

PRESENTATION

Operational and Financial Indicators of Water Utilities in Kazakhstan Based on the 2003 Survey and Tariff Policy Improvement in the Water and Sewerage Sector

Mr. Nurlan Shadibekovich Aldabergenov, Director of Almaty Department,
Agency of the Republic of Kazakhstan for Natural Monopoly Regulation and Protection of Competition
Tel./fax: (3272) 726 639, E-mail: darem@asdc.kz

The "Calculation of Operational and Financial Indicators for Water and Sewerage Utilities in Kazakhstan" was prepared under a contract with the Organization for Economic Cooperation and Development (OECD).

Indicators were derived to assess the availability of water and sewerage services to the public, the technical and financial condition of water and sewerage utilities, and economic and environmental aspects of water use.

These indicators provide comparable information on utility operations necessary for understanding and controlling deviations in the sector's performance.

This work predominantly focused on assessing the scope of water and sewerage coverage as measured by average unit consumption per capita (in liters per day, annualized) and the technical condition of networks and facilities.

The critical situation in the urban water sector primarily stems from the poor financial condition of water and sewerage utilities driven by non-payments.

The decentralization of the water and sewerage utility network in Kazakhstan has brought about a major reduction in the scope of reporting and accountability to central authorities, making water utility operations isolated and disjointed.

The removal of the centralized supply and funding system further aggravated the difficulties faced by most water and sewerage utilities.

The indicative survey of water and sewerage utilities based on indicators developed and commonly used by the World Bank had the following objectives:

- collect information on the condition and operating results of water utilities;
- analyze the operating results of utilities;
- perform a comparative analysis of the findings for Kazakhstan's water and sewerage utilities and other countries' utility performance;
- provide reliable information on investment requirements to national, regional and local authorities;
- assist potential investors in obtaining information on the quality of management and potential viability of utilities.

The report also presents the results of the efforts to improve the water and sewerage tariff policy based on the development and introduction of Law of the Republic of Kazakhstan "On Natural Monopolies" as amended since January 1, 2003, the Rules on specific treatment of costs applied in approving tariffs of natural monopoly operators, the Instruction on consideration and authorization of investment projects by natural monopoly operators, the Instruction on the calculation of the profit margin (net profit) per the regulatory asset base of natural monopoly

operators providing water and/or sewerage services and natural monopoly operators in the energy sector, the Instruction on the approval and introduction of tariffs for natural monopoly services for the medium term, and the Methodology for the calculation of the water and sewerage service tariff. These regulations were enacted in 2003 and create an environment for profitable operations of foreign and domestic investors on the Kazakhstan market.

Now, let us consider the principal operating and financial performance indicators of water and sewerage operators in Kazakhstan.

A. Coverage

I.

1. Water coverage

According to census data, as at January 1, 1999 the population of Kazakhstan totaled 14.96 million persons, including 8.38 million in towns and urban settlements and 6.58 million in rural localities. Centralized water supply is available in 82 of the 84 towns and 186 of the 214 urban settlements.

The water and sewerage utilities covered by this paper serve 99.2% of residents in the two capital cities (Astana and Almaty, the central city of the Southern part of the country), and up to 90% and 80% in major cities and small towns, respectively.

Slight fluctuations in coverage over 1998-2002 are conditioned by the insignificant volumes of new construction by some utilities and the retirement of facilities at other utilities due to their inability to adequately maintain them in operational condition.

Water coverage

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	85.83%	99.15%	72.55%	90.06%	68.10%
1999	87.04%	99.17%	80.08%	89.55%	67.15%
2000	87.34%	99.18%	81.09%	89.34%	67.74%
2001	84.66%	99.18%	75.21%	90.50%	81.30%
2002	85.13%	99.19%	78.36%	88.83%	80.22%

2. Sewerage coverage

Sewerage coverage is rather high, but does not match the level of water coverage as residential areas in all types of localities in Kazakhstan include individual private houses without sewerage.

Commensurate with improvements in the economic situation and private income growth, service coverage should increase over time.

The trends in sewerage coverage are similar to those in the water supply segment.

By 2010, the situation should improve considerably, given that the Government appears to be increasingly better positioned to finance new environmental construction.

Sewerage coverage

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	67.83%	79.30%	60.44%	65.28%	62.28%
1999	67.07%	80.14%	58.46%	64.26%	61.97%
2000	68.78%	80.17%	64.34%	63.13%	59.06%
2001	63.26%	80.19%	55.46%	59.35%	59.56%
2002	64.99%	80.27%	60.19%	55.56%	64.60%

B. Drinking water production and consumption

3. Water production

In the five-year period from 1998 to 2002, water production at all of the surveyed utilities significantly reduced due to a number of factors, including the following:

- industrial recession driving water consumption down;
- awareness programs to promote metering practices and installation of meters.

Given Kazakhstan's prevailing structure of housing, the 'finest' water production and consumption indicator is daily liters per person.

Monthly per-connection and per-household rates cannot be regarded as reliable indicators since the information on the number of households and connections supplied by utilities is not altogether accurate, while many operators did not provide any such information.

Water production (liters per person daily)

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	674.75	763.42	638.24	619.73	407.55
1999	559.39	660.39	491.93	547.48	375.74
2000	531.19	635.44	452.80	569.30	374.00
2001	516.29	622.60	460.39	597.07	218.19
2002	518.42	606.32	503.28	515.85	215.38

4. Water consumption

The dynamics of water consumption in the five years from 1998 to 2002 matches that of changes in water production.

Capital cities, regional centers and major cities showed virtually identical rates of consumption in 2002.

In small cities, daily per capita consumption is much lower.

Water consumption (liters per person daily)

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	462.29	549.77	423.75	391.22	292.02
1999	374.72	432.03	339.79	356.63	262.26
2000	355.86	415.80	314.99	359.68	276.28
2001	342.68	386.44	333.32	374.03	143.92
2002	331.77	355.96	353.82	321.21	160.70

5. Metered water consumption

In recent years, water and sewerage utilities have stepped up their efforts to introduce water meters.

Against the backdrop of declining consumption in absolute terms, the proportion of metered water use over the five year has increased considerably.

C. Unaccounted-for water

6. Unaccounted-for water

Unaccounted-for water represents the difference between water produced and water consumed, i.e. 'lost' water.

Average water losses in Kazakhstan are quite significant (in excess of 30%), with some water and sewerage utilities showing an increase in losses over the five years. This is due to the extremely poor condition of water networks.

At large water and sewerage utilities with water conditioning stations, 'lost water' also includes in-house water consumption, and the proportion of losses exceeds that at smaller utilities.

Unaccounted-for water

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	31.54%	27.99%	33.61%	36.87%	29.64%
1999	33.61%	34.58%	30.93%	38.92%	31.10%
2000	33.51%	34.56%	30.43%	40.58%	25.87%
2001	34.05%	37.93%	27.60%	40.31%	33.53%
2002	36.33%	41.29%	29.70%	39.85%	24.68%

C. Metering practices

7. Proportion of metered connections

The proportion of metered connection has increased across all utility groups.

For example, the average share of metered connections among the surveyed utilities increased from 9.99% in 1998 to as much as 46.6% in 2002, and over 50% in the two capital cities.

This is largely due to high water charges and public awareness programs undertaken by utilities.

8. Proportion of water billed per meter readings

The proportion of water billed per meter readings exhibits an upward trend in line with indicator 7, while slightly lagging behind in quantitative terms.

It may be expected that in the future the share of metered connections and the proportion of metered billings will show virtually identical values.

E. Water and sewerage utility operational indicators

9. Pipe breaks

This indicator shows that over the five years the situation has deteriorated further.

All water and sewerage utilities, except those serving small communities, report larger numbers of breaks per km a year, a clear proof of extremely poor condition of networks.

Pipe breaks (per km a year)

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	0.72	0.66	0.77	0.73	0.69
1999	1.03	0.98	1.21	0.73	0.62
2000	1.05	1.03	1.15	0.90	0.70
2001	1.10	1.08	1.30	2.14	0.35
2002	1.23	1.20	1.27	2.67	0.38

10. Sewerage blockages

The rate of blockages over 1998-2000 remained virtually unchanged and is somewhat lower than in Russia.

Notwithstanding a rather stable indicator value, the incidence is quite high, which indicates an unsatisfactory state of sewerage networks.

Sewerage blockages (per km a year)

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	0.92	0.01	1.69	0.65	0.25
1999	0.94	0.01	1.48	0.89	0.22
2000	0.86	0.01	1.34	0.74	0.21
2001	0.99	0.02	1.67	0.58	0.21
2002	1.13	0.02	1.27	0.60	0.36

F. Costs and staffing

11. Unit operational costs

Operational costs in the period from 1998 to 2002 slightly reduced. The lowest costs per cubic meter of produced water are in the capital cities which source water locally.

Due to the use of remote water sources to maintain supplies to Karaganda, Ekibastuz (the Irtysh-Karaganda Canal), Aktau and Zhanaozen (desalination of Caspian seawater for Aktau and the Astrakhan-Mangyshlak Water Pipeline for Zhanaozen), national average operational costs exceed those in the two capital cities.

Unit operational costs (\$ per cubic meter of water produced)

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	0.217	0.126	0.314	0.226	0.274
1999	0.148	0.096	0.196	0.175	0.202
2000	0.138	0.095	0.177	0.163	0.167
2001	0.140	0.093	0.164	0.183	0.203
2002	0.154	0.102	0.168	0.196	0.196

12. Number of staff

The number of personnel remained virtually unchanged and is rather high, which indicates overstaffing and a low level of process automation.

Staff per thousand water and sewerage service population

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	2.13	1.54	2.50	2.99	2.86
1999	2.12	1.49	2.55	2.64	2.90
2000	2.26	1.49	2.67	2.77	3.17
2001	2.28	1.44	2.60	3.14	3.27
2002	2.32	1.42	2.47	3.23	3.62

13. Labor costs as a proportion of operational costs

Payroll costs over 1998-2002 increased and averaged 31.7% in 2002 against 21.3% in 1998.

This exceeds labor costs in Russia and Ukraine.

Labor costs as a proportion of operational costs

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	21.27%	27.28%	16.83%	28.41%	25.11%
1999	26.46%	29.22%	23.26%	31.29%	28.47%
2000	30.08%	33.52%	27.66%	30.63%	29.52%
2001	29.54%	33.05%	28.19%	26.74%	33.43%
2002	31.73%	34.53%	29.64%	28.28%	33.85%

14. Proportion of contracted-out services

The proportion of contracted-out services is considerable at 44.5% among the Karaganda, Ekibastuz, Aktau and Zhanaozen water utilities that receive water from third party operators of the Irtys-Karaganda Canal, the Astrakhan-Mangyshlak Water Pipeline and the Aktau desalination plant. Other utilities report minor scopes of contracted-out services.

Proportion of contracted-out services

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	21.58%	2.28%	27.63%	31.32%	21.66%
1999	8.55%	3.05%	6.34%	30.86%	22.02%
2000	8.87%	2.98%	7.00%	29.14%	20.24%
2001	13.44%	4.04%	8.71%	41.00%	15.31%
2002	13.88%	3.80%	8.51%	44.58%	14.67%

G. Service quality

15. Uninterrupted service

On average, the surveyed water utilities report nearly round-the-clock service, although this raises certain doubts given the high network breakdown incidence.

Small utilities provide services for the major part of the day.

Uninterrupted service (hours per day)

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	23.88	24.00	24.00	23.28	20.92
1999	24.00	24.00	24.00	24.00	23.88
2000	23.51	24.00	23.20	23.45	20.82
2001	23.48	24.00	23.11	23.53	20.92
2002	23.48	24.00	23.24	23.62	19.62

16. Number of water and sewerage complaints

The average number of complaints over 1998-2002 slightly increased while remaining insignificant, which appears somewhat surprising given the high failure rate.

This may be explained by the passive attitude of consumers and their disinclination to lodge complaints.

Number of water and sewerage complaints (%)

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	1.66%	3.17%	1.13%	0.15%	2.77%
1999	2.65%	3.19%	4.93%	0.15%	2.59%
2000	1.53%	3.52%	0.98%	0.12%	2.05%
2001	1.85%	3.66%	1.53%	0.10%	2.13%
2002	2.65%	3.72%	3.16%	0.08%	2.04%

17. Wastewater treatment

All water and sewerage utilities without wastewater treatment facilities predominantly direct wastewater to sewage ponds for evaporation.

Accordingly, all utilities report 100% treatment.

H. Billing and collection

18. Average tariff

There are no surges in charge rates in Kazakhstan as any new tariff must be agreed in advance with the national Agency for Natural Monopoly Regulation and Protection of Competition.

Given the low paying capacity of residential consumers, tariffs fail to fully cover costs and do not provide funds for utility development.

Average tariff (\$ per cubic meter a year)

<i>Year</i>	Kazakhstan average	Capital cities	Regional centers	Cities	Small towns
1998	0.217	0.148	0.310	0.155	0.136
1999	0.139	0.110	0.179	0.105	0.091
2000	0.122	0.106	0.146	0.093	0.076
2001	0.131	0.101	0.161	0.120	0.065
2002	0.144	0.114	0.169	0.134	0.062

19. Water charges as a proportion of monthly per capita income

Water charges as a proportion of monthly per capita income have remained at a steadily low level.

20. Regular monthly fees

Kazakhstan does not operate monthly fees as such. Bills are paid based on standard rates for water consumed or meter readings.

21. Ratio of industrial to residential revenues

Industrial and residential charges in Kazakhstan are now nearly identical, which implies a drastic reduction in cross-subsidizing of residential consumers by industrial users.

On average, industrial proceeds are somewhat lower than residential revenues.

Cross-subsidizing has remained only in a number of heavily industrial cities and has little impact on nation-wide performance.

22. Connection charges

Virtually all water and sewerage utilities use single-rate tariffs with no segregation of connection charges, hence this indicator has a modest value.

23. Collection

On average, water and sewerage utilities exhibit a slight trend towards shorter collection time, however it is still much above the internationally accepted standard of 90 days maximum. In smaller towns, collection time is considerably above average.

I. Financial performance indicators

24. Costs to revenues

The average ratio of costs to revenues (operating balance) approximates 1. In the capital cities, revenues exceed costs, while indicator values for small towns are worrisome, demonstrating that utilities are facing the risk of bankruptcy. Low payment discipline renders this indicator artificial.

25. Proportion of debt service costs

This indicator has a minor value and reflects the utilities' reluctance to borrow because of their poor financial condition resulting from non-payments and low charges.

J. Capital expenditure (investments)

26. Investments

The investment indicator is low due to the poor financial standing of utilities.

27. Fixed assets per capita

In the period from 1998 to 2002, fixed assets per capita reduced commensurate with the aging (depreciation) of fixed assets. Any improvements are unviable without Government support.

Energy costs

Average energy costs per cubic meter of water produced across the surveyed water and sewerage utilities in 1998-2002 totaled 0.6–0.72 kWh per cubic meter (against the 0.6 kWh maximum in Western Europe), and in smaller towns increased from 0.98 to 1.7 kWh per cubic meter. Higher energy consumption results from the use of existing and readily available equipment rather than that required because of the utilities' lack of funds.

Energy costs per cubic meter of disposed sewage over the analyzed period changed only slightly and averaged 0.43–0.55 kWh per cubic meter, going down from 1.53 to 0.97 kWh per cubic meter in small towns.

Environmental activities

Given the nature of their operations, water and sewerage utilities necessarily deal with environmental matters.

The introduction of the water metering system made it possible to limit water draw from underground and surface sources and reduce wastewater volumes over 1998-2002.

This significantly alleviated the utilities' environmental impact in terms of both the use of resources and the disposal of waste.

High wear and tear of fixed assets affected the quality of wastewater treatment, however there have been no major discharges of BOD₅ pollutants, suspended solids etc. due to the following factors:

- the volumes of wastewater have reduced considerably;
- treatment facilities are equipped with wastewater ponds designed for accumulating wastewater for further use in irrigation, but currently used as evaporators, i.e. there is no discharge affecting the surface or water bodies.

The extremely poor technical condition of networks and the resulting above-norm leakages provoke groundwater upwelling, which adversely affects the environment.

The improving economic situation in Kazakhstan gives reason to hope that water and sewerage utilities will receive the allocations necessary to overhaul their networks and facilities, with the ultimate positive impact on the environment.

II. Improvement of the water and sewerage tariff policy

In 2003, the Government enacted a number of tariff policy-related regulations which support efficient operations of utilities and help attract investors.

1. Instruction on the calculation of the profit margin (net profit) per the regulatory asset base of natural monopoly operators providing water and/or sewerage services and natural monopoly operators in the energy sector.

This Instruction is designed to create conditions for efficient functioning of natural monopoly operators providing water and/or sewerage services and natural monopolies in the energy sector.

2. Rules on specific treatment of costs applied in approving tariffs (prices, charge rates) for services (goods, work) by natural monopoly operators.

These Rules were developed in accordance with Law of the Republic of Kazakhstan "On Natural Monopolies" to prevent unjustified increases in tariffs (prices, charge rates) for natural monopoly services (goods, work).

3. Instructions on consideration and authorization of investment projects by natural monopoly operators

This Instruction details the consideration and authorization procedures for investment projects by natural monopolies so as to align them with the medium-term and current social development priorities at the national and regional level to ensure a balance of interests between consumers and natural monopolies, and protection of consumers against unjustified increases in tariffs (prices, charge rates) for natural monopoly services (goods, work).

4. Instruction on the approval and introduction of tariffs (prices, charge rates) for natural monopoly services (goods, work) for the medium term

This Instruction establishes a non-discriminatory methodology for setting natural monopoly tariffs (prices, charge rates) and is intended to support the implementation of medium-term investment projects by natural monopoly operators agreed and approved in accordance with the legislation of the Republic of Kazakhstan.

5. Methodology for the calculation of the water and sewerage service tariff

This document defines the tariff calculation procedure for services involving water delivery via distribution networks and wastewater disposal (i.e. centralized water supply and wastewater services) and applies to all organizations providing such services irrespective of their ownership structure.

CONCLUSIONS

1. In terms of urban water and sewerage coverage (in towns and other urban settlements), Kazakhstan ranks high among the FSU countries, second only to the Baltic States. The country's impressive water and sewerage coverage is due to the fact that already in 1990 Kazakhstan implemented the initiatives necessary to secure future water supplies, including the engagement of remote water sources through the construction of:

- the Irtysh-Karaganda Canal;
- the Astrakhan-Mangyshlak Water Pipeline.

2. Service quality is declining, driven down by high network breakdown incidence and deteriorating facilities.

The primary cause of the deteriorating technical condition of the water and sewerage networks and facilities operated by utilities is their poor financial condition.

Recently this issue has been subject to increased attention of both the general public (as shown by discussions in the mass media) and the Government, which endorsed the *Potable*

Water sectoral program for 2002-2010 (adopted by Resolution No. 93 of the Government of Kazakhstan on January 23, 2002).

3. Water and sewerage utilities are carrying out an extensive program to install meters, which has also helped in reducing water consumption and wastewater disposal.
4. The non-payments problem erodes the operating and financial results of water and sewerage utilities. The management of water utilities, acting jointly with the *akimats* (district authorities) and the mass media, ought to step up efforts to enhance collection.
5. Given the current economic growth in Kazakhstan and a greater focus on water supply and environmental protection issues, the situation in the water and sewerage sector in Kazakhstan may be expected to improve.
6. The results of the efforts to improve the water and sewerage tariff policy create an environment for profitable operations of enterprises with the participation of foreign and domestic investors on the Kazakhstan market.