

GOVERNMENT OF KAZAKHSTAN

*COMMITTEE FOR WATER RESOURCES
OF THE MINISTRY OF NATURAL RESOURCES AND
ENVIRONMENTAL PROTECTION*

***IDENTIFICATION OF PRIORITY ISSUES
IN SEVEN MAJOR RIVER BASINS
IN KAZAKHSTAN***

*PROBLEM IDENTIFICATION AND PRIORITISATION
WORKSHOP IN KOSTANAI
FOR THE TOBOL-TORGAY RIVER BASIN*

WORKSHOP PROTOCOL

30 July 2002

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1 INTRODUCTION

1.1 BACKGROUND

The subject workshop is part of the project: Priority Issues in 7 Major River Basins in Kazakhstan. The funding of this project is provided by the Austrian Government through the World Bank upon request of the Government of Kazakhstan. This project is the first step in the preparation of the Water Resources Development Plan for Kazakhstan. The project is prepared by a team consisting of Kazakh and international experts of Posch & Partners, Austria.

In a first step, individual experts prepared background papers for each river basin outlining the characteristics of the river basin and the major problems. In the following step - which represents a first consultation round – the river basin experts presented the essence of these reports in Problem Identification and Prioritisation Workshops. Such workshops were held at the river basin level, giving all stakeholders and interested parties the chance to present their views and to complement the findings. This report summarises the main findings of the workshop in Kostanai covering the Tobol-Torgai river basin.

1.2 WORKSHOP ORGANISATION

The one-day workshop was organised by the project team with the assistance and in close cooperation with the Tobol-Torgai river basin authority. It took place in Kostanai at the City Library on July 30, 2002. The workshop was chaired by the Kazakh Project Coordinator, Mr. Nariman Kipshakbaev, and co-chaired by the Austrian consultant Fritz Schwaiger. The World Bank was represented by Mr. Evgeny Tyrtshny, Operations Officer.

In a first session, the river basin expert Ms. Gulshat Ospanbekova presented the main findings of his report. Then discussion sessions followed, focusing on the following:

- Discussion of the report with emphasis on water resources, existing infrastructure, water demand and major polluters
- Major problems and possible solutions
- Priority ranking criteria and priority ranking of problems

1.3 PARTICIPANTS

In total 39 people participated at the workshop, representing 32 organisations. A complete list of participants is attached in Annex A.

2 PRIORITY ISSUES IN THE RIVER BASIN

After intensive discussions it was agreed that the priority problems are as shown below.

Each problem was assigned to one of three priority levels. The following criteria were agreed and applied for the ranking of the problems:

- Adverse effect on environment
- Reliable water supply of sufficient quantity
- Quality Water Supply, meeting standards
- Affected population
 - health
 - discomfort
 - economic disadvantage
- Economic productivity (added value)
- Cost of alternatives (opportunity cost)
- Realisation time needed

2.1 PROBLEMS OF FIRST PRIORITY

1. Water supply of Arkalyk city

Arkalyk city (30,000 people) has two sources of water supply – Karatorgai ground water deposit and Ashu-Tastinsk reservoir. The sources are far from town and two transmission lines were supposed to be constructed for reliable water delivery, but only one line had been constructed. Total leakages of the water supply system amount to 40%. 60% of the 208 km long network was made of thin-wall pipes leading to their fast deterioration. The distribution network has to be reconstructed and also the second transmission line.

2. Water distribution network of Kostanai, Rudnyi, Lisakovsk and Zhetigara cities and rayon centres

The situation of the distribution networks in Kostanai, Rudnyi, Lisakovsk and Zhetigara cities and all the rayon centres is identical to Arkalyk. Repair and rehabilitation works have to be implemented.

3. Potable water treatment in Rudnyi city and Fluorine treatment in general

The construction of the filtration station for Rudnyi city was completed in 1978. The station is designed for raw water of category 1 and 2 of the pollution index. In spring time, the quality of raw water deteriorates to the 3rd category due to high contents of cyanophyta and the capacity of the filtration station is not sufficient for its treatment.

4 sand filters were rehabilitated to date out of 16, so 12 more have to be rehabilitated.

Generally water treatment stations need to be equipped with fluorine enrichment installations in all region.

4. Emergency situation at the Zhetigara city water transmission line

The length of the two parallel water transmission lines from the intake to the city is 60 km. Due to heavy leakage an emergency situation occurs, as the soils are being swamped by the leakage. Rehabilitation of 45 km has to be done.

5. Heavy leakage of sewers and sewer lines from the treatment plants to storage ponds at Zhetigara, Arkalyk and Lisakovsk cities

Sewage lines are leaking heavily and repair works have to be carried out. Part of the line of the Zhetigara city (8 km length) from the sewage treatment plant up to the storage pond was made of cast-iron pipes. The length of the sewer system of Lisakovsk city is 20 km. All to be reconstructed.

6. Need of biological wastewater treatment stage in Kostanai and Arkalyk cities and the rehabilitation of the biological treatment plant in Zhetigara city

Sewage of Kostanai city is disposed into the natural storage without biological treatment. Construction of the biological station was suspended in 1980s and has to be completed.

Sewage of Arkalyk city undergoes only mechanical treatment and is consequently disposed into evaporation ponds. Due to overloading of the treatment plants, part of the sewage is being disposed without treatment.

The biological treatment of sewage in Zhetigara is being carried out in aeration tanks which have air pipes of steel. It is necessary to reconstruct 2 filters with 4 sections and to replace the aeration pipes by pipes of corrosion free material.

7. Emergency situation at rural water supply systems

Only 3 group water pipelines out of 20 are currently in operation. The number of functioning water pipelines in the oblast falls. 16% of the existing and functioning pipeline supplies do not correspond to sanitary norms. The majority is in emergency condition. One can observe secondary pollution of the transported water.

The following actions are needed: (i) a department for rural water supply should be established, (ii) repair and rehabilitation works have to be carried out at the 20 group water pipelines, (iii) modern water treatment facilities including desalination plants are needed (iv) repair teams have to be created (v) owners of these water pipelines have to be defined, (vi) sanitary zones need to be defined at the source points.

8. Water supply of the southern rayons

The degree of water supply of settlements in the southern regions of Kostanai oblast is very poor. The level of diseases is very high. These settlements have to be provided with qualitative drinking water in required quantities.

9. Pollution of water intake points

Requirements of sanitary protection zones are not observed. Buildings are constructed along rivers and lake banks. The first belt of sanitary protection zones has to be defined and its compliance be controlled.

10. Ecological aspects of flow regulation at Tobol and Torgai, considering fish, lakes, flora and fauna preservation and special nature reserves; and water sharing between Kostanai and Aktubinsk oblasts

The following ecological aspects need to be taken into consideration: (i) to foresee fish protection measures at the reservoirs (e.g. fine screens at intakes); (ii) to avoid drying up of the lakes in the river mouth due to insufficient water release from reservoirs; (iii) prevent soil erosion by planting forests along ponds and to do forest amelioration; (iv) to develop programs for environmental and nature reserves protection and to arrange water protection zones; (v) to consider fish passages at existing dams; (vi) to regulate the water level in the system of Sarykop and Akkul lakes located in Dzhangeldin rayon of Kostanai oblast by construction of the dike and hydraulic structures, (vii) to regulate the water level of the lake system at the lower section of the Torgai river by construction of Belchersk control structure; this control structure will allow filling of Baitak lake up to elevation 77.5 meters above sea level and reach its full capacity of 190 mln. m³.

11. Ineffective flow regulation and reservoir management at Tobol river

There are 5 reservoirs to be properly operated and managed in the region.

It is required to define a proper procedure and the timely transfer of relevant data on moisture content of snow, snow depths and other data needed from the Orenburgh and Chelyabinsk oblasts of the Russian Federation, for reliable flood forecasting.

Secondly, a computer model needs to be developed and sufficiently calibrated which is able to predict the volume of the expected spring flood and possibly also daily flows on the basis of meteorological data, such as snow depths, water equivalent, temperature, radiation etc.

Thirdly, it may be necessary to construct additional waterwork facilities for flood regulation at the Kocherdyk reservoir at the border with Kurgan oblast.

12. The need for an inventory and assessment of water objects

It is necessary to carry out an inventory and assessment of the technical condition of all water objects, to have up-to-date information and to know the precise requirements for rehabilitation.

13. Decreasing number of hydroposts and meteorological stations

Currently only 5 from previous 24 hydroposts are in operation. It is required to rehabilitate meteorological stations and hydroposts, to have a sufficient good data base for a reliable hydrological forecast (please refer to the problem of flood forecasting) and to have a good transboundary river monitoring system (quality, quantity, floods, bottom sediments). The Kazakh-Russian Interstate Commission has to consider and solve these issues. It is very necessary to construct a post in Mariinka (Bersuat), at the inflow to Kazakhstan.

Reference is made at this point to the ongoing Tacis project "Monitoring System for Transboundary Rivers" on the Tobol river with Russia.

2.2 PROBLEMS OF SECOND PRIORITY

1. Sewage disposal into storage ponds

The secondary use (reuse) of sewage (after treatment) needs to be developed. The maximum permissible concentrations for sewage disposal need to be reconsidered, having in mind the sewage diversion into salt lake systems (Lisakovsk city). A water monitoring system needs to be developed for these ponds, with the application of a complex approach (pilot project).

2. Ecological situation of Irgiz and Ulkoyak rivers (Aktubinsk oblast)

To improve the ecological situation of these rivers, it was proposed to reconstruct the left bank of the "Akchiy" Liman irrigation system in Irgiz rayon. Design estimates, ecological and state expertises are available. It also requires the construction of hydroposts for water quality monitoring, as four enterprises pollute the river.

3. Deterioration of ground water wells in Kostanai city

The design capacities of the pumps at the wells for the water supply of Kostanai city do not correspond to the needed pumping amounts due to reduced pumping, caused by the stoppage of huge industrial enterprises which were main consumers. It is necessary to modernize and adapt the capacity of the water intake. 35 wells have to be rehabilitated, only three could be done till now.

4. Lack of qualitative drinking water for Zhetigara city

An additional water supply source for Zhetigara was proposed, being artesian ground water with a capacity of up to 4000 m³/day. Then the total water supply of the city will amount to 7-8000 m³/day.

5. Need of pipe production factory in Kazakhstan

Russian pipe suppliers are reluctant to provide sufficient documentation and information on pipes. They further do not comply with the procurement rules. In view of the large demand of pipes needed for replacement of the outdated systems, it is suggested to establish a pipe production in Kazakhstan.

6. The need for a water fund

It is necessary to create a water fund which monies are used in the water sector and can not be transferred to other sectors.

2.3 PROBLEMS OF THIRD PRIORITY

1. Cyanophyta (blue algae) growth and stratification in reservoirs

Stratification of water layers happens in the reservoirs with different physical and chemical parameters due to insufficient vertical water exchange. This stimulates the growth of cyanophyta, creates anaerobic conditions in the bottom layers and an increase of iron and manganese concentrations in the water.

The extensive growth of cyanophyta (blue algae) can be observed in the reservoirs at certain periods of the year. The existing water treatment plants are not designed for its elimination, so the delivered drinking water has odour nuisance, high colour and turbidity contents. The following measures were proposed: (i) biological melioration; (ii) desiltation; (iii) silt trap up to the dam; (iv) dispersal by pumps. It was also proposed to dispose cyanophyta in agriculture.

2. Chemical and thermal pollution of surface waters

It is suggested to study possibilities to conserve or eliminate the flow of the self-emitting well №3006, pouring hot groundwater of high mineral contents including high iodine and bromine concentrations from a depth of 450 m with mineralisation equal to 20 g/dm³ and temperature +37C into the river. The estimated cost of the study is USD 5000.

3. Condition of dams and bottom sediments in reservoirs

Maintenance of the most important objects (Karatomar, Verkhnetobol reservoirs and others) has to be done from the Republic budget. Generally the reservoirs are considered to be in acceptable condition, but the Sergeevsk reservoir is in bad condition and needs to be rehabilitated.

There is no reliable information about the volume and the quality (content of pollutants) of sediments which have accumulated in the reservoirs in general, and in particular in the Karatomar, Verkhnetobol and Amangeldy reservoirs. It is necessary to carry out a survey of the quality and quantity of the accumulated sediments and to suggest a way of sediment removal or liquidation of pollutants.

4. Self-made dams on small rivers

A number of small self-made dams have been constructed in the beds of small rivers. These dams do not have bottom outlets and can not be flushed, nor can the water flow be controlled. It is necessary to carry out an inventory and assessment of the small dams and ponds and to study their water retention function and to suggest improvement measures.

Signed by

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Project Coordinator

Fritz Schwaiger
Team Leader

COMMITTEE FOR WATER RESOURCES
PRIORITY ISSUES IN 7 MAJOR RIVER BASINS IN KAZAKHSTAN
KOSTANAI WORKSHOP

3 ANNEX A – LIST OF PARTICIPANTS

№	Name of workshop participant	Organization	Position
1	2	3	4
1	Mr. Zhanibek Taltekov	Akimat of Kostanai oblast	Deputy Director of the Energy, Industry and Construction department
2	Mr. Anatoliy Fisukov	Akimat of Kostanai oblast	Director of the Energy, Industry and Construction department
3	Mr. Serik Akhmetov	Committee for Water Resources	Head of the department for regulation, use and protection of water resources
4	Mr. Nariman Kipshkbaev		Project coordinator
5	Mr. Fritz Schwaiger	“Posch & Partners Cons. Engineers”	Project Manager
6	Mrs. Ludmila Kotomina	Ural RBA, Chelyabinsk oblast, Russian Federation	Deputy Chief
7	Mr. Evgeny Tyrtysny	The World Bank country office in Kazakhstan	Operations Officer, Environment, Water supply and Water resources
8	Mr. Bekzat Nametov	RSE "Aktub vodhoz"	Director
9	Mr. Bekkul Sadykov	Tobol-Torgai River basin authority (RBA)	Chief
10	Mr. Umirzak Suleimenov	RSE "Kostanai vodhpz"	
11	Mrs. Svetlava Kim	Territorial administration of environmental protection	Chief of the water resources protection dept.
12	Mr. Victor Cherkov	Oblast flora and fauna administration	Chairman
13	Mr. Uzon Taibergenov	Oblast territorial forestry and bio resources administration	Chief of the department of forest and protected areas
14	Mr. Anatoliy Tolkanev	SE "Kostanai center for hydro meteorology" RSE "Kazhydromet"	Director of DGP
15	Mr. Dusembai Sadykov	RSCE "Verhne-Tobol fish nursery"	
16	Mrs. Tatyana Guseva	Oblast administration for emergency situations	

COMMITTEE FOR WATER RESOURCES
PRIORITY ISSUES IN 7 MAJOR RIVER BASINS IN KAZAKHSTAN
KOSTANAI WORKSHOP

17	Mr. Murat Zhakaev	Oblast administration of sanitary-hygienic supervision	
18	Mr. Bolakhmet Konysbai	Oblast territorial administration of agriculture	Leading specialist
19	Mr. Vaitaliy Zinkovskiy	JSC "SSGPO"	Deputy senior engineer
20	Mr. Michail Belykh	JSC "KBRU"	Hydro geologist
21	Mr. Juriy Medyankin	SCE "Kostanai-su"	Deputy Director
22	Mr. Sergei Krivosheev	SCE "Vodocanal"	Leading engineer
23	Mr. Tuzelbai Zhumabaev	SCE "Arkalyk HPS"	Deputy chief
24	Mr. Vitaliy Butenko	SCE "Zhitikarin HPS"	Chief
25	Mrs. Anna Mutina	SCE "Lisakovsk communal energy"	Senior Engineer
26	Mr. Anatoliy Kim	"Selkhozvod project" Ltd	
27	Mr. Victor Deineka	Northern Kazakhstan department of the Mineral resources academy, Kz	Chairman
28	Mrs. Ludmila Muzychko	"Eco center" NGO	Director
29		Alai TV	
30		Oblast Tv and Radio company	
31	Mr. Gaiypnazar Koishin	RSE "Kustanai vodhoz"	
32	Mr. Lev Ivanov	"Geotas" Ltd.	Director
33	Mrs. Galina Ivanenko	Vodocanal SCE	
34	Mr. Aitmuhamed Ualikhmetov	Oblast department of emergency situations	
35	Mr. Toskyn Esetov	Department of food and agriculture department	
36	Mr. Victor Shilov	"Lostonai vod project" Ltd.	
37	Mr. Vladimir Momotov	RSE "Kostanai vodhoz"	
38	Mr. Bekniaz Sandygul	"ORKEN" LTD.	
39	Mr. Sokolov	Sokolov-Sorbai mining factory	Ecologist