Introduction

On 4-5 November 2003, a meeting was conducted for the NATO/CCMS Pilot Study on Environmental Decision-Making for Sustainable Development in Central Asia in Almaty, Kazakhstan, at the Astana International Hotel. The purpose of
this meeting was to convene environmental experts and representatives from NATO countries and EAPC Partner countries, with an emphasis on the countries of Central Asia, in order to discuss the environmental problems of Central Asia, specifically focusing on the impacts of water, sanitation, and public health in rural areas of Central Asia (CA).

Prior to the meeting, experts on both water and health issues were identified in each of the five primary Central Asian countries. Presentations were made by the CA experts on the following topics:

- Water Supply/Quality Problems in Central Asia
- Health Problems from Exposures to Contaminated Water in CA
- Scholarly Research Activities Involving These and Related Issues

These CA presentations served as the basis for in depth discussions concerning how this pilot study could assist the countries of Central Asia in dealing with the challenges of establishing and maintaining accessibility, distribution, and quality of water supplies within the region. As with prior pilot study meetings, the goal of this meeting was to establish a network of experts with backgrounds that are applicable to addressing and overcoming problems related to environmental decision-making involving water and health issues in rural communities of CA.

Prior to the meeting, Mr. John Moerlings, Florida State University, and Dr. Mikhail Khankhasayev, Florida State University, developed a series of questions to help guide the preparations of the invited meeting participants. These questions were the following:

- What is the nature and extent of the problems related to water in Central Asia?
- What are the human health impacts from either quality degraded water or a general scarcity of water?
- What technologies are available to help mitigate water scarcity, sanitation, or treatment problems?
- What are the technical and economic obstacles that might exist affecting the use of new approaches for dealing with water management problems or the use of innovative products and goods?
- What are the environmental decision-making processes in Central Asia related to water management?

It was intended that these questions could also serve as a framework for discussions over the course of the meeting, particularly for the panel discussions.
Overview of the Meeting

The meeting was organized around two days of discussion concerning a sub-focus of the pilot study (i.e., water, sanitation and public health impacts in rural areas of CA). The invited experts gave presentations from their respective fields according to either the programmatic, technical, or administrative aspects that pertained to the focus of the meeting. These individuals were also invited to participate in two panel discussions on:

- Water Supply Problems in CA
- Conditions in CA Concerning Health Problems from Contaminated Water

Concerning the portions of the meeting devoted to the programmatic aspects of these issues, presentations were made by the following individuals:

- Dr. Bulat Yessekin, CAREC
- Dr. Inom Normatov, Institute of Water Problems
- Mr. Roger Aertgeerts, World Health Organization
- Dr. Vladimir Bogachev, CAREC
- Mr. Armands Populs, OSCE

Concerning the portions of the meeting devoted to the technical aspects of these issues, presentations were made by the following individuals:

- Mr. Robert Reed, WEDC-Loughborough University
- Dr. Christopher Teaf, Florida State University
- Mr. Roger Aertgeerts, World Health Organization
- Prof. Ender Okandan, Middle East Technical University

Concerning the portions of the meeting devoted to the administrative aspects of these issues, presentations were made by the following individuals:

- Dr. Nurgali Takibaev, Institute of Technology and Sciences
- Mr. Norbert Barszczewski, Florida State University
The meeting was brought to a close with a discussion concerning, “Formulation of Primary Conclusions and Recommendations for Future Work of the Pilot Study Related to Water and Health Issues,” moderated by Dr. Roy Herndon, Florida State University, and Dr. Bulat Yessekin, CAREC.

**Invited Programmatic Presentations**

*Dr. Bulat Yessekin*, Regional Environmental Centre for Central Asia (CAREC) presented on “The 5th Pan-European Ministerial Conference – Environment for Europe: Environment, Water and Security in Central Asia”. The 5th UNECE Pan-European Conference of Environmental Ministers was held in Kiev, Ukraine, on 21-23 May 2003. The issues related to the environment, water and security in Central Asia (CA) were among the main topics of discussions. The conference supported the CA initiative for creation of the Partnership Agreement between CA countries and the World community for sustainable development of the CA region. The most important goals of this initiative include: (1) Ensure sustainable operation of water basin ecosystems of vital importance for human life. Prevent degradation of water basin ecosystems essential for sub-regional viability; (2) Sound use of and access to supplies of water, of requisite quality and in sufficient quantities, to the public, industry and ecosystems; and (3) Intersectoral partnership and capacity-building. The establishment and reinforcement of mechanisms to coordinate the interests and strengthen the resources of the civil sector and of environmental protection and water management organizations. The CAREC was assigned to serve as a coordinating organization for implementation of the Memorandum of Understanding signed by the CA countries during the conference.

*Dr. Inom Normatov*, Institute of Water Problems presented on “The Dushanbe International Fresh Water Forum” held in Dushanbe, Tajikistan, on 29 August – 1 September 2003. The main goal of this international event was to increase public awareness of issues relating to freshwater and to encourage action at all levels. More than 500 people from 53 countries participated. During the conference, the Dushanbe Water Appeal was proposed which reiterates the importance of freshwater resources and calls on the United Nations, governments, organizations and stakeholders to commit themselves more fully to achieving the Millennium Development Goals. The Appeal also invites the United Nations to declare 2005-2015 the International Decade of “Water for Life”. The 55th UN General Assembly session, based on the initiative of the President of the Republic of Tajikistan, proclaimed the year 2003 as the International Year of Freshwater. Dr Normatov opened the international conference, “Water is the basis of life and human existence” which was held in Dushanbe on 20-22 November 2003. The organizers of this conference were the Academy of Sciences of the Republic of Tajikistan (AS RT) and the Institute of Water Problems, Hydropower and Ecology of the AS RT.
Mr. Roger Aertgeerts, World Health Organization presented on the “UNECE/WHO Protocol on Water and Health”. The basis for the protocol on water and health is a very specialized part of the 1992 Water Convention. Basically it aims to promote a holistic approach to prevent, control, and reduce water related diseases through the creation of a basis for international cooperation and support. Thirty-six countries have signed it, ten nations have ratified, and it will hopefully enter into force by 2004 when sixteen countries have ratified. Technically, it works through a working group on water and health. Politically, it works through a meeting of the signatories.

Dr. Vladimir Bogachev, CAREC presented on “CAREC Activities on Water and Health in Central Asia”. One of the most important recent accomplishments of CAREC was the report on Environment, Water and Security in Central Asia, prepared by Central Asian experts with input from the Centre, the International Fund for Saving the Aral Sea (IFAS) and UN/ECE. This report reflects the key problems in Central Asia and proposes actions to achieve sustainable development goals in the light of the commitments made by the Central Asian countries, international organizations and donors. The report was presented and discussed at the 5th UN ECE Pan-European Conference of Environmental Ministers (Kiev, Ukraine, 21-23 May 2003). The CAREC administers the Grant Programme, which is aimed at supporting NGO environmental projects and initiatives and individuals from the CA region actively involved in the area of environmental protection (EP) and sustainable development (SD). The CAREC grant programme includes three types of grants. Transboundary grants allocated for project implementation by several NGOs representing at least two countries of the region; Special/area-specific grants aimed at financing pressing EP and SD regional problems; and Small grants for financing of an urgent one-time projects, information dissemination, publications, participation in activities and trainings, assistance with registration. The CAREC’s Grant Programme supports a number of training activities for the environmental community.

Mr. Armands Populs, OSCE presented on “OSCE Activities in Central Asia Concerning Water and Health”. The OSCE is involved in approximately five current missions in Central Asia concerning water and health. Perhaps the most crucial of these is a joint project with UNECE on the establishment of a bilateral transboundary water commission on the Chu and Talas rivers. The main components of the project are the development of commission status and establishing rules and procedures of operation of the joint commission. This project promotes the development of policies and capacities in order to ensure effective implementation of the agreement.

Invited Technical Presentations
Mr. Robert Reed, WEDC-Loughborough University presented “An Overview of Approaches Used in Developing Countries for Accessing Potable Water at the Household or Small Scale Levels” Mr. Reed’s expertise is centered on rural, not urban, water supply and his presentation focused on three questions:

- Why are we interested in water supply for rural communities?
- What are our options for delivering water supply?
- How do we deliver these services?

The major reason that researchers, and particularly donors, are interested in water supply is the question of health and how it is related to water supply. The options for delivering a low-cost water supply to rural areas are quite limited and have remained relatively unchanged over time. Water can be obtained directly from the rain, from various methods out of the ground, or from the surface. On how to deliver these services, Mr. Reed suggested that for rural, impoverished communities it’s best to keep solutions as simple as possible and to build using as much local methods and technology as you can rather than introducing too many radically new ideas. In this instance, education goes much farther than technology.

Dr. Christopher Teaf, Florida State University presented “An Overview of Health Effects from Exposure to Contaminated Drinking Water: Chemical Contaminants” Chemical contaminants in water supplies should first be defined and classified due to the fact that some chemicals come from an industrial background while others occur naturally in the environment. These classifications or groups of chemical can have a wide range of health effects, such as reproductive or developmental effects, depending on their chemical makeup as well as the quantity that is present in the water supply. Depending on the chemical contaminant, detection of these substances can be as simple as by human taste and smell or by rather sophisticated, costly techniques.

Mr. Roger Aertgeerts, WHO, presented “An Overview of Health Effects from Exposure to Contaminated Drinking Water: Bacterial Contaminants and Water Scarce Health Effects” Mr. Aertgeerts focused mainly on the topic of a UNICEF-WHO Joint Monitoring Program. The goals set forth by the program were as follows:

- Building national capacity for planning and management
- Monitoring and informing policy makers globally on the status of the sector
- Global assessment towards the Millennium development goals (MDG)

It was concluded that detailed monitoring of the sector allows for targeting interventions for maximum health benefit. The Joint Monitoring Project of 2005 will be a critical contribution to this effort.

Prof. Ender Okandan, Middle East Technical University presented the “Health Hazards of Hydrocarbon Contaminants in Water: A Central Asian Perspective” Petroleum and petroleum related products, such as crude oil and gasoline, are the major contributor to hydrocarbon contaminants in water. Health effects resulting from hydrocarbon contaminants in water can be wide ranging
depending on which compounds are present, as well as the quantity of the compounds present. These hydrocarbons from fuels can be contacted from gas stations during filling, storage tanks, and emissions from cars. They then reach water resources by rain, floodwaters, and runoff.

*Dr. Christopher Teaf,* Florida State University gave an additional presentation regarding “A Water Purification Product: An Example of a Low-Cost Technological Solution” This particular product was developed by the United States company Proctor and Gamble with the assistance and cooperation of the U.S. Public Health Service and the Centers for Disease Control. This particular product was developed specifically for the application to relatively small volumes of relatively highly contaminated drinking water supplies of a particular type. Essentially a miniature water treatment system, it operates on two principles; sedimentation through flocculation and a delayed chlorination process. It’s important to note that this presentation is in no way an endorsement or promotion of this particular product or of U.S. goods and services, it’s simply an example of a technological solution applicable to the focus of the Pilot Study.

**Panel Discussion 1: Water Supply Problems in Central Asia**

Moderators: *Mr. Robert Reed, WEDC-Loughborough University, United Kingdom* and *Dr. Mikhail Khankhasayev, Florida State University, USA*

*Dr Kasym Duskaev,* Kazakh National University spoke on “Water Supply, Drinking Water Quality and Public Health in Kazakhstan.” This talk presented a detailed overview of the availability of drinking water resources and water quality in Kazakhstan. Among the main causes of decreased water quality and in decreased public access to safe drinking water are the following: general industrial contamination of water sources; aging of water supply and sewage systems; secondary contamination of drinking water, problems of introducing economic-based regulation of water use; non-regulated use of underground water. Kazakhstan has the State Program “Drinking Water” for the period from 2002 to 2010. The main goal of this program is to provide sustainable supplies of drinking water of the population of Kazakhstan, and to recognize drinking water as a strategic resource in the republic. The overall cost of this program is 115 billion tenge (670 million EURO).

*Dr. Ernazr Makhmudov,* Institute of Water Problems of the Uzbek Academy of Sciences spoke on the “Drinking Water Supply in Uzbekistan: Conditions and Problems.” Among the most pressing environmental problems of the territory of Uzbekistan are the insufficiency of providing of the population with safe drinking water; a general lack of fresh water; and the pollution of surface and underground water. The surface water is the main drinking water source (about 85%) in Uzbekistan. The major factor of contamination of fresh water is agricultural irrigation. In Uzbekistan, the monitoring of surface water quality is conducted on a permanent basis. The most unfavorable situations with drinking
water supply are in the rural territories near Aral Sea, the Republic of Karakalpakstan, and Khorezm, Bukhara and Navoi provinces. In these areas, over 60% of the population do not have a centralized water supply system. In arid territories, the main source of drinking water is from open wells. Many of these wells do not function efficiently because of poor maintenance.

*Dr. Bakhtiyor Zakirov,* Academy of Sciences spoke on “Mineralization and Ion Composition of Drinking Water Sources.” Many water sources in Uzbekistan are characterized by high mineralization and bacterial contamination. It makes it necessary to monitor the quality of drinking water and to purify it. In this talk, the speaker provided an overview of the physical/chemical methods of water analysis, and methods and new devices for water purification that can be utilized effectively in rural areas.

*Dr. Inom Normatov,* Institute of Water Problems spoke on “Water Supply, Drinking Water Quality and Public Health in Tajikistan.” In Tajikistan, only 57% of the population has access to tap water (93% in urban areas and 47% in rural areas). About 25% use the water from open reservoirs (canals, ponds, etc.). The most serious problem is ongoing degradation of water supply systems (storage and distribution elements) and the lack of and ongoing degradation of water purifying and sanitation systems. About 80% of water distribution systems do not meet the sanitary-hygienic norms, and 60-80% need to replaced/repai red. The growing contamination of water sources and water supply/distribution systems (chemical and biological) by industrial and agricultural activities needs immediate preventative measures. The level of the water-related diseases is 3-9 times higher in rural areas (water from open reservoirs) than in urban areas (tap water). There is an urgent need for cost-effective water purification systems. Dr. Normatov presented a comprehensive overview of existing water purification technologies that are used in Tajikistan.

*Dr. Elena Rodina,* Kyrgyz Russian Slavic University spoke on “Water Supply, Drinking Water Quality and Public Health in Kyrgyzstan.” In Kyrgyzstan, the main source of drinking water is groundwater. About 30% of the population in rural areas does not have access to safe drinking water (compared with 10% in urban areas). In rural areas, about 40% of the water distribution systems and wells do not operate properly and need to be replaced or repaired. There is widespread contamination of open water sources and distribution systems by local sewage systems, industrial and agricultural activities. It is difficult to regulate water consumption using pricing and other economic-based mechanisms. There is an active state program for the period 2002-2007 which is aimed at reconstruction of the water distribution system in 1000 villages and 10 cities. Also the World Bank and Asian Bank of Reconstruction provided funds of about 60 million USD for the construction of new water supply systems from the surface water sources in Kyrgyzstan.
Panel Discussion 2: Conditions in Central Asia Concerning Health Problems from Contaminated Water

Moderators: Dr. Christopher Teaf, Florida State University, USA and Dr. Vladimir Bogachev, CAREC, Kazakhstan

Dr. Elshibai Mustafaev and Kenes Ospanov, State Sanitary-Epidemiological Service of Kazakhstan spoke on “Health Problems Related to Water in Agricultural Areas in Kazakhstan.” The problems of providing the population with safe drinking water are related with high-level contamination of water sources and the degradation of water supply and distribution systems. Last years, the tap water supply was decreasing from 77.6% in 1997 to 73.7% in 2002. More than 3 million people (20.6 % of population) use drinking water from non-safe water sources. The lowest rate of supply the population by tap water is in rural areas of Kazakhstan. About 16% of water distribution system does not meet the sanitary norms. In many areas and regions the tap water does meet sanitary-epidemiological norms. The data demonstrating a substantial increase in water related diseases during the period from 2000 to 2002 were presented.

Dr. Dilorom Fayzieva, Institute of Water Problems of the Uzbek Academy of Sciences spoke on the “Current Status of Research on Drinking Water Quality and Population Health in Uzbekistan.” Water supply in Uzbekistan, especially in rural areas remains one of the foremost environmental concerns. About five million people use water from contaminated open reservoirs. In rural areas of Khoresm, Karakalpakstan, Bukhara and Navoi provinces over 60% of the population do not have a state regulated water supply system. Recent studies conducted in the Khorezm province and Samarkand Oblast showed that the rate of water borne diseases is much higher in rural areas in comparison with the corresponding urban areas. There are a number of research programs on water and health aspects in Uzbekistan sponsored by different local and international organizations; however, there is still a need for:

- Capacity building (training, technical support, quality assurance of lab analysis)
- Implementation of modern approaches of epidemiology and health risk assessment concept
- Improving of information system & monitoring

Dr. Nodira Khakimova, Institute of Water Problems spoke on the “Role of Water in the Occurrence and Development of Diseases.” Presently, the water supply systems, especially in the cotton production areas of Tajikistan, are at high levels of epidemiological risk. The level of water borne diseases such as a typhoid fever, dysentery, Hepatitis A, and diarrhea is the highest in Tajikistan when compared with other countries of the Central Asian region. The most serious problem is the degradation of water supply and purification systems, and contamination of surface sources (e.g., rivers, canals,
ponds) by urban and industrial wastes, and agricultural and irrigation activities. There is an urgent need to stop the anthropogenic and industrial contamination of water sources and water supply/distribution systems. The following measures were recommended: To establish strict sanitary-epidemiological controls on the release of the waste generated by settlements, industrial and agricultural enterprises, and other organizations into the surface and underground water sources; to repair the existing water supply and sewage systems; to introduce new cost-effective technologies for processing of waste generated by agricultural and irrigation activities, and to conduct R&D on cost-effective coagulant-based water purification systems.

**Dr. Nina Vashneva**, State Sanitation Department spoke on “Drinking Water Quality and Health Problems in Rural Areas of Kyrgyzstan.” According to the data of the State Sanitary-Epidemiological Service, though the quality of tap water was stabilized during the last few years, the percentage of tap water that does meet the sanitary norms is still high (2.7% with respect to chemical contamination, and 12.7% with respect to bacterial contamination). The main reason is the degradation of water supply systems (storage and distribution elements) and lack of and ongoing degradation of water purifying and sanitation systems. There is a strong correlation in the occurrence of intestinal deceases with decreased water quality. It was estimated that the treatment of water borne diseases cost about $125 million USD per year. Local Sanitary-Epidemiological Service laboratories suffer from a lack of funding. There a shortage of necessary equipment, especially the devices to perform the express analysis of water quality. There is a need in development training for specialists for monitoring of water quality and on new effective methods and tools in water management in rural areas. The goal of the national Program “Drinking Water” is to provide access of the population to safe drinking water by 2010.

**Invited Administrative Presentations**

**Dr. Nurgali Takibaev**, Institute of Technology and Sciences presented “Examples of International Environmental Cooperation”

**Mr. Norbert Barszczewski**, Florida State University presented “An Overview of the Florida State University Web Site for the Central Asian Pilot Study: Access, Purpose and Uses” It was determined that the Pilot Study needed a web site for the following reasons:

- Distribution of meetings materials and reports
- Keeping track of Pilot Study activities
- Accessing participants contact information
- Raising awareness of results and conclusions

The Central Asian web site is designed to be user friendly. Linking the Central Asian Pilot Study web site with our institutes, universities, and company sites...
equates to more information being exchanged that is better for the science and technology of the study.

Conclusions and Recommendations

Based on the comments made by the participating experts during the meeting, the following draft conclusions/problems regarding water supply, sanitation and treatment in CA were formulated:

- There is poor access, especially in rural areas, to safe drinking water supplies;
- A substantial portion of the population in rural areas takes water from open sources;
- Ongoing degradation of the physical aspects of the water supply systems (storage and distribution components) continues throughout CA;
- There is a lack of, and ongoing degradation of, water purifying and sanitation systems;
- Contamination of water sources and water supply/distribution systems (chemical and biological) exists throughout CA;
- There are often difficulties in distinguishing disease causation between water origins and food origins;
- There is poor coordination of land use controls with knowledge of water supply data and related information;
- There is natural occurrence and enhancement of salinity/mineralization of water sources;
- There is a need to introduce economic tools (e.g., pricing schema) for the efficient regulation of water use; and
- There is a lack of effective legal frameworks for improving and maintaining water quality.

Based on these conclusions/problems, the following draft recommendations were formulated:

- There is a need to develop/provide cost-effective methods and systems for water management and purification;
- There is a need to develop/implement cost-effective technologies for utilization and processing of agricultural and industrial waste;
- There is a need to provide cost-effective water quality control and monitoring systems, including training and development of laboratory capabilities;
- There is a need to implement planning strategies and related restrictions/controls on drainage basin development;
- There is a need to educate/train the general population on effective methods of water sanitation, personal hygiene, and conservation methods;
- There is a need to involve the public and NGOs in discussions, education, and assistance for the population regarding the protection and maintenance of good quality water supplies;
- There is a need to provide free access to data on drinking water quality and health of the population in rural areas of Central Asia; and to create a database as well as a special internet site;
- There is a need to collect all cost-effective project proposals for improving access to good quality drinking water;
- There is a need to identify funding opportunities for supporting projects on water and health issues, including the 2004 Ministerial Conference in Budapest; and
- There is a need to develop training for specialists on new effective methods and tools for water management in rural areas.

Since the meeting in Almaty, these draft conclusions and recommendations have been sent to each of the invited experts that participated at the meeting for comments, revision and/or clarification.

Appendices:

- Meeting Agenda
- List of Participants
- Group Photos
Meeting Agenda

NATO/CCMS Pilot Study on Environmental Decision-Making for Sustainable Development in Central Asia

Pilot Study Meeting Focused on:
“Water, Sanitation and Public Health Impacts in Rural Areas of Central Asia”

4-5 November 2003
Astana International Hotel
Almaty, Kazakhstan

Agenda

Tuesday, 4 November 2003

9:30-10:00  Introductions & Overview of Meeting
John Moerlins, Florida State University, USA

10:00-10:20  The 5th Pan-European Ministerial Conference "Environment for Europe: Environment, Water and Security in Central Asia (Kiev, Ukraine, 21-23 May 2003)
Bulat Yessekin, CAREC, Kazakhstan

10:20-10:40  Dushanbe International Fresh Water Forum (Dushanbe, Tajikistan, 29 August-1 September, 2003)
Inom Normatov, Institute of Water Problems, Tajikistan

10:40-11:00  BREAK

11:00-11:30  UNECE/WHO Protocol on Water & Health
Roger Aertgeerts, WHO, Rome Office

11:30–11:45  CAREC Activities on Water & Health in Central Asia
Vladimir Bogachev, CAREC, Kazakhstan

11:45-12:00  OSCE Activities in Central Asia Concerning Water & Health
Armands Populs, OSCE Almaty Office

12:00-13:30  LUNCH

13:30-14:30  Overview of Approaches Used in Developing Countries for Accessing Potable Water at the Household or Small Scale Levels
Robert Reed, WEDC-Loughborogh University, United Kingdom
14:30-15:00 Overview of Health Effects from Exposure to Contaminated Drinking Water: Chemical Contaminants
Christopher Teaf, Florida State University, USA

15:00-15:30 BREAK

15:30-16:00 Overview of Health Effects from Exposure to Contaminated Drinking Water: Bacterial Contaminants and Water Scarce Health Effects
Roger Aertgeerts, WHO, Rome-Office

16:00-18:00 Panel Discussion: Conditions in Central Asia Concerning Water Problems
Moderators: Robert Reed, WEDC-Loughborough University, United Kingdom and Mikhail Khankhasayev, Florida State University, USA

Water Supply, Drinking Water Quality and Public Health in Kazakhstan
Kasym Duskaev, Kazakh National University, Kazakhstan

Mineralization and Ion Composition of Drinking Water Sources
Bahtiyor Zakirov, Academy of Sciences, Uzbekistan

Water Supply, Drinking Water Quality and Public Health in Tajikistan
Inom Normatov, Institute of Water Problems, Tajikistan

Water Supply, Drinking Water Quality and Public Health in Kyrgyzstan
Elena Rodina, Kyrgyz Russian Slavic University, Kyrgyzstan

MEETING ADJOURNED FOR THE DAY

19:00 DINNER AT HOTEL

Wednesday, 5 November 2003

9:30-12:00 Panel Discussion: Conditions in Central Asia Concerning Health Problems from Contaminated Water
Moderators: Christopher Teaf, Florida State University USA and Vladimir Bogachev, CAREC, Kazakhstan

Health Problems Related to Water in Agricultural Areas in Kazakhstan
Kenes Ospanov and Elshibai Mustafaev, State Sanitary Epidemiological Service of Kazakhstan, Kazakhstan

Current Status of Research on Drinking Water Quality and Population Health in Uzbekistan
Dilorom Fayzieva, Institute of Water Problems, Uzbekistan
Drinking Water Supply in Uzbekistan: Conditions and Problems  
Ernazar Makhmudov, Institute of Water Problems, Uzbekistan

Role of Water in the Occurrence and Development of Diseases  
Nodira Khakimova, Institute of Water Problems, Tajikistan

Drinking Water Quality and Health Problems in Rural Areas of Kyrgyzstan  
Sabirzhan Abdikarimov, State Sanitation Department, Kyrgyzstan

12:00-13:30  LUNCH

Tatanov Zhanat Satybaldinovich, Center of Science, Hygiene & Epidemiology, Ministry of Public Health, Kazakhstan

13:45-14:00 Drinking Water Quality: Guarantee of Social and Ecological Safety  
Nurushev Almabek Nurushevich, IFAS (Kazakh Branch), Kazakhstan

14:00-14:15 Clean Drinking Water for the Ili-Balkhash Region  
Nurymgereev Kanysh, CAREC, Kazakhstan

14:15-14:30 Health Hazards of Hydrocarbon Contaminants in Water: a Central Asian Perspective  
Ender Okandan, Middle East Technical University, Turkey

14:30-14:45 A Water Purification Product: An Example of a Low-Cost Technological Solution  
Christopher Teaf, Florida State University, USA

14:45 –15:00 BREAK

15:00-16:00 Water Treatment/Sanitation in Rural Areas in Developing Countries  
Robert Reed, WEDC-Loughborough University, United Kingdom

16:00-16:15 Examples of International Environmental Cooperation  
Nurgali Takibaev, Institute of Technology and Sciences, Kazakhstan

16:15-16:30 Overview of the Florida State University Web Site for the Central Asian Pilot Study: Access, Purpose & Uses  
Norbert Barszczewski, Florida State University, USA

16:30-17:00 Formulation of Primary Conclusions & Recommendations for Future Work of the Pilot Study Related to Water & Health Issues  
Moderators: Roy Herndon, Florida State University, USA and Bulat Yessekin CAREC, Kazakhstan

17:00 Closing Comments  
John Moerlins, Florida State University, USA
MEETING ADJOURNED
List of Participating Countries/Bodies

NATO/CCMS Meeting
Almaty, Kazakhstan, November 3-4, 2003

Kazakhstan
Kyrgyzstan
Organisation for Security and Cooperation in Europe (OSCE)
Tajikistan
Turkey
United Kingdom
United States
Uzbekistan
World Health Organisation (WHO)
Group Photos