

Environmental Policy and Technology Project

Contract No. CCN-0003-Q-00-3165

Central Asian Republics

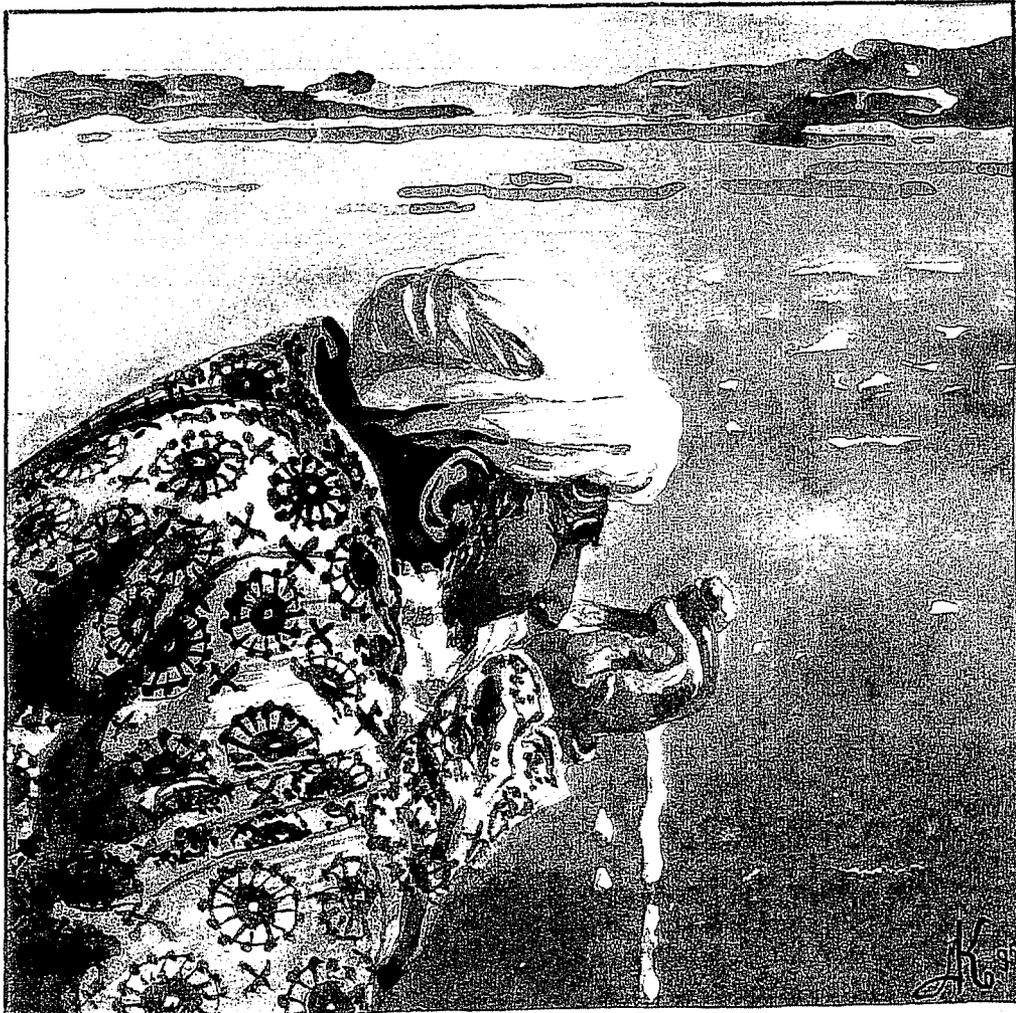
EPT PROJECT SUMMARY: U.S. Aral Sea Program Overview EPT Activities Completed

October 1996

**Prepared for:
Regional Mission for Central Asia
U.S. Agency for International Development**

**Prepared by:
Regional EPT Office in Almaty, Kazakstan
Environmental Policy and Technology Project
For the New Independent States of the former Soviet Union
A USAID Project Consortium Led by CH2M HILL**

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Region



"Water from the Aral Sea" by Arq. Alla Kaslova, Tashkent, Uzbekistan

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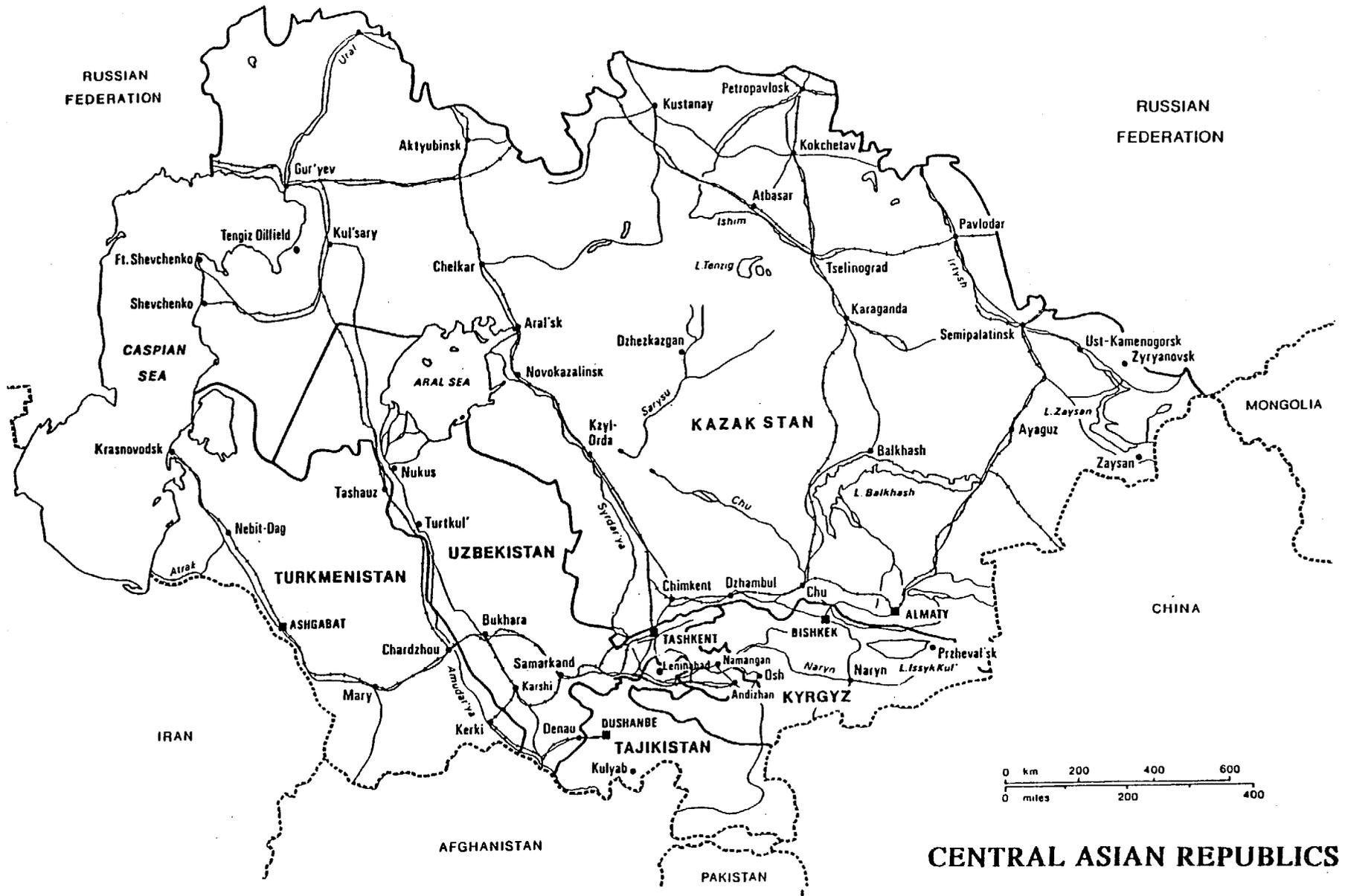
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PROGRAM OVERVIEW

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UNITED STATES GOVERNMENT
DEPARTMENT OF STATE

U.S. ARAL SEA PROGRAM

U.S. INTERESTS IN THE ARAL SEA:

- demonstrate U.S. goodwill toward and leadership in Central Asia;
- develop regional cooperation among Central Asian states aimed at preventing future conflict over water use;
- deal with the largest environmental problem in the NIS via a multilateral effort that leverages U.S. assistance; and
- focus U.S. assistance strategy so Central Asians associate U.S. assistance with solutions to a real priority problem.

RECOMMENDATIONS:

The USG should institute bilateral programs, support multilateral programs, and foster international coordination of Aral Sea projects along the following three tracks:

- 1) immediate and most pressing public health needs;
- 2) technical fixes to enhance the quantity and quality of water reaching the Sea; and
- 3) effective regional water management.

All elements of the U.S. Government strategy should be designed to serve the overarching goal of regional cooperation.

Note: The U.S. interests are defined in an unclassified S/NIS Memorandum on the U.S. Aral Sea Strategy from Strobe Talbott dated July 22, 1993.

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BACKGROUND OF THE U.S. ARAL SEA PROGRAM

- * In August 1990, Senator Al Gore visited the Aral Sea region to witness the "impact of a poor irrigation strategy", and as Vice President has made the the Aral Sea disaster zone a high priority for the United States Agency for International Development (USAID) assistance.
- * In July 1993, the U.S. Department of State recommended the execution of bilateral programs and the support of multilateral programs for international cooperation of Aral Sea projects to: provide technical support to improve water quality, address immediate public health needs, and develop effective regional water management.
- * In October 1993, Secretary of State, Warren Christopher, announced a US\$15 million program to help alleviate detrimental environmental conditions in the Aral Sea region of the CAR. In June 1994, an additional US\$7 million was pledged for a total of US\$22 million.
- * Several million people in the area have been deprived of access to safe water, and have experienced abnormally high rates of morbidity, non-specific diarrheas, and viral hepatitis. One widely recognized cause of the problem is the contamination of surface and ground water due to the declining flows and increasing pollution in the AmuDarya and the SyrDarya delta areas.
- * The needs of the people in the Aral Sea delta areas are urgent and immediate, and recommendations for water quality improvements and a complementary public health education program were proposed under USAID's Environmental Policy and Technology (EPT) project. These activities will improve the health conditions of the population through increased access to safe water by implementing water quality and public health activities.
- * Bilateral agreements were executed between the Government of the United States and:
 - the Government of Turkmenistan on February 17, 1994 to cooperate in a mutual effort to help meet the water and sanitation needs of the Turkmenbashi Etrap in Dashhovuz Velayat near the AmuDarya delta of the Aral Sea;
 - the Government of Kazakstan on March 18, 1994 to help meet the water, sanitation and health education needs of the Aralsk and NovoKazalinsk Rayons in Kzyl Orda Oblast near the SyrDarya delta of the Aral Sea; and
 - the Government of Uzbekistan on April 20, 1994 to provide water quality improvements for critical populations of Urgench in Khorezm Oblast and Nukus in Karakalpakstan near the AmuDarya delta of the Aral Sea.
- * The U.S. Aral Sea Program is being implemented as part of the Environmental Policy and Technology Project in cooperation with the local governmental agencies by a USAID Contractor, CH2M-Hill International, Inc., the prime contractor for a team of fourteen subcontractors.

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OVERVIEW OF THE U.S. ARAL SEA PROGRAM

Special area - Alleviate human suffering caused by the ecological disaster in the Aral Sea.

Program objective - Reduce environmental risks to public health.

Geographical area - Five countries in the Amu Darya and Syr Darya basins in Central Asia.

WATER SYSTEM ACTIVITIES

- * Improve the water quality and reliability of water supply facilities.

Kazakstan:

- wellfield rehabilitation and well system equipment replacement, and
- transmission pump system equipment replacement.

Turkmenistan:

- demineralized water treatment plant design and installation, and
- water distribution program for truck delivery.

Uzbekistan:

- technical operations assistance at two major water plants, and
- selected equipment replacement for improved operations.

PUBLIC HEALTH ACTIVITIES

- * Improve water quality monitoring and public health education.

Kazakstan:

- laboratory equipment and training at five selected laboratories, and
- interagency health education program and demonstration projects.

Turkmenistan:

- laboratory equipment and training at one selected laboratory, and
- health education and sanitation program and demonstration projects.

Uzbekistan:

- laboratory equipment and training at three selected laboratories, and
- interagency health education program and demonstration projects.

REGIONAL WATER POLICY ACTIVITIES

- * Increase regional cooperation in water management.

Central Asian Republics:

- series of interrelated workshops on water policy and pricing;
- promote systemic policy and institutional strengthening for water management;
- facilitate regional agreements on water use and energy generation;
- leverage donor resources to support integration of policy activities; and
- develop and fund applied demonstration projects and partnerships in related water management and policy issues, such as decision support, environmental assessment of damages, water pricing, and allocation.

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SUMMARY OF THE U.S. ARAL SEA PROGRAM

The Aral Sea is a major environmental disaster in Central Asia which directly affects Kazakstan, Uzbekistan, and Turkmenistan; and indirectly the Kyrgyz Republic and Tajikistan. Thirty years ago, the Aral Sea was the fourth largest inland lake in the world; today, the sea level has fallen 15 meters, the surface area has been reduced by one-half and the salinity levels have tripled. The effects include: destroyed ecosystems, an end to commercial fishing, and drastic declines in health levels for people in the region. The disaster stems directly from huge diversions of water from the Amu Darya and Syr Darya which formerly fed the Aral Sea. Inefficient irrigation practices, excessive use of chemicals and fertilizers, lack of adequate drainage, and contaminated groundwater all combined to create an environmental disaster as a result of decisions to focus primarily on the production of cotton and rice for the former Soviet Union.

In March 1993, the five Central Asian presidents met in Kyzyl-Orda, Kazakstan and established an Inter-state Council for the Aral Sea (ICAS) pledging one percent of the GDP in each country to be devoted to addressing the problems of the Aral Sea. This commitment was reaffirmed by the presidents with the execution of the Nukus Declaration in September 1995. In addition, the World Bank hosted Donors' Meetings to mobilize international resources to address the problems of the Aral Sea. There is little chance that the Aral Sea can be "saved" over the short term; therefore, initial assistance focuses on the most serious human impacts of the disaster, as well as setting the stage for addressing water policy issues in a more systematic manner. The World Bank's Aral Sea program consists of two phases: (1) analysis, design and pilot activities valued at more than US\$40 million; and (2) a second phase with the implementation of the planned projects estimated to cost US\$470 million over three to four years. Other donors, such as the European Union and the Swiss Government, are also implementing projects in the region.

Based on an initial commitment made by Secretary of State Warren Christopher in October 1993, the USG has provided more than US\$22 million in humanitarian assistance in the Aral Sea disaster area. The U.S. Aral Sea Program is being implemented for USAID by the Environmental Policy and Technology (EPT) project which is a NIS program managed by CH2M Hill International, Inc. USAID is the first international donor providing concrete assistance and has completed local projects addressing water supply and health needs of the affected populations in three countries near the Aral Sea. Specific benefits from this program include: (1) greater access to safe water through water system reliability improvements, (2) reduced bacterial contamination through improved water quality improvements, (3) improved public health through health education programs and sanitation demonstration projects in three countries, and (4) water management policy improvements through regional cooperation. These activities include:

Kazakstan - These activities focus on the western area of Kyzyl-Orda Oblast and include: water supply improvements at wellfields and transmission system improvements for system reliability, water quality monitoring equipment and training, and public health education programs that provide training and support for community-based sanitation projects. It is estimated that 200,000 people will benefit from the water system improvements and 300,000 will benefit from the public health education programs. Laboratory equipment was provided to five laboratories in February 1995, several wells were rehabilitated in August 1995, and chlorination equipment was installed

at eight pump stations in September 1995. Detailed designs for pump station improvements were completed and the replacement equipment is being installed and will be completed late 1996. These efforts include the collaboration with the World Bank program for complementary activities such as the repair of the main water transmission line and selected municipal system improvements that are beyond the funding limit of the USAID program.

Turkmenistan - These activities focus on the Turkmenbashi area in Dashhovuz Velayat near the Aral Sea, and include: the installation of a demineralized water treatment plant; water quality monitoring equipment; and public health education programs. The water treatment plant will benefit 100,000 people and the public health education programs will benefit about 200,000 people. The water treatment plant began operations in August 1995 and full scale testing was completed in March 1996. Continued plant operations and maintenance training and support is being provided by the EPT project until December 1996. The public health program began with field assessments followed by training seminars in April 1995. Demonstration health projects will be implemented in late 1996.

Uzbekistan - These activities focus on Karakalpakstan and Khorezm Oblast in the delta of the Amu Darya near the Aral Sea and include: equipment and training at two water treatment plants, and public health education programs. Operations training was conducted in the summer of 1995, and new chlorination equipment was installed at two large water treatment plants in August 1995. Additional chlorination equipment was installed in the cities of Nukus, Urgench, Kegeili, and Chimbai in the summer of 1996. Also, chemical feed and metering equipment is being installed at the two plants and will be completed in late 1996. In addition, extended operations training will be provided at these facilities after installation of the equipment. A public health education seminar was conducted in April 1995 and included the identification of health demonstration projects. A least 1,000,000 people will benefit from operational improvements at the water treatment plants and about 400,000 will benefit from the public health education programs.

Regional Cooperation - The Aral Sea disaster represents a policy failure on the part of the former Soviet regime due to efforts to make Central Asia a cotton growing area regardless of the environmental costs. The Regional Cooperation program provides policymakers from all five countries opportunities to discuss common concerns and develop a rational, policy-based strategy for dealing with the cause of the disaster. A water management study tour was conducted in April 1994 to the western United States for 22 senior policymakers from the five countries to define the critical policy issues and see how U.S. agencies address common water issues. As a result, additional workshops were conducted: (1) in December 1994 in Tashkent, Uzbekistan on information management issues; (2) in May 1995 in Ashgabat, Turkmenistan on water policy issues; and (3) in November 1995 in Bishkek, Kyrgyz Republic on water pricing issues. A joint-donor water quality standards seminar was also conducted in Tashkent in August 1995. These activities highlighted the importance of coordinated approaches to rational water policies. This regional approach is producing results: 1) a water sharing agreement was executed in Shymkent, Kazakstan in April 1995 by the water ministers from all five Central Asian Republics; 2) water pricing is being developed in the CAR; and 3) agreements are being facilitated for water quality and a major hydroelectric facility.

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PROGRESS TO DATE IN FURTHERING THE U.S. INTERESTS
IN THE ARAL SEA REGION

"DEMONSTRATE U.S. GOODWILL AND LEADERSHIP"

- * USAID is the first donor implementing projects in the Aral Sea area, and
- * local governments perceive USAID as the leader in the implementation of activities that alleviate human suffering in the Aral Sea area.

"DEVELOP REGIONAL COOPERATION ... PREVENTING FUTURE CONFLICT"

- * Water Ministers and Deputy Ministers from Central Asia attended the EPT Study Tour and Workshops which facilitated the execution of the first water sharing agreement among the Central Asian states in Shymkent, Kazakstan in April 1995;
- * The EPT Water Pricing Seminar conducted in Bishkek, Kyrgyz Republic was the first program in the region to address this critical issue;
- * EPT is developing partnerships that fund related water management and policy issues, such as water allocation, decision support, and water pricing; and
- * EPT is facilitating the development of regional agreements for water quality and for a major hydropower facility.

SUPPORT A "MULTILATERAL EFFORT THAT LEVERAGES U.S. ASSISTANCE"

These activities are being integrated with other multilateral and bilateral programs by:

- * leveraging local health education programs into national priority issues;
- * providing support to the World Bank on projects in Kazakstan and Turkmenistan;
- * participating in joint-donor water quality workshops in the region; and
- * coordinating with other donors (such as the World Bank, EU TACIS, UNDP, and UNICEF) on water quality, management, and environmental health issues.

"FOCUS ASSISTANCE ... WITH SOLUTIONS TO A REAL PRIORITY PROBLEM"

The local governments have identified safe drinking water and environmental health as priority issues in the region, and USAID has addressed these issues:

- * installed a demineralized water treatment plant in Turkmenistan;
- * implemented improvements to water plant operations and installed chlorination and chemical equipment at two major water treatment plants in Uzbekistan;
- * installed chlorination equipment at four pump stations in Uzbekistan;
- * conducted wellfield assessments and installed replacement pumps in 32 wells which increased the capacity three times and reduced the electrical consumption by fifty per cent in an area near the Aral Sea in Kazakstan;
- * installed chlorination equipment at six pumping stations in Kazakstan;
- * completing the installation of replacement pumps, motors and instrumentation at six major water pump stations near the Aral Sea in Kazakstan;
- * installed laboratory instruments and provided training for improved water quality monitoring in nine laboratories in the three countries bordering the Aral Sea; and
- * completed public health assessments and conducted health education seminars in three countries that have resulted in 20 demonstration projects being implemented by local authorities at the grass roots level.

Note: The U.S. interests are defined in a S/NIS memorandum from Strobe Talbott dated July 22, 1993.

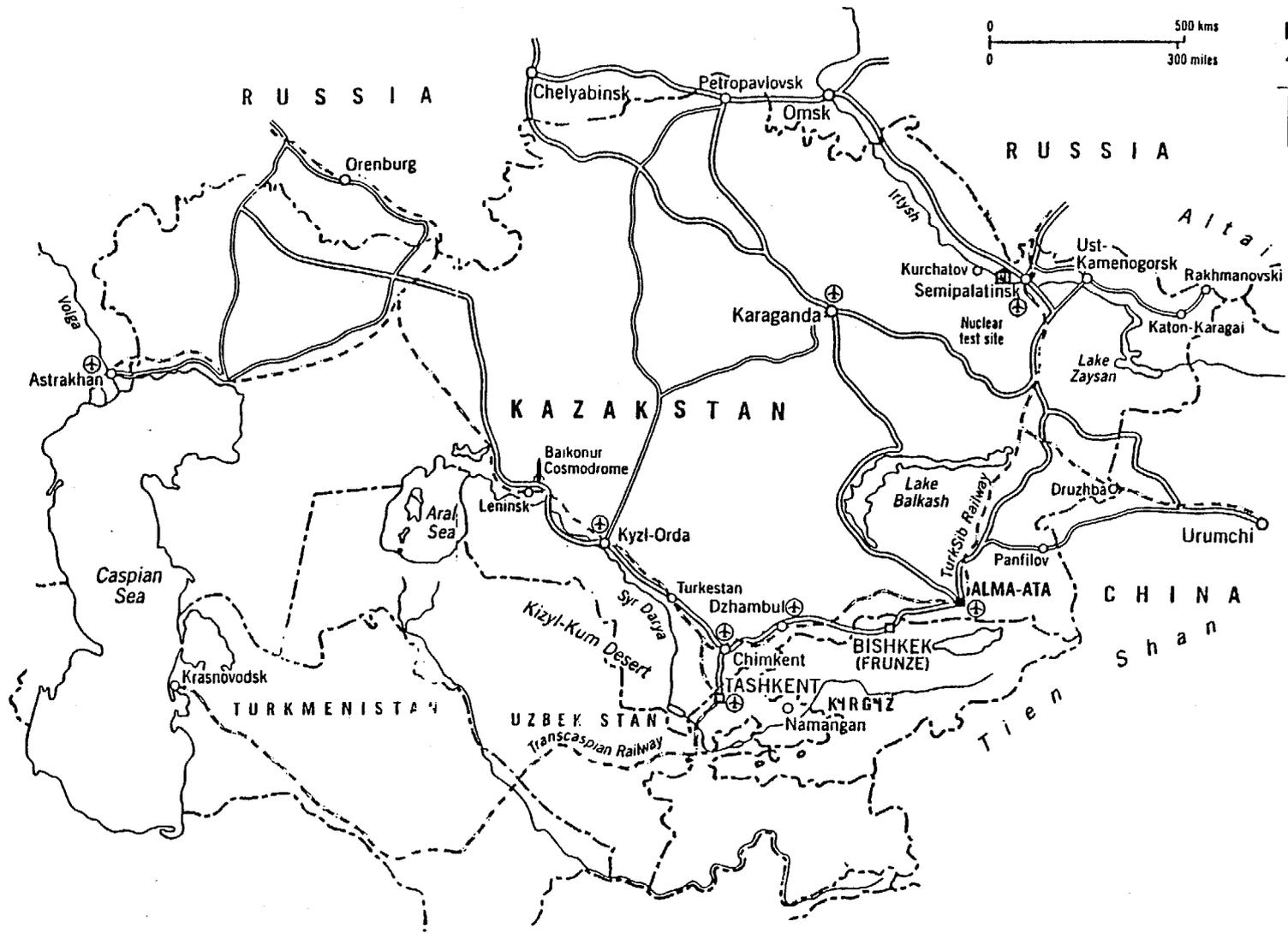
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KAZAKSTAN ACTIVITIES

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KAZAKSTAN ACTIVITIES
WATER SYSTEM IMPROVEMENTS PROGRAM

GENERAL DESCRIPTION

This is a summary of a series of field investigations conducted in the Aral Sea area of Kazakstan since the summer of 1994 by CH2M-Hill field teams as part of the EPT program activities. The purpose of these visits were to define the scope of work and implement the activities which are included in the Memorandum of Understanding executed on 18 March 1994 between the Government of the United States and the Government of Kazakstan. The U.S. Aral Sea program is intended to provide technical support to improve water quality, address immediate public health needs, and develop effective regional water management.

The activities included in the Memorandum of Understanding were negotiated to provide a staged program of water supply improvements. Three of the elements have been implemented, i.e., water quality monitoring improvements (provision of laboratory equipment), water quality improvements (provision of chlorination equipment), and health education improvements (public health training.)

The field teams have made site inspections of all facilities in the water system which includes wellfields, transmission pipeline, pumping stations, and distribution systems in Aralsk, NovoKazalinsk, and some rural areas. The field teams interviewed government officials at federal, oblast and rayon levels. Detailed technical information was compiled for each facility which were used for the implementation program. Detailed technical reviews were conducted periodically by the Kazakstani representatives and detailed recommendations were made. A hands-on improvements program was initiated in the summer of 1995 beginning at the wellfields and continuing along the transmission line and pump stations. In May 1996, the Minister of Finance allocated almost \$2 million to the State Committee on Water Resources to support the EPT activities which will continue in the summer of 1996 with a major implementation program.

RECOMMENDATIONS

Recommendations were made to the Kazakstan State Committee on Water Resources for a series of priority projects based on the results of the field investigations, and include a detailed technical assistance program, with the following elements:

1. Provision of water monitoring equipment at five locations in the cities of Aralsk and NovoKazalinsk laboratories and the Sanitary and Epidemiological Services laboratories in Aralsk, NovoKazalinsk and Kzyl Orda.
2. Provision of water chlorination equipment and training at the following eight locations:
 - * Pump stations 1 and 2 in the two wellfields,
 - * Pump station 3 near the city of Aralsk.

- * Pump stations 4, 5 and 7 near the rural settlements,
- * the city of Aralsk pump station, and
- * the city of NovoKazalinsk water treatment plant.

3. Provision of equipment and training to improve the reliability of the water supply from the wellfields that included an on-site testing program and the replacement of submersible pumps and motors in three wells. The preparation of a comprehensive program of wellfield improvements is being completed to continue these activities after the winter.
4. Provision of equipment and training to improve the reliability of the main transmission system by replacing equipment at six pump stations serving the main pipeline and one pump station serving the City of Aralsk. including pumps, motors, fittings, selected piping, motor control centers, and power transformers.
5. Provision of equipment and training to improve the operations and maintenance with six diesel welding units for the wellfields, transmission line, and the cities of Aralsk and NovoKazalinsk.
6. Development of a public health education and training program to address the critical health issues of the population with a focus on water and sanitation activities, and the development of grass-roots demonstration projects by the local agencies for practical training.
7. Recommendations for institutional improvements to ensure the sustainability of the technical assistance, including the following:
 - * chlorine supply requirements for the continued operation of the equipment installed,
 - * local budgetary support for all systems for proper operation and maintenance, and
 - * development of interagency agreements to ensure payments and cost recovery for water.

Additional priority projects will be implemented as funding is available from USAID or other donors. The World Bank may provide funding for complementary projects, such as the following:

8. Provision of materials and equipment for the replacement of selected distribution piping in the cities of Aralsk and NovoKazalinsk to reduce leakage and improve service in the urban areas. The replacement of piping will be implemented on a phased construction basis by the local authority, and includes 1000 meters of plastic pipe and fittings for each city.
9. Replacement of a portion of the main transmission line between the wellfields and Aralsk, with the possibility of a second stage between Aralsk and NovoKazalinsk, as necessary.
10. Construction of a new pump station for the city of NovoKazalinsk which will provide for the phase-out of the water treatment plant using contaminated water from the SyrDayra as a water source.

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KAZAKSTAN ACTIVITIES
SUMMARY OF EQUIPMENT INSTALLED

I. SANITARY AND EPIDEMIOLOGICAL SERVICES

A. Kzyl Orda Laboratory Equipment

1. spectrophotometer, reagents and training (February 1995),
2. final laboratory operations manual, (July 1996) and
3. follow-on laboratory assessment and training (October 1996).

B. Kzyl Orda Health Center

1. desk copier, cartridge, and materials (April 1995);
2. health education materials (April 1995),
3. materials for health demonstration projects (October 1996), and
4. audio-visual training equipment (October 1996).

C. Aralsk Laboratory Equipment

1. basic water quality laboratory (February 1995);
2. Spectrophotometer, turbidimeter, pH meter, reagents and training (Feb. 1995);
3. final laboratory operations manual (July 1996), and
4. follow-on laboratory assessment and training (October 1996).

D. Aralsk Health Center

1. desk copier, cartridge, and health education materials (April 1995); and
2. audio-visual equipment (October 1996).

E. NovoKazalinsk Laboratory Equipment

1. basic water quality laboratory (February 1995);
2. spectrophotometer, turbidimeter, pH meter, reagents, training (February 1995);
3. final laboratory operations manual (July 1996), and
4. follow-on laboratory assessment and training (October 1996).

F. NovoKazalinsk Health Center

1. desk copier, cartridge, and health education materials (October 1995); and
2. audio-visual equipment (October 1996).

II. ARALSK ADMINISTRATION FOR WATER AND SEWERAGE

A. Aralsk Laboratory Equipment

1. portable pH meter, turbidimeter, and colorimeter (February 1995);
2. conductivity meter, MEL/MF laboratory, and training (February 1995);
3. final laboratory operations manual (July 1996); and
4. follow-on laboratory assessment and training (October 1996).

B. Aralsk Pump Station Chlorination Equipment

1. chlorination system (45 kg/day), and gas detection system (November 1995);
2. breathing apparatus, emergency kit, and training (November 1995); and
3. final chlorination operations manual (August 1996).

C. Aralsk Welding Equipment (April 1996)

1. one welding unit, mounted on a trailer powered by a 3kw diesel engine;
2. electric grinders, cutting saws, spare parts, and miscellaneous hand tools; and
3. operations and maintenance manual, and training.

D. Aralsk Pump Station Pumping Equipment

1. one 95 lps and two 57 lps pump systems with flow meters (September 1996);
2. electrical equipment, piping equipment, and spare parts (September 1996); and
3. tools, training, and operations manual (September 1996).

III. NOVOKAZALINSK ADMINISTRATION FOR WATER AND SEWERAGE

A. Laboratory Equipment

1. portable pH meter, turbidimeter, and colorimeter (February 1995);
2. conductivity meter, MEL/MF laboratory, and training (February 1995);
3. final laboratory operations manual (July 1996); and
4. follow-on laboratory assessment and training (October 1996).

B. Novokazalinsk Water Treatment Plant Chlorination Equipment

1. chlorination system (45 kg/day), and gas detection system (October 1995);
2. breathing apparatus, emergency kit, and training (October 1995); and
3. final chlorination operations manual (August 1996).

C. Novokazalinsk Welding Equipment (April 1996)

1. one welding unit, mounted on a trailer powered by a 3kw diesel engine;
2. electric grinders, cutting saws, spare parts, and miscellaneous hand tools; and
3. operations and maintenance manual, and training.

IV. BERDYKOL AND KOSAMAN WELLFIELDS OF THE FEDERAL PIPELINE

A. Chlorination Equipment at Pump Stations Nos. 1 and 2

1. chlorination system (45 kg/day), and gas detection system (September 1995);
2. breathing apparatus, emergency kit, and training (September 1995); and
3. final chlorination operations manual (August 1996).

B. Wellfield Pumping Equipment

1. three submersible pumps, motors, and related materials (September 1995);
2. twenty-nine submersible pumps, motors, and related materials (September 1996);
3. fourteen sand separators and fittings (September 1996); and
4. final wellfield operations manual (October 1996).

- C. Pumping Equipment at Pump Stations Nos. 1 and 2 (September 1996)
1. three 210 lps and three 310 lps pumping systems with flow meters;
 2. electrical equipment, piping, and spare parts; and
 3. tools, training, and operations manual.

V. ARALSK-SORBULACK FEDERAL PIPELINE

- A. Chlorination Equipment at Pump Stations Nos. 3, 4, 5, and 7
1. chlorination system (45 kg/day), and gas detection system (October 1995);
 2. breathing apparatus, emergency kit, and training (October 1995); and
 3. final chlorination operations manual (August 1996).
- B. Welding Equipment (April 1996)
1. four welding units, mounted on a trailer powered by a 3kw diesel engine;
 2. electric grinders, cutting saws, spare parts, and miscellaneous hand tools; and
 3. operations and maintenance manuals, and training.
- C. Pumping Equipment at Pump Stations Nos. 3, 4, 5, and 7 (under construction)
1. nine 132 lps and three 63 lps pumping systems with flow meters (Oct. 1996);
 2. electrical equipment, piping, and spare parts (October 1996); and
 3. tools, training, and operations manual (October 1996).
- D. Pumping Equipment for Settlement Areas
1. five 25 lps, two 32 lps, and four 44 lps pumping systems with flow meters (October 1996);
 2. electrical equipment, piping, and spare parts (October 1996); and
 3. tools, training, and operations manual (October 1996).

VI. PARTNERSHIPS, APPLIED DEMONSTRATION PROJECTS, WORKING COMMITTEE

- A. Office Equipment
1. Center for Observation of Pollution of the Environment, KazGidroMet
- one computer, one printer, and software (July 1996).
 2. Interstate Council of Kazakstan, Kyrgyz Republic, and Uzbekistan.
- one computer, one printer, and software (September 1996).
 3. KazNIIMOSK, KazGidroMet
- four computers, four printers, and software (July to September 1996).
 4. KazGidroMet
- one computer, one printer, and software (October 1996).
 5. Ministry of Ecology and Bioresources
- one computer, one printer, and software (October 1996).
 6. State Committee on Water Resources
- two computers, two printers, and software (August and September 1996); and
- one facsimile machine (June 1996).
 7. Zhetisai District Administration, South Kazakstan Oblast
- one computer, and printer, and software (October 1996).

VII. ARALSK AND NOVOKAZALINSK HEALTH DEMONSTRATION PROJECTS

A. Water System Materials

1. pipe, fittings, and related materials (October 1996).

B. Health Education Materials (October 1996)

1. computer at the national level;
2. camcorder and TV/VCRs at the oblast level; and
3. overhead projectors and flip charts at the rayon level.

Note: All materials identified were provided by USAID through the EPT project.
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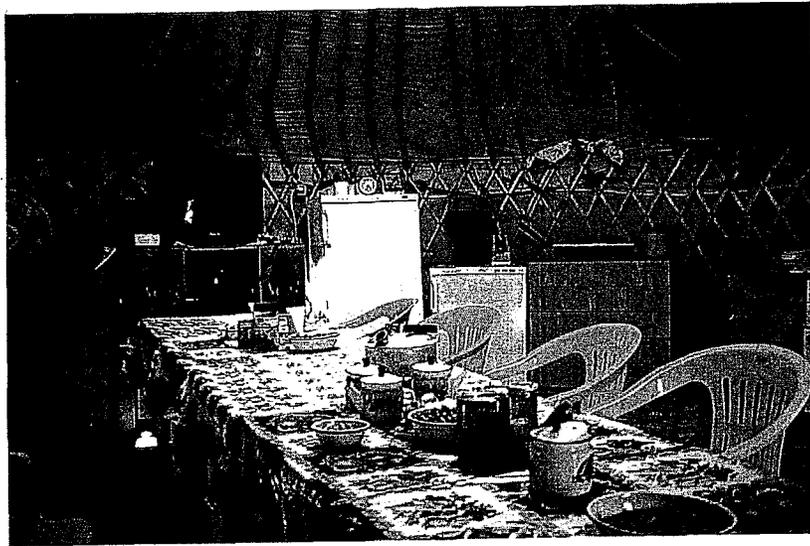
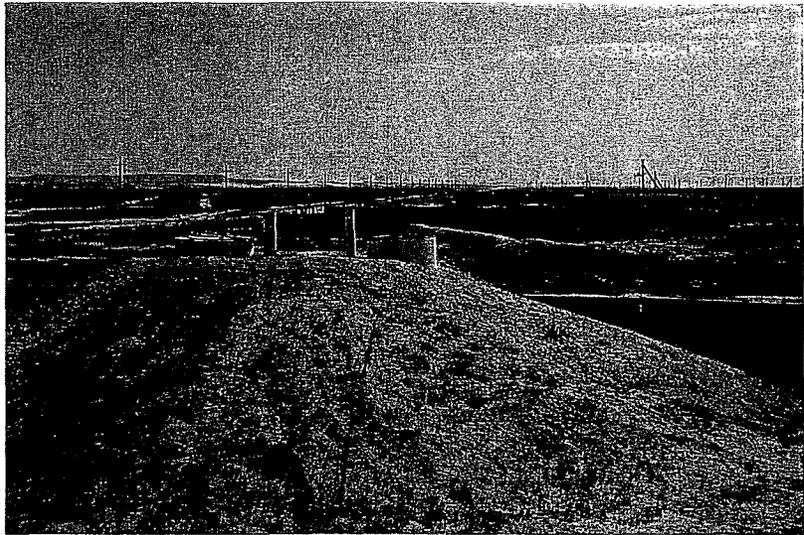
KAZAKSTAN ACTIVITIES
EPT FIELD REPORTS COMPLETED

- K-1 Interim Field Investigations in Kazakhstan: Regional Water Systems in Kzyl Orda Oblast. October 1994 (R)
- K-2 Assessment Report for Water and Sanitation Health Education Program: NovoKazalinsk and Aralsk, Kazakhstan, December 1994 (R)
- K-3 Proposed Chlorination System Improvements at Regional Water System: Kzyl Orda, Kazakhstan. January 1995 (R)
- K-4 Water Quality Laboratory Training Manual Summary: Sanitary and Epidemiological Services Laboratory, Kzyl-Orda, Kazakhstan, February, 1995 (R)
- K-5 Water Quality Laboratory Training Manual Summary: Administration for Water Pipeline and Sewerage System, NovoKazalinsk, Kazakhstan, February, 1995 (R)
- K-6 Water Quality Laboratory Training Manual Summary: Sanitary and Epidemiological Services Laboratory, NovoKazalinsk, Kazakhstan, February, 1995 (R)
- K-7 Water Quality Laboratory Training Manual Summary: Sanitary and Epidemiological Services Laboratory, Aralsk, Kazakhstan, February, 1995 (R)
- K-8 Water Quality Laboratory Training Manual Summary: Administration for Water Pipeline and Sewerage System, Aralsk, Kazakhstan, February, 1995 (R)
- K-9 Proposed Transmission System Improvements at Regional Water Systems: Kzyl Orda Oblast, Kazakhstan, March 1995 (R)
- K-10 Water Quality Laboratory Equipment Installation Program: NovoKazalinsk and Aralsk. Kazakhstan, April 1995 (R)
- K-11 EPT Program Overview in Kazakstan, May 1995
- K-12 Draft Water and Sanitation Health Education Program, Interagency Planning Seminar: Aralsk and NovoKazalinsk, Kazakstan, June 1995 (R)
- K-13 Kosaman and Berdykol Wellfield Evaluation, Kzyl Orda Oblast, Kazakstan, July 1995 (R)
- K-14 Implementation Status of the Water Distribution System Improvements, Kzyl Orda Oblast, Kazakstan, August 1995 (R)
- K-15 Draft Final Report, Delivery Order 4 (1994-1995): Kazakhstan Post Memorandum of Understanding Activities, August 1995

- K-16 Chlorination Operations Manual: Water Transmission System Pump Stations, Kzyl Orda Oblast, Kazakstan, September 1995 (R)
- K-17 Selected Photographs of Wellfields and Pumping Stations, September 1995
- K-18 EPT Update: U.S. Aral Sea Program, Kazakstan and Regional Cooperation Components, November 1995
- K-19 U. S. Aral Sea Program: Kazakstan and Regional Cooperation Components, November 1995
- K-20 Water and Sanitation Health Education Program, Health Program Summary, Aralsk and NovoKazalinsk, December 1995 (R)
- K-21 Chlorination Systems Installation Project, Kzyl Orda Oblast, December 1995
- K-22 Groundwater Survey and Hydrological Characteristics of the Kosaman and Berdykol Wellfields, Kazakstan, January 1996 (R)
- K-23 Proposed Rehabilitation Program for the Kosaman and Berdykol Wellfields, Field Research. Kazakstan, March 1996
- K-24 Investigation of Water Distribution Systems in Aralsk, Novokazalinsk, and Kazalinsk, Kazakstan, April 1996
- K-25 Operations and Maintenance Manual for Welding Equipment, Kazakstan, April 1996 (R)
- K-26 Training in Health Education and Promotion, Water and Sanitation, Kazakstan, Turkmenistan, and Uzbekistan, June 1996 (R)
- K-27 Manual for Water Analyses, Hach Chemical Company, July 1996 (R)
- K-28 Operations and Maintenance Manual for Well Pumps, Kosaman and Berdykol Wellfields, Kazakstan, September 1996 (R)
- K-29 Status of Wellfield Rehabilitation Program, Kosaman and Berdykol Wellfields, Kazakstan, October 1996 (R)

Note: (R) indicates Russian translation available.

October 1996



USAID Mission for Central Asia

KAZAKSTAN ACTIVITIES

View looking west from Pump Station No. 1 in the Kozaman Wellfield
with the reservoir in the foreground and Well No. 16 in the next enclosure.

July 1996

USAID Mission for Central Asia

KAZAKSTAN ACTIVITIES

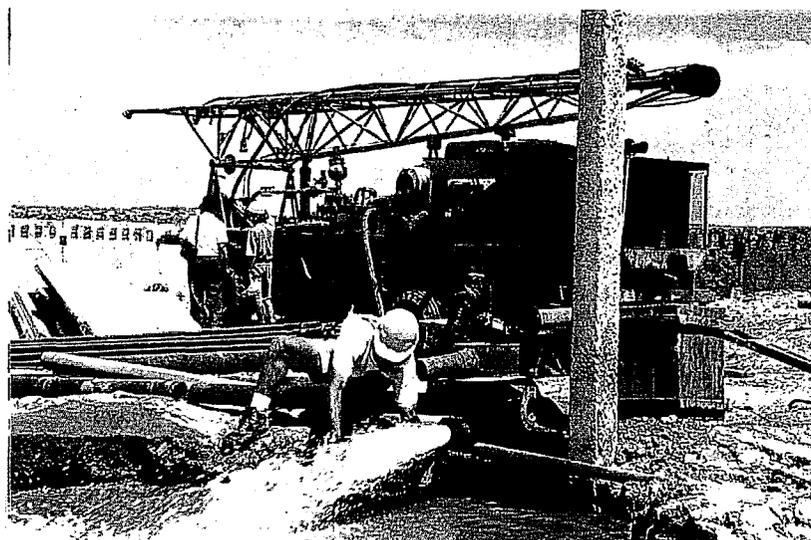
Interior of EPT yurt camp at the Kozaman Wellfield.

July 1996

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KAZAKSTAN ACTIVITIES

Well No. 18 in the Kozaman Wellfield with the construction activities
by PMK 66 Company provided by the Government of Kazakstan.

July 1996

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KAZAKSTAN ACTIVITIES

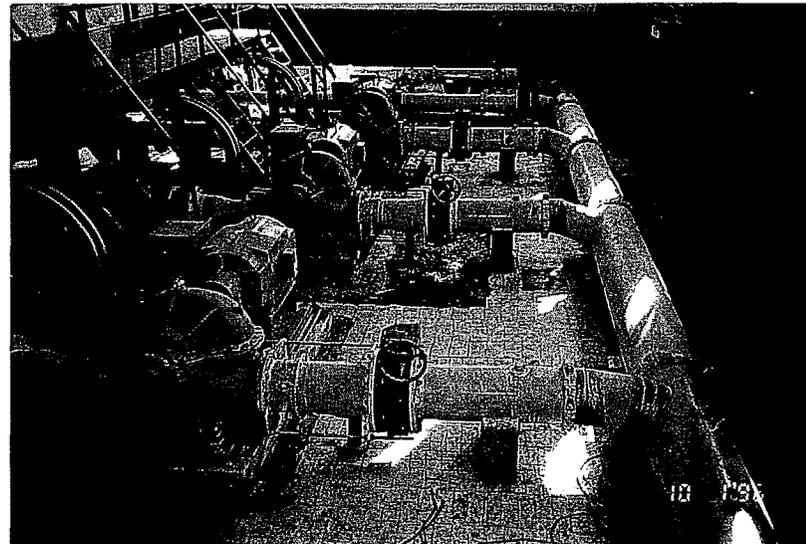
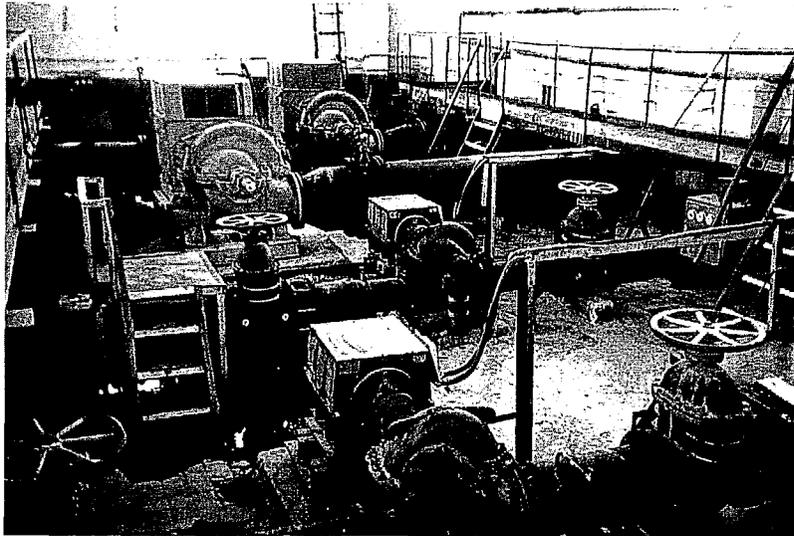
Water sampling at the completed Well No. 1 at the Kozaman Wellfield
with the drilling rig provided by the Government of Kazakstan

July 1996

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KAZAKSTAN ACTIVITIES

View of Pump Station No. 1 in the Kozaman Wellfield with the two large pumps and motors (6000 volts) that were never used being removed by the personnel of the Government of Kazakhstan. Three transfer pumps, two settlement pumps and related electrical controls will be installed by the EPT activities in this location.

July 1996

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KAZAKSTAN ACTIVITIES

Three replacement pumps (210 lps), motors (380 v), flowmeters, and piping provided and installed by USAID at Pump Station No. 1 in the Kosaman Wellfield.

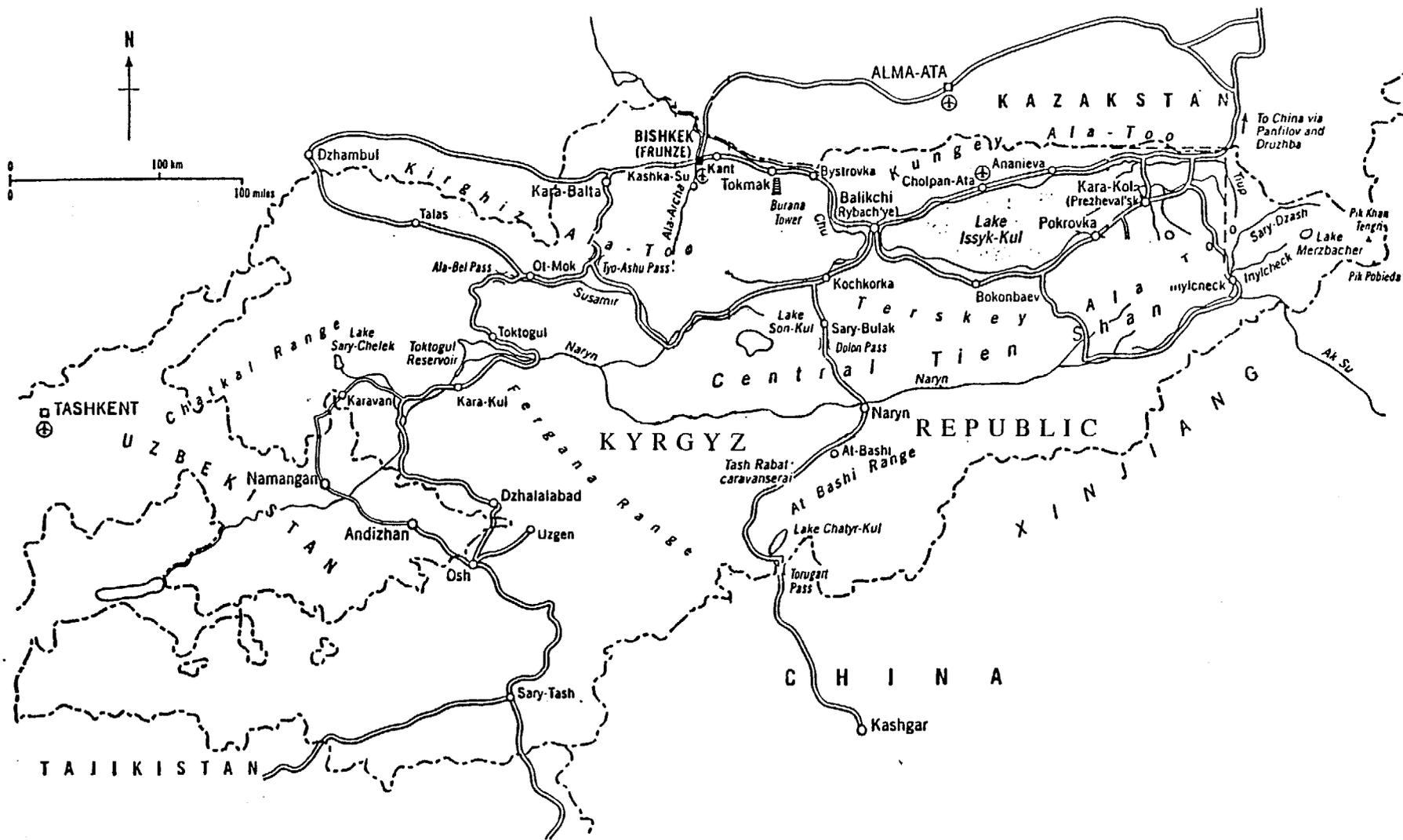
October 1996

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KYRGYZ REPUBLIC AND TAJIKISTAN ACTIVITIES

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KYRGYZ REPUBLIC

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KYRGYZ REPUBLIC ACTIVITIES
SUMMARY OF EQUIPMENT INSTALLED

I. PARTNERSHIPS, APPLIED DEMONSTRATION PROJECTS, WORKING COMMITTEE

A. Office Equipment

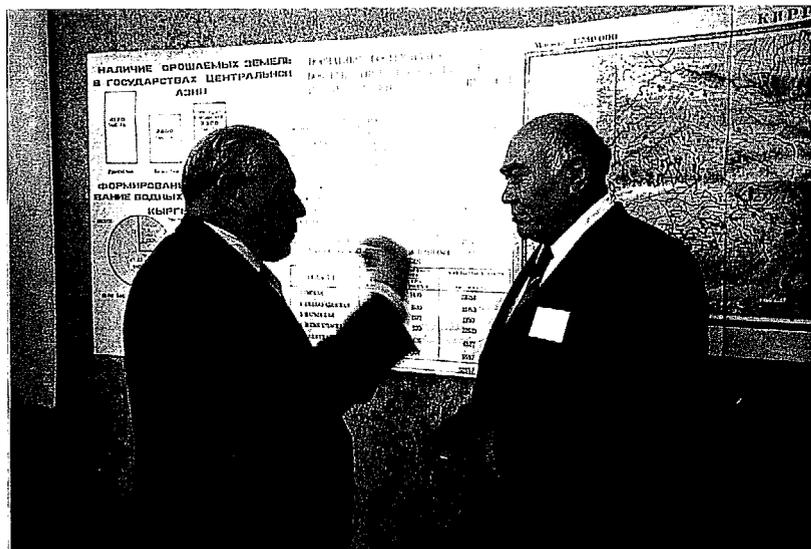
1. Institute of Water Problems and Hydropower
 - three computers, three printers, and software (August and September 1996);
and
 - one facsimile machine (February 1996).
2. Ministry of Nature Protection
 - two computers, two printers, and software (October 1996); and
 - one facsimile machine (May 1996).
3. State Agency for Hydrometeorology
 - one computer, one printer, and software (August 1996).

Note: All materials were provided by USAID through the EPT project.
SUM.KY1

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REGIONAL COOPERATION IN WATER MANAGEMENT
WATER POLICY WORKSHOP

Bishkek, Kyrgyzstan

USHEN MAMATKANOV (Director, Institute of Water Problems and Hydroelectric Energy of Kyrgyzstan)
addressing the workshop participants on the water pricing issues of importance to Kyrgyzstan

November 1995

USAID Mission for Central Asia

REGIONAL COOPERATION IN WATER MANAGEMENT
WATER POLICY WORKSHOP

Bishkek, Kyrgyzstan

KUZMA IVANOVICH SHAVVA (Head Researcher, Institute of Water Problems and Hydroelectric
Energy of Kyrgyzstan) and OMAR NIYAZOVICH NIYAZOV (Deputy Head of Field Studies,
Ministry of Reclamation and Water Management of Turkmenistan) discussing the
water pricing issues of importance to Kyrgyzstan and Turkmenistan

November 1995

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

TURKMENISTAN ACTIVITIES

C. Water Storage and Distribution Systems

1. Concrete storage reservoir
 - precast reservoir (21m x 6m x 3.6m high) with a storage volume of 400 m³ designed and installed by GOT. Materials were purchased locally.

D. Water Distribution System

1. Truck Loading Equipment
 - two truck loading pumps, associated piping and valves;
 - hydropneumatic pump, tank, and air compressor; and
 - dispensing bench with piping and valves.
2. Delivery Vehicles (Sep. 1996)
 - three 5 cubic-meter diesel trucks, spare parts, and operations manual.

E. Site Sanitary and Drainage Systems

1. Site Sanitary Facilities
 - two compartment pit privy designed and installed by the GOT.
2. Site Drainage
 - gravity drainage system with manholes to the drainage canal provided and installed by the GOT.

F. Additional Plant Materials

1. Treatment and Cleaning Chemicals
 - supply for more than two years at normal plant operations.
2. Miscellaneous Tools and Spare Parts
 - assortment of operation and maintenance tools, and
 - variety of spare parts needed for operation.

G. Operations Training

1. Collaborated with NET for operations training in the US (November 1994),
2. Preliminary training at the site (November 1995),
3. Final operations and maintenance manual (February 1996), and
4. Extended operations and training (continuous until December 1996).

H. Office Equipment

1. Office furniture including a desk, two file cabinets, and chairs (1995);
2. Record Drawings of all facilities (September 1996);
3. computer, printer, software, and accessories (October 1996); and
4. Two-way radios for local communications (October 1996).

II. DASHHOVUZ HEALTH CENTER

A. Health Education Materials (April 1995)

1. Miscellaneous training materials.

B. Office Equipment (June 1995)

1. Desk copier, cartridge, and paper.

III. SANITARY AND EPIDEMOLOGICAL SERVICES

- A. Turkmenbashi Laboratory Equipment (October 1996)
 - 1. Basic water quality laboratory;
 - 2. portable laboratory, pH meter, and accessories; and
 - 3. Related materials, reagents, and training.

IV. PARTNERSHIPS, APPLIED DEMONSTRATION PROJECTS, WORKING COMMITTEE

- A. Office Equipment
 - 1. Ministry of Nature Use and Environmental Protection
 - one computer, one printer, and software (October 1996).
 - 2. Ministry of Melioration and Water Management
 - one computer, one printer, and software (July 1996); and
 - one facsimile machine (May 1996).
 - 3. Turkmengiprovodhoz
 - two computers, one printer, and software (September 1996); and
 - one facsimile machine (October 1996).
 - 4. Turkmenhydromet
 - one computer, one printer, and software (September 1996).
 - 5. Scientific Information Center for ICAS
 - one computer, one printer, and software (October 1996).

Note: All materials identified were provided by USAID through the EPT project except those noted which were provided by the Government of the Turkmenistan (GOT).

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October 1996

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

TURKMENISTAN ACTIVITIES
SUMMARY OF EQUIPMENT INSTALLED

I. TURKMENBASHI WATER TREATMENT PLANT

A. Water Supply System -

1. Six Water Supply Wells and Well Houses
 - Capacity of 2 lps each provided and installed by the GOT, and
 - Well pump motor starters and control equipment.
2. Wellfield Transmission Pipe
 - 1790 meters of pipe provided and installed by the GOT.

B. Treatment System -

1. Two Metal Buildings
 - Each building (21m x 10.5 m) is completed with insulation, partition panels, doors, lights, backup heating, lightning protection, finish flooring, laboratory, and office. Materials for building slabs were purchased locally. Primary heating (hot water) was provided and installed by the GOT.
2. Pretreatment Equipment
 - manifold skid with pipe, control valves, and gauges;
 - sand separator skid with three centrifugal separators and piping and valves;
 - bag filter skid with three bag filters with piping and valves;
 - pretreatment chemical skids with acid and antiscalant feed pumps, storage tanks with piping and valves; and
 - cartridge filter skid with three cartridge filter with piping and valves.
3. Desalination Equipment
 - three membrane skids each with a high pressure pump, six fiberglass pressure vessels containing semipermeable membranes, control valves, control panel, and associated piping.
4. Post Treatment Equipment
 - three post treatment chemical skids with sodium hydroxide, sodium hypochlorite, and corrosion inhibitor each with three chemical feed pumps, storage tanks and associated piping and valves.
5. Ancillary Equipment:
 - cleaning system skid with storage tank, pump, heater, and mixer;
 - power system with main disconnect switch, main motor control center, galvanized steel conduits, and power supply wires;
 - control system with common control panel and local control equipment and lighting panels;
 - lighting protecting and grounding system;
 - safety equipment with two safety showers and safety clothing; and
 - laboratory equipment including conductivity, pH, and colorimeter meters with chemical reagents.

Pretreatment chemicals are added to the water to prevent scaling in the reverse osmosis units. For example, sulfuric acid is added to prevent carbonate scaling while an anti-scalant is used to prevent other chemicals from being deposited. The pH of the water is then adjusted prior to passing to the membranes. Cartridge filters are used as safety filters to remove any fine particles larger than 5 microns that pass through the bag filters.

High pressure pumps operating at about 20 kilograms per square centimeter pump the filtered water to the spiral wound semi-permeable membranes. Product water, or permeate, passes through the membranes and is followed by chemical treatment. Sodium hydroxide is added for pH control, sodium hypochlorite is added for disinfection, and a corrosion inhibitor is added to prevent corrosion in the piping. The concentrate, or waste water that is high in contaminants, is discharged to the canal and represents about 25 per cent of the plant flow. The treated water is pumped to the 400 cubic meter reservoir prior to being pumped to the distribution trucks. Two truck loading stations are provided and water can also be pumped to the dispensing system by a hydropneumatic system.

EXTENDED OPERATIONS PLAN

The plant operations is presently constrained by the vehicle delivery system. The World Bank provided twelve 3.9 cubic meter capacity trucks in August 1996 and USAID provided three 5.4 cubic meter capacity trucks in September 1996. The Government is beginning to use these vehicles in addition to private vehicles from the collective farms. During plant operations it is intended that: (a) one operator is responsible for process control and operation and maintenance, (b) the second operator is responsible for the truck loading delivery system, and (c) the third operator would assist in the container dispensing system. The laboratory technician conducts periodic analyses of the product water to ensure the water quality. The plant manager is responsible for the overall facility operations and the plant records.

Preliminary training was conducted by the manufacturer in the United States in November 1994 at a similar facility for ten participants from Turkmenistan. Training was conducted until February 1996 when a full-scale plant performance test was completed and the Government of Turkmenistan accepted the responsibility for the facilities. At that time, a transition was made from the manufacturer of the equipment to EPT plant operations personnel. An EPT plant manager is responsible for process operations and chemical control, and an EPT deputy plant manager is responsible for the electrical, mechanical, and instrumentation functions. Three EPT senior operators have been trained and are assisting in the operation of the facility. An engineering advisor is providing oversight and visits the plant on a monthly basis. Additional detailed training will be provided for the government personnel on site until December 1996.

More than two years of treatment and cleaning chemicals for normal operation were provided by USAID with spare parts. A financing report was completed that included recommendations for budgeting the recurring costs of the facility. A distribution plan was also provided to the government and an enlarged service area is being considered. These extended operational services are being provided at the facility by EPT personnel until December 1996. At that time, it is anticipated that full plant operations will be assigned to the plant personnel from the Dashhovuz Veleyat.

October 1996

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

TURKMENISTAN ACTIVITIES
WATER SYSTEM IMPROVEMENTS PROGRAM

GENERAL DESCRIPTION

This is a summary of the field activities conducted by CH2M Hill as part of the EPT program in Turkmenistan. This assistance is provided by the United States Agency for International Development based on a Memorandum of Understanding executed on February 17, 1994 between the Government of the United States and the Government of Turkmenistan. The U.S. Aral Sea Program is intended to provide technical support "to cooperate in a mutual effort to help meet critical potable water needs of the rayon ... and to promote improved environmental health."

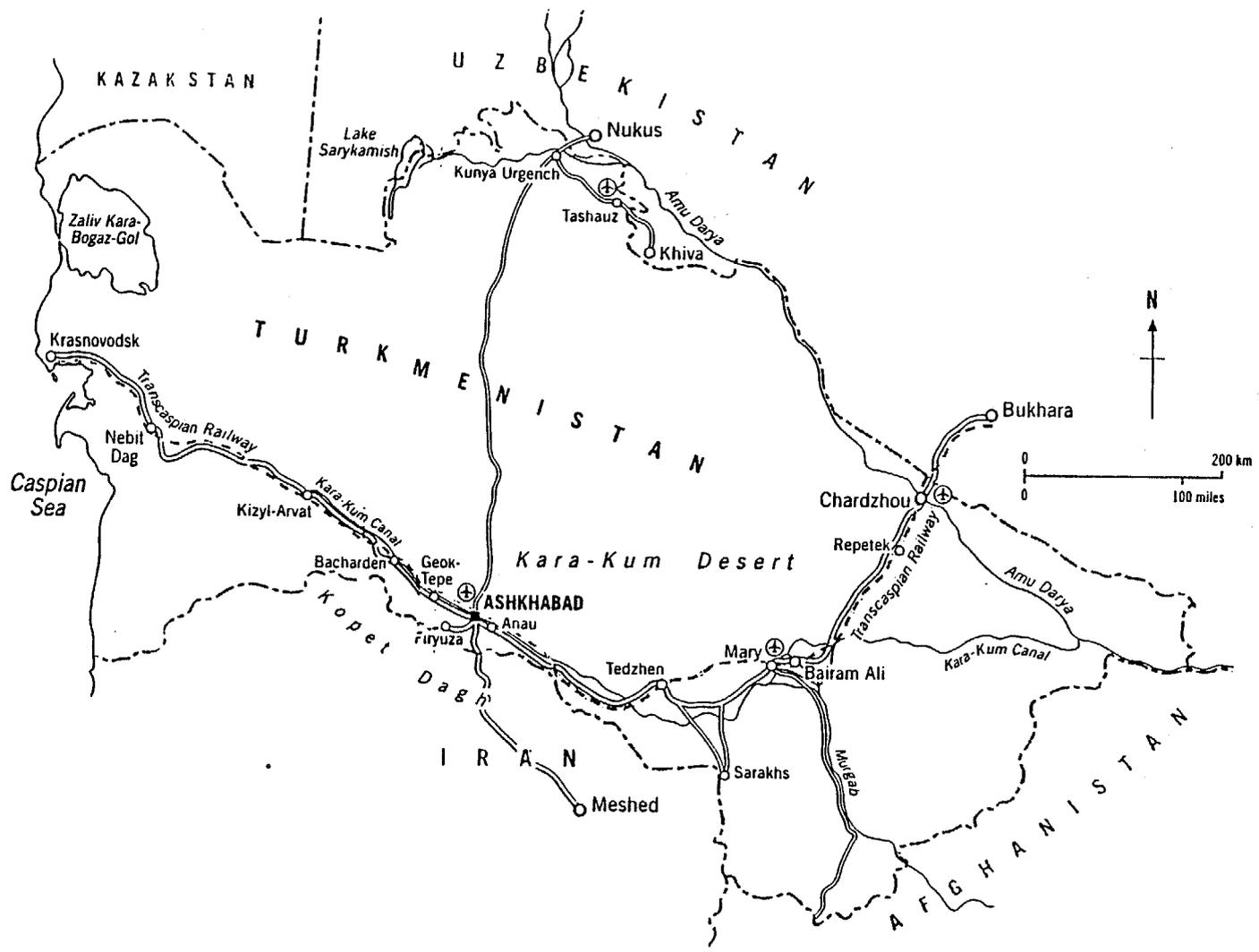
A water treatment facility was planned to provide the critical water needs for the population of Turkmenbashi Etrap in Dashhovuz Velelyat near the Aral Sea. The Turkmenbashi Water Treatment Plant was designed to treat saline groundwater from wells and provide an improved water quality source for almost 100,000 people in the area. The capacity of the facility is based on the concentration of total dissolved solids (TDS) in the groundwater and the hours of operation. The rated capacity of the facility is approximately 750 cubic meters per day. The plant processes remove 99 per cent of the TDS and organic compounds in the well water. The water produced exceeds the World Health Organization (WHO) guidelines for potable water. A blending option of well and treated water was provided to reduce the production costs.

The treatment processes include sand separation, filtration, chemical adjustment, membrane desalting, corrosion control, and disinfection. The potable water produced will be stored in a reservoir on site for truck distribution to cisterns or through a dispensing facility at the plant for individual containers. The facilities at the site include: a building with the plant processing equipment; a building that contains a dispensing area, an office, a laboratory, and a maintenance and storage area; and an underground water storage reservoir. Construction began in late 1994 and plant operations were initiated by the President of Turkmenistan in August 1995. Plant operations were completed with a full-scale performance test completed in February 1996, and the facility was received by the Government of Turkmanistan in March 1996.

PROCESS DESCRIPTION

The treatment process is divided into three parallel "trains" which consist of supply wells, sand separator, bag cartridge, filter cartridge, high pressure pump and reverse osmosis membrane units. Each process train can be operated individually and has one-third the plant rated capacity, or about 250 cubic meters per day. Water is pumped from six deep wells on the site that are about 60 meters deep with two wells for each process train. Each well has a capacity of about 2 liters per second. The well water is processed through a cyclone sand separator to remove sand and coarse particles in the water. This is followed by bag filters to remove fine particles greater than 20 microns that may clog the membranes. Pressure gages are located at the inlet and outlet of the filters to determine when the filters should be cleaned.

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
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TURKMENISTAN

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TURKMENISTAN ACTIVITIES
EPT FIELD REPORTS COMPLETED

- T-1 Draft Report. Water Quality Assessment and Monitoring in the Tashauz Region of Turkmenistan, March 1995
- T-2 Assessment Report for Environmental and Health Education Program: Dashhovuz Velayet, Turkmenistan, January 1995 (R)
- T-3 Draft Owners Manual for Installation Operation and Maintenance, Reverse Osmosis Plant, American Engineering Services, April 1995 (R)
- T-4 Draft Water and Sanitation Health Education Program, Interagency Planning Seminar: Dashhovuz Velayat, Turkmenistan, July 1995 (R)
- T-5 Draft Technical Report, Turkmenbashi Water Treatment Plant, Water Financing Report. November 1995 (R)
- T-6 U.S. Aral Sea Program: Turkmenistan and Regional Cooperation Components, November 1995
- T-7 Water and Sanitation Health Education Program, Health Program Summary, Dashhovuz Velayat, Turkmenistan, December 1995 (R)
- T-8 Draft Water Distribution Plan for Reverse Osmosis Plant, Turkmenbashi. Turkmenistan, December 1995 (R)
- T-9 Regional Cooperation on Water Policy and Management Workshop, Ashgabat, Turkmenistan, January 1996 (R)
- T-10 Operations and Maintenance Manual, Turkmenbashi Reverse Osmosis Plant, Turkmenistan, February 1996 (R)
- T-11 Turkmenbashi Water Treatment Plant Water Financing Report, Turkmenistan, HIID, June 1996 (R)
- T-12 Training in Health Education and Promotion, Water and Sanitation, Kazakstan, Turkmenistan, and Uzbekistan, June 1996 (R)
- T-13 Technical Report, Turkmenbashi Water Treatment Plant, Water Financing Report, June 1996 (R)
- T-14 Training in Health Education and Promotion, Water and Sanitation, Kazakstan, Turkmenistan, and Uzbekistan, June 1996 (R)

T-15 Operations and Maintenance Manual. Ford Diesel Truck, Turkmenistan, August 1996
(R)

T-16 Turkmenbashi R.O. Water Treatment Plant Record Drawings, September 1996

Note: (R) indicates Russian translation available.

October 1996



USAID Mission for Central Asia

REGIONAL COOPERATION IN WATER MANAGEMENT
INFORMATION MANAGEMENT WORKSHOP

Tashkent, Uzbekistan; 29 November-December 1994

Participant at workshop: MR.NOBJIDJON NOSIROV (Director, Research Institute of Hydrotechnics and Melioration from the Republic of Tadjikistan)



USAID Mission for Central Asia

REGIONAL COOPERATION IN WATER MANAGEMENT
WATER POLICY WORKSHOP

Bishkek, Kyrgyzstan

Participants from Tajikistan, from left: NURILLO ASHUROV (First Deputy Minister, Ministry of Melioration and Water Management), MUNIMDZHAN ABDUSAMADOV (Head of Specialized Inspection, State Control for Use and protection of Water Resources), ABDUKARIM KURBANOVICH KURBANOV (Deputy Minister, Ministry of Environment), and VICTOR VASLIEVICH BOLTOV (First Deputy Minister, Minister of Economics and Foreign Economic Relations)

November 1995

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TURKMENISTAN ACTIVITIES

Hon. Saparamurad Niyazov, President of Turkmenistan,
at the opening ceremony of the Turkmenbashi Water Treatment Plant

August 1995

USAID Mission for Central Asia

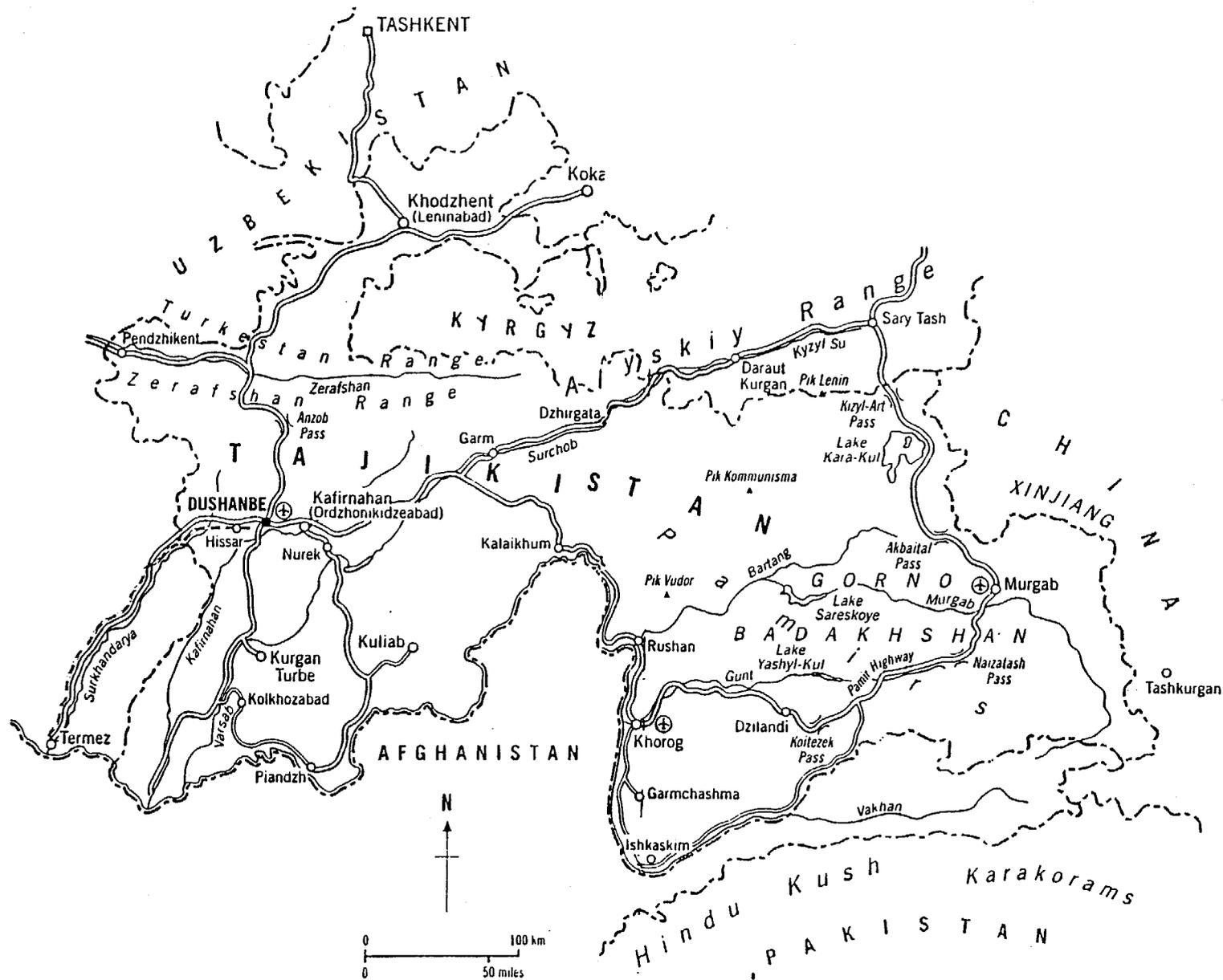
TURKMENISTAN ACTIVITIES

From left: Murat Bekjanov, Deputy Hakim of Dashhovuz Velayat,
U.S. Ambassador Michael Cotter, and Murat Amanov, Hakim of Turkmenbashi Etrap
at the Turkmenbashi Water Treatment Plant

June 1996

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TAJIKISTAN

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Central Asian Regional Office

TAJKISTAN ACTIVITIES
SUMMARY OF EQUIPMENT INSTALLED

I. PARTNERSHIPS, APPLIED DEMONSTRATION PROJECTS, WORKING COMMITTEE

A. Office Equipment

1. Ministry of Ecology
 - one computer, one printer, and software (October 1996).
2. Ministry of Economics and Foreign Economic Relations
 - two computers, two printers, software, and UPS unit (October 1996); and
 - one facsimile machine (June 1996).
3. Ministry of Nature Protection
 - two computers, two printers, software, and two UPS units (October 1996);
 - and
 - one facsimile machine (June 1996).
4. Presidential Aparat, Ecology Sector
 - one computer, one printer, software, and UPS unit (October 1996).

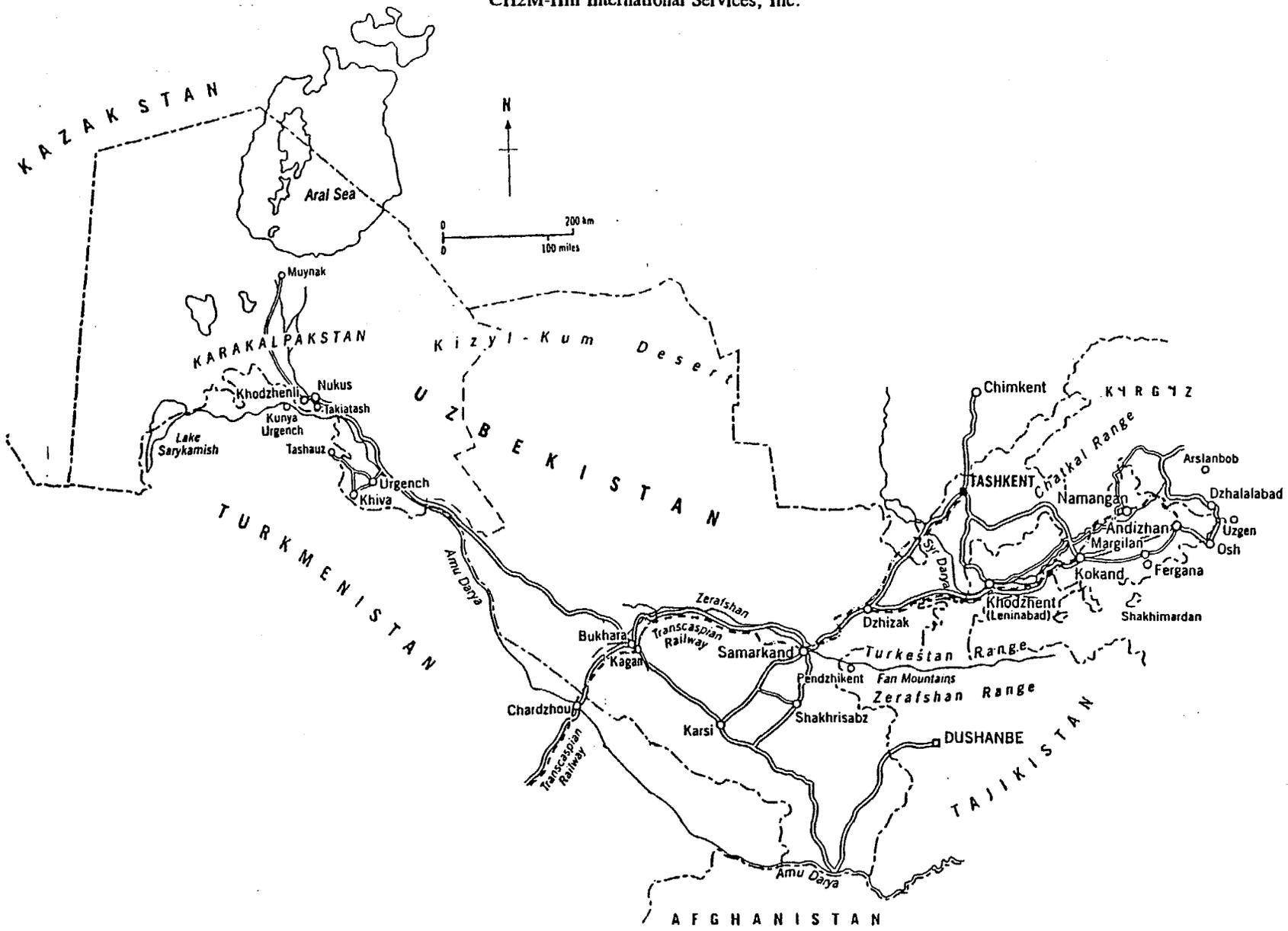
Note: All materials identified were provided by USAID through the EPT project.
SUM.TJ1

October 1996

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

UZBEKISTAN ACTIVITIES

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
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UZBEKISTAN

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

UZBEKISTAN ACTIVITIES
WATER SYSTEM IMPROVEMENTS PROGRAM

GENERAL DESCRIPTION

This is a summary of a series of field investigations conducted in the Aral Sea area of Uzbekistan since the summer of 1994 by CH2M-Hill field teams as part of the EPT program activities. The purpose of these visits were to define and implement the activities which are included in the Memorandum of Understanding executed on 20 April 1994 between the Government of the United States and the Government of Uzbekistan.

The U.S. Aral Sea program in Uzbekistan is intended "to provide water quality improvements and a complementary environmental education programs for critical populations in selected areas of Uzbekistan", as well as promote effective regional water management.

The Nukus and Urgench water treatment plants are well designed, conventional water treatment plants that use the surface water from the Tuyamuyun Reservoir on the AmuDarya. The plants were constructed in 1985 and each plant can produce 200,000 m³/day of potable water. The state of repair of the plants is generally good; however, some systems need upgrading with new equipment at both plants. Finished water is pumped through long transmission lines to the city and rural areas. Expansion of both plants is being considered by the Government of Uzbekistan.

The plants are not producing potable water by international standards, i.e., the World Health Organization (WHO) guidelines. This is due to out-dated local standards that allow highly turbid and poorly disinfected finished water in the transmission system. Microbiological contaminants such as bacteria may be present in the finished water which may cause acute (infectious) health problems to the population served by these plants. Both plants have the unit processes and operations (i.e., clarification, filtration, and chlorination) needed to achieve these standards. Facility improvements needed for microbiological treatment include new chlorination (disinfection) equipment and upgraded laboratory equipment. Improved operational methods and selected equipment are also needed to optimize clarifier and filter performance, and extensive operator training is being implemented.

To assess the potential health impacts on the people receiving the treated water, the concentration of contaminants in the raw water needs to be established. Once these concentrations are established, comparative risk assessment studies can be conducted to establish the threat to public health. In May 1996, EPT and the Centers for Disease Control began collaboration on a demonstration health evaluation in Nukus to determine the reduction in diareheal disease from provision of adequately disinfected water. Installation of new and upgraded treatment processes at the existing water treatment plants is not advised until risk assessment and treatment feasibility studies are completed.

IMPROVEMENTS PROGRAM

The following recommendations have been developed based on the EPT field investigations:

- * The Government should adopt WHO guidelines for potable water. These guidelines should be carried out in a phased approach with Phase I improvements based on: (a) eliminating contaminants such as bacteria that cause acute health problems, and (b) conducting engineering and risk assessment studies as leading to overall improvements to the regional water systems.
- * Specific improvements relate to the reduction of contaminants causing acute health problems should be based on reducing turbidity to 1.0 NTU and increasing disinfection to provide a "free" chlorine residual of 0.2 mg/l in the finished water, and the following tasks have been completed:
 - Installed new chlorination systems (900 kg/day) at both plants that includes scales, evaporators, chlorinators, injectors, associated piping and valves, venting systems, alarm systems and safety equipment with the associated training in August 1995;
 - Provided new laboratory equipment and reagents to ensure that plant processes are operating properly and efficiently in February 1995, and additional reagents and materials were provided in August 1996;
 - Installed chlorination systems (900 kg/day) at the Nukus and Urgench water distribution reservoirs in August 1996;
 - Installed chlorination systems (90 kg/day) at the Chimbai and Kagieli Pump Stations in Karakalpakstan in August 1996; and
 - Installed filter valve control panels at both plants and a labeling program for improved plant operations in May 1996.
- * Provide limited equipment for physical improvements to the clarification and filtration systems at both plants, that include the following scheduled for late 1996:
 - Coagulant transfer and feed pump systems,
 - Polymer feed pump systems, and
 - Flow measuring devices at the radial clarifiers.
- * Provide operator training to optimize the clarifiers, filters and other unit processes in order to meet the proposed new standards. Operator training was provided during 1995 and 1996, and extensive operations training will be provided in early 1997.
- * The Government should institute an annual budget to ensure adequate operation and maintenance of the plants including a reliable supply of chemicals and repair parts. Based on these interventions, the Government of Uzbekistan is provided increased support for chemicals.
- * Conduct a risk assessment and advanced treatment feasibility study to determine if exposure levels from contaminants, such as pesticides and metals, in the raw water are great enough to justify adding advanced treatment processes at the plants.
- * Conduct an engineering study of the distribution system to determine how finished water from the plants is managed both in the transmission pipelines and in the distribution systems.

October 1996

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

UZBEKISTAN ACTIVITIES
SUMMARY OF EQUIPMENT INSTALLED

I. MAIN ADMINISTRATION FOR HYDROMETEOROLOGY

A. Computer Equipment for Workshop

1. computer, printer, software, and accessories (November 1994).

II. NUKUS SANITARY AND EPIDEMIOLOGICAL SERVICES

A. Laboratory Equipment

1. spectrophotometer, reagents and training (February 1995);
2. final laboratory operations manual (July 1996); and
3. follow-on laboratory assessment and training (August 1996).

B. Office Equipment

1. desk copier, cartridge, and materials (September 1995).

III. TUYAMUYUN-NUKUS WATER TREATMENT PLANT

A. Laboratory Equipment (February 1995)

1. water quality laboratory, and spectrophotometer;
2. portable and laboratory turbidimeter and pH meter;
3. conductivity/TDS meter, and MEL/MF laboratory; and
4. related materials, supplies, reagents and training.

B. Additional Laboratory Equipment (August 1996)

1. laboratory operations manual;
2. conductivity meter, portable turbidimeter, and pocket colorimeter;
3. reagent sets for chlorine, chloride, hardness, zinc, and other parameters;
4. extensive supply of laboratory materials; and
5. follow-on laboratory assessment and training.

C. Chlorination Equipment (August 1995)

1. three chlorinators (900 kg/day), two ejectors, and chlorination piping;
2. chlorine emergency units, two self-contained breathing apparatuses; and
3. alarm systems, spare parts, accessories, and training.

D. Plant Equipment

1. eighteen control panels for filter operation (April and May 1996);
2. six alum pumps for chemical addition (October 1996);
3. two polymer pumps for treatment (October 1996); and
4. related materials, piping, accessories, and supplies.

E. Operations Training

1. on-site plant operation evaluations conducted (July and August 1994),
2. collaborated with NET Water Management training in the US (March 1995),
3. collaborated with NET Water Operations training in the US (July 1995),
4. on-site operations training conducted (July and August 1995),
5. wiring and training for filter control panels (April 1996), and
6. labeling program for improved plant operations (May 1996).

F. Office Equipment (purchased and held pending training)

1. one computer, printer, software, and accessories;
2. copy machine, and facsimile machine; and
3. overhead projector, slide projector, camcorder, and TV/VCR.

IV. TUYAMUYUN-URGENCH WATER TREATMENT PLANT

A. Laboratory Equipment (February 1995)

1. water quality laboratory, and spectrophotometer;
2. portable and laboratory turbidimeter and pH meter;
3. conductivity/TDS meter, and MEL/MF laboratory; and
4. related materials, supplies and reagents and training.

B. Additional Laboratory Equipment (August 1996)

1. final laboratory operations manual;
2. conductivity meter, portable turbidimeter, and pocket colorimeter;
3. reagents sets for chlorine, chloride, hardness, zinc, and other parameters;
4. extensive supply of laboratory materials; and
5. follow-on laboratory assessment and training.

C. Chlorination Equipment (August 1995)

1. three chlorinators (900 kg/day), two ejectors, and chlorination piping;
2. chlorine emergency units, two self-contained breathing apparatuses; and
3. alarm systems, spare parts, accessories, and training.

D. Plant Equipment

1. eighteen control panels for filter operation (April and May 1996);
2. six alum pumps for chemical addition (October 1996);
3. two polymer pumps for treatment (October 1996); and
4. related materials, piping, accessories, and supplies.

E. Operations Training

1. on-site plant operation evaluations conducted (July and August 1994);
2. collaborated with NET Water Management training in the US (March 1995);
3. collaborated with NET Water Operations training in the US (July 1995);
4. on-site operations training conducted (July and August 1995);
5. wiring and training for filter control panels (April 1996); and
6. labeling program for improved plant operations (May 1996).

F. Office Equipment (purchased and held pending training)

1. one computer, printer, software, and accessories;
2. copy machine, facsimile machine, and accessories; and
3. overhead projector, slide projector, camcorder, and TV/VCR.

V. CITY OF NUKUS WATER DISTRIBUTION SYSTEM

A. Chlorination Equipment at the Nukus Reservoir (August 1996)

1. two chlorinators (900 kg/day), related equipment and piping;
2. chlorine emergency kits, self-contained breathing apparatus; and
3. alarm systems, spare parts, accessories, and training.

B. Chlorination Equipment at the Chimbai and Kagieli Pumping Stations (August 1996)

1. two chlorinators (90 kg/day), related equipment and piping;
2. chlorine emergency kits, self-contained breathing apparatus; and
3. alarm systems, spare parts, accessories, and training.

VI. CITY OF URGENCH DISTRIBUTION SYSTEM

A. Chlorination Equipment at the Urgench Reservoir (September 1996)

1. two chlorinators (900 kg/day), related equipment and piping;
2. chlorine emergency kits, self-contained breathing apparatus; and
3. alarm systems, spare parts, accessories, and training.

VII. URGENCH OBLAST HEALTH CENTER

A. Office Equipment (April 1995)

1. desk copier, cartridge, and materials.

B. Health Education Materials (April 1995)

1. miscellaneous training materials.

VIII. SANITARY AND EPIDEMIOLOGICAL SERVICES

A. Office Equipment (September 1995)

1. desk copier, cartridge, and materials.

B. Health Education Materials (September 1995)

1. miscellaneous training materials.

IX. PARTNERSHIPS, APPLIED DEMONSTRATION PROJECTS, WORKING COMMITTEE

A. Office Equipment

1. Institute of Bioecology, Academy of Sciences, Nukus
- two computers, one printer, and software (September 1996).
2. Institute of Engineers of Irrigation and Mechanization of Agriculture
- two computers, one printer, and software (March and May 1996).
3. Institute for Water Problems, Academy of Sciences
- one computer, one printer, and software (September 1996).
4. SANIGMI (Central Asian Hydrometeorological Research Institute)
- two computers, two printers, one scanner, and software (September 1996).
5. State Committee for Nature Protection
- two computers, two printers, and software (July and August 1996); and
- one facsimile machine (May 1996).
6. State Committee for Statistics and Forecasting
- one computer, one printer, and software (October 1996).

X. NUKUS AND URGENCH HEALTH DEMONSTRATION PROJECTS

A. Water System Materials (October 1996)

1. pipe, fittings, and related materials.

B. Health Education Materials (October 1996)

1. computer at the national level;
2. camcorder and TV/VCR at the oblast level; and
3. overhead projectors and flip charts at the rayon level.

Note: All materials identified were provided by USAID through the EPT project.
SUM.U1A

October 1996

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

UZBEKISTAN ACTIVITIES
EPT FIELD REPORTS COMPLETED

- U-1 Interim Field Investigations in Uzbekistan: Nukus and Urgench Water Treatment Plant, September 1994 (R)
- U-2 Assessment Report for Water and Sanitation Health Education Program: Nukus and Urgench, Uzbekistan, December 1994 (R)
- U-3 Water Quality Laboratory Training Manual Summary: Water Treatment Plant Laboratory serving Urgench, Khorezm Oblast, Uzbekistan, February, 1995 (R)
- U-4 Water Quality Laboratory Training Manual Summary: Water Treatment Plant Laboratory serving Nukus, Karakalpakstan, Uzbekistan, February, 1995 (R)
- U-5 Water Quality Laboratory Training Manual Summary: Sanitary and Epidemiological Services Laboratory, Nukus, Karakalpakstan, Uzbekistan, February, 1995 (R)
- U-6 Proposed Chlorination System Improvements at Water Treatments: Plants: Nukus and Urgench, Uzbekistan, February 1995 (R)
- U-7 Water Quality Laboratory Equipment Installation Program: Nukus and Urgench, Uzbekistan, April 1995, (R)
- U-8 Equipment Manual: Chlorination Equipment, Nukus Water Treatment Plant, May 1995
- U-9 Equipment Manual: Chlorination Equipment, Urgench Water Treatment Plant, May 1995
- U-10 Draft Water and Sanitation Health Education Program, Interagency Planning Seminar: Urgench and Beruni, Uzbekistan, June 1995 (R)
- U-11 Draft Final Report, Delivery Order 4 (1994-1995): Uzbekistan Post Memorandum of Understanding Activities, August 1995
- U-12 U. S. Aral Sea Program: Uzbekistan and Regional Cooperation Components, November 1995
- U-13 Chlorination Operations Manual: Nukus Water Treatment Plant, December 1995
- U-14 Chlorination Operations Manual: Urgench Water Treatment Plant, Uzbekistan, December 1995
- U-15 Water and Sanitation Health Education Program, Health Program Summary, Urgench and Beruni, Uzbekistan, December 1995 (R)

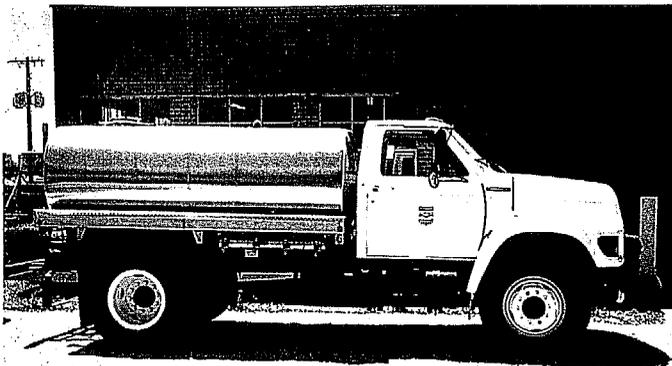
- U-16 Draft Clarification System for the Nukus and Urgencg Water Treatment Plants, Uzbekistan, June 1996
- U-17 Training in Health Education and Promotion, Water and Sanitation, Kazakstan, Turkmenistan, and Uzbekistan, June 1996 (R)
- U-18 Manual for Water Analyses, Hach Chemical Company, July 1996 (R)
- U-19 Draft Chlorination Operations Manual: Nukus and Urgench, Uzbekistan, August 1996 (R)
- U-20 Draft Chlorination Operations Manual: Kegeili and Chimbai, Karakalpakstan, Uzbekistan, August 1996 (R)
- U-21 Assessment of Water Quality Laboratories in Nukus and Urgench, Uzbekistan, August 1996.

Note: (R) indicates Russian translation available.

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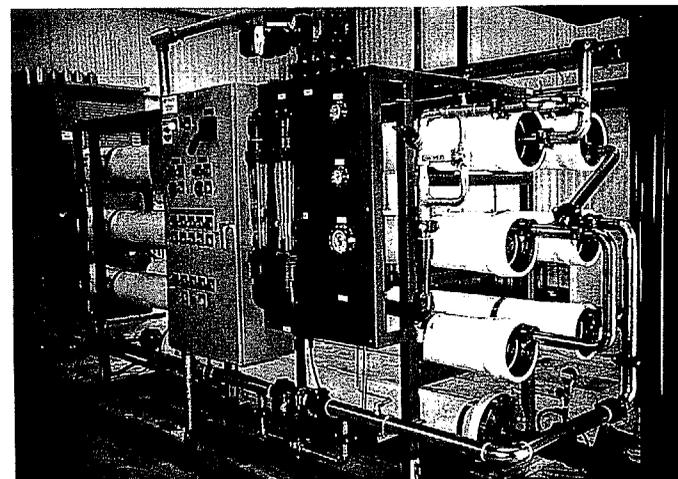


USAID Mission for Central Asia

TURKMENISTAN ACTIVITIES

Water tank trucks prior to shipment to Turkmenbashi Etrap
with a 5.6 cubic meter mounted water tank.

July 1996



USAID Mission for Central Asia

TURKMENISTAN ACTIVITIES

One of three process trains at the Turkmenbashi Water Treatment Plant
with a production capacity of 250 cubic meters per day of water

June 1996

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
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USAID Mission for Central Asia

UZBEKISTAN ACTIVITIES

TRAINING AND INSTALLATION OF WATER QUALITY EQUIPMENT
NUKUS SES LABORATORY

From left: MS. ROSA MATKARIMOVA (Head, of the Nukus SES Laboratory)
and MS. FERUZA KARIMOVA (Chief Technician)

February 1995

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
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USAID Mission for Central Asia

UZBEKISTAN ACTIVITIES

From left: U.S. Ambassador Stanley Escudero and Madiar Kalendarov, Director of the Tuyumuyun-Urgench
water system, with the chlorination equipment at the plant.

July 1996

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

REGIONAL COOPERATION ACTIVITIES

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

REGIONAL COOPERATION IN WATER MANAGEMENT
PARTNERSHIPS AND APPLIED DEMONSTRATION PROJECTS

The activities included in the Regional Cooperation in Water Management program are part of the U.S. Aral Sea program supported by the U.S. Agency for International Development (USAID) in Central Asia. The Environmental Policy and Technology (EPT) project is being implemented in the newly independent states by CH2M Hill International Inc., which is the prime contractor for a team of fourteen subcontractors.

Regional Cooperation in Water Management encouraged proposals for projects to be conducted by individuals, institutions and organizations in the Central Asian Republics and for partnerships between local organizations and U.S. organizations. Guidelines for proposals were prepared, and submittals were evaluated by how well the activity supports the technical assistance program of USAID in the need to share information and use it to develop practical solutions to water management problems in the Aral Sea Basin.

More than 50 proposals were received and evaluated by a group of peers based on a set of criteria including program relevance and scientific merit. The proposals for the applied demonstration projects recommended and executed are as follows:

- * **Short-term Runoff Forecasting of the Amu Darya;** Dr. S. Myagkov, SANIGMI, Tashkent, Uzbekistan. This project addresses the need for automated forecasting models to optimize the operational management of water resources. Researchers will develop a computerized short term runoff forecasting model with a hydrological data base of the Amu Darya. As the computer program will be oriented to the needs of the Hydrological and Water Services of both Turkmenistan and Uzbekistan, the project has potential for facilitating regional cooperation between the two republics. Moreover, the model can later be adapted to the Syr Darya basin.
- * **Creating an Optimal Water Quality Observation Network for the Aral Sea;** Dr. R. Toryanikova, SANIGMI, Tashkent, Uzbekistan, with counterparts in four other republics: E. Pozdnyak, Kazakstan; M. Bakanov, Kyrgyz Republic; N. Budnik, Tajikistan; Y. Feodorov, Turkmenistan. The water quality monitoring systems currently in place for the region's surface waters do not adequately measure contaminants and their distribution within the water system, and monitoring methods and parameters are inconsistent across the region. This project will design a common Central Asian surface water quality monitoring system, including: a structure for the network; a prioritized list of parameters and water bodies to be measured; the unification of existing programs, sampling and testing methods; and an information exchange process. This water quality monitoring network could aid in pollution control and water treatment and support effective policy and management decision-making.
- * **Water Quality Monitoring at the Epicenter of the Aral Sea Ecological Disaster Area;** Dr. Zholibekov, Laboratory of Soil Science and Biotechnology, Institute of Bioecology, Karakalpakstan, Uzbekistan. While it is recognized that water quality in the southern Aral Sea is potentially hazardous to human health, there are no reliable data on the quality of water in the drinking water supply system. This project will evaluate water quality along the untreated drinking water supply system, assess the risks for human health and the need for water treatment

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equipment. The information gathered will be added to a growing data base of water quality in the region. The resulting information will be made available to state committees for nature protection, ministries of health, firms involved with water treatment and environmental protection, and the World Health Organization.

* **Assessment of the Impacts of Human Activity on the Upstream Syr Darya Basin;** L.K. Nekipelova. State Committee on Emergency Situations, Almaty, Kazakstan. The project will assess the influence of economic activity on river flows, providing important information for water resources planning and management policies along the Syr Darya Basin. This project interacts with the next two projects to provide a more complete understanding of the region's situation.

* **Evaluating the Influence of Falling Aral Sea Levels on the Moisture Content of Surrounding Territories;** Dr. E. Vlasenko, KazNIIMOSK, Kazgidromet, Almaty, Kazakstan. This project will analyze changes in water re-distribution over Kazakstan and develop forecasts for the future. This information will be used to develop management recommendations for the agricultural sector.

* **Forecasts of Aral Sea Levels Using Probability Analysis;** Dr. S. Shivarivova. KazNIIMOSK. Kazgidromet. The investigators will use probability analysis to forecast the water balance of the Aral Sea basin; the analysis will enable water managers to modify operating rules for reservoirs and rivers. It may also provide an information base to enable policy makers to express the urgency of addressing the Aral Sea problem in the short term to avert longer term consequences.

* **Scientifically-Based Methods of Water Pricing;** Drs. D. Mamatkanov and K. Shavva, Institute of Water Problems and Hydropower, Kyrgyz Republic, with counterparts in the other four republics: A. Kenshimov, Kazakstan; V. Boltov, Tajikistan; O. Niyazov, Turkmenistan; A. Raffikov, Uzbekistan. Several factors have contributed to the "Aral Sea Crisis," including the removal of water from the contributing river systems for agricultural and other uses as well as water pollution. The regional nature of this problem requires that the different republics involved agree on an approach to water prices and tariffs. This project could be an important step in developing a regional consensus; investigators from all five republics will develop tariffs and prices for water use in agriculture as well as interstate tariffs for water supply. The project also provides an excellent opportunity for the involvement of U.S. counterparts.

* **Water Quality Standards for the Syr Darya Basin;** Dr. Mamatkanov, Kyrgyz Republic, and other experts from Uzbekistan and Tajikistan. Changes in water quality resulting from the construction of water management facilities along the Syr Darya have not been suitably addressed. Researchers will analyze the condition of the water in the basin and sources of contamination. They will then develop unified regional drinking water quality standards and determine management measures which can ensure potable drinking water supplies in the Syr Darya Basin.

* **Pricing Water During Transition to Paid Water Use in the Republics of Central Asia;** Dr. V. Dukhovny, MKVK, and Dr. M. Pinkhasov, SPA SANIIRI, Uzbekistan, with

counterparts from three other republics: I. Umbetyayev, Kazakstan; M. Sarkisov, Turkmenistan; and N. Nosirov, Tajikistan. The objectives of this project are to formulate pricing models for different water uses, to establish tariffs for water supply services for irrigation and non-irrigation purposes, to establish tariffs for different levels of water use and for contamination of water bodies by waste water, and to introduce commercial law for water. The above measures will provide incentives for more efficient water use and potentially provide some much needed financial resources for operational water supply organizations.

*** Economic Damage Evaluation in Water Use; Dr. M. Sarkisov, Turkmenistan.** This project addresses the economic impact of cross-border water pollution. The investigators will develop a scheme for assessing damage to agricultural, industrial, municipal and fishbreeding users, as well as to the environment. On this basis, researchers will propose a bilateral, long-term agreement between Turkmenistan and Uzbekistan on water supply between the two countries.

In addition, partnerships between local, regional and U.S. counterparts were encouraged to develop cooperation on water management issues. Two such partnerships have received funding:

*** Regional Water Allocation Model for the Amu Darya; Dr. A. Karimov, IEL, Tashkent, Uzbekistan; and Dr. D. McKinney, University of Texas, Austin, Texas.** Project counterparts will cooperate on the following activities: comparison of the water management experiences and models of the CAR and Texas; development and implementation of the first phase (Amu Darya basin) of an Aral Sea Basin water allocation model; analysis of efficient water allocation alternatives for the Amu Darya basin; definition of sustainable allocation measures that are extendable to the other river basins in the Aral Sea region; training CAR personnel to maintain and extend the first phase model. This model will be useful in comparing various water allocation scenarios in the CAR, based on different economic and hydrological development options.

*** Integrated Data Management for the Syr Darya Basin; Drs. T. Bondelid and E. Brantley, Research Triangle Institute, North Carolina and counterparts in Kazakstan, Kyrgyz Republic and Uzbekistan.** The investigators will identify and collaborate with Central Asian counterparts to adapt an existing emissions management and decision support system to the Syr Darya Basin. The system will evaluate water resource management issues such as hydrology, water quality, water allocation and water pricing. This activity will promote cooperation and data sharing among counterpart institutions within and among countries, with the objective of demonstrating the value of sharing and integrating analyses across disciplines and geographic areas.

A coordination meeting with the participants of the applied demonstration projects and the partnerships was conducted in Almaty, Kazakstan in October 1996. All these activities are scheduled to be completed in December 1996.

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

REGIONAL COOPERATION ACTIVITIES
EPT FIELD REPORTS COMPLETED

- R-1 Draft Environmental Action Plan, Central Asian Republics, August 1994
- R-2 Selected Technical Papers, Information Management Workshop, Tashkent, Uzbekistan, December 1994 (R)
- R-3 Examples of River Basin Compacts and Treaties: Indus Waters Treaty, and Agreement on the Mekong River Basin, May 1995 (R)
- R-4 World Bank Policy, Water Resources Management, Draft Russian Translation, August 1995 (R only)
- R-5 Status of Aral Sea Regional Allocation Model for the Amu Darya, January 1996
- R-6 Summary of the Seminar on Water Pricing in Central Asia, May 1996 (R)
- R-7 Summary of the Water Policy and Pricing Activities in Central Asia, June 1996
- R-8 Status of Water Policy and Pricing in Central Asia, July 1996
- R-9 Status of Aral Sea Regional Allocation Model for the Amu Darya, August 1996
- R-10 Examples of River Basin Compacts and Treaties: Colorado and the Tijuana Rivers, and the Columbia River Basin, September 1996 (R)
- R-11 Comparative Analysis of Water Pricing Policies and Water Allocation Techniques in the Central Asian Republics, September 1996

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October 1996

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
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REGIONAL COOPERATION ACTIVITIES
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October 1996



USAID Mission for Central Asia

UZBEKISTAN ACTIVITIES

INTERAGENCY PLANNING SEMINAR ON WATER AND SANITATION

From left: AZAD ADAMBAEV (Deputy Khokim Khorezm Oblast and Chief of Operations),
BACHTIYAR DUSCHANOV (Head, Khorezm Oblast Health Department), MS. RIMMA NOZHKINA
(Chief, Epidemiological Department of the Ministry of Health), and KAITBAI LATIPOV
(Head, Tashkent Health Center)
April 1995



USAID Mission for Central Asia

UZBEKISTAN ACTIVITIES
TUYAMUYUN-NUKUS WATER TREATMENT PLANT

Equipment operators with new chlorination facilities installed at the plant
September 1995

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USAID Mission for Central Asia

REGIONAL COOPERATION IN WATER MANAGEMENT
INFORMATION MANAGEMENT WORKSHOP

Tashkent, Uzbekistan; 29 November-December 1994

Small group session at workshop: remote sensing technology conducted by JAMES ELLIS
(Supervisor, Remote Sensing Exploration Geology Unit of Chevron Overseas Petroleum Inc.



USAID Mission for Central Asia

REGIONAL COOPERATION IN WATER MANAGEMENT
WATER POLICY WORKSHOP

Bishkek, Kyrgyzstan

Seminar participants during discussions

November 1995

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

RELATED ACTIVITIES

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

WATER AND SANITATION HEALTH EDUCATION ACTIVITIES
PROGRAM OVERVIEW

This is a summary of the water and sanitation health education activities conducted in Kazakstan, Turkmenistan, and Uzbekistan as part of the EPT project which are included in the Memorandum of Understanding executed between the Government of the United States and the government of each country.

Field assessments were conducted in each country in November 1994 and detailed recommendations were made in December 1994. Health Education Planning Seminars were developed and implemented in April and May 1995 in Aralsk, Dashhovuz, and Urgench and follow-up field evaluations were conducted in October. As a result of the training provided at this seminar, twenty grass-roots projects (such as water supply for kindergartens, schools, health care centers, farms, and factories) were developed and are being implemented by the local participants in these areas.

A team of health education specialists is working with local representatives to plan interventions to continue the health and sanitation program, which will include the following activities in each country:

- * develop the local monitoring criteria for the evaluation of the EPT interventions;
- * evaluate the impacts, status, and additional support necessary for the locally developed projects from the EPT seminars;
- * define the engineering commodities to be provided in support of the local projects;
- * determine the implementation activities for the effective application of the health education approaches developed at the EPT seminars;
- * establish training criteria for health education personnel; and
- * strengthen the primary health approach in solving water, sanitation and related health problems in the communities.

The Health Education Planning Seminar conducted in each country was attended by representatives from several government agencies, UNDP, UNICEF, WHO and others. The results were shared with various organisations to promote sustainability in the local areas.

The health and sanitation program has had significant impact. The local health centers have requested additional training and integration of approaches for future activities. Some rayon/etrap activities have already been expanded to the oblast level by the local participants and are being considered at the national level for health education by the Ministry of Health. In one case, EPT assistance was provided for a two-week seminar on management of primary health care in Kazakstan in December 1995. This relatively small activity by USAID is providing leverage for very significant and sustainable results at the local, regional, and national levels in all three countries.

A regional primary health care training program was conducted for thirty participants from the three countries in Almaty in May 1996 to develop programs that will enable participants to improve health conditions at home, community, school, and workplace, specifically regarding water, sanitation and other priority health issues. Health education materials, equipment, and additional technical support will also be provided in late 1996.

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

WATER QUALITY MONITORING PROGRAM
PROGRAM OVERVIEW

This is a summary of the water quality monitoring activities conducted as part of the Environmental Policy and Technology project which are included in the Memoranda of Understanding executed with the governments of Kazakstan, Turkmenistan, and Uzbekistan. Field investigations were conducted in October 1994 in all three countries. Recommendations were made to provide a variety of new laboratory to upgrade and improve selected laboratories to monitor water quality which has been potentially linked to health concerns in the Aral Sea region. Analytical instruments, reagents, and training were provided by EPT at the following facilities:

- * Kzyl Orda Sanitary and Epidemiological Services (SES) Laboratory,
- * Aralsk SES Laboratory,
- * Aralsk Administration for Water and Sewerage System (AWSS) Laboratory,
- * NovoKazalinsk SES Laboratory,
- * NovoKazalinsk AWSS Water Treatment Plant Laboratory,
- * Nukus SES Laboratory,
- * Tuyamuyun-Nukus Water Treatment Plant Laboratory,
- * Tuyamuyun-Urgench Water Treatment Plant Laboratory, and
- * Turkmenbashi SES Laboratory.

Recommendations were made for additional support for these laboratories including:

- * Compile comparative analytical data between the new and existing methodologies, and consider the revision of the current GOST standards to incorporate the World Health Organization guidelines for drinking water quality;
- * Provide the water facilities laboratories with extended support to conduct basic water quality analyses (e.g., pH, turbidity, free chlorine, TDS, and coliform bacteria) for improving the efficiency of the plant processes and monitoring the water quality in the distribution systems;
- * Provide the SES laboratories with extended support to conduct more advanced water quality analyses (e.g., arsenic, lead, pesticides and herbicides) for regional water quality monitoring;
- * Develop a reagent replacement system for the laboratories which utilizes conventional chemicals, and assist in the certification of the instruments and methodologies; and
- * Implement a computerized program for the compilation of the analytical data generated by each laboratory, and provide additional training of laboratory personnel.

An assessment was conducted at each laboratory in September and October 1996 and based on this evaluation, these laboratories will be provided with additional instruments, reagents, and training. A water quality data management program will be implemented to compile data, and a quality control/quality assurance program will be developed.

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ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
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COMMENTS ON THE EPT PROGRAM IN CENTRAL ASIA

- * Ambassador Henry Clarke of the American Embassy in Tashkent, Uzbekistan:
The EPT program is "an outstanding example of USAID/Embassy cooperation."
(Tashkent cable 01088, dated 27 March 1995)

- * Ambassador Joseph Huilings of the American Embassy in Ashgabat, Turkmenistan:
"We consider this to be a significant step in the right direction for regional cooperation in the Aral Sea program." (Ashgabat cable 01290, dated 15 June 1995)

- * USAID Assistant Administrator for the NIS, Thomas Dine:
USAID is "the only donor to have actually been active and can now proudly show results shaping inter-governmental and intra-governmental water policies and cooperation, producing safe drinking water", and "I saw first-hand the professional and personal relationships between Uzbek and our engineers." (Email report dated 20 July 1995)

- * Ambassador Joseph Huilings of the American Embassy in Ashgabat, Turkmenistan:
The President of Turkmenistan, Hon. Saparamurad Niyazov, officially opened the USAID water treatment plant and quoted the President as "effusively expressing gratitude", and "it was a great job performed, for which he repeated his thanks." (Ashgabat cable 01904, dated 25 August 1995)

- * Vice President Al Gore in Washington wrote in support of the Aral Sea program:
"My special interest in the Aral Sea is well known ... I commend your call for a new orientation which places a true value on nature's key resources: soil and water. The consequences of disregarding this value, as we can see, are simply too dire. I wish you well in your noble efforts." (Personal letter dated September 20, 1995)

- * Ambassador Thomas Simon's remarks at the UNDP International Conference on Sustainable Development of the Aral Sea held in Nukus, Uzbekistan:
"We wish to be a good neighbor to Central Asia at this critical time... Our national tradition is to be practical and to move quickly." The U.S. Aral Sea "program has begun to show concrete results: President Niyazov attended the opening of a reverse osmosis water treatment plant ... water quality laboratory equipment has been installed ... water disinfection equipment has been installed ... workshops and training seminars have been held ... and there is much more to come." (Tashkent cable 03734, dated 22 September 1995)

* The U.S. Embassy in Almaty, Kazakstan summarized the program:

"Already the U.S. experts working with Kazakstani counterparts have managed to have a positive impact on the residents of the Kzyl Orda region ... have increased the delivery of potable water to the residents, and health care technology should ameliorate the illnesses suffered by so many of the people living around the Aral Sea", and "the project produces tangible results." (USIS letter dated October 5, 1995)

* The USAID Acting Mission Director, Ms. Marilyn Schmidt, wrote as follows:

"The Aral Sea Initiative is an important, high-profile part of the USAID program in Central Asia and your work is clearly having a measurable impact in the region." (USAID letter dated September 12, 1995)

* The Chief Sanitary Doctor of Kzyl Orda Oblast, Dr. N. Srymov, wrote as follows:

"Kzyl orda Oblast SES expresses high gratitude to USAID for equipping the laboratories ... for controlling the quality of the drinking water. Your active participation in conducting broad health education activities among the population will have a remarkable impact in decreasing infectious morbidity." (Ministry of Health, Sanitary and Epidemiological Services letter dated October 5, 1995)

* The USAID Mid-term Evaluation of the EPT Project includes some of the following comments on the activities in the Central Asian Republics (April 1996):

Kazakstan Activities -

"the installation of ... equipment ... and training have been completed expeditiously and efficiently and with high quality workmanship."

Turkmenistan Activities -

"Successful completion of the construction is a testimony to the resourcefulness and planning capabilities of the CH2M Hill contract personnel."

Uzbekistan Activities -

"The work in the water treatment plants are an example of high quality American engineering and workmanship."

Public Health Activities -

"The health and sanitation program is a sensible and cost-effective means of achieving widespread health benefits."

Regional Cooperation Activities -

"CH has brought together officials ... to develop cooperative solutions to their common policy problems in water management, pricing and water quality."

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
Central Asian Regional Office

COMMENTS FROM THE EPT MID-TERM EVALUATION

* USAID Mid-term Evaluation of the CH2M Hill Component of the Environmental Policy and Technology Project by DA/DAI dated April 1996 includes these comments on the Central Asian Republics:

"The contractor's engineering achievements are impressive ... and of high quality ... accomplished expeditiously, especially considering the extremely adverse working conditions that exist at most project sites."

"The other two elements are equally impressive ... the community-based approach ... to solve health and sanitation problems" and "the regional policy seminars ... constitute unique mechanisms for fostering much needed discussions among high-level government officials on the critical topic of water policy and water management."

"These accomplishments are highly visible and are universally appreciated by beneficiary populations and public officials. The accomplishments reflect well on EPT, the contractor, and on USAID. In some countries, they are the only concrete achievements of any Western donor." (Main Report page 21)

* Specific achievements in Turkmenistan are noted as follows:

"1. Production of clean drinking water ... is a significant achievement. Successful completion of the construction is a testimony to the resourcefulness and planning capabilities of CH2M Hill contract personnel."

"2. CH has excellent working relationships with local counterparts. Through its work in Turkmenistan, CH has well represented USAID, and American's commitment to assist disadvantaged populations. The reverse osmosis plant is a showpiece of American technology and know-how." and

"3. The health education and sanitation component ... is an appropriate means of empowering local communities to mitigate the risks of water borne disease caused by poor water quality and improper sanitation." (page Annex 4A-4 & 5)

* Specific achievements in Uzbekistan are noted as follows:

"1. The engineering tasks ... have the potential of improving the quality of drinking water for a large population in Uzbekistan."

"2. CH has excellent working relationships in Uzbekistan. CH represents American commitment to development and improving the lives of disadvantaged populations. The work in the water treatment plants are an example of high quality American engineering and workmanship."

"3. The health and sanitation program is a sensible and cost-effective means of achieving widespread health benefits." (page Annex 4B-4)

* Specific achievements in Kazakstan are noted as follows:

1. "The installation of chlorinators, provision of laboratory equipment, procurement of equipment for pump stations, and public health training ... have been completed expeditiously and efficiently with high quality workmanship."

2. "The contractor's sanitary health education activities ... should result in significant and positive behavior change among intended recipients as well as systemic change in the way Kazak institutions engage in sanitary education and preventive health activities." (page Annex 4C-1)

* Specific achievements in Water Management and Cooperation are noted as follows:

"1. Through its public policy seminars, CH has brought together officials of the various governments and donors and expatriate experts to develop cooperative solutions to their common policy problems in water management, pricing and water quality."

"2. CH has coordinated well with donor agencies, local government officials and other consultants. USAID, through EPT, is the recognized leader in fostering regional cooperation to solve some of the problems of the Aral Sea Disaster Zone."

"3. There is a high level of official government participation in the implementation."

May 1996

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
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RELATED ACTIVITIES
EPT FIELD REPORTS COMPLETED

- A-1 Central Asian Republics, Environmental Policy and Technology, Program Overview, May 1995
- A-2 EPT Field Briefing Paper, U.S. Aral Sea Program, June 1995
- A-3 Briefing Paper, U.S. Aral Sea Program, prepared for the International Conference on Sustainable Development of the Aral Sea, Nukus, Uzbekistan, September 1995
- A-4 USAID Briefing Paper, U.S. Aral Sea Program, prepared for the Organization for Security and Co-operation in Europe (OSCE) Seminar on Rehabilitating the Environment, Tashkent and Urgench, Uzbekistan, October 1995
- A-5 Central Asian Republics, Environmental Policy and Technology Program Overview and Selected Photographs, October 1995
- A-6 U.S. Aral Sea Program: Kyrgyzstan and Regional Cooperation Components, November 1995
- A-7 U.S. Aral Sea Program: Tajikistan and Regional Cooperation Components, November 1995
- A-8 Central Asian Republics, EPT Project Summary: Program Activities Completed, December 1995
- A-9 Selected Papers on Health Education and Promotion, June 1996
- A-10 Training in Health Education and Promotion, Water and Sanitation, Kazakstan, Turkmenistan, and Uzbekistan, June 1996 (R)
- A-11 U. S. Aral Sea Program Overview, EPT Activities Completed, October 1996

Note: (R) indicates Russian translation available.

October 1996

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
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PARTICIPATION OF FIELD PERSONNEL IN 1994-1995

NAME	ASSIGNMENT	COUNTRY	ARRIVAL 1994	DEPARTURE
Paul Dreyer	Regional Director Envir.Engr.All DOs	CAR	8 Feb	Present
Kris Buros	Water Spec.DO 2	KAZ/TUR	12 Feb	3 March
Jeffrey Bair	Water Well Spec.,DO 2	KAZ/TUR	22 May	10 June
Carl Schmutte	Mech. Oper. Spec. DO 4	KAZ	22 May	10 June
Jeffrey Sanford	Elec. Oper. Spec. DO 4	KAZ	22 May	10 June
William Gierer	Water Oper. Spec.DO 6	UZB	12 June	26 June
Edward Carpenter	Admi. Spec.DO 2,4,6,7	KAZ	12 June	15 August
Stephen Cunha	Land UsePlanner DO 4	KAZ	11 July	30 July
Phillip Micklin	Water Resource Spec.DO 4	KAZ	14 July	30 July
Russel Drobney	Construct.Mgr. DO2,4	TUR	14 August	11 Feb
Ms.Susan Moher	Public Health Spec.DO 2	TUR/KAZ	6 Sept	20 Sept
Michael Palmbach	Com. Rel. Spec.DO 2	TUR/KAZ	6 Sept	20 Sept
Russell Wallace	Admin. Spec.DO 2,4,6,7	KAZ	8 Sept	10 Dec
Ronald North	Policy Spec.DO 8	KAZ	25 Oct	6 Dec
Wilbur Hoff	Health Spec.DO 6,7	UZB/KAZ	1 Nov	13 Nov
Donald Johnson	Health Spec.DO 6,7	UZB/KAZ	1 Nov	13 Nov
Terry Melloy	Man. Rep. Butler, DO 2	TUR	21 Nov	15 Dec
Gregory Chervonobaba	Man. Rep. Butler, DO 2	TUR	21 Nov	15 Dec
Daene McKinney	Water Inform.Spec.DO 8	UZB	26 Nov	3 Dec
James Ellis	Sat. Mapping Spec.DO 8	UZB	27 Nov	3 Dec
David Ford	Water Inform.Spec. DO 8	UZB	27 Nov	3 Dec
Phillip Micklin	Water Resources Spec. DO 8	UZB	27 Nov	3 Dec
Nathan Buras	Water Policy Spec. DO 8	UZB	28 Nov	3 Dec
Fred Ladd	Civil Engineer DO 4	KAZ	6 Dec	22 Dec

PARTICIPATION OF FIELD PERSONNEL (Continued)

				1995	
Terry Melloy	Man. Rep., Butler, DO 2	KAZ	23 January	28 January	
Fred Ladd	Civil Engineer, DO 4	KAZ	24 Jan	29 March	
David McMillan	Man. Rep., AES, DO 2	TUR	25 Jan.	18 Jule	
Ken Burris	Water Lab. Spec., DO 6,7	KAZ/UZB	31 Jan	15 March	
Lance Stokes	Water Lab. Spec., DO 2	TUR	9 February	2 March	
Dale Fackler	Operations Coord., All DOs	KAZ	16 Feb	8 August	
Henry Sheldon	Civil Engineer, DO 2	KAZ	20 Feb.	15 March	
Nate Allen	Construction Mgr., DO 2	TUR	9 March	29 September	
David Baker	Man. Rep., AES, DO 2	TUR	13 March	12 April	
Ronald North	Policy Spec., DO 8	KAZ/TUR	1 April	9 May	
Donald Johnson	Health Spec., DO 6,7	UZB/KAZ	4 April	4 May	
Michael Palko	Health Spec., DO 6,7	UZB/KAZ	4 April	4 May	
Sandy Hale	Project Director, All DOs	KAZ	11 April	21 April	
Jean de Malvinsky	Health Policy Spec., DO 6,7	KAZ/UZB	18 April	4 May	
Ben Stauss	Dep. Dir., F&A, All Dos	KAZ	18 April	28 April	
Alan Schultz	Water Policy Spec., DO 8	KAZ/TUR	20 April	12 May	
Randall Stocker	Env. Spec., DO 8	TUR	30 April	7 May	
Jean de Malvinsky	Health Spec., DO 6,7	KAZ/UZB	1 June	15 June	
Randy Hoffman	Civil Engineer, DO 6	KAZ/UZB	1 June	15 June	
James Westfield	Project Director, All DOs	KAZ	13 June	29 Jule	
Syed Mahmood	Civil Engineer, DO 7	KAZ	13 June	10 July	
Daniel Wendell	Wellfield Spec., DO 7	KAZ	13 June	7 July	
Ms. Natasha Raykhman	Wellfield Spec., DO 7	KAZ	13 June	7 July	
Ronald Stillmunkes	Wellfield Spec., DO 7	KAZ	13 June	8 July	
Henry Sheldon	Civil Engineer, DO 2	TUR/KAZ	23 June	3 August	
David McMillan	Man. Rep., AES, DO 2	TUR	23 June	15 December	
Ms. Barbara Britton	Water Policy Coord., DO 8	KAZ	29 June	12 July	
Ivan Dolak	Civiln Engineer, DO 6	UZB	8 July	30 August	
Jesse Wolf	Chlorination Spec., DO 6	UZB	11 July	19 August	
Pervez Shaikh	Engr. Coord., DO 2,5,6	CAR	12 July	31 August	

PARTICIPATION OF FIELD PERSONNEL (Continued)

William Gierer	Operations Spec.,DO 6	UZB	15 July	29 August
Vincent Dinan	Operations Coord., All Dos	CAR	1 August	2 October
Randall Hoffman	Civil Engineer, DO 6	UZB	21 August	14 September
Ken Burris	Water Lab. Spec., DO 6,7	UZB/KAZ	24 August	23 September
Hani Wahbi	Civil Engineer, DO 6	UZB	25 August	7 September
Syed Mahmood	Civil Engineer, DO 7	KAZ	29 August	26 October
Mark Underwood	Wellfield Spec.,DO 7	KAZ	29 August	4 October
Ronald Melesky	Const. Mgr.,DO 7	KAZ	29 August	28 November
Adam Hutchinson	Wellfield Spec.,DO 7	KAZ	29 August	4 October
David Pask	Water Dist.Spec., DO 7	KAZ	29 August	30 September
Jean de Malvinsky	Health Policy Spec., DO 2,6,7,12	KA/TU/UZ	29 August	4 November
Jesse Wolf	Chlorination Spec.,DO 7	KAZ	31 August	28 November
Henry Sheldon	Civil Engineer, DO 2	TUR	6 September	29 September
Jeffrey Donham	Civil Engineer, DO 6	UZB	11 September	19 September
Gregory Lassiter	Operations Coord., All Dos	CAR	18 September	Present
Ms.Barbara Britton	Water Policy Coord.,DO 8	KAZ	29 September	Present
Dolmacio Aviso	Operations Spec.,DO 2	TUR	29 September	15 December
Bulgur Ekrem	Electrical Engineer, DO 7	KAZ	2 October	23 October
Ron Dupree	Mechanical Engineer,DO 7	KAZ	2 October	23 October
Ken Wengler	Mechanical Engineer, DO 7	KAZ	2 October	23 October
Pervez Shaikh	Eng.Coord.,DO 2,6,7,12	KAZ	2 October	Present
Alan Schultz	Policy Spec.,DO 8	KAZ	10 October	21 October
James Westfield	Project Director, all DOs	KAZ	5 November	17 November
Alan Shultz	Policy Spec., DO 8	KAZ/KYR	13 November	23 November
Herbert Fulerton	Economist, USU, DO 8	KYR	13 November	20 November
John Keith	Economist, USU, DO 8	KYR	13 November	20 November
Trevor Hughs	Water Res.Spec,USU,DO8	KYR	13 November	20 November
David McCauley	Economist, IRG,DO8	KAZ/KYR	13 November	20 November
Tim Van Epp	Info. Mgmt.Spec.,DO8	KAZ/KYR	13 November	21 November
Tim Bondelid	Comp. Mgmt.Spec., RTI,DO8	KA/TU/UZ	8 December	20 December
Jean De Malvinsky	Health Policy Spec.,DO 2,6,7	KAZ	11 December	21 December

ENVIRONMENTAL POLICY AND TECHNOLOGY PROJECT
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PARTICIPATION OF FIELD PERSONNEL IN 1996

NAME	ASSIGNMENT	COUNTRY	ARRIVAL	DEPARTURE
Henry Sheldon	Civil Engineer, DO 2	KAZ/ TUR	31 January	9 February
David McMillan	Man. Rep., AES,DO2	TUR	2 February	30 April
Randy Hoffman	Civil Engineer, DO 6	KAZ	4 February	12 February
James Westfield	Project Director, all DOs	KAZ	7 February	19 February
Syed Mahmood	Civil Engineer, DO 7	KAZ	7 February	20 February
Tim Van Epp	Mgmt.Spec.,DO12	KAZ	23 February	4 March
Randy Hoffman	Civil Engineer, DO 6	KAZ/UZB	9 March	27 April
David Smith	Mgmt.Spec.,DO8	KAZ/UZB	17 March	22 April
Jean De Malvinsky	Health Spec.,DO 2,6,7	KAZ/TUR	18 March	29 March
Ivan Dolak	Engineer, DO 7	KAZ	25 March	30 November.
Hani Wahba	Civil Engineer, DO 6	UZB	25 March	30 April
Ms.Nancy Grossmann	Human Res. Spec.,DO6,7,12	KAZ	31 March	May 4
Larry McKinney	Info. Mgmt.Spec.,DO8	KAZ/UZB	8 April	20 April
David McCauley	Economist, IRG,DO8	KAZ/UZB	9 April	27 April
James Brook	Engineer, DO 7	KAZ	10 April	23 April
Tim Bondelid	Comp.Spec., RTI,DO8	KAZ/UZB	10 April	24 April
Peter Iliev	Comp.Spec., RTI,DO8	KAZ/UZB	10 April	24 April
Hamid Shaikh	R/O Plant Mgr, DO 2	TUR	23 April	Present
Ms.Susan Purdin	Health Train.,DO 2,6,7	KAZ	9 May	June 1
Ms.Elena Shulgina	Health Spec.,DO 2,6,7	KAZ	9 May	June 1
Jean De Malvinsky	Health Spec.,DO 2,6,7	KAZ	9 May	June 11
Donald Johnson	Health Spec.,DO 2,6,7	KAZ	9 May	June 8
Hani Wahba	Civil Engineer, DO 6	UZB	25 May	June 30
Douglas Noffsinger	Civil Engineer, DO 6	UZB	25 May	June 30
Peter Iliev	Comp.Spec., RTI,DO8	KAZ/UZB	27 May	13 June
Tim Bondelid	Comp.Spec., RTI,DO8	KAZ/UZB	27 May	4 June
Wilbur Hoff	Health Spec.DO 2,6,7	UZB/KAZ	30 May	11 June
Adam Hutchinson	Wellfield Spec.,DO 7	KAZ	31 May	17 Sept.

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David McCauley	Economist, IRG,DO8	KAZ	17 June	2 July
Robert Anderson	Economist, IRG,DO8	KAZ	17 June	9 July
Richard Browning	Economist, IRG,DO8	KAZ/KYR	17 June	8 July
John Keith	Economist, USU,DO8	KAZ	17 June	4 July
Thomas Myers	Const. Mgr., DO 7	KAZ	17 June	24 Sept.
Ms. Choe Kyeongae	Economist, RTI,DO8	KAZ/KYR	21 June	5 July
Jamshid Malakouti	Elect. Engr., DO 7	KAZ	11 July	20 December.*
Randy Hoffman	Civil Engineer, DO 6	UZB/KAZ	13 July	27 July
Ron Melesky	Const. Mgr.,DO6	UZB	16 July	24 December*
Jesse Wolf	Chlorination Spec.,DO6	UZB	16 July	3 August
Derek Goodwin	Chlorination Spec.,DO6	UZB	16 July	1 October
Daene McKinney	Comp.Spec., DO8	KAZ/UZB	11 August	24 August
Edward Couch	Man.Rep.Pat., DO 7	KAZ	19 August	18 November*
Syed Mahmood	Civil Engineer, DO 7	KAZ	16 September	2 Decemder* -
Joseph Monnacio	Procurement Spec. All DO	KAZ	25 September	22 November*
James Westfield	Project Director, all DOs	KAZ	26 September	9 October
Richard Browning	Economist, IRG,DO8	KAZ/KYR	27 September	5 October
Philip Micklin	Policy Advisor, DO12,14	UZB/KAZ	27 September	30 Sept.1997*
Randy Hoffman	Civil Engineer, DO 6	UZB/KAZ	30 September	5 October
Daene McKinney	Comp.Spec., DO8	UZB/KAZ	30 September	7 October
Peter Iliev	Comp.Spec., RTI,DO8	KAZ/UZB	3 October	19 October*
Ben Stauss	Dep. Dir., F&A, All DOs	KAZ	4 October	18 September
Bashir Khan	Mech. Eng., DO 6,12	UZB	5 October	January 16, '97*
Tim Van Epp	Info. Mgmt.Spec.,DO12	KA/UZ/TU	7 October	16 November*
Dennis Wichelns	Economist, DO12	KA/UZ/TU	7 October	16 November*
Tim Bondelid	Comp.Spec., RTI,DO8	KAZ/UZB	10 October	19 October*
Eugene Brantly	Economist, RTI,DO8	KAZ	10 October	18 October*
Ms. Choe Kyeongae	Economist, RTI,DO8	KAZ	10 October	19 October*
Robert Anderson	Economist, IRG,DO8	KAZ	10 October	19 October*
Hani Wahba	Civil Engineer, DO 6	UZB	19 October*	30 December*

* Projected

14 October 1996

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The Environmental Policy and Technology (EPT) Project: Environmental degradation and natural resource mismanagement threaten public health, biodiversity and economic vitality in the New Independent States (NIS). To assist the NIS in alleviating these problems, the U.S. Agency for International Development (USAID) began the EPT Project in 1993. EPT provides technical assistance and policy advice in the environmental sector and promotes environmentally sound economic development through public and private, U.S. and NIS partnerships. The EPT Project is managed by USAID with support from the U.S. Environmental Protection Agency (USEPA). For assistance in project design, management and implementation, USAID has agreements with CH2M HILL International, Harvard Institute for International Development and ISAR. As the primary EPT contractor, CH2M HILL International has the lead role in delivering technical assistance, logistical support and policy support for selected projects. EPT Regional Offices are located in: Washington, D.C.; Moscow, Russia; Kiev, Ukraine; and Almaty, Kazakhstan.

CH2M HILL International Consortium of Subcontractors: Center for International Environmental Law; Clark Atlanta University/Historically Black Colleges, Universities and Minority Institutions Technology Consortium; Consortium for International Development; Ecojuris; Environmental Compliance Inc.; Harvard Institute for International Development; Hughes Technical Services Company; International Programs Consortium; International Resources Group; Interfax; K&M Engineering; Ogden Environmental and Energy Services; Price Waterhouse; the World Wildlife Fund; and numerous local subcontractors and cooperators throughout the NIS.



Environmental Policy and Technology Project
 A USAID Project Consortium led by CH2M HILL

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