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Environmental Policy and Technology Project

For the New Independent States of the former Soviet Union

DRAFT

Final

CENTRAL ASIAN REPUBLICS TRIP REPORT

Institutional Sustainability of EPT Potable Water Projects in the Central Asian Republics
October-November 1996

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Delivery Order 12, Task 2D2

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Section 1

Introduction

1.1 Background and Objectives

The EPT Project has completed or nearly completed several potable water engineering projects in the Central Asian Republics (CAR) under Delivery Orders (DO) 2, 6, 7 and 12 Task 2D2 of DO12 calls for an evaluation of the short- and long-term financial and institutional sustainability of the EPT potable water engineering projects in CAR The task is intended to sustain the long-term benefits of these efforts by identifying, developing and promoting policy and other interventions that will facilitate host country financial and institutional support for long-term operation and maintenance (O&M) of these drinking water supply and distribution systems

1.2 Scope and Methodology

Sustainability will be evaluated only for EPT engineering projects in CAR which are located in the Aral Sea Basin regions of Kazakstan, Turkmenistan and Uzbekistan The principle sustainability factors that will be evaluated include professional capacity development (reviewing ongoing efforts for adequacy), long-term financing mechanisms, and institutional ownership of the projects Both short- and long-term sustainability will be examined, especially regarding the applicability of proposed cost recovery techniques

A six-step methodology is being employed, as follows

1 Identify long-term sustainability needs
2 Prioritize needs and design interventions
3 Prepare interim report on project sustainability
4 Promote/collaborate on selected interventions
5 Prepare final report on project sustainability

This October-November trip was intended to complete the first two steps and begin the third

1.3 Staffing

Task 2D2 is being carried out by an Institutional Specialist, who also serves as the Task Leader, and a Utility Financing Economist The Institutional Specialist is focussing on institutional buy-in and professional capacity development He is also the primary interface with the EPT CAR Regional Policy Coordinator and Regional Engineering Coordinator The Utility Financing Economist is focussing on the economic sustainability of the engineering projects The two specialists are jointly planning and executing work under the task and are travelling and interviewing together on this trip This trip report covers the activities of the Institutional Specialist

1.4 Schedule and Logistics

Appendix A presents the itinerary/schedule for our trip to CAR which extended from October 7 through November 4 for the Institutional Specialist (and through October 29 for the Utility Financing Economist) The trip included side trips to Kzyl-Orda and Aralsk, Kazakstan, Ashgabat, Turkmenistan, and Tashkent, Uzbekistan, as well as time in the EPT/Almaty office Appendix B provides a list of persons interviewed as well as copies of business cards obtained Appendix C contains our standard list of questions asked in the interviews

Section 2
Findings and Conclusions

2.1 Kazakstan

The primary issue identified for sustainability of EPT-sponsored potable water interventions in Kazakstan is financing for operations and maintenance, both short- and long-term Financing for the potable water facilities owned and operated by the Aral-Sarybulak Pipeline Authority, that include the EPT-sponsored improvements to two wellfields and several pump stations, is currently limited and unstable Political commitment to long-term O&M financing appears to be quite good at the oblast and local levels, however, the absence of central government subsidy for O&M in the face of the pipeline authority's inability to collect adequate revenues to cover its costs and pay its debts may become an important test of political commitment at the central government level The findings below also include several relative to institutional capacity, training and equipment

1 The EPT improvements are relatively small parts of a much larger existing potable water delivery system and are difficult to separate from the larger system, so it is necessary to examine O&M of the whole system

2 There is no subsidy from the central government for O&M costs, so the pipeline authority must recover its costs by charging drinking water consumers There are three categories of consumers according to the authority's system of water charging These include general population, state-owned organizations and institutions, and industrial and commercial enterprises The enterprises cross-subsidize the other two categories paying prices several times as high per unit of water delivered as the first two categories

3 The population often is not able to pay or does not pay for its water due to unemployment or delayed wages The state-owned organizations have difficulty paying due to continuing issues with the national economy The enterprises often decline to pay their much higher prices to support the other categories when they may be able to get water for less money, although of

poorer quality, from ground or surface water sources The pipeline authority frequently gives preferred rates to consumers who cannot pay the full price and will not cut off the water supply completely even if they do not pay the preferred rates

4 The pipeline authority must return 30% of its revenues to the central government (ostensibly for capital construction and replacement and administration of the State Committee for Water Resources) The authority is in debt in the amount of over one year of O&M budget

5 The repair fund is apparently the lowest priority category in the authority's budget, and is therefore not always funded When this occurs, it sometimes is possible to bring forward funds from one of the winter quarters when repair funds are apparently allocated but not able to be spent due to the cold weather There is also a contingency fund that can be drawn from

6 It has been apparent from the condition of the pipeline facilities discovered upon inspection at the beginning of the EPT Project, that although the company has made valiant and somewhat successful efforts to maintain water delivery under less than optimal conditions, the equipment and supporting facilities have suffered much

7 Leakage along the pipeline and leakage and wastage of water by the bulk and individual users are critical problems that raise overall system O&M costs and reduce potential cost recovery, thus affecting sustainability

8 Now that the City of Aralsk water department, with its aging and leaky water distribution system, has merged with the Aral-Sarybulak Pipeline Authority, it is unclear whether the pump stations and wellfields will get sufficient attention by the maintenance crews for necessary regular maintenance

9 It is important that the World Bank determine that rehabilitation of the overall pipeline is feasible and that they move forward with and complete that project as rapidly as possible If not, it is possible that the pipeline authority will focus its limited resources on repairing the main pipeline and defer regular maintenance on the wellfields and pump stations This in turn will just defer problems with the main pipeline which needs major rehabilitation Therefore, both the pipeline and the wellfields and pump stations would be made more sustainable if the World Bank rehabilitation program goes forward

10 The World Bank project will also help improve sustainability by facilitating more hookups to the pipeline authority's system, thus allowing the authority to recover their fixed costs from a larger population of users, and possibly even allow them to lower prices to some categories of users thus making payment more likely among those users

11 Due to the poor financial condition of the pipeline authority, the company's workers have not been paid in cash for 1-2 years This combined with the general poverty of the region creates the potential for an unstable work force that may eventually show some turnover and where there is little economic incentive to prevent loss of tools, spare parts and even backup pumps

12 The overall maintenance program of the pipeline authority could benefit from formal maintenance and repair scheduling, dispatching and recordkeeping

13 Sustainability could be improved by working with the GOK water management agencies to identify and resolve any problems with procuring necessary spare parts, tools or supplies beyond what has been procured by EPT

14 The administrative staff could benefit from more advanced training, relevant to a water utility, in management, administration, operations, maintenance and safety

15 The maintenance and repair crews could also benefit from the comprehensive technical training program that EPT is planning to present to the operators on their specific facilities and equipment

16 The maintenance crews could benefit from provision of repair vans to travel among facilities and securely contain their tools, spare parts, supplies, etc

17 The administration office could benefit from provision of desktop computers to support maintenance scheduling and recordkeeping, accounting for billing, payment and costs, running a simple potable water pricing model, etc

18 There are several ongoing or proposed equipment-related measures that relate to improving the short- and long-term sustainability of the EPT-sponsored potable water projects in Kazakstan These include leak detection equipment, backhoes, piping and related equipment, tools, spare parts, supplies, lubricants, chlorine, electric generators (or transformers), voltage regulators, and diesel welding units

2.2 Turkmenistan

The primary findings for sustainability of EPT-sponsored potable water interventions in Turkmenistan relate to financing for operations and maintenance Recovering O&M costs through setting prices for water will play a key role in sustaining the RO plant and distribution system, especially in the long-term More work is in progress to implement and test the distribution system, estimate O&M costs, determine the users' willingness and ability to pay, and set up water allocation and payment systems At issue in the short- and mid-term is central government willingness to allow some form of water pricing and the political commitment of the central and vilayet governments to subsidize the RO plant's O&M costs during the transition from USAID support of O&M to full cost recovery from water sales to customers The institutional capacity at both government levels to manage a potable water utility, including administration of water allocation and pricing, is also an important issue that must be addressed if the RO plant and its distribution system are to be sustainable in the long-term The following findings address these issues as well as ones dealing with training and equipment procurement

1 The plans and commitments of USAID and our Turkmenistan counterparts relative to takeover of O&M and sustainability of the Turkmenbashi RO plant and its distribution system are documented in EPT memoranda dated October 17 and July 2, 1996 These measures include formal and on-the-job O&M training, office equipment and onsite housing for the operators, tools, spare parts and supplies of chemical reageants, and water trucks, tanks and containers

2 Implementation of these plans by the Turkmen counterparts has fallen behind schedule As of the time of this trip, the plan for distributing the plant's potable water product had not been tested or implemented, so the plant is not operating at full capacity on any production line and only a small portion of the distribution truck fleet has been active The plant should have at least one production line operating at full capacity to provide adequate on-the-job training and experience to the operators In addition, onsite housing for the operators will help stabilize the plant work force, many of whom live too far away to commute to the plant on a daily basis The precise reasons for the delays are unclear but are currently being investigated by the EPT Regional Engineering Coordinator who is meeting with Mr Sadovsky during the November operators training at the RO plant The following topics are being addressed (1) how to begin implementing the distribution concept plan immediately (in a phased, learn-as-we-go way), (2) what the current schedule is for each side to supply the O&M related items previously committed to, and (3) review of the calculations of O&M costs (addressing especially the distribution component and the foreign exchange component)

3 Our interviews at the central government level indicate knowledge of and interest in the RO plant However, the Department of Water Resources and Water Management is limited in how actively it can participate in and contribute to the RO plant's sustainability because (1) it is mostly dedicated to agricultural water managment, (2) this is the first potable water plant project the GOT has undertaken, (3) there is a national policy of providing water free of charge to the citizens of the country that the President has publicly committed to, and (4) they have devolved responsibility to the vilayet for paying for and overseeing O&M of the RO plant

4 Nonetheless, it is apparent that the Department of Water Resources and Water Management intends to work closely with the Trust to calculate the O&M costs of the plant and determine how and at what level of government those costs should be recovered According to the Chairman of the Department, the Trust will submit a distribution plan by November 1 and the Chairman and/or his assistant will travel to Dashouz in mid-November to work on the costs and cost recovery issues Although the Department of Water Resources and Water Management feels that the vilayet has the funds in its budget to pay for the annual O&M costs, it is apparently still possible that the central government will subsidize at least a portion of those costs The central government budget must be submitted before the end of the year and must be formally finalized by February 5, so there is still time to get funding approved for next year After the EPT Regional Engineering Coordinator meets with Mr Sadovsky during the November operators training at the RO plant, he should report the outcome of this meeting to USAID/Almaty and recommend whether USAID/Ashgabat should be asked to help influence GOT ministry officials (In a recent meeting with USAID/Almaty, EPT/Almaty has agreed to coordinate more with the US Embassy/Ashgabat and USAID/Ashgabat thus facilitating followup by USAID/Ashgabat on matters with the GOT)

5 The Hydrogeological Trust has been identified as the local institution to take over O&M of the plant That agency's main mission, experience and expertise is in exploring, developing and managing groundwater resources and not modern potable water treatment facilities In addition, while the director of the Trust has been a strong champion of the facility, he is a very busy person and has many other priorities to address However, it is a reputable and strong local agency that is best positioned to take over the plant in the near-term In addition, there may be a longer-term role for the Trust in managing the O&M of groundwater systems used for potable water in the etrap and vilayet

6 The Trust will be more effective in running the plant and distribution system if a full-time potable water specialist, reporting to Mr Sadovsky, can be recruited to manage and champion them If funds cannot be identified in either the vilayet or Department of Water Resources and Water Management budgets, it is possible that the World Bank will seriously consider funding such a position under their Aral Sea emergency program as a prelude to the water institution consolidation--which will very likely include the Trust--the Bank plans to introduce at the vilayet level in the next couple of years It would also be beneficial to supplement the selected candidate's training with a short study tour in the US, e g through USAID's NET Project or the Department of Commerce's SABIT Program

7 Ultimately, a new organization devoted entirely to management of the RO plant and its distribution system, including the administration of the new water allocation and pricing system, should be set up at either the vilayet or etrap level Given the likelihood that such an institution will require more time to develop than is available in the EPT Project, the new system manager should be recruited first, then work under Mr Sadovsky in the Trust, and then move over to the new organization when it has been established

8 Three recent proposals for improving sustainability of the RO plant deserve serious consideration These include (1) extending EPT O&M support until September 1997 to allow operation at full capacity for one or more lines so the operators can have the experience of operating, troubleshooting, and membrane cleaning and replacement that is possible only at this operating level, (2) incorporating two more O&M training sessions to refresh and supplement training previously provided and to train any new O&M staff, and (3) expanding product water storage capacity by adding one 1000 m3 tank to the present one 500m3 tank, which will be equivalent to 2 days of product at full operational capacity, thus allowing the plant to be shut down for two days for maintenance and repair when necessary

2.3 Uzbekistan

Long-term financing of O&M and institutional strengthening are the most critical needs for sustaining the EPT-sponsored potable water interventions in Uzbekistan Political commitment is very good at both the central and regional government levels, and there are water management authorities and professional capacity commensurate with the extensive potable water treatment and delivery system already in place in the study area The findings below include some special studies on water leakage, wastage and metering and energy efficiency that could be carried out

best in Uzbekistan, but whose results could be used in the other two countries, as well as training, equipment procurement and the other issues outlined above

1 The EPT improvements are relatively small parts of a much larger existing potable water delivery system and are difficult to separate from the larger system, so it is necessary to examine O&M of the whole system

2 There appears to be good political will at the central government level to achieve sustainable long-term O&M of the drinking water facilities in the Tuyamuyun system, including the EPT-sponsored improvements at the Nukus and Urgench treatment plants

3 A similar system of potable water costing and pricing exists as described for Kazakstan above The Ministry of Communal Services, however, has a plan to gradually increase cost recovery through water pricing up to the year 2000 when regional prices are supposed to have risen to cover costs The Ministry of Communal Services stands ready to back any shortfalls in revenues at the regional level Similarly, the Ministry of Finance stands ready to back the Ministry of Communal Services

4 There is excellent coordination between the central government and the regional water supply systems (vodocanals) There is frequent travel between these two cities and Tashkent by both managers and technical specialists to monitor and evaluate O&M performance and troubleshoot on the more challenging O&M technical issues

5 Leakage and wastage are critical problems relating to sustainability and the region being served could benefit from programs to detect leaks and conserve water

6 Efforts to price and conserve water in the region being served could benefit from the introduction of volumetric measurement or metering

7 Energy is the most expensive O&M cost item and pumps are the most energy consuming and inefficient equipment items in the Nukus and Urgench systems The water agencies could benefit from programs to repair or replace these and generally lower energy uses and costs

8 The Ministry of Communal Services also requested EPT perform a formal analysis of the staffing of the two treatment plants Apparently, the World Bank and JICA have recommended large staff reductions with the existing facilities and with automation However, these previous studies did not recommend how to cut staff or what organizations to focus on They are also very interested in privatization, i e setting up a joint stock company (with at least 51% Ministry ownership) or possibly setting up a private company to perform O&M on a contract basis

9 Enforcement of potable water standards at the Nukus and Urgench systems could be improved with enforcement staff training and related institutional capacity strengthening

10 EPT has conducted or collaborated on several training programs or tours related to O&M of EPT's improvements at the Nukus and Urgench facilities, more O&M training is being designed

11 The Ministry of Communal Services requested we consider using any unallocated EPT funds to purchase a mobile laboratory to shuttle between the treatment plants at Nukus and Urgench to perform analyses that are normally performed by laboratories in the cities of Nukus and Urgench which takes hours and often exceeds the holding times of the samples for those analyses

12 There are several ongoing or proposed equipment-related measures relating to improving short- and long-term sustainability of the EPT interventions, including magnetic flow meters, ultrasonic flow meters, leak detection equipment, diesel welding units, backhoes and utility trucks

Section 4
Followup

Additional data, particularly regarding O&M costs for EPT engineering projects in Kazakstan and Turkmenistan, are expected to be available in the next few weeks In addition, meetings are scheduled with the World Bank Aral Sea Basin program country managers for all three countries One or more follow-up trips to Dashouz, Turkmenistan, are needed to discuss and research how to recover O&M costs using water pricing and subsidy approaches (discussed in Dennis Wichelns' trip report) and what type of organization should be set up at the vilayet or etrap level to take over management of the RO plant and distribution system

An interim report will be prepared for the economic and institutional aspects of sustainability of EPT drinking water projects in CAR Using the trip reports as a foundation, the interim report will include more of the background data and information collected from the interviews and published reports (including the interviews conducted with and reports obtained from the World Bank country managers after returning to the U S), and will provide recommendations on how to improve the sustainability of EPT-sponsored engineering interventions in CAR It will present the O&M cost data we have collected as well as a simple drinking water pricing model that our local counterparts may use to evaluate different pricing scenarios including different assumptions about O&M costs The interim reports will be submitted in December 1996

The economist will return to CAR in December to present the drinking water pricing model at the Executive Policy Retreat to be held in Almaty under DO8 Both specialists will return in January 1997 to solicit comments on the interim report recommendations from EPT, USAID and local counterpart staff and to work with the local counterpart staff to evaluate and develop the alternatives

Based on the comments received on the interim reports and the collaboration with the local counterparts, we will prepare a final report for the task The date of submission will be set during the December trip but is likely to be in the Spring of 1997

Appendix A - Itinerary/Schedule

Dates	Activities
Sat -Mon , Oct 5-7	Travel from Washington, DC to Almaty, Kazakstan
Week of Oct 7	Work in EPT/Almaty office
	Collection and review of relevant reports and data
	Individual meetings with EPT/Almaty staff
	Team planning meeting with EPT/Almaty and USAID/Almaty
	Refine task work plan, list of persons to interview, schedule and itinerary
Week of Oct 14	Visit Kazakstan host country institutions
Mon , Oct 14	Meeting with ADB project consultant
	Prepare for Kazakstan field visits in EPT/Almaty office
	Travel to Kzyl-Orda
Tue , Oct 15	Meetings with regional drinking water supply agencies
	Travel to Aralsk
Wed , Oct 16	Meetings with Aralsk-Serbulak pipeline company
	Visit to Maintenance Facility
	Visit to Pump Station No 3
	Visit to Ararsk Pump Station
	Visit to observe repair crew at pipeline break in Aralsk City
	Meetings with EPT construction managers and pump vendor rep
Thu , Oct 17	Visits to Pump Station Nos 4 and 5 enroute to Kzyl-Orda
	Meeting with regional water supply agency in Kzyl-Orda to pickup data

	Return to Almaty via Kzyl-Orda
Fri , Oct 18	Debrief EPT/Almaty staff and review reports in EPT/Almaty office
Sat , Oct 19	Travel from Almaty to Ashgabat
Sun , Oct 20	Rest
Week of Oct 21	Visit Uzbekistan and Turkmenistan host country institutions
Mon , Oct 21	Meetings with Turkmenistan Ministry officials
Tue , Oct 22	Travel to Tashkent
Wed , Oct 23	Meetings with Uzbekistan Ministry officials
Thu , Oct 24	Meetings with Uzbekistan Ministry officials and visit to World Bank office
	Return to Almaty
Fri , Oct 25	Review reports in EPT/Almaty office
Sat , Oct 26	Debrief EPT/Almaty and USAID/Almaty staff
Week of Oct 28	Prepare trip reports
	Begin preparing interim reports
	Return to US

Appendix B - List of Persons Interviewed

Kazakstan

EPT Interview Participants

Tim Van Epp, AICP, Task Leader/Institutional Specialist
Dennis Wichelns, Ph D , Utility Financing Economist
Marat Nauryzbekov, Senior Engineer
Elmyra Shaimerdenova, Interpreter

Persons Interviewed

Znalil Zalgadaro, State Committee on Water Resources
Adrian Hutchens, Sheladia Consultants, Asian Development Bank Project
Esen Mikeev, Chief Engineer of Kzylordaselkhozvodoprovod Kzylorda
Vitali Sheck, Director of ODSP Aral Kzyl-Orda
Amantai Taskinbaev, Chief Engineer, Aral-Sarybulak Aralsk Pipeline Company
Jamshid Malakouti, EPT Senior Engineer
Edward Couch, Representative of Pump Manufacturer

Turkmenistan

EPT Interview Participants

Tim Van Epp, AICP, Task Leader/Institutional Specialist
Dennis Wichelns, Ph D , Utility Financing Economist
Marat Nauryzebekov, Senior Engineer
Luba Podgochaya, Interpreter

Persons Interviewed

Gurbansakhat Babaev, Chairman, and Pashkovsky, Assistant to the Chairman, Department of Water Resources and Water Management
Dr Omar Niyazovich Niyazov, Deputy Head of Hydrogeological-Reclamation Field Studies and Projects

Uzbekistan

EPT Interview Participants

(Same as for Turkmenistan)

Persons Interviewed

Komildgan Saidov, General Director of the Republic Industries Union for Maintenance and Development of Regional Water-Suppliers, Ministry of Municipal Services, and Fakhritdin Miryusupov, Main Engineer, RWA Maintenance and Development of Regional Water Supply Systems, Ministry of Municipal Services

Ekrin Yuldashev, Deputy Minister, Ministry of Communal Services and Fakhritidin Miryusupov, Main Engeneer, RWA Maintenance and Development of Regional Water Supply Systems, Ministry of Communal Services

Albert Rafikov, Chief of Department for the Coordination of Socioeconomics, Research and Investment, Interstate Council on the Problems of the Aral Sea Basin Executive Committee

Alexander Mironenkov, Head of Agroindustrial Investments Department, State Committee on Forecasting and Statistics of the Cabinet of Ministers, and Pulat Zakirov, Manager of Project Implementation Group, Water Supply, Sanitation and Health Project

Appendix C - Standard List of Questions Asked

The following questions are intended for each of the different levels of organizations or agencies involved in managing drinking water in CAR The questions apply mainly to the EPT drinking water facilities, therefore please specify whether your answers apply only to the improvements provided by EPT, or to the entire facility, or to the entire system of well fields, pump stations, pipelines and treatment facilities Please answer what you can and indicate if you can provide answers to the other questions later or if some other agency would be better and, if so, which one Either way we hope to be able to meet with each organization in person and will review your responses to these questions then It is our intent to help you plan for long-term O & M of the EPT drinking water facilities, so we will make recommendations where appropriate

1 Please provide as much information as possible on the estimated costs of operation and maintenance for the deep wells, pump stations, pipelines and treatment facilities supported by the EPT Project that provide clean drinking water in the Aral Sea Basin You may fill in the attached tables or use them as a guide to the cost components for each type of facility

2 How has your agency budgeted and allocated funds to operate and maintain these facilities in the past--before and after the break up of the former Soviet Union? How much funding has been budgeted and allocated? What changes in funding do you anticipate needing for O & M given the EPT improvements? What plans or ideas do you have for making the funding changes?

3 Has your agency already budgeted or allocated funds for a capital replacement fund (or "sinking fund") to replace the entire facilities when they have reached the end of their design life? If so, how much and what do you still lack? If not, why? What plans or ideas do you have for providing a capital replacement fund?

4 Do you have any plans or ideas to recover O & M costs by charging users for water delivered to them? What techniques are being considered? If so, what portion of the O & M costs do you believe you will be able to recover in that way? What needs to happen for water pricing to be accepted in your agency? Who would decide? Are any new laws, regulations or policies needed or are any changes needed in existing laws, regulations or policies? Who or what agency would administer the water pricing system and how?

5 How is your agency organized and managed to provide O & M services to these facilities? What procedures are used? Are any changes needed and, if so, what are they? What plans or progress has been made in implementing the changes?

6 What types of staff and how many of each are currently used for O & M of these facilities? What formal O & M training do they have? Are any changes needed and, if so, what are they? What plans and progress have been made in implementing the changes?

7 Does your agency monitor and evaluate the O & M performance of these facilities? If so, how? If not, why and what plans or ideas do you have for monitoring and evaluation of O & M?