

*Science and Technology in Support of  
U.S. Policy in Central Asia:  
Executive Summary*

*Executive Summary of the Proceedings from the  
February 2003 Workshop in Washington, DC*

*Edited by  
Elizabeth J. Kirk, Gene DeLaTorre, Nina D. Rosenberg, and  
Richard B. Knapp*

*December 2003*

*U.S. Department of Energy*

Lawrence  
Livermore  
National  
Laboratory

**(BLANK)**

## **Disclaimer**

*This document was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor the University of California nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or the University of California, and shall not be used for advertising or product endorsement purposes.*

*This work was performed under the auspices of the U. S. Department of Energy by the University of California, Lawrence Livermore National Laboratory under Contract No. W-7405-Eng-48.*

*This report has been reproduced  
directly from the best available copy.*

*Available to DOE and DOE contractors from the  
Office of Scientific and Technical Information  
P.O. Box 62, Oak Ridge, TN 37831  
Prices available from (423) 576-8401  
<http://apollo.osti.gov/bridge/>*

*Available to the public from the  
National Technical Information Service  
U.S. Department of Commerce  
5285 Port Royal Rd.,  
Springfield, VA 22161  
<http://www.ntis.gov/>*

**OR**

*Lawrence Livermore National Laboratory  
Technical Information Department's Digital Library  
<http://www.llnl.gov/tid/Library.html>*

## **Introduction**

On February 6, 2003, a workshop, was cosponsored by the American Association for the Advancement of Science (AAAS) and the Center for Global Security Research (CGSR) to explore both the linkage between U.S. policy in Central Asia and science and technology (S&T) and the role of S&T in achieving U.S. security and development objectives in the region. A major outcome of the workshop is the identification of potential S&T initiatives that support U.S. Central Asia policy goals. This document summarizes the proceedings, conclusions, and recommendations from this workshop; it is a companion document to the full proceedings entitled *Science and Technology in Support of U.S. Policy in Central Asia*. The proceedings are also published by AAAS and a copy can be obtained from either AAAS ([www.aaas.org](http://www.aaas.org)), Sheri Abbott (AAAS; 202 326-6655), or Richard Knapp (LLNL; 925 423-3328; [knapp4@llnl.gov](mailto:knapp4@llnl.gov)).

This workshop builds on the foundation set by a November 2002 roundtable, hosted by the Brookings Institution, where representatives from the Departments of State and Defense and the National Security Council discussed U.S. policy in Central Asia.

The AAAS/CGSR workshop successfully addressed its objectives through the participation of 53 policy and S&T experts, representing 36 organizations from government and non-government entities (NGOs), including the private sector and academia. These participants and their organizations represent a significant and broad-based capability and expertise that is available to policy decision-makers in addressing U.S. security and development concerns in Central Asia.

## **U.S. Central Asia Policy Issues and Goals**

The workshop began with presentations by U.S. Department of State representatives addressing the strategic importance of Central Asia, the major U.S. policy concerns for the Central Asian states of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan, and the potential contribution of S&T to U.S. foreign policy. The policy issues and goals are summarized below.

### **Regional Security**

Policy: Political instability, interstate conflict, possible proliferation of weapons of mass destruction (WMD) materials, and conflict stemming from local militant factions are the primary security issues.

Goal: Potential major roles are to provide a first line of defense against illicit trafficking and engage in activities to promote stability.

### **Economic Growth**

Policy: There is a lack of economic viability in the region, an over-reliance on extraction industries, and high-levels of poverty and unemployment.

Goal: Development of a market-based economy by supporting both macro-and micro-economic reforms. Foster investment in small business and community-level projects that create employment and economic hope.

### **Political Development**

Policy: Address severe restrictions on freedoms and reforms that are stifling dissent, inhibiting a free press, limiting disagreement with central authority, and reducing development of democracy and the rule of law.

Goal: Strengthen and enhance democratic institutions, grassroots organizations, nongovernmental organizations, and an open press; modernize legislative structures.

### **Social Development**

Policy: Reverse the decline of the social infrastructure, including higher education and training, health care, and the environment.

Goal: Repair the social infrastructure through humanitarian medical assistance and training, health care reform, environmental remediation, and resource management.

### **Reduction of Intra-regional Tension**

Policy: Assist Central Asia countries to resolve difficulties in establishing and maintaining intra-regional cooperation to address common interests such as trade, border protection, dispute resolution, law enforcement, transboundary water resources, and legacy issues.

Goal: Enhance cross border cooperation in the above areas; support response to health and economic concerns and thereby decrease ethnic and family group tensions across borders.

### **Reduction of Isolation**

Policy: Reduce isolation of Central Asia countries where they lack of technical and financial resources.

Goal: Reduce isolation through international and cross-border exchanges and training and supporting programs in the U. S., and the development and use of the Internet and other telecommunications technologies; and support linkage with private sector and financing institutions in promoting the diversification of Central Asia economy and trade.

## **General Conclusions**

Breakout sessions followed the policy presentations to explore the S&T-policy linkage in six critical thematic areas: agriculture, basic research and education, health and biotechnology, resource management, natural hazards and emergency response, and security and Soviet legacy. Summaries of the breakout session discussions were presented to an Executive Panel for consideration and comment.

General conclusions reached are:

- The success of any S&T initiative will depend on the leadership and participation of Central Asia regional experts and institutions.
- Several legacy issues from former Soviet times need to be resolved. Government reforms, improving civil society, rule of law, the economy, and potential environmental disasters such as the transboundary effects of uranium mill tailings are a high priority.
- Improvements in program integration must be made among the U.S. donors to maximize impact of their varied contributions; efforts must be made to communicate with international donors to identify areas of complementary activities, possibly in the planning stage, to promote effective interaction and to enhance assistance impacts.
- Science and technology partnerships in the region are a basis for exchanges, research, delivery of assistance, and addressing the policy concerns.

## **Recommendations**

Workshop recommendations fall into two categories. The first are broad in scope, general in nature, and germane to integrated development. The second are specifically focused science and technology oriented initiatives that also have the potential for larger impact once successfully implemented.

### **General Science and Technology Investment Framework**

- Establish a U.S. review team — to function in the region — composed of U.S. government and non-government personnel, to enhance communication and integration. The Regional Officer for Environment, Science and Technology may act as team lead.

- Foster a program of institutional exchanges, training, and information sharing among technical centers in the region and their counterparts in the U.S. This will accelerate the pace of institutional reforms and advances in the educational, health, economic, civil, and legal arenas. Use and expand existing programs wherever possible.
- Support improvement of the telecommunications infrastructure to provide access to global information systems. This is essential for integration with the global S&T community.
- Commence U.S. S&T project investments with pilot projects focused on high priority areas — as locally perceived — that will have a positive, tangible, and near-term impact on the population. Once risks, strategies and linkages are better understood, follow with a phased expansion effort that attracts international partners and involvement of the private sector. Initially emphasize small investment, high impact projects.
- Give special attention to building, supporting, and including S&T-based NGOs.
- Hold scientific meetings in Central Asia that cover topics of interest to both the international community and the region. The meetings could rotate among major cities in the region.

### **Agriculture**

- Stabilize and restore the agricultural research sectors, including forestry, rangeland, biotechnology, and economic analysis.
- Promote and develop a market-driven agricultural system.
- Diversify crops and include high-value, water-conserving, niche crops such as organic and horticultural products.
- Promote capacity building and human resource development in the agricultural S&T sector including development of an agricultural extension service system appropriate to the region.

### **Basic R&D and Education**

- Initiate a broad campaign to teach proposal writing and the peer review process.
- Fund fellowships to allow a wide spectrum of qualified youth to attend universities in the region and abroad.
- Train regional scientists in socio-metric methods and conduct research to identify social needs and trends; the training could be conducted through NGO's. Consider the Russian social program model to implement projects.
- Using a series of U.S. and Central Asia partnerships, develop and implement primary and secondary level science and technology education modules to establish the foundation for higher education and industrial employment.
- Promote the local development of innovation systems for the collaborative recovery of university/academy systems.
- Promote international research collaborations to advance long-term cooperation. Much of this work can be accomplished under existing U.S. programs. This effort will foster international partnerships, competition, and the integration of local research institutes with U.S. universities.

### **Health and Biotechnology**

- Support programs to bring the younger scientist to American or European technology institutions. Complement this with programs to assist scientists returning to their former institute with the equipment and support for research.
- Assist schools at all levels to update and improve their education. Grant opportunities (NIH, HFSP, CRDF) and programs to assist with grant writing skills need to be established and generally made know to the people. Assist to form alumni associations to encourage the participants to continue to stimulate academic achievement.

- Encourage public-private partnerships in a broad range of medical and pharmaceutical research areas. Potential areas include vaccine and pharmaceutical development and involve converting some of the former bio-weapons laboratories to these research and development activities.

### **Natural Hazards and Emergency Response**

- Establish a regional seismic collaboration network in Central Asia. Focus on seismic monitoring, hazard assessment, seismic engineering, education, standardization, and emergency response. This requires instrumentation, data processing equipment, and improvements to the telecommunications infrastructure.
- Consider including the Caucasus and Russia in the Central Asia seismic collaborations.
- Support development of a Caspian oil spill emergency response initiative.

### **Resource Management**

- Address Soviet legacy concerns affecting rehabilitation and preservation of environment and water resources. These impact related fields of agriculture, health, economic growth and interregional tension

### **Security and Soviet Legacy**

- Apply the technical expertise and equipment used to monitor and secure WMD materials to cross-border trafficking in WMD, drugs, women, terrorists, conventional weapons, and other illicit activity.
- Provide support to integrate WMD experts more fully into civilian research and teaching at universities to solve related problems –medical research, vaccine development, safe pesticides, contamination remediation, etc.
- Apply U.S. assistance to areas other than military applications, such as border security and international collaboration projects focusing on national and regional priorities, *e.g.*, health, water, and earthquakes.

## **Next Steps**

It is the intent to continue the dialogue among contributors to U.S. Central Asia policy community, decision-makers, and the U.S. S&T enterprise to formulate an S&T response to the policy goals.

For further information contact Sheri Abbott (AAAS; 202 326-6655), or Richard Knapp (LLNL; 925 423-3328; [knapp4@llnl.gov](mailto:knapp4@llnl.gov)).

## **Acknowledgement**

This work was performed under the auspices of the U.S. Department of Energy by the University of California, Lawrence Livermore National Laboratory under Contract No. W-7405-Eng-48.