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Pipework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Laying of Ø125mm HDPE pipes</td>
<td>m</td>
<td>755.00</td>
<td>36,375</td>
</tr>
<tr>
<td>1.2</td>
<td>Laying of Ø160mm HDPE pipes</td>
<td>m</td>
<td>755.00</td>
<td>49,268</td>
</tr>
<tr>
<td>1.3</td>
<td>Laying of Ø200mm HDPE pipes</td>
<td>m</td>
<td>300.00</td>
<td>68,210</td>
</tr>
<tr>
<td>1.5</td>
<td>Laying of Ø110mm HDPE pipes to kiosks</td>
<td>m</td>
<td>2400.00</td>
<td>31,948</td>
</tr>
<tr>
<td></td>
<td>Total nr. 1, pipework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Kiosks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Piped kiosks, new</td>
<td>nos</td>
<td>3.00</td>
<td>14,875,000</td>
</tr>
<tr>
<td>2.2</td>
<td>Conversion and rehabilitation of trucked to piped kiosks</td>
<td>nos</td>
<td>12.00</td>
<td>10,000,000</td>
</tr>
<tr>
<td></td>
<td>Total nr. 2, kiosks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Contingencies, 15% of points 1 and 2</td>
<td>sum</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total, unit 2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cost per person: 26,000
## Area with a 1.06 L/W ratio (May 2008 prices)

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Unit Total</th>
<th>Cost, (MNT) VAT excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pipework</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Laying of Ø110mm HDPE pipes</td>
<td>m</td>
<td>1510.00</td>
<td>31,948</td>
<td>48,242,179</td>
</tr>
<tr>
<td>1.2</td>
<td>Laying of Ø125mm HDPE pipes</td>
<td>m</td>
<td>600.00</td>
<td>36,375</td>
<td>21,825,203</td>
</tr>
<tr>
<td>1.4</td>
<td>Laying of Ø110mm HDPE pipes to kiosks</td>
<td>m</td>
<td>2400.00</td>
<td>31,948</td>
<td>76,676,311</td>
</tr>
<tr>
<td></td>
<td>Total nr. 1, pipework</td>
<td></td>
<td></td>
<td></td>
<td>146,743,694</td>
</tr>
<tr>
<td>2</td>
<td>Kiosks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Piped kiosks, new</td>
<td>nos</td>
<td>3.00</td>
<td>14,875,000</td>
<td>44,625,000</td>
</tr>
<tr>
<td>2.2</td>
<td>Conversion and rehabilitation of trucked to piped kiosks</td>
<td>nos</td>
<td>13.00</td>
<td>10,000,000</td>
<td>130,000,000</td>
</tr>
<tr>
<td></td>
<td>Total nr. 2, kiosks</td>
<td></td>
<td></td>
<td></td>
<td>174,625,000</td>
</tr>
<tr>
<td>3</td>
<td>Contingencies, 15% of points 1 and 2</td>
<td></td>
<td></td>
<td></td>
<td>48,205,304</td>
</tr>
<tr>
<td></td>
<td>Total, unit 3</td>
<td></td>
<td></td>
<td></td>
<td>369,573,998</td>
</tr>
<tr>
<td></td>
<td>Cost per person</td>
<td></td>
<td></td>
<td></td>
<td>24,000</td>
</tr>
</tbody>
</table>

## Conversion of a single block with 1000 persons and one kiosk (May 2008 prices)

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Unit Total</th>
<th>Cost, (MNT) Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pipework</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Laying of Ø110mm HDPE pipes</td>
<td>m</td>
<td>300.00</td>
<td>31,948</td>
<td>9,584,539</td>
</tr>
<tr>
<td>1.2</td>
<td>Laying of Ø110mm HDPE pipes to kiosks</td>
<td>m</td>
<td>25.00</td>
<td>31,948</td>
<td>798,712</td>
</tr>
<tr>
<td></td>
<td>Total nr. 1, pipework</td>
<td></td>
<td></td>
<td></td>
<td>10,383,251</td>
</tr>
<tr>
<td>2</td>
<td>Kiosks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Conversion and rehabilitation of trucked to piped kiosks</td>
<td>nos</td>
<td>1.00</td>
<td>10,000,000</td>
<td>10,000,000</td>
</tr>
<tr>
<td></td>
<td>Total nr. 2, kiosks</td>
<td></td>
<td></td>
<td></td>
<td>10,000,000</td>
</tr>
<tr>
<td>3</td>
<td>Contingencies, 15% of points 1 and 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total, single block</td>
<td></td>
<td></td>
<td></td>
<td>23,440,738</td>
</tr>
<tr>
<td></td>
<td>Cost per person</td>
<td></td>
<td></td>
<td></td>
<td>24,000</td>
</tr>
</tbody>
</table>
Annex B3: Bill of quantities for piped water supply designed for individual house connections in areas with increasing length-width ratio
Area with a 0.066 L/W ratio (May 2008 prices)

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost, (MNT) VAT excluded</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pipework</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Laying of Ø110mm HDPE pipes</td>
<td>m</td>
<td>1500.00</td>
<td>31,948</td>
<td>47,922,695</td>
</tr>
<tr>
<td>1.2</td>
<td>Laying of Ø125mm HDPE pipes</td>
<td>m</td>
<td>3020.00</td>
<td>36,375</td>
<td>109,853,521</td>
</tr>
<tr>
<td>1.3</td>
<td>Laying of Ø160mm HDPE pipes</td>
<td>m</td>
<td>3020.00</td>
<td>49,268</td>
<td>148,788,871</td>
</tr>
<tr>
<td>1.4</td>
<td>Laying of Ø200mm HDPE pipes</td>
<td>m</td>
<td>6040.00</td>
<td>68,210</td>
<td>411,986,667</td>
</tr>
<tr>
<td>1.5</td>
<td>Laying of Ø225mm HDPE pipes</td>
<td>m</td>
<td>6040.00</td>
<td>82,373</td>
<td>497,535,717</td>
</tr>
<tr>
<td>1.6</td>
<td>Laying of Ø250mm HDPE pipes</td>
<td>m</td>
<td>3020.00</td>
<td>95,422</td>
<td>288,173,196</td>
</tr>
<tr>
<td>1.7</td>
<td>Laying of Ø280mm HDPE pipes</td>
<td>m</td>
<td>2700.00</td>
<td>113,462</td>
<td>306,346,288</td>
</tr>
<tr>
<td>1.8</td>
<td>Nodeconnections, Ø110mm HDPE pipes</td>
<td>m</td>
<td>2400.00</td>
<td>31,948</td>
<td>76,676,311</td>
</tr>
<tr>
<td></td>
<td><strong>Total nr. 1, pipework</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>1,887,283,266</strong></td>
</tr>
<tr>
<td></td>
<td><strong>3 Contingencies, 15%</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>283,092,490</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total, unit 1</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>2,170,375,756</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Cost per person</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>136,000</strong></td>
</tr>
</tbody>
</table>

Area with a 0.44 L/W ratio (May 2008 prices)

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost, (MNT) VAT excluded</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pipework</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Laying of Ø110mm HDPE pipes</td>
<td>m</td>
<td>3750.00</td>
<td>31,948</td>
<td>119,806,737</td>
</tr>
<tr>
<td>1.2</td>
<td>Laying of Ø125mm HDPE pipes</td>
<td>m</td>
<td>7550.00</td>
<td>36,375</td>
<td>274,633,803</td>
</tr>
<tr>
<td>1.3</td>
<td>Laying of Ø160mm HDPE pipes</td>
<td>m</td>
<td>7550.00</td>
<td>49,268</td>
<td>371,972,178</td>
</tr>
<tr>
<td>1.4</td>
<td>Laying of Ø200mm HDPE pipes</td>
<td>m</td>
<td>5300.00</td>
<td>68,210</td>
<td>361,511,479</td>
</tr>
<tr>
<td>1.5</td>
<td>Nodeconnections, Ø110mm HDPE pipes</td>
<td>m</td>
<td>2850.00</td>
<td>31,948</td>
<td>91,053,120</td>
</tr>
<tr>
<td></td>
<td><strong>Total nr. 1, pipework</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>1,099,170,580</strong></td>
</tr>
<tr>
<td></td>
<td><strong>3 Contingencies, 15% of points 1 and 2</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>164,875,587</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total, unit 2</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>1,264,046,167</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Cost per person</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>85,000</strong></td>
</tr>
</tbody>
</table>
Area with a 1.06 L/W ratio (May 2008 prices)

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost, (MNT) VAT excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pipework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Laying of Ø110mm HDPE pipes</td>
<td>m</td>
<td>31,948</td>
<td>191,690,779</td>
</tr>
<tr>
<td>1.2</td>
<td>Laying of Ø125mm HDPE pipes</td>
<td>m</td>
<td>36,375</td>
<td>438,414,084</td>
</tr>
<tr>
<td>1.3</td>
<td>Laying of Ø160mm HDPE pipes</td>
<td>m</td>
<td>49,268</td>
<td>401,532,881</td>
</tr>
<tr>
<td>1.4</td>
<td>Nodeconnections, Ø110mm HDPE pipes</td>
<td>m</td>
<td>31,948</td>
<td>99,040,236</td>
</tr>
<tr>
<td></td>
<td><strong>Total nr. 1, pipework</strong></td>
<td></td>
<td></td>
<td><strong>1,131,677,979</strong></td>
</tr>
<tr>
<td>3</td>
<td>Contingencies, 15% of points 1 and 2</td>
<td>sum</td>
<td></td>
<td><strong>169,751,697</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total, unit 3</strong></td>
<td></td>
<td></td>
<td><strong>1,301,429,676</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Cost per person</strong></td>
<td></td>
<td></td>
<td><strong>82,000</strong></td>
</tr>
</tbody>
</table>
### Annex B4: Bill of quantities for household connection

May 2008 prices

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost, (MNT) VAT excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pipework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Laying of Ø25mm HDPE pipes</td>
<td>m</td>
<td>100.00</td>
<td>1,917,992</td>
</tr>
<tr>
<td></td>
<td>Total nr. 1, pipework</td>
<td></td>
<td></td>
<td>1,917,992</td>
</tr>
<tr>
<td>2</td>
<td>Connection to mainpipe</td>
<td>sum</td>
<td></td>
<td>247,500</td>
</tr>
<tr>
<td>3</td>
<td>Water meter</td>
<td>sum</td>
<td></td>
<td>115,500</td>
</tr>
</tbody>
</table>

**Total** 2,281,000
Introduction - Final Report Task C

The present report constitutes the final reporting for Task C Policies and regulations governing services to ger areas.

The report is structured as follows:

- **Section 1** - Review of national policy framework, which reviews existing national policies and regulations to determine whether there are any limitations to service provision and access/usage in ger areas under the arrangements proposed in Tasks A and B
- **Section 2** - Review of regulations and policies at utility level, which outlines pro-poor policies and regulations at utility level and suggests measures to enable USUG to increase access to services
- **Section 3** - Recommended improvements in policies and regulations to support project sustainability, which sums up the improvements in policies and regulations recommended to support project sustainability.
C1  Review of national policy framework

This section reviews existing national policies and regulations to determine whether there are any limitations to service provision and access/usage in ger areas, preventing effective implementation or limiting the realisation of the expected benefits under the arrangements proposed in Task A, alternative management arrangements for improved services in ger areas, and Task B, performance-based subsidies for improved services in ger areas.

C1.1 Overview of relevant regulation

The key legislative, regulatory and normative documents for the water sector have been translated and reviewed:

- Government Decree No. 17 on Measures on Implementation of the Law, 30 January 2003, and its attachment 1 “Methodology for pricing of services for supply with drinking water and disposal of sewage water”
- Draft Amendment to the Law on Utility of Water Supply and Sanitation Services in Urban Areas, 2008
- Law on Licensing of Commercial Utilities, 2003/4/5
- Government Decree #29 on Promotion of Private Investments in the Infrastructure Sector, 4 February 2004
- Ministry of Infrastructure Decree #39 on Some Measures to Promote Private Investment in the Infrastructure Sector, 1 March 2004
- Standard MNS 5775 - Drinking water distribution service in settlement area, general requirements, 2007
- Draft Law on BOT and Concessions, 2008

The table below highlights the key provisions from the regulations.
<table>
<thead>
<tr>
<th>Legislation</th>
<th>Date</th>
<th>Key provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law on Utilisation of Water Supply and Sewerage Systems of the Cities and</td>
<td>13 June 2002</td>
<td>Defines 'supplier' as a licensed legal entity for provision of services of water supply to consumers, and collection and disposal of sewerage. On determination of water tariffs:</td>
</tr>
<tr>
<td>Towns of Mongolia</td>
<td></td>
<td>14.1 The supplier shall set the price of extraction and distribution of drinking water and service fees of disposing sewerage water derived from water consumption based on procedures approved by Central Government Organizations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.2 The price and service fees shall be based on actual costs incurred by the supplier applying simple, clear and transparent principles.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.1.7 The supplier shall set fees for drinking water and service charges of disposal of sewerage water and reach agreement on these with the governors of the province, capital city and soums.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17.2 The Consumer Protection Organisation shall make public control on the prices of utilization of water supply and sewerage systems and drinking water, and on the basis of service fees of wastewater disposal.</td>
</tr>
<tr>
<td>Government Decree No. 17 on Measures on Implementation of the Law “Operation of Water Supply System and Sewage System in Urban Areas”</td>
<td>30 January 2003</td>
<td>Approves the “Methodology for pricing of services for supply with drinking water and disposal of sewage water” as per Attachment no. 1. Assign supplying organizations and enterprises to fix prices for supply of drinking water and disposal of sewage water in accordance with the methodology, approved by an Attachment 1 of this decree, and approve and follow based on agreement with concerned aimag, town and soum Governors. Attachment 1 &quot;Methodology for pricing of services for supply with drinking water and disposal of sewage water&quot; specifies that the license owner is to make calculations according to this methodology and fix his price based on actual costs of his activities for last three years and present and get approved his prices by relevant aimag, town or soum Governor. Furthermore, detailed principles for calculation of price of extraction and delivery of drinking water and fee for disposal of</td>
</tr>
</tbody>
</table>
sewage water are provided on a full-cost recovery basis.

<table>
<thead>
<tr>
<th>Draft Amendment to the Law on Utility of Water Supply and Sanitation Services in Urban Areas</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Established an independent regulatory body for the water sector (The committee for coordination of operation and services of centralized water supply and sewage systems) and changes the procedure for tariff approval under 9.1.7 to “to work out proposal on charge rate for use of drinking water, and disposal of sewage water and get it reviewed by Coordinating Committee and to follow”. (Clause 5)</td>
<td></td>
</tr>
</tbody>
</table>

The notes to the Draft Amendment explicitly state "(the present version of) this stipulation is commonly used for withholding accumulated service charges for no reason in rural areas. So an optimal mechanism is needed to fix charge rates for water supply and sewage disposal services. Experience from other countries shows that the issue of water supply to the population is fully included in responsibilities of a special body designated to work in this field, because these fields of services always affect the interests of customers".

Committee members are to be appointed by the Parliament Member responsible for water supply and sewage disposal issues in the urban area. The committee is to comprise representation of both governmental and non-governmental organizations. This committee is to implement such activities as creating an environment for fair and effective competition among citizens and enterprises of all types involved in production and services in the field of water supply and sewage water disposal, to issue special licenses, to fix services charge rates, to issue expertise conclusion, to control implementation of concerned legislation.

The Draft Amendment furthermore:

- Includes a new clause on ownership of constructions and networks which specifies that water supply and sewage constructions and networks can be in state or private ownership (Clause 13)

- Specifies that the supplier
  - may terminate supply in case of non-payment (Clause 11.2.7) or illegal connections (Clause 11.2.8)
  - has a right of access to areas owned by others along a protection zone of the customer’s network for checking of operation, repair and maintenance, and inspection (Clause 9.4)
- can refuse to make a contract for water supply and sewage disposal to non-commissioned residential buildings (Clause 9.5.)

- Underlines that tariff determination should take into account the need for sufficient coverage of depreciations by service charge rate (Clause 14.2.3).

<table>
<thead>
<tr>
<th>Law on Licensing of Commercial Utilities</th>
<th>2003/4/5</th>
<th>Individuals, for-profit legal entities and non-profit legal entities can obtain licenses (Clause 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>This means that a person does not have to be registered by the State Registration Agency to get a license.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Any kind of legal entity can construct, operate and maintain infrastructure for water supply and sanitation if they meet the requirements and have the technical expertise.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-profit legal persons (associations, foundations and cooperatives) may obtain licenses to undertake activities in compliance with the objective specified by their by-laws or charter if they fulfil the requirements and have the technical expertise to conduct such operations. This follows from Article 26 in the Civil Code and implies that NGOs/CBOs will need to stipulate the activities they will conduct (e.g. operation of water kiosks) in their charter or bylaws.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>USUG as a public organisation cannot obtain a license to sell goods or services not provided for in its bylaws (this follows from Article 13 of the 'Law on State Budgetary Organisations Management and Funding', which says that state budgetary organisations may sell their own products for additional income if the products are specified in their field of activities).</td>
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<td>The license shall contain the license holder's name, address and type of business activity (Clause 4).</td>
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<td>Licenses may not be transferred to others by means of selling, giving as a present or pledging except as specified by law (Clause 5).</td>
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</table>

| Government Decree #29 on promotion of private investments in infrastructure sector | 4 February 2004 | The Infrastructure Minister shall arrange, within the frame of relevant laws and regulations, measures for involvement of private investments in services for supply of customers in suburban areas and countryside population, who are not connected to centralized engineering networks, with electrical energy, water supply, communication network and public utilities through building of distribution kiosks either to rent to owners, or under contract on the conditions of disbursement of investments after |
a certain period, or on the conditions to offer charged services using network or building constructions.

<table>
<thead>
<tr>
<th>Ministry of Infrastructure Decree #39 on some measures to promote private investment in infrastructure sector</th>
<th>1 March 2004</th>
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</thead>
<tbody>
<tr>
<td>For the purpose of promoting private investment through construction of engineering networks and expansion and improvement of service to the customers:</td>
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</tr>
<tr>
<td>1. To arrange measures to involve private investments in installation of engineering constructions and buildings listed in Attachment No. 1 through renting of engineering constructions and buildings to private owners on the condition of taxation deductible from income, or disbursement after some period of operation, or on the condition of self-financing getting these engineering construction privatized offering service to residents of suburban areas and ger settlements.</td>
<td></td>
</tr>
<tr>
<td>2. To support all available private investments through selection of investors, making contracts with them on the clear condition for investment, maintaining services and sharing income, and, if necessary, obtaining a special license for operation and providing professional assistance for operation of engineering constructions and buildings listed in Attachment No. 1 of this Decree.</td>
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</tr>
<tr>
<td>3. To identify ger settlements, suburban areas and countryside not covered by centralized engineering networks but which need to be covered by engineering services and to define technical conditions and requirements jointly with local administrative bodies and to start from March 2004 announcing among investors.</td>
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</tr>
<tr>
<td>4. To approve and use “Procedures for investment for construction and operation of electrical, water supply, communication networks” as per Attachment No. 2.</td>
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</tbody>
</table>

Attachment No.1 includes:
- Delivery and distribution of drinking water
- Disposal of sewage water
- Operation of bath and swimming pool

Attachment No. 2 describes:
- Procedures for tendering of private investments in communal service sector
- Forms of operation of communal service centres and kiosks built under private investment
- Recovery of investment cost by private investor
- Rights and duties of local administration
- Rights and duties of private investor (under which 'to agree with local Governor's Office on prices and tariffs on communal
<table>
<thead>
<tr>
<th>Service Type</th>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking water distribution service in settlement area, General requirements, MNS 5775</td>
<td>2007</td>
<td>Provides detailed requirements for construction and operation of drinking water delivery points. Most parts are useful guidance on compliance with existing legislation and best practise. However, some parts are unduly restrictive or ambitious and are not followed in practise (e.g. 7.2. Water distribution kiosk should be surrounded by fence, green plants, and yard for stop of water delivery tanker should be smoothed for draining water from tanker in full.)</td>
</tr>
<tr>
<td>Draft Law on BOT and Concessions</td>
<td>2008</td>
<td>The draft concession law creates a general legal framework for entering concessions and BOT of state and local property not identified for privatization. This includes centralized water supply, sewerage and their networks (Clause 4.1.2) The law specifies ownerships of assets, decision processes, bidding procedures, general requirements for concession contract. Furthermore the law ensures: • Equal right of Mongolian or foreign juridical bodies (Clause 27) • Lack of up front requirements for Special Permit on economic activity (Clause 28) • Stability of legal framework (Clause 29) • Right to include inflation indexation in proposals (Clause 29)</td>
</tr>
</tbody>
</table>
| Government Decree No. 182 on Public Service Sector's Privatisation and Reformation Directive | 14 May 2008 | The decree has the objective of providing the legal framework for independent economic development of water supply, sanitation, public baths and solid waste discharge (Clause 2.1) The decree describes a staged process where: • the process should be open and fair and not jeopardize the basic service provision (Clause 3.1) • first public utilities will be reformed into State owned enterprises (Clause 3.2) • management and employees may receive up to 10% of the
C1.2 Specific policies and regulations which may limit the realisation of service improvements in ger areas

The specific policies and regulations which may limit the realisation of potential service improvements in ger areas in connection with implementation of the recommendations under Task A, Alternative management arrangements for improved services in ger areas, and Task B, Performance-based subsidies for improved services in ger areas have been identified as:

- **Inadequate regulatory provisions for tariff adjustment**

  The legislation calls for tariffs to be prepared on a full-cost recovery basis. This is clear in both the Law on Utilisation of Water Supply and Sewerage Systems of the Cities and Towns of Mongolia (2002) and the Methodology for pricing of services for supply with drinking water and disposal of sewage water, attachment no. 1 to Government Decree No. 17 (2003).

  However, at the same time, the legislation specifies that any tariff adjustment is subject to approval by aimag, town and soum governors.

  While this stipulation appears to have worked reasonably well in a number of provincial cities, the situation is different in Ulaanbaatar, where it has led to a decline in real water tariffs in central areas (high-rise buildings), as the stipulation is routinely used for withholding accumulated service charges for what appear to be political reasons rather than real affordability concerns. This is illustrated in the graph below, which shows the development in real tariffs in Ulaanbaatar.

<table>
<thead>
<tr>
<th>capital on preferential terms (Clause 3.3)</th>
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<tbody>
<tr>
<td>• privatisation will be allowed of up to 49% of the capital for utilities in the water sector (Clause 3.4)</td>
</tr>
<tr>
<td>• this may happen through an increase in capital to allow the utility to receive capital for renovation and new investments (Clause 3.5)</td>
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</tbody>
</table>

The timeframe stipulated for implementing the restructuring and privatisation of the public utility system is 2008-2012 (Clause 3.16)
• Extensive licensing requirements

There appear to be extensive licensing requirements for all types of business activities in Mongolia. This is in particular a challenge and a transaction cost for small private operators - whether individual or small and medium enterprises - and may deter potential private operators from bidding for small management contracts and concession arrangements.

• Prescriptive standards

The use of unduly restrictive or ambitious standards - as exemplified by some of the design requirements for water kiosks in 'Standard MNS 5775 (2007) Drinking water distribution service in settlement areas' - will limit the scope for innovative and cost-efficient solutions in the water sector.

C1.3 Recommended changes for the existing legislative and regulatory framework

The following specific changes for the existing legislative and regulatory framework are recommended to enhance project effectiveness and improve overall sector viability:

• Independent regulatory authority for the water sector

International best practice on tariff determination calls for tariffs to at least cover all operational costs of the utility, including adequate maintenance of the infrastructure. Tariff fixing should balance the financial viability of the utility, the social objectives of the utility and economic efficiency. Tariffs should be determined in accordance with clear contractual criteria to allow the utility or contractor to have a precise idea of the tariffs which can be perceived at any moment throughout the term of the agreement. Finally, there should be an automatic tariff revision procedure addressing inflation.
The present inability to secure USUG appropriate and timely real increases in the water tariffs is the key long-term concern for the sector, and will at present prevent the introduction of more advanced forms of public-private partnerships (PPP) around USUG's core activities.

A possible solution would be to seek inspiration from the model applied in the Mongolian heat and energy sector, where an independent regulatory authority (the Energy Regulatory Authority of Mongolia) has been able to secure less politicised tariff determination.

The 2008 Draft Amendment to the Law on Utility of Water Supply and Sanitation Services in Urban Areas proposes the establishment of an independent regulatory body for the water sector (The Committee for Coordination of Operation and Services of Centralized Water Supply and Sewage Systems) which among other things will be responsible for approving water tariffs.

The consultant is a strong supporter of the draft amendment, as it will create a good foundation for the long-term development of the water sector.

- **License requirement for operation - not for tendering**

The 2008 Draft Law on BOT and Concessions, Clause 28, 'Special permit on economic activity' has the provisions that "the fact that the body participating in bidding to obtain concession rights does not have a special permit to perform the named works, or to provide the named services, should not serve as a reason to reject him from bidding" and "if works to be performed, or services to be provided by the Concessionaire require a special permit, the authorized body should support in all sides to obtain such a permit within 60 days after he made concession contract with the Concessionaire".

This appears to be a pragmatic approach, which balances the need to maximise competition and transparency against the need for compliance with the administrative requirements.

- **List of allowable side activities for water kiosk operators**

Furthermore, private kiosk operators' incentives for taking on other business activities and services from the premises of the kiosk would benefit strongly from a positive list of allowable activities.

USUG is presently seeking to obtain such a positive list from the relevant authorities.
C2 Review of regulations and policies at utility level

This section outlines pro-poor policies and regulations at utility level and suggests measures to enable USUG to increase access to services.

The following policies and regulations in USUG have been discussed with the USUG management:

• selection of kiosks for private operator involvement
• application procedures for private kiosk attendants
• requirements to be fulfilled by applicants
• licensing requirements for private kiosk attendants
• remuneration model for private operators
• remuneration model for USUG staff
• remuneration model for truck drivers
• tariff setting procedures.

The table below identifies specific policies and regulations at utility level which may limit service provision to the poor in ger areas and specific changes recommended.

<table>
<thead>
<tr>
<th>Utility level policies and regulations</th>
<th>Key issues</th>
<th>Specific changes recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of kiosks for private operator involvement</td>
<td>Expansion of the pilot use of private operators seems to be held back by a combination of uncertainty about the legality of outsourcing kiosks registered as municipal property - traditional reliance on own employees - outsourcing not being an explicit success criteria.</td>
<td>Confirm legality of outsourcing of kiosk operation irrespective of origin of financing for individual kiosk. Formulate outsourcing as explicit success criteria in IDAMC. As a goal all new kiosks and kiosks with change in operator should be tendered for private operation.</td>
</tr>
<tr>
<td>Application procedures for private kiosk attendants</td>
<td>Application procedures are not formalised or transparent and private operator jobs are not widely publicised. This is may reduce interest in</td>
<td>Make company level procedures for contracting private operators in connection with</td>
</tr>
<tr>
<td>Requirements to be fulfilled by applicants</td>
<td>No specific educational requirements. Operators should fulfill health requirements and live in area.</td>
<td>Procedures appear reasonable.</td>
</tr>
<tr>
<td>Licensing requirements for private kiosk attendants</td>
<td>Licensing requirements appear only to be a problem in relation to taking on side business from water kiosks.</td>
<td>Establish positive list of allowable side activities (possibly differentiated between single room and double room kiosks). Provide assistance in obtaining relevant permits from authorities for activities on positive list.</td>
</tr>
<tr>
<td>Remuneration model for private operators</td>
<td>Private operators are remunerated based on revenue sharing from water sales which does create the sight incentives but makes operation of kiosks in less densely populated areas unattractive.</td>
<td>Introduce an availability payment or minimum revenue guarantee for private kiosk operators in less populated areas.</td>
</tr>
<tr>
<td>Remuneration model for USUG staff</td>
<td>Combined compensation package for USUG staff operators of kiosks is quite attractive compared to the private operators, resulting in limited incentives to shift from regular employment to being a private operator.</td>
<td>Only truly private operators should be allowed to conduct other businesses from the water kiosks. This will increase the incentives for shifting from staff to outsourced operator.</td>
</tr>
<tr>
<td>Remuneration model for truck drivers</td>
<td>Truck drivers are remunerated based on amount of water delivered but not compensated for waiting time at busy loading kiosks. Furthermore, they are required to carry the maintenance risk of the vehicles, which does promote careful driving but will be a problem with the purchase of new less durable vehicles.</td>
<td>Reconsider the remuneration model in terms of partial compensation for excessive waiting time at loading kiosks and adjustment of risk sharing level upon purchase of new trucks.</td>
</tr>
<tr>
<td>Tariff setting procedures</td>
<td>Although tariffs in ger areas have increased significantly in real terms in 2007, this happened on the back of several years of real decrease. The lack of predictability of tariffs is a barrier to large-scale conversion of USUG staff operated kiosks to privately operated kiosks.</td>
<td>The adoption of the draft amendment to the law on water supply is expected to improve the situation. If the draft amendment is not approved, an agreement between USUG and MUB on a regular inflation adjustment of tariffs would be helpful.</td>
</tr>
</tbody>
</table>
C3 Recommended improvements in policies and regulations to support project sustainability

To sum up, the following improvements in policies and regulations are recommended to support project sustainability:

- Parliamentary adoption of the 2008 Draft Amendment to the Law on Utility of Water Supply and Sanitation Services in Urban Areas
- Parliamentary adoption of the 2008 Draft Law on BOT and Concessions (not a prerequisite for the GPOBA project but useful for the sector)
- Reconsider the prescriptive elements in MNS 5775 - Drinking water distribution service in settlement areas
- Confirm legality of outsourcing of kiosk operation irrespective of origin of financing for individual kiosk
- Establishment of a positive list of additional services that private operators of water kiosks may offer within the frame of effective laws and regulations (possibly differentiated between single room and double room kiosks)
- Assistance in identifying need for and facilitating access to necessary permits from relevant authorities for additional services included in the positive list (only truly private operators should be allowed to conduct other businesses from the water kiosks)
- Formulate outsourcing as explicit success criteria in IDAMC (e.g. all new kiosks and kiosks with change in operator should be tendered for private operation)
- Make company level procedures for contracting private operators in connection with mainstreaming of the pilot
- Introduce an availability payment or minimum revenue guarantee for private kiosk operators in less populated areas
• Reconsider the remuneration model for truck drivers in terms of partial compensation for excessive waiting time at loading kiosks and adjustment of risk-sharing level upon purchase of new trucks.
PPIAF

Mongolia: Exploring Options for Management Contracting-out in Water Supply and Sanitation Services for Ger Areas in Ulaanbaatar

Final report - Task D - Next steps for private sector involvement in service improvements in ger areas

March 2009
Introduction - Final Report Task D

The present report constitutes the final reporting for Task D Next steps for private sector involvement in service improvements in ger areas.

The report is structured as follows:

- Section 1 - Detailed action plan, presents a draft action plan for the implementation of the recommended alternative management arrangements and performance-based subsidy scheme for improved kiosk and bathhouse services in ger areas
- Section 2 - Dissemination of findings, proposes a strategy for dissemination of the findings and recommendations of the study to key stakeholders in Ulaanbaatar and ensuring Government and USUG ownership of the recommendations.

Finally,

- Annex D1 contains presentations given during the workshop on 21 May 2008 with the USUG management and other key stakeholders to consult on the preliminary findings and recommendations
- Annex D2 contains the presentations given during the workshop on 16 March 2009 with the key stakeholders to present and discuss the draft final findings and recommendations.
D1  Detailed action plan

This section presents a draft action plan for the implementation of the recommended alternative management arrangements and performance-based subsidy scheme for improved kiosk, tanker and bathhouse services in ger areas.

The action plan is structured in the following way:

1  Private sector participation in water services in ger areas and internally delegated area management contracts in USUG

   1.1  Stakeholder feedback on draft term sheets for management contracts
   1.2  Drafting of performance-based management contract for USUG
   1.3  Drafting of internally delegated area management contract for USUG Departments of Piped/Trucked Water to Ger Areas
   1.4  Drafting of improved management contract for water kiosks
   1.5  Drafting of DBFO contract for bathhouses.

   This will require efforts by USUG and MUB.

   A realistic timeframe is the end of 2009. Activity 1.2 will, however, need to be coordinated with USUG's process under Government Decree No. 182 on 'Public Service Sector's Privatisation and Reformation Directive'.

2  GPOBA pilot for affordable water services in ger areas

   2.1  MUB confirmation of agreement with project scope for establishment of new bathhouses
   2.2  USUG confirmation of agreement with project scope for conversion of trucked kiosks to piped kiosks
   2.3  Final project scope and selection of areas and kiosks closely coordinated with USUG and USIP2
   2.4  Finalisation of GPOBA concept note and submission to GPOBA
   2.5  GPOBA confirmation of eligibility in principle and TA funding for project development and tendering
   2.6  Drafting output-based specifications for conversion of kiosks
   2.7  Drafting output-based specifications for bathhouses
   2.8  Finalise transaction structure
   2.9  GPOBA commitment paper
2.10 GPOBA grant approval  
2.11 Operating manual  
2.12 Finalising contractual documents  
2.13 Developing tendering documents  
2.14 Capacity building with contractors, operators and banks  
2.15 Access to partial risk guarantee facility  
2.16 Tendering.

This will require efforts by USUG, MUB and the World Bank/GPOBA.

A realistic timeframe is grant approval by early 2010.

3 Revisions of national regulations and policies  

3.1 Parliamentary adoption of the 2008 Draft Amendment to the Law on Utility of Water Supply and Sanitation Services in Urban Areas  
3.2 Parliamentary adoption of the 2008 Draft Law on BOT and Concessions (not a prerequisite for the GPOBA project but useful for the sector)  
3.3 Reconsider the prescriptive elements in MNS 5775 - Drinking water distribution service in settlement areas.

This will require efforts by the Government.

Assuming political willingness, a realistic timeframe would be the end of 2009.

4 Revisions of utility level regulations and policies  

4.1 Confirm legality of outsourcing of kiosk operation irrespective of origin of financing for individual kiosk  
4.2 Establishment of a positive list of additional services that private operators of water kiosks may offer  
4.3 Assistance in identifying need for and facilitating access to necessary permits from relevant authorities for additional services  
4.4 Formulate outsourcing as explicit success criteria  
4.5 Make company level procedures for contracting private kiosk operators  
4.6 Introduce an availability payment or minimum revenue guarantee for private kiosk operators in less populated areas  
4.7 Reconsider the remuneration model for truck drivers (not a prerequisite for the GPOBA project).

This will require efforts mainly by USUG.

It can therefore be completed prior to the end of 2009.

The expected distribution of the activities over time is shown in the table below.
### Detailed Action Plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>2009 Q2</th>
<th>2009 Q3</th>
<th>2009 Q4</th>
<th>2010 Q1</th>
<th>2010 Q2</th>
<th>2010 Q3</th>
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<tbody>
<tr>
<td>Stakeholder feedback on draft term sheets for management contracts</td>
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<td>Drafting of Performance Based Management Contract for USUG</td>
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<td>Drafting of Internally Delegated Area Management Contract for USUG</td>
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<td>Drafting of Improved Management Contract for Water Kiosk</td>
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<td>Drafting of DBFO Contract for Bathhouses</td>
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<td>GPOBA pilot for affordable water services in Ger areas</td>
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<td>MUB confirmation of agreement with project scope for establishment of new bathhouses</td>
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<td>USUG confirmation of agreement with project scope for conversion of trucked kiosks to piped kiosks</td>
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<td>Final project scope and selection of areas and kiosks closely coordinated with USUG and USIP2</td>
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<td>Finalization of GPOBA concept note and submission to GPOBA</td>
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<td>GPOBA confirmation of eligibility in principle and TA funding for project development and tendering</td>
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<td>Drafting output based specifications for conversion of kiosks</td>
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<td>Drafting output based specifications for bathhouses</td>
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<td>Finalize transaction structure</td>
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<td>GPOBA Commitment Paper</td>
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<td>GPOBA grant approval</td>
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<td>Operating Manual</td>
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<td>Finalizing contractual documents</td>
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<td>Developing tendering documents</td>
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<td>Capacity building with contractors, operators and banks</td>
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<td>Access to partial risk guarantee facility</td>
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<td>Tendering</td>
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<td><strong>Revisions of national regulations and policies</strong></td>
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<tr>
<td>Parliamentary adoption of the 2008 Draft Amendment to the Law on utility of water supply and sanitation services in urban area</td>
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<td>Reconsider the prescriptive elements in MNS 5775 - Drinking water distribution service in settlement area</td>
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<td>Establishment of a positive list of additional services that private operators of water kiosks may offer</td>
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<td>Assistance in identifying need for and facilitating access to necessary permits from relevant authorities for additional services</td>
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<td>Formulate outsourcing as explicit success criteria</td>
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<td>Introduce an availability payment or minimum revenue guarantee for private kiosk operators in less populated areas</td>
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<td>Reconsider the remuneration model for truck drivers (not a prerequisite for the GPOBA project)</td>
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D2 Dissemination of findings

This section proposes a strategy for dissemination of the findings and recommendations of the study to key stakeholders in Ulaanbaatar and ensuring Government and USUG ownership of the recommendations.

On the 21 May 2008, a workshop was held with the USUG management and other key stakeholders to consult on the preliminary findings and recommendations. The minutes and presentations from the workshop are attached as annex D1.

A second workshop to disseminate the draft final findings and recommendations was held on 16 March 2009. The minutes and presentations from this dissemination workshop are attached as annex D2.
Annex D1 - Workshop on 21 May 2008 with the USUG management and other key stakeholders to consult on the preliminary findings and recommendations
PPIAF - Mongolia
Exploring Options for Management Contracting-out in Water Supply and Sanitation Services for Ger areas in Ulaanbaatar
1. The present water supply and sanitation situation in the ger areas
2. The economics of water supply in the ger areas
3. Options for service improvement and cost reduction
   a. Connection of existing tanker served kiosks to piped system
   b. Increased use of private kiosk operators
   c. Independent regulatory authority for water sector
   d. Enhanced performance-based contracts
4. Possible scope for a GPOBA financed project

Discussion
1. The present water supply situation in the ger areas

Findings on the current situation are based on:

1) Study report on the current provision of public utility services of the ger areas in Ulaanbaatar (2006), surveying 1,000 households in 14 khorooos

2) Consultant interviews with 35 kiosk operators, 10 bathhouses and 5 drivers

3) USUG data on existing water supply situation in Ger areas (March 2008)

4) Meetings with USUG and other key stakeholders
1. The present water supply situation in the ger areas

Distribution of kiosks incl. USIP 2

- 556 water kiosks in ger areas in UB, of which 458 (82%) are USUG kiosks versus 98 private kiosks
- 297 (65%) of USUG kiosks are trucked versus 35% that are piped
- Around 1/3 of USUG kiosks (138) are located in USIP 2 areas (Bayankhoshuu, Chingeltei, Dambardarjaa, Naran, Uliastai, Dari-Ekh) versus 41 private kiosks
- 96% of USIP 2 areas are served by trucked kiosks
1. The present water supply situation in the ger areas

Service coverage in USIP 2 areas

- 76% of households rely on *trucked* USUG kiosks to get water

- On average, the coverage is around 950 residents/USUG kiosk, assuming that residents use both USUG and private kiosks. The lowest number of persons served per kiosk is in Dari-Ekh, the highest in Dambardarjaa

- The distance to the nearest kiosk is around 350m, taking around 30mn. However, this depended on the season
1. The present water supply situation in the ger areas

Quality of services in USIP 2 ger areas

- Quality of water
  - 82% of households say that USUG water complies with health and sanitary requirement
  - 25% of interviewed kiosks received complaints about water quality. These were mainly trucked kiosks

- Opening hours:
  - In the best case, 97% of households say that kiosks follow the schedule. In the worse case, 66%.
  - 88% say the USUG schedule is suitable. Dissatisfaction relates to full day closure on Monday and lunch closures

- PO operated USUG kiosks (31 POs today) seem to have better opening hours than USUG staff run kiosks
1. The present water supply situation in the ger areas

Water consumption in USIP 2 ger areas

- Around 9 litres per person versus the recommended 20 litres per day
- Per capital consumption of water is not determined by household income levels. Around half of households from all three income brackets consume between 5 to 10 litres per day.
- Around half of households consume between 5-10 litres per day, regardless of whether they pay the USUG fee or double that fee.
1. The present water supply situation in the ger areas

Bathhouses in ger areas & USIP 2

- There is a total of 64 bathhouses in all UB ger areas
- 25 are located in USIP 2 ger areas, mainly Bayankhoshuu
- Coverage of bathhouses is around 5,000 residents per bathhouse in USIP 2 areas
- According to the survey, bathhouses were ranked as 2nd priority (out of 6) by 21% of ger households in USIP 2 areas
1. The present water supply situation in the ger areas

**Priority ranking by ger area households (% of households)**

- Flood protection dams: 6.5%
- Poor conditions of sidewalk & road: 12.9%
- Provision of sanitation: 14.6%
- Supply of drinking water: 16.3%
- Public bathhouses: 21.4%
- Solid waste: 28.2%

**Bathhouse services in USIP 2**

- The average distance to the nearest bathhouse is 1,820 meters
- 38% of households rely on relatives in apartment area, 30% on bathhouses
- However, the use of bathhouses seem to increase with the size of the household, while the use of relatives' apartment decreases
- The use of bathhouses partly depends on household income levels. However, the frequency of using a bathhouse does not rely on household income
1. The present sanitation situation in the ger areas

**Existing sanitation**
Today almost all sanitation in Ger areas is on-site sanitation with simple pit latrines

Many households have further dug simple soak pits for grey water

**Proposed future sanitation**
The water consumption in the Ger areas is too low to support a sewerage system. Pit latrines will, therefore, also be the prevalent sanitation system in the future. It could be considered to make an improved standard design.
## 2. The economics of water supply in the ger areas

### The cost of water supply in 2007

<table>
<thead>
<tr>
<th></th>
<th>Total cost</th>
<th>Cash cost</th>
<th>Average tariff</th>
<th>Cash margin</th>
<th>Volume (mill.)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3.28</td>
<td>2.80</td>
<td>0.64</td>
<td>-2.16</td>
<td>0.74</td>
</tr>
<tr>
<td>Piped water to Ger areas</td>
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<td>2.52</td>
<td>0.78</td>
<td>-1.74</td>
<td>0.42</td>
</tr>
<tr>
<td>Central areas</td>
<td>0.28</td>
<td>0.17</td>
<td>0.20</td>
<td>0.03</td>
<td>41.7</td>
</tr>
<tr>
<td>Total USUG (incl. WWT)</td>
<td>0.40</td>
<td>0.24</td>
<td>0.34</td>
<td>0.10</td>
<td>42.8</td>
</tr>
</tbody>
</table>
## 2. The economics of water supply in the ger areas

### Cost structure 2007

<table>
<thead>
<tr>
<th></th>
<th>Trucked water supply to ger area</th>
<th>Piped water supply to ger areas</th>
<th>Central system</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staff expenses</strong></td>
<td>1.39</td>
<td>1.70</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>Material costs (mainly fuel)</strong></td>
<td>1.13</td>
<td>0.25</td>
<td>0.01</td>
</tr>
<tr>
<td>Operations costs</td>
<td>0.06</td>
<td>0.34</td>
<td>0.09</td>
</tr>
<tr>
<td>Maintenance costs</td>
<td>0.14</td>
<td>0.11</td>
<td>0.01</td>
</tr>
<tr>
<td>Office costs</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Safety</td>
<td>0.02</td>
<td>0.04</td>
<td>0.00</td>
</tr>
<tr>
<td>Lab expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Other expenses</td>
<td>0.04</td>
<td>0.06</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total cash costs</strong></td>
<td>2.80</td>
<td>2.51</td>
<td>0.17</td>
</tr>
<tr>
<td><strong>Average unit price</strong></td>
<td>0.64</td>
<td>0.78</td>
<td>0.20</td>
</tr>
<tr>
<td><strong>Margin</strong></td>
<td>(2.16)</td>
<td>(1.74)</td>
<td>0.03</td>
</tr>
</tbody>
</table>
2. The economics of water supply in the ger areas

Water kiosks operating costs

<table>
<thead>
<tr>
<th>Unit</th>
<th>Operated by USUG employee</th>
<th>Privately operated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trucked</td>
<td>Piped</td>
</tr>
<tr>
<td>Kiosk attendant</td>
<td>230,000</td>
<td>230,000</td>
</tr>
<tr>
<td>Fuel</td>
<td>1,013</td>
<td>51</td>
</tr>
<tr>
<td>Truck driver</td>
<td>250</td>
<td>0</td>
</tr>
<tr>
<td>Other costs</td>
<td>402</td>
<td>757</td>
</tr>
<tr>
<td><strong>Total operating cost</strong></td>
<td><strong>500,000</strong></td>
<td><strong>361,000</strong></td>
</tr>
</tbody>
</table>

- Operating costs of piped kiosks are estimated to be 140,000 MNT less than trucked kiosks per month.
- Privately operated kiosks are an additional 120,000 MNT cheaper to operate per month.
3. Options for service improvement and cost reduction

**Technical options**

- *Service extension to presently unserved areas*
- *Increased kiosk density in served areas*
- Connection of existing tanker served kiosks to piped system
- *Individual consumer connections in piped areas*
- *Introduction of prepaid meters in kiosks in piped areas*

**Organizational options**

- Increased use of private operators
- *Privatization of operation and maintenance of truck fleet*

**Contractual options**

- Independent regulatory authority for water sector
- Enhanced performance-based contracts
3. Options - Connection of existing tanker served kiosks to piped system

Advantages

- **Improved water quality**
  Trucked water supply increases risk of contamination

- **Improved supply regularity**
  The trucked kiosks have problems with tank being empty before the truck arrives and difficult access during winter resulting in customers being turned away

- **Reduced operational costs**
  Trucked water supply is expensive due to high fuel costs and part reliance on piped network
3. Options - Connection of existing tanker served kiosks to piped system

Challenges

- **Redundant mechanics and drivers**
  Large scale conversions of trucked kiosks will make truck drivers and mechanics employed by the trucked water department redundant
  
  Some may be transferred to new Ger areas, some will leave due to natural attrition

- **Technical challenges**
  May require booster pumping
  May require long and expensive transmission main partly across private land
3. Options -
Increased use of private operators

Advantages

- **Positive experience**
  
  USUG has mainly positive experience with the pilot introduction of private operators in 31 kiosks since 2006

- **Significant operational saving**
  
  Privately operated kiosks have a operating cost of about 33% less than the USUG operated kiosks

- **Increased customer responsiveness**
  
  Privately operated kiosks can adapt opening hours to customer demand

- **Synergies with other services**
  
  Several private operators have engaged in or plan to provide additional business services to the Ger community

- **Converted kiosks may enhance opportunities for such other services**
  
  There is an obvious option when a truck operated kiosk is transferred to a piped kiosk, as the trucked kiosk is much larger than the piped kiosk
3. Options - Increased use of private operators

Challenges

• **Not all kiosks are viable for POs**

  More remote kiosks are not viable for the private operators as income from the revenue sharing arrangement is insufficient to sustain a living

• **Limits to allowable other activities**

  The opportunity for creating synergy with other SME activity seems to represent a key incentive for some of the private operators to undertake water service provision, but this opportunity may be limited by state inspectors for hygiene concerns

• **Labour concerns**

  Larger scale conversion of USUG operated kiosks to private operation would make USUG kiosk attendants redundant

• **Uncertainty about legal basis**

  Parts of the management are uncertain about the legal implications of the law on utilization of state and municipal property and the use of private operators has therefore focussed on grant financed kiosks being turned over USUG
3. Options - Independent regulatory authority for water sector

- The legislation calls for tariffs to be prepared on a full cost recovery basis


Methodology for pricing of services for supply with drinking water and disposal of sewage water, attachment no. 1 to Government Decree No. 17 (2003)

...subject to approval by aimag, town and soum Governors

- In Ulaanbaatar this has led to a decline in real water tariffs in central areas

![Graph showing water supply tariffs for households](image)
3. Options - Independent regulatory authority for water sector

- **International best practice on tariff determination**

  Tariffs should at least cover all operational costs of the utility, including adequate maintenance of the infrastructure.

  Tariff fixing should balance the financial viability of the utility, the social objectives of the utility and economic efficiency.

  Tariffs should be determined in accordance with clear contractual criteria to allow the utility or Contractor to have a precise idea of the tariffs which can be perceived at any moment throughout the term of the agreement.

  There should be an automatic tariffs revision procedure addressing inflation.

- **A possible solution would be to seek inspiration from the model applied in the Mongolian Heat and Energy sector**
3. Options - Enhanced performance-based contracts

- **MUB**
  - Mayor
    - Performance Contract
  - Capital Property Department
    - Management of Assets Contract
  - Water Supply and Sewerage Authority - USUG
    - Planning, Finance and Economics Department
    - Management of Assets Contracts
    - Trucked Water to Ger Areas Department
    - Piped Water to Ger Areas Department

- **Private Bathhouse Operators**
  - Private Kiosk Operators
  - Management Contracts

- **Department**
  - Water Supply and Sewerage Authority - USUG

- **Planning, Finance and Economics Department**
  - Management of Assets Contracts

- **Trucked Water to Ger Areas Department**

- **Piped Water to Ger Areas Department**

- **Private Kiosk Operators**

- **Management Contracts**
3. Options - Enhanced performance-based contracts

*International best practise on content:*

1. **Scope**
   - Definition of clear contractual objectives and responsibilities
   - Service area
   - Duration of agreement (with renegotiation mechanism)
   - Conditions for early termination

2. **Performance indicators, such as**
   - Financial performance (profitability, collection efficiency etc.)
   - Efficiency of operations (number of staff, UAW, consumer complaints etc.)
   - Operating performance (population served, water consumption, opening hours, water quality etc.)

3. **Tariffs and contracting authorities' financial obligations**
   - Tariff setting
   - Cross-subsidy mechanism
   - Tariff adjustment
   - Financial obligations (investment obligations)

4. **Financial penalties, bonuses and incentives**

5. **Monitoring**

6. **Contract enforcement/conflict resolution mechanisms**

7. **Allocation of risks**
4. Possible scope for a GPOBA financed project

What is Output Based Aid?

- Output-Based Aid (OBA) is a strategy for explicit performance based subsidies for delivery of basic services (e.g. connection to piped water supply, sanitation, electricity)

- **Explicit** - because it is explicitly recognised **why** the subsidy is provided, **who** is receiving the subsidy, **what** is being subsidized and with **how much**.

- **Performance based** - because the payment of the subsidy is directly linked to the **output** (the establishment of supply for eligible households) rather than the input
Who are the GPOBA?

- The Global Partnership on Output-Based Aid (GPOBA) is a multi-donor trust fund administered by the World Bank.
- The purpose of GPOBA is to fund, demonstrate and document OBA approaches to support the sustainable delivery of basic services in developing countries.
- The sectors covered are water and sanitation, energy, telecommunications, transport, health and education.
- GPOBA have previously provided funding for a rural telecommunication project in Mongolia.
- Further information is available on www.gpoba.org.
4. Possible scope for a GPOBA financed project

A GPOBA project could be based on

- Grant support for rehabilitation and connection of trucked kiosks to an piped network to provide improved water supply services in selected Ger areas identified for comprehensive upgrading

- The areas should be selected to have synergies with USIP II investments without replicating them

- Financial viability should be secured through extensive use of Private Operator contracts and allowing the Private Operators to have other income

- This could be combined with a gradual move towards cost recovering tariffs, possibly supported by a transitional operational subsidy in the GPOBA project area during the tariff adjustment period
Discussion

- Have we understood the present situation correctly?
- Are our priorities right?
- Are the identified options correct in principle?
- Are they implementable in practice?
- Are there things we have overlooked?
Annex D2 - Workshop on 16 March 2009 with the key stakeholders to present and discuss the draft final findings and recommendations
PPIAF - Mongolia
Exploring Options for Management Contracting-out in Water Supply and Sanitation Services for Ger Areas in Ulaanbaatar

Final Workshop - Presentation and Discussion of Findings and Recommendations

Monday 16 March 2009
1. Introduction, by Mr. Taku Kamata of the World Bank

2. Presentation of the findings and recommendation of the study, by Carsten Glenting of COWI
   - Alternative management arrangements for improved services in Ger areas
   - Performance based subsidies for improved services in Ger areas
   - Policies and regulations governing services to Ger areas
   - Recommended next steps for private sector involvement in water supply and sanitation services for Ger areas

3. Discussion of the findings and recommendations of the study

4. Lunch
Objective of the study

The overall objective of the study is:

- to examine options for using performance-based subsidies approaches to increase access to services for the peri-urban poor
- to explore options for mobilizing the private sector for construction and operation of communal water services in the peri-urban areas
- to propose a regulatory framework to govern these services

It is not a technical study - and it will not provide new technical solutions to the challenges of water and sanitation in Ger areas

The study will provide:

- recommendations on performance based subsidies and private sector participation as a way to improved kiosk, tanker and bathhouse services in Ger areas
- a GPOBA pilot for affordable water services in Ger areas based on the recommendations
Process of the study

• Data collection (March-May 2008):
  – site visits
  – interviews with stakeholders (USUG, USIP2, MUB, public and private kiosk and bathhouse operators, truck drivers, customers, contractors, NGOs, and banks)
  – review of regulation, accounts, unit costs
• Workshop to consult on preliminary findings and recommendations (21 May 2008)
• Draft reports circulated to key stakeholders (July 2008 English language, November 2008 Mongolian language)
• Workshop to present the draft final findings and recommendations (16 March 2009)
• Final report circulated to key stakeholders
Alternative management arrangements for improved services in Ger areas

- Service provision to Ger areas face significant technical and economic challenges that can not easily be overcome
  - Logistics and climate present significant technical challenges for improved services
  - Piped kiosks are much more expensive to operate than piped household connections (staff costs)
  - Trucked kiosks are much more expensive to operate than piped kiosks (fuel and additional staff costs)
- In the long term individual household connections to water and sewerage networks is the right solution in all but the most remote areas
- In the short to medium term Ger areas classified for comprehensive or minimal upgrading (rather than redevelopment) will continue to rely mainly on kiosks and onsite sanitation
### Alternative management arrangements

#### High cost of water supply to Ger areas

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2007 MNT/L

### 2007 MNT/L
Alternative management arrangements
Experience with private kiosk operations

- Experience with private operation of a limited number of USUG kiosks has been positive
  - The operation costs is lower
  - The customer responsiveness is higher
  - Examples of additional employment creation through synergies with other small scale business
- The success has however not led to any larger scale adoption of the concept
- There is uncertainty about which additional services kiosk operators may offer
Alternative management arrangements
Existing contractual framework
Alternative management arrangements

Decline in real water tariffs in central areas

- The legislation calls for tariffs to be prepared on a full cost recovery basis.


Methodology for pricing of services for supply with drinking water and disposal of sewage water, attachment no. 1 to Government Decree No. 17 (2003)

...subject to approval by aimag, town and soum Governors

- In Ulaanbaatar this has led to a decline in real water tariffs in central areas.
Alternative management arrangements
Recommended options

The following options are recommended for implementation:

- Connection of existing tanker served kiosks to piped system
- Increased outsourcing of kiosk operation
- Independent regulatory authority for water sector
- Improved contractual framework:
  - Performance-based Management Contract between the Municipality of Ulaanbaatar and USUG
  - Internally Delegated Area Management Contract for Piped/Trucked Water to Ger Areas Departments
  - Increased risk transfer to private kiosk operators under an improved Management Contract for Water Kiosk
  - Increased risk transfer to private bathhouse operators under a DBFO Contract for Bathhouses
Connection of existing tanker served kiosks to piped system

Advantages
- Improved water quality
- Improved supply regularity
- Reduced operational costs
- Reduced need for future tariff increases

Challenges
- Redundant mechanics and drivers
- Need to invest in booster pumps and main extension
Increased use of private operators

Advantages
- Positive experience
- Significant operational saving
- Increased customer responsiveness
- Synergies with other services

Challenges
- Not all kiosks are viable for POs
- Limits to allowable other activities
- Labour concerns
- Uncertainty about legal basis
Independent regulatory authority for water sector

Advantages

- Positive experience from electricity sector
- Consistent with international best practise
- Will provide USUG with more financial stability

Challenges

- Is apparently very political in spite of lack of obvious affordability concerns

<table>
<thead>
<tr>
<th></th>
<th>Ger area</th>
<th>Central area (individual meters)</th>
<th>Central area (no meters)</th>
<th>Central area (block meter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual cost of water as percentage of income</td>
<td>1,0%</td>
<td>0,8%</td>
<td>2,0%</td>
<td>2,8%</td>
</tr>
<tr>
<td>Present water consumption in lpcd</td>
<td>7</td>
<td>87</td>
<td>230</td>
<td>320</td>
</tr>
<tr>
<td>Cost of water as a pct. of income if everyone consumed 87 lpcd</td>
<td>12,0%</td>
<td>0,8%</td>
<td>0,8%</td>
<td>0,8%</td>
</tr>
</tbody>
</table>
**Improved contractual framework**

- An improved performance-based Management Contract between the Municipality of Ulaanbaatar and USUG:
  - delegating management autonomy to USUG management for key operations and investments managed by USUG on behalf of MUB
  - with explicit performance indicators
  - Supported by a bonus/penalty system

- An Internally Delegated Area Management Contract:
  - delegating management autonomy to USUG Department for Piped/Trucked Water to Ger Areas for key operations managed by the department on behalf of USUG, e.g. the right to subcontract management of individual kiosks
  - with explicit performance indicators
  - supported by a bonus/penalty system
Improved contractual framework

- An improved Management Contract for Water Kiosks:
  - where the supplier (USUG) transfers the management responsibility for a USUG water kiosk to the seller (Private Operator) for a specified period of time
  - with a minimum income guarantee in less dense areas
  - and a positive list of allowable non-water services

- A DBFO Contract for Bathhouses:
  - where the contractor will Design, Build, Finance and Operate one or several bathhouses with public toilet facilities for up to 10 years after which they are returned to the Capital Property Department of the Municipality of Ulaanbaatar
Performance based subsidies
OBA and GPOBA

- **Output-Based Aid (OBA)** is a strategy for explicit performance based subsidies for delivery of basic services (e.g. connection to piped water supply, sanitation, electricity)
  - Explicit - because it is explicitly recognised why the subsidy is provided, who is receiving the subsidy, what is being subsidized and with how much.
  - Performance based - because the payment of the subsidy is directly linked to the output (the establishment of supply for eligible households) rather than the input

- **The Global Partnership on Output-Based Aid (GPOBA)** is a multi-donor trust fund administered by the World Bank
  - The purpose of GPOBA is to fund, demonstrate and document OBA approaches to support the sustainable delivery of basic services in developing countries
  - GPOBA have previously provided funding for a rural telecommunication project in Mongolia
Performance based subsidies
Why are subsidies relevant in the Ger areas?

• The unit costs are of service extension in Ulaanbaatar's Ger areas are high:
  – 25,000 USD unit cost for conversion and connection of a trucked kiosk to the piped network
  – 60,000 USD unit cost for construction of a new public bathhouse with public toilets
  – 2,000 USD for an individual household connection to an existing main pipe

• Service extension to the underserved Ger areas is not viable for USUG without an investment grant

• Assuming that no additional investments in extending the piped network are required a grant rate of 80% would be required for a conversion from trucked to piped kiosks to be financially sustainable (FIRR of 15% and a payback period of 6 years)
### Performance based subsidies

**Proposed scope of a GPOBA project**

<table>
<thead>
<tr>
<th>Project component</th>
<th>Performance based subsidies for conversion of trucked to piped kiosks</th>
<th>Performance based subsidies for establishing new public bathhouses with public toilets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Why is the subsidy provided?</strong></td>
<td>To co-fund connection of [50] presently trucked water kiosks to the piped system thereby improving supply regularity and water quality as well as reducing operational losses.</td>
<td>To co-fund establishment of [20] new privately operated bathhouses with public toilets thereby improving access to sanitary facilities</td>
</tr>
<tr>
<td><strong>Who is receiving the subsidy?</strong></td>
<td>USUG, who will in turn tender the works on a DB basis in cooperation with the USIP 2 project</td>
<td>Private contractors working under DBFO contract with the Capital Property Department of the Municipality of Ulaanbaatar</td>
</tr>
<tr>
<td><strong>How are the poor being targeted</strong></td>
<td>Geographical targeting and self-selection based targeting</td>
<td>Geographical targeting and self-selection based targeting</td>
</tr>
<tr>
<td><strong>What is being subsidized?</strong></td>
<td>Direct investment costs related to conversion and connection of trucked kiosks to the piped network</td>
<td>Investment costs related to the establishment of new public bathhouses with public toilets</td>
</tr>
</tbody>
</table>
Performance based subsidies
Proposed scope of a GPOBA project

<table>
<thead>
<tr>
<th>Strategy component</th>
<th>Performance based subsidies for conversion of trucked to piped kiosks</th>
<th>Performance based subsidies for establishing new public bathhouses with public toilets</th>
</tr>
</thead>
<tbody>
<tr>
<td>How is the size of the subsidy determined?</td>
<td>Investment subsidy to be determined as level which provides USUG with a reasonable return on their co-funding.</td>
<td>Investment subsidy to be bid by private operator during tender (bid criteria will be lowest subsidy required)</td>
</tr>
<tr>
<td>How is the payment of the subsidy being linked to the output of the project</td>
<td>Subsidy to USUG will be an output based investment subsidy, which will be disbursed as follows: 70-90% upon commissioning of piped kiosks; 10-30% remaining payment after one year of successful USUG operation of the piped kiosks</td>
<td>Subsidy to private contractor will be an output based investment subsidy, which will be disbursed as follows: 15% advance against bank guarantee upon contract signature; 75% main payment and release of bank guarantee upon commissioning; 10% remaining payment after one year of successful operation</td>
</tr>
<tr>
<td>Linked initiatives</td>
<td>Increased use of private kiosk operators</td>
<td>Capacity building among operators and banks</td>
</tr>
</tbody>
</table>
Performance based subsidies
Barriers to private sector participation

Interviews with contractors, NGOs/CBOs and banks showed:

- Perception that water and sanitation services is not profitable
- Private contractors are interested in building kiosks or bathhouses but not in managing them
- Local NGOs and CBOs have limited organisational and management capacity and cannot borrow money to finance an OBA scheme
- Uncertainties about workability of consortium composed of a contractor and civil society organisation / private individual operator
- Banks do not have experience with lending money to NGOs/CBOs or to consortium
- Banks will still require collateral for cash flow based loans and demand fulfilment with standard banks requirements
Performance based subsidies
Proposed strategy for alleviating barriers

• Split procurement for water kiosks in two separate tenders:
  – a DB contract to be tendered among reputable contractors with previous experience in the sector
  – a O&M contract to be awarded on a competitive but simple basis to private individuals in the ger areas

• Test the market for DBFO in bathhouses through:
  – tendering a number of new bathhouses on DBFO basis to consortia of contractors and operators (individuals, NGOs/CBOs or companies)

• Support this by capacity building at contractors and potential operators (on legal and contractual issues, business planning, and applying for investment loans)

• In parallel provide capacity building with local banks (on lending to consortia, lending on a limited recourse basis)

• Consider providing a partial risk guarantee scheme to reduce the banks perception of the project risk
Performance based subsidies
Proposed flow of funds for GPOBA project

Contractual Arrangements and Funds Flow
OBA WS&S in Ger Areas of Ulaanbaatar

- **MUB**
  - Performance Contract
  - MUB Contract

- **USUG**
  - Dept. for trucked/piped water
  - USUG Contract

- **USIP2**
  - DB Contract

- **Private Bathhouse Operator**
  - Independent Monitoring and Verification Agent

- **Private Kiosk Operator**
  - Private Contractor

- **DBFO Contract**

- **GPOBA**
  - Grant Agreement
  - Escrow account

- **IDAMC**
  - Management Contract

- **Private Bathhouse Operator**
  - DB Contract

- **Private Contractor**
  - DB Contract

- **Private Kiosk Operator**
  - DB Contract

- **DBFO Contract**

Contracts
Control
Funds
## Policies and regulations governing services

### National policy framework

<table>
<thead>
<tr>
<th>Issue identified in national policy framework</th>
<th>Specific changes recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate regulatory provisions for tariff adjustment</td>
<td>Parliamentary adoption of the 2008 Draft Amendment to the Law on utility of water supply and sanitation services in urban area</td>
</tr>
<tr>
<td>Extensive licensing requirements</td>
<td>Parliamentary adoption of the 2008 Draft Law on BOT and Concessions</td>
</tr>
<tr>
<td>Prescriptive standards may limit innovation</td>
<td>Reconsider the prescriptive elements in MNS 5775 - Drinking water distribution service in settlement area</td>
</tr>
<tr>
<td>Uncertainty about the legality of outsourcing kiosks registered as municipal property</td>
<td>Confirm legality of outsourcing of kiosk operation irrespective of origin of financing for individual kiosk</td>
</tr>
</tbody>
</table>
## Policies and regulations governing services

### USUG policies and regulation - 1

<table>
<thead>
<tr>
<th>Utility level policies and regulations</th>
<th>Specific changes recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of kiosks for private operator involvement</td>
<td>Formulate outsourcing as explicit success criteria in IDAMC.</td>
</tr>
<tr>
<td></td>
<td>Set as a goal that all new kiosks and kiosks with change in operator should be tendered for private operation.</td>
</tr>
<tr>
<td>Application procedures for private kiosk attendants</td>
<td>Make company level procedures for contracting private operators in connection with mainstreaming of the pilot.</td>
</tr>
<tr>
<td>Requirements to be fulfilled by applicants</td>
<td>Procedures appear reasonable.</td>
</tr>
<tr>
<td>Licensing requirements for private kiosk attendants</td>
<td>Establish positive list of allowable side activities (possibly differentiated between single room and double room kiosks).</td>
</tr>
<tr>
<td></td>
<td>Provide assistance in obtaining relevant permits from authorities for activities on positive list.</td>
</tr>
</tbody>
</table>
### Policies and regulations governing services

#### USUG policies and regulation - 2

<table>
<thead>
<tr>
<th>Utility level policies and regulations</th>
<th>Specific changes recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remuneration model for private operators</td>
<td>Introduce an availability payment or minimum revenue guarantee for private kiosk operators in less populated areas.</td>
</tr>
<tr>
<td>Remuneration model for USUG staff</td>
<td>Only truly private operators should be allowed to conduct other businesses from the water kiosks. This will increase the incentives for shifting from staff to outsourced operator.</td>
</tr>
<tr>
<td>Remuneration model for truck drivers</td>
<td>Reconsider the remuneration model in terms of partial compensation for excessive waiting time at loading kiosks and adjustment of risk sharing level upon purchase of new trucks.</td>
</tr>
<tr>
<td>Tariff setting procedures</td>
<td>The adoption of the draft amendment to the law on water supply is expected to improve the situation.</td>
</tr>
</tbody>
</table>

If the draft amendment is not approved an agreement between USUG and MUB on a regular inflation adjustment of tariffs would be helpful.
## Recommended next steps

<table>
<thead>
<tr>
<th>What</th>
<th>Who</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Management arrangements for services in Ger areas</td>
<td>USUG and MUB</td>
<td>2009</td>
</tr>
<tr>
<td>2. GPOBA pilot for affordable water services in Ger areas</td>
<td>USUG, MUB and World Bank / GPOBA</td>
<td>2009-2010</td>
</tr>
<tr>
<td>3. Revisions of national regulations and policies</td>
<td>GoM</td>
<td>2009?</td>
</tr>
<tr>
<td>4. Revisions of utility level regulations and policies</td>
<td>USUG</td>
<td>2009</td>
</tr>
</tbody>
</table>
Recommended next steps
1. Management arrangements

- Stakeholder agreement on draft term sheets for management contracts
- Drafting of Performance Based Management Contract for USUG
- Drafting of Internally Delegated Area Management Contract for USUG Departments for Piped/Trucked Water to Ger Areas
- Drafting of Improved Management Contract for Water Kiosk
- Drafting of DBFO Contract for Bathhouses
28

Recommended next steps
2. GPOBA pilot

- MUB confirmation of agreement with project scope for establishment of new bathhouses
- USUG confirmation of agreement with project scope for conversion of trucked kiosks to piped kiosks
- Final project scope and selection of areas and kiosks closely coordinated with USUG and USIP2
- Finalization of GPOBA concept note and submission to GPOBA
- GPOBA confirmation of eligibility in principle and TA funding for project development and tendering
- Drafting output based specifications for conversion of kiosks and new bathhouses
- Finalize transaction structure
- GPOBA Commitment Paper
- GPOBA grant approval
Recommended next steps
3. Revision of national regulation

- Parliamentary adoption of the 2008 Draft Amendment to the Law on utility of water supply and sanitation services in urban area
- Parliamentary adoption of the 2008 Draft Law on BOT and Concessions (not a prerequisite for the GPOBA project but useful for the sector)
- Reconsider the prescriptive elements in MNS 5775 - Drinking water distribution service in settlement area
Recommended next steps
4. Revision of utility level policies

- Confirm legality of outsourcing of kiosk operation irrespective of origin of financing for individual kiosk
- Establishment of a positive list of additional services that private operators of water kiosks may offer
- Assistance in identifying need for and facilitating access to necessary permits from relevant authorities for additional services
- Formulate outsourcing as explicit success criteria
- Make company level procedures for contracting private kiosk operators
- Introduce an availability payment or minimum revenue guarantee for private kiosk operators in less populated areas
- Reconsider the remuneration model for truck drivers (not a prerequisite for the GPOBA project)
### Recommended next steps

#### Expected results

<table>
<thead>
<tr>
<th>What</th>
<th>Why</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Management arrangements for services in Ger areas</td>
<td>Improved incentives through delegated authority</td>
</tr>
<tr>
<td></td>
<td>Reduced operating costs</td>
</tr>
<tr>
<td></td>
<td>Better service for customers</td>
</tr>
<tr>
<td>2. GPOBA pilot for affordable water services in Ger areas</td>
<td>Grant funded demonstration project documenting the potential</td>
</tr>
<tr>
<td>3. Revisions of national regulations and policies</td>
<td>Improve long term financial sustainability through timely tariff adjustments</td>
</tr>
<tr>
<td>4. Revisions of utility level regulations and policies</td>
<td>Remove internal barriers to realizing the potential</td>
</tr>
</tbody>
</table>
3. Discussion of the findings and recommendations of the study

- Are the recommendations reasonable?
- What barriers do you foresee in connection with implementation?
- What are the views of:
  - MUB
  - USUG
  - The USIPII task team
  - The World Bank
Mongolia: Exploring Options for Management Contracting-out in Water Supply and Sanitation Services for Ger areas in Ulaanbaatar

Appendix A - Draft Term Sheets for Management Contracts

March 2009
## Draft Term Sheet for Management Contract between the Municipality of Ulaanbaatar and USUG

<table>
<thead>
<tr>
<th>Area</th>
<th>Ulaanbaatar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name of contract</strong></td>
<td>Management Contract between Municipality of Ulaanbaatar and USUG</td>
</tr>
<tr>
<td><strong>Scope of Services</strong></td>
<td>Delegating management autonomy to USUG management for key operations and investments managed by USUG on behalf of MUB</td>
</tr>
<tr>
<td><strong>Duration of Contract</strong></td>
<td>Multiyear</td>
</tr>
<tr>
<td><strong>Parties to the Contract</strong></td>
<td>The contract is signed between: - the Head of the Capital Property Department, representing the City Mayor; and - the Director of USUG</td>
</tr>
<tr>
<td></td>
<td>The contract replaces the existing Performance Contract signed between the same Parties.</td>
</tr>
<tr>
<td><strong>Duties, Obligations and Rights of Capital Property Department</strong></td>
<td>The Duties, Obligations and Rights of the Capital Property Department are: - Monitor fulfilment of MUB financed priority investments - Monitor fulfilment of performance indicators - Make agreed investment contributions to priority investments - Approve ordinary tariff adjustments compensating for inflation (this section may be replaced by independent regulatory authority) - Compensate USUG financially if tariff adjustments are withheld for social reasons - Compensate/penalize key management for the fulfilment of the explicit performance indicators</td>
</tr>
<tr>
<td><strong>Duties, Rights and Obligations of USUG</strong></td>
<td>The Duties, Rights and Obligations of USUG are: - Complete agreed investment programme o MUB financed priority investments o USIP II investment programme o GPOBA project for WS&amp;S in ger areas - Fulfil explicit performance indicators for: o Operating performance (population served, water consumption, opening hours, water quality etc.) o Efficiency of operations (use of private operators, number of staff, UAW, consumer complaints etc.) o Financial performance (profitability, collection efficiency etc.)</td>
</tr>
<tr>
<td><strong>Sources of funds</strong></td>
<td>Investments: MUB Budget, Donors and USUG cash flows from operations and maintenance costs: Tariffs</td>
</tr>
<tr>
<td><strong>Payment Mechanism</strong></td>
<td>Output based payment of investment subsidies Penalty/bonus mechanism for key management supporting the fulfilment of the explicit performance indicators</td>
</tr>
</tbody>
</table>
# Draft Term Sheet for Internally Delegated Area Management Contracts

## Area
| Ger Areas of Ulanbaatar |

## Name of contract
| Internally Delegated Area Management Contract |

## Scope of Services
| Delegating management autonomy to USUG Department for [Piped/Trucked] Water to Ger Areas for key operations managed by the department on behalf of USUG |

## Duration of Contract
| Annual |

## Parties to the Contract
| The contract is signed between:  
- the USUG Department for Planning, Finance and Economics; and  
- the USUG Department for [Piped/Trucked] Water to Ger Areas  

The contract [is parallel to / replaces] the existing Management of Assets Contract signed between the same Parties |

## Duties, Rights and Obligations of USUG Department for Planning, Finance and Economics
| The Duties, Rights and Obligations of USUG Department for Planning, Finance and Economics are:  
- Monitor the implementation of agreed measures  
- Monitor fulfilment of performance indicators  
- Make agreed financial contribution to cover operational losses  
- Compensate/penalize department management for the fulfilment of the explicit performance indicators |

## Duties, Obligations and Rights of USUG Department for [Piped/Trucked] Water to Ger Areas
| The Duties, Obligations and Rights of the USUG Department for [Piped/Trucked] Water to Ger Areas are:  
- Implement agreed operational measures  
  - Cooperate on MUB, USIP II and GPOBA financed investments  
  - Gradually increase number of privately operated kiosks through tendering of kiosk operation for all new kiosks and kiosks with change of operator  
- Fulfil explicit performance indicators for:  
  - Operating performance (population served, water consumption, opening hours, water quality etc.)  
  - Efficiency of operations (use of private operators, number of staff, UAW, consumer complaints, unit fuel consumption, etc.)  
  - Financial performance (unit operating costs, collection efficiency etc.) |

## Sources of funds
| Tariffs and USUG funds |

## Payment Mechanism
| Penalty/bonus mechanism for department management supporting the fulfilment of the explicit performance indicators |
**Draft Term Sheet for Management Contracts for Water Kiosks**

<table>
<thead>
<tr>
<th><strong>Area</strong></th>
<th>USUG Water Kiosk number […] in […] dirstrict [Ger area], khoroo […] in Ulanbaatar, Mongolia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name of contract</strong></td>
<td>Management Contract for Water Kiosk</td>
</tr>
<tr>
<td><strong>Scope of Services</strong></td>
<td>The supplier (USUG) transfers the management responsibility for a USUG water kiosk to the seller (Private Operator) for a specified period of time.</td>
</tr>
</tbody>
</table>
| **Duration of Contract** | Annual with automatic renewal unless terminated by one of the parties.  
Both parties may terminate the contract with a 1 months notice. |
| **Parties to the Contract** | The contract is signed between:  
- the USUG Department for [Piped/Trucked] Water to Ger Areas (the supplier); and  
- an individual (the Private Operator or Seller) |
| **Duties, Rights and Obligations of USUG Department for [Piped/Trucked] Water to Ger Areas (the Supplier)** | The Supplier has following Duties, Rights and Obligations:  
• to hand-over to the Seller water distribution building and properties for the contract period  
• to provide delivery of water to the Seller strictly in accordance with the schedule  
• to control regularly water quality and to supply with hygienic drinking water  
• to advise seller on operations, safety and other issues such as legality of other business activities conducted from the premises  
• to control implementation of the contract, use and repair of the building, and make to remedy (if any) related to the payment obligations  
• if the Seller does not fulfil contractual duties, to demand the Seller to fulfil them, and to terminate the contract before expiry date.  
• to count penalty, to stop the activities and take relevant measures, if the Seller carries out non-designated production or activities without prior consent from relevant governmental and administrative authorities or does not pay in fixed time  
• to collect VAT and income taxes from the Seller for further tax proceeding |
| **Duties, Obligations and Rights of the Private Operator (Seller)** | The Seller has following Duties, Rights and Obligations:  
• to operate water distribution point along its designation and to supply continuously the residents of ger area with hygienic drinking water  
• to offer additional services within frame of effective laws and regulations, provided that necessary permits are given from relevant authorities (positive list of permitted activities to be provided by Supplier)  
• to comply with minimum working hours (10-14 and 16-20, Monday and Thursday off)  
• to extend kiosk working hours beyond the defined minimum if necessary  
• to report any deficiencies in the regularity or quality of services of the Supplier  
• not to modify the building, its design or arrangements without prior consent of the Supplier  
• carrying out current and capital repair works in time to ensure a normal operation of the water distribution point |
- to pass medical examination, and to have his family members who are to work at the point the same medical examination
- to follow strictly safety rules, hygienic requirements
- to pay for delivered water in time
- to apply the water sales prices and tariffs fixed by the Supplier without any addition
- to pay the main operational expenses (own salary, social insurance, food, working clothes, electricity) and minor repairs (spare parts, current repair of building), while the supplier carries heating costs and costs related to repair of equipment

<table>
<thead>
<tr>
<th>Sources of funds</th>
<th>The operator is remunerated with a defined (to be negotiated) percentage of the water sales. The tariff is defined by USUG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment Mechanism</td>
<td>In order to generate interest in operating kiosks in less populated areas USUG should provide a minimum income guarantee. This should be structured so as to keep the privately operated kiosk cost efficient compared to USUG staff operated kiosks and not jeopardize the incentives of the private operator to be demand responsive and to seek synergies with other businesses. A possible solution is an availability payment plus a smaller percentage of the water sales.</td>
</tr>
</tbody>
</table>
### Draft Term Sheet for Management Contracts for Bathhouses

<table>
<thead>
<tr>
<th>Area</th>
<th>Selected Ger areas in [Bayanhoshu, Dambdarjaraa, Naran, Dari-Ekh, Uliastai and Chingeltei] in Ulanbaatar, Mongolia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of contract</td>
<td>Design, Build, Finance and Operate Contract for Bathhouses</td>
</tr>
<tr>
<td>Scope of Services</td>
<td>Design and Build [...] bathhouses with public toilet facilities located in the [..., … and …] Khoroo as defined in the tender documents and complying with the output based technical minimum specifications defined in the tender documents. Operate and maintain the bathhouses in compliance with the operating standards defined in the tender documents. Provide the necessary pre-financing during construction and investment finance during the initial operating period. Return the bathhouses to the Capital Property Department of the Municipality of Ulaanbaatar at the end of the contract period in accordance with the hand-back requirements defined in the tender documents.</td>
</tr>
<tr>
<td>Duration of Contract</td>
<td>[5-10] years</td>
</tr>
</tbody>
</table>
| Parties to the Contract                                            | The contract is signed between: - the Capital Property Department of Ulaanbaatar Municipality; and 
- a Private Operator                                                                 |
| The contract replaces the existing management contract for bathhouses for the specific assets covered by the contract. |
| Duties, Rights and Obligations of the Capital Property Department of Ulaanbaatar Municipality | The Duties, Rights and Obligations of the Capital Property Department of Ulaanbaatar Municipality include: 
- upon commissioning inspect the bathhouse, its facilities and equipment in cooperation with [Monitoring and Verification Agent for the GPOBA project] and determine their compliance with the tender documents and issue a hand-over certificate 
- monitor operation of the property being used under the contract and take measures in case of violation of the contract and technical requirements 
- [share in the net operating result as predefined by the contract] |
| Duties, Obligations and Rights of the Operator                     | The Duties, Obligations and Rights of the Operator include: 
- design and build the bathhouse and public toilets in accordance with the tender documents 
- operate the bathhouse and public toilets in accordance with designation in the tender documents 
- carry out at own cost any necessary repair works 
- comply at all times with the hygienic and health regulations 
- run other business activities, which are not prohibited by law or limits the accessibility or quality of the bathhouse services 
- prepare annual operational and financial report to the Capital Property Department 
- inform the Capital Property Department of any new business activity to be |
conducted from the premises
- present any planned modification in building structure for approval by the Capital Property Department

| Sources of funds | The investment funds shall come from:
- Municipality of Ulanbaatar investment subsidy
- GPOBA grant
- Operator’s own financing against the right to future revenues from the bathhouse |

| Payment Mechanism | 1. Municipality of Ulaanbaatar shall pay a fixed predefined investment subsidy per new public bathhouse upon commissioning
2. GPOBA shall pay an output based investment subsidy (the size of which is to be bid by the private operator during tender), which will be disbursed as follows:
- 15% advance against bank guarantee upon contract signature
- 75% main payment and release of bank guarantee upon commissioning
- 10% remaining payment after one year of successful operation (as documented by annual reporting to the Municipality by bathhouse operators)
3. The Operator shall be allowed [100]% of all revenue from bathhouse and public toilet services and [100]% of all revenues from any additional services supplied by the operator or the operator's subcontractors from the premises. |
Mongolia: Exploring Options for Management Contracting-out in Water Supply and Sanitation Services for Ger areas in Ulaanbaatar

Appendix B - Draft GPOBA Concept Note

March 2009
Output Based Aid for Improved Water and Sanitation Services for Ulaanbaatar's Peri-urban Poor

GPOBA Concept Note - page 1

Summary

Background:
Ger areas are informal unplanned peri-urban settlements that surround the major cities of Mongolia including Ulaanbaatar. The Ger population has been rapidly growing in the last decade due to rural-urban migration. Today, about half of Ulaanbaatar's population of one million lives in these areas surrounding the city centre. Although a number of residents still live there informally, the Master Plan for Ulaanbaatar city for 2020 has acknowledged these housing areas by including them in the city's long term urban planning.

Overall, Ger areas are characterized by inadequate infrastructure including in particular solid waste collection and water supply & sanitation (including bathing facilities). Almost all of the households in the Ger areas collect their water from different kinds of off-site water supply services of which USUG (the Water Supply and Sewerage Authority of Ulaanbaatar) constructed and operated water kiosks serve the major part of the population. Approximately one third of the kiosks (167 in May 2008), mainly placed in the Central Ger areas, are connected to the piped water supply system, whereas the other two thirds of the kiosks (297 in May 2008) are filled by water trucks.

Water consumption by Ger residents is low by any international standard at 7-10 lpcd and access is difficult with on average 1,000 persons per kiosk and an average walking distance to the nearest source of 350m. Sanitation in the Ger areas is based on simple on-site solutions and bathing relies on a limited number of public bathhouses and relatives' apartments in the city center.

The average tariff for water supply covered USUG's cash operational costs in 2007 but the average tariff did not provide coverage of depreciation. The unit tariff for water supply in Ger areas is about 5 times the tariff in the city center. Nevertheless, the cash margin for the water supply in Ger areas is strongly negative due to very high unit operating costs - in particular in the trucked water services.

USUG is presently implementing the World Bank financed USIP II project which will provide significant improvements to the water supply and sanitation in Ger areas, through increased density of water supply kiosks, extension of the piped network system further into Ger areas, connection of a (limited) number of previously trucked kiosks and piloting of house connections and joint wastewater collection.

USUG has also successfully been piloting private operation of a limited number of water kiosks over the past few years using a simple management contract. Preliminary results are encouraging and include lower operating costs, more consumer responsiveness (e.g. flexible opening hours) and synergies with small scale business and services. In parallel the Municipality has tendered the operation of a limited number of donor financed bathhouses in the Ger areas to private operators under simple management contracts.

Project sponsor:
The project sponsors are:
- USUG (the Water Supply and Sewerage Authority of Ulaanbaatar) for the improved water supply; and
- Capital Property Department of the Municipality of Ulaanbaatar for the bathhouses
Objective:
The overall objective of the OBA scheme is improved water supply and sanitation coverage for
Ulaanbaatar's peri-urban poor in the Ger areas. The immediate objective is improved access to regular
nearby supply of potable water and bathhouse services.
The OBA scheme will:
- co-fund connection of presently trucked water kiosks to the piped system thereby improving supply
  regularity and water quality as well as reducing operational losses
- support increased use of private kiosk operators (based on the pilot implemented in recent years by
  USUG) thereby further reducing operating losses and creating synergies with employment creation in
  small private businesses
- co-fund establishment of privately operated bathhouses with public toilets thereby improving access to
  sanitary facilities

Outputs:
The outputs of the projects will be:
- [50] presently trucked water kiosks converted & connected to piped water supply
- [20] new bathhouses with public toilets constructed in areas with presently low density of bathhouses
  and operated by private operators
- increased use of private operators for trucked and piped water kiosks from the present level of 24 out of
  297 trucked kiosks and 7 out of 166 piped kiosks to a target of no less than [25]% in each category in
  2012
- reduction in unit operating costs of the kiosks converted & connected to piped water supply
- reduction in unit operating costs of the kiosks converted to private operators
- a new improved contract concept for Internally Delegated Asset Management Contracts which
  establishes unit cost reduction and private kiosk operator involvement as explicit goals for the trucked and
  piped water services
- a new improved contract concept for private kiosk operators which includes a positive list of other
  business activities that may legally be conducted from the premises of the water kiosk
- a new improved contract concept for private bathhouse operators which provides greater incentives for
  the private operator to take on investment and maintenance responsibilities
In parallel, USUG will, subject to parliamentary approval of the ‘Draft Amendment to the Law on utility of
water supply and sanitation services in urban area (2008)’ work with the proposed ‘Committee for
coordination of operation and services of centralized water supply and sewage systems’ to obtain
approval for a tariff determination model which ensures regular inflation adjustment of tariffs and takes
into account the need for sufficient coverage of depreciations.
Subject to the Draft Amendment being approved prior to the finalization of an OBA scheme, a transitional
subsidy to help ease the transition to full cost tariffs may be included in the final scope for the GPOBA
project.

Targeting:
The project will provide improved water supply and sanitation services for estimated [50-70,000] residents
of Ulaanbaatar’s peri-urban Ger areas through a combination of:
- conversion and connection of [50] trucked water kiosks to piped water supply bringing improved
  regularity and water quality for an estimated [50,000] residents
- construction of [20] new bathhouses with public toilets in areas with low density of bathhouses bringing
  access improved sanitation to an estimated [20,000] residents
The project targeting will rely mainly on a combination of geographical targeting (focusing on relatively
poor peri-urban areas) and self-selection based targeting (supporting communal solutions such as water
kiosks and public bathhouses which are relatively less attractive for the richest segment of the
population).

Funding structure:
The total project investment cost is estimated at 2.5 million USD based on:
- 25,000 USD unit cost for conversion and connection of a trucked kiosk to the piped network (including local extension of the piped water distribution system)
- 60,000 USD unit cost for construction of a new public bathhouse with public toilets
For comparison it is assessed that an individual household connection to an existing main pipe would cost 2,000 USD. The unit costs are relatively high due to he climatic and logistic conditions of Ulaanbaatar's Ger areas (deep digging, insulation and heat trace), high transportation costs to landlocked Mongolia and limited international competitive pressures for the relatively small works contracts.

It is proposed that the investment for water kiosks is split between USUG and GPOBA in the following way:
- USUG: 100% of extension of the piped water distribution system to reach new kiosks (not included in above estimate) and 10-30% of the cost of the conversion & connection of trucked kiosks to the piped system
- GPOBA: 70-90% of the investment cost of the conversion & connection of new kiosks

It is proposed that the investment for new public bathhouses is spilt between GPOBA, the Municipality of Ulaanbaatar and the private operators in the following way:
- Municipality of Ulaanbaatar: Fixed predefined investment subsidy per new public bathhouse (e.g. 10% of estimated construction costs or 6,000 USD) to confirm MUB demand for the service and reflect that the asset will revert to MUB after the end of the contract period.
- GPOBA: Investment subsidy to be bid by private operator during tender (bid criteria for bathhouses will be lowest subsidy required for construction, operation and maintenance under predefined contract terms)
- Private Operator: Remaining part of investment cost including any overruns

Subsidy level:
Assuming a maximum GPOBA subsidy of 90% of conversion and connection costs for water kiosks (with the cost of transmission pipe extension being covered separately by USUG) the unit subsidy per kiosk will be 20,000 USD reflecting an access cost of 20 USD per person receiving improved access.

Innovation:
The OBA project will mainstream the (limited) pilot experience with private kiosk operators in Ulaanbaatar's Ger areas and provide improved contractual framework for private sector involvement in both water supply and bathhouse services. Furthermore, innovative combinations of water supply and bathhouse services with other small scale businesses and services will be promoted by the project.

Sustainability of project:
The OBA project is a natural add-on to the World Bank financed USIP II project and both planning and implementation of the OBA project should be closely coordinated with the USIP II management.

The OBA project furthermore builds on pilot experience gained by USUG in recent years with conversion of trucked to piped kiosks and use of private operators.

Finally, the OBA project will through its contribution to lowering the unit operating costs of water supply in Ger areas contribute to the overall financial viability of USUG in general and the financial viability of water supply in Ger areas in particular.

Scale-up and replication:
The contract concept and business models for private sector involvement in both water supply and bathhouse services used under the project will be immediately applicable to donors and municipalities in Mongolia. Furthermore, the OBA approach could in principle be applied to the annual investment support provided by the Municipality of Ulaanbaatar to USUG.

The present project will connect [50] kiosks to USUG's piped network. After this, there will still be in the order of 150 other trucked kiosks which need to be connected in the future with donor support or out of the annual investment support. Hence, there are good possibilities for scale-up of a successful GPOBA pilot.

Similarly, the project will establish [20] new bathhouses which is significantly less than the longer term need of the ger areas. A successful GPOBA pilot therefore also has potential for replication in this area.
**Economic cost benefit:**
The economic benefits of the project will accrue to consumers (better supply regularity and water quality at new piped water kiosks and shorter walking distance to bathhouse and public toilets) and USUG (lower operating costs).

The consumers in the Ger areas are presently paying a significantly higher tariff for water supply than consumers of piped water in high rise buildings in the center of Ulaanbaatar and it is therefore proposed that no surcharge will be put on the water tariff.

The cost of bathhouse services is proposed to be regulated by supply and demand.

New private operators of kiosks and bathhouses will have improved business opportunities as a result of the OBA project. Existing USUG staff operated kiosks are expected to be converted kiosks to private operation only upon natural attrition of the present operator. But all new kiosks and kiosks where there is a naturally induced change in operator should be included for private operation to maximize benefits.

**Impacts relative to current situation:**
The following impacts are expected:
- improved regularity and quality at new piped kiosks
- increased customer responsiveness at privately operated kiosks
- improved access to sanitation services at new bathhouses
- reduced operational cost at USUG
- private sector employment creation in small scale businesses and services

**Project duration and anticipated schedule of GPOBA payments:**
It is proposed that the project implementation is coordinated with the implementation of USIP II.
GPOBA payments could be made in several tranches:
- advance against bank guarantee upon contract signature (for individual batch of kiosk connections or bathhouse constructions)
- main payment and release of bank guarantee upon commissioning (of connected kiosks or new bathhouses)
- remaining payment after one year of successful operation (as documented by water sales and operational costs for water kiosks and by annual reporting to the Municipality by bathhouse operators)