

SCIENCE FOR SOCIETY



SCIENCE & TECHNOLOGY
CENTER IN UKRAINE

ANNUAL REPORT 2004



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WELCOME FROM THE CHAIRMAN OF THE STCU GOVERNING BOARD



VICTOR ALESSI, Chairman of the STCU Governing Board

Nine years have elapsed since the Science and Technology Center in Ukraine held its first governing board meeting in December 1995. Since that time, the Center has sponsored research amounting to nearly US \$110 million, supporting thousands of former weapons of mass destruction and other scientists. This research, which continued successfully during the past year, has encompassed the wide sweep of the scientific and technological development so necessary to ensure our future, including environmental monitoring, alternative energy development, medicine and biotechnology, sensors and measuring systems, information technologies, materials science, coatings, basic sciences and many other areas. The year 2004 also saw the STCU continue to expand its reach in the countries of the former Soviet Union, opening its Regional Office in Azerbaijan, as well as welcoming the accession of Moldova to the organization at the end of the year.

This report demonstrates how the STCU is succeeding in creating scientific and engineering jobs for those who used to be involved in working on weapons of mass destruction. The research and engineering supported by the Center is helping to create the basis for sustained technical excellence in the STCU member countries. Not only is the scientific infrastructure of participating countries significantly enhanced by the Center's contributions, but the possibility of developing a high technology commercial future in those nations is also improved. This report describes not only ongoing and new research being conducted or sponsored by STCU member countries dur-

ing 2004, but also Partnership Projects that support targeted research for specific sponsors or the creation of new high technology businesses, such as those begun under the rubric of the Initiatives for Proliferation Prevention Program. By any possible standard, the STCU is doing an outstanding job in fulfilling its mission.

Last year the STCU Governing Board made a commitment to support projects that lead institutes and their former weapons scientists towards self-sustaining civilian employment and away from long-term dependence on STCU-funded projects. Acting on this commitment is enabling the organization to achieve one of the main goals laid out by the STCU funding parties – to do the utmost to secure the long term future of the ex-WMD communities in STCU member countries by integrating them into the global scientific and business community. Self-sustainability can be achieved either by developing a marketable product, or by performing research needed by companies or scientific institutions throughout the world. To gain the competitive edge in the international scientific and business marketplace that is needed to attract sustainable research income, institutes in STCU member countries will need to develop their research and development capabilities as well as project a positive image to potential commercial partners. The STCU Governing Board recognized this and reorganized the Center's staff to enable it to focus its efforts on helping institutes and scientists develop the necessary capabilities. I am confident that this STCU emphasis on sustainability will become the engine for high tech ventures of all kinds by attracting Western high tech-



nology business and research institutions to partner with scientific institutes in the STCU member countries. The sustainable jobs thus created will lay the groundwork for long-term prosperity in these countries which will, in turn, help them develop stable socio-political systems.

We cannot help but note the dramatic political changes that have occurred within the STCU membership during the year 2004. We are gratified that the STCU, being a unique example of effective multilateral cooperation, is

strategically positioned to be a balanced, effective tool of the Parties for contributing to the conversion of industrial-technical potential from military to peaceful endeavors, and to the fulfillment of the people's aspirations for a stable, modern market economy. The organization is dynamic, pro-active and looking to the future. As it continues to develop innovative approaches to technology and science, and helps former weapons scientists cooperate with Western scientists as well as conduct business in the West, the promise of the STCU comes ever closer to fulfillment.

Victor E. Qlesni



WELCOME FROM THE STCU EXECUTIVE DIRECTOR



ANDREW HOOD, Executive Director

For the Science and Technology Center in Ukraine, the year 2004 was marked by dramatic changes in its organizational direction. The year also saw the introduction of new people, new programs, and new activities; all of which vividly demonstrated the STCU's transition towards a new and exciting chapter in its nonproliferation mission. The STCU now works towards a new vision:

For a safer, better world, to assist former WMD experts in the transition to self-supporting, peaceful activities in the international science and business communities...and to do so using the best professional practices.

Although this new vision maintains the STCU's critical nonproliferation objectives, it shifts the mission focus towards developing sustainable, successful self-employment for former weapons scientists who now conduct peaceful, civilian science research. Our challenge will be to turn the STCU from a grant-generating machine into a value-adding contributor to successful science sustainability. This shall be attained by: 1) fostering research opportunities to former WMD scientists that open additional doors to financed research work; 2) assisting in the protection and exploitation of research results to the benefit of the scientists that created them, as well as to the benefit of the economies and societies of the STCU Parties; and 3) supporting the integration of former WMD scientists into long-term research initiatives of the global scientific and business communities.

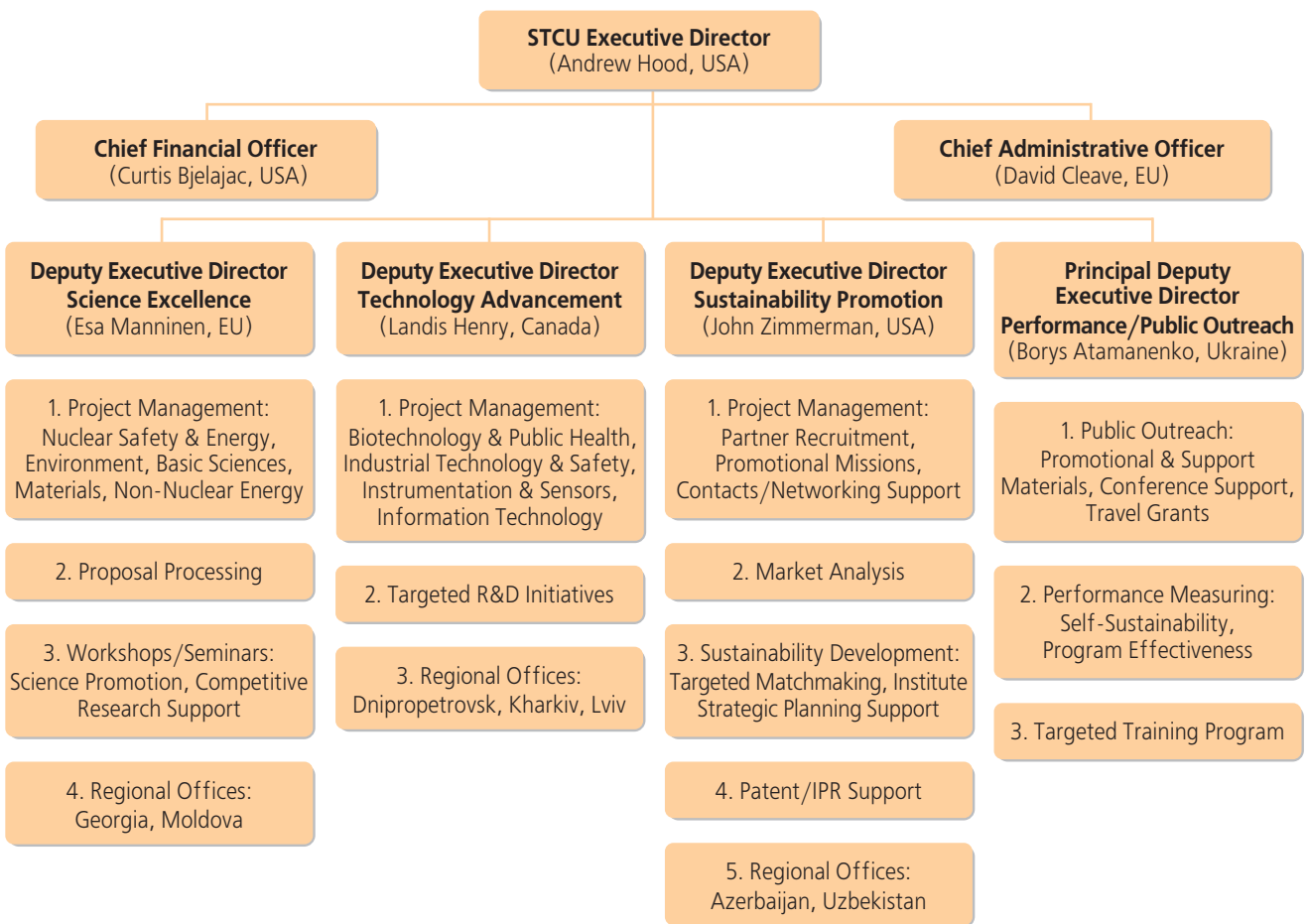
This new emphasis on sustainable redirection of former weapons scientists in Azerbaijan, Georgia, Ukraine, and Uzbekistan was adopted at the 18th meeting of the STCU Governing Board, held for the first time in new STCU member state, Azerbaijan. Since then, new programmatic tools, as

well as several new programs, have been developed to support this shift in mission emphasis. The new Targeted R&D Initiatives will organize the research work of former weapons scientists on a national scale, focusing on national priorities in S&T development and soliciting equal levels of co-funding from participating agencies; particularly those of the STCU's beneficiary governments. Currently, the STCU and the National Academy of Sciences of Ukraine are developing a Targeted Initiative whereby both organizations will jointly select and co-finance projects within Ukraine's set of national S&T development priorities. Another new program, Sustainability Development, will focus on establishing technology transfer capacities in high-priority former weapons research institutes using a holistic mix of consultant research, targeted training, business plan development, and other tools. A third new program, Targeted Training, will organize both distance learning, CD-ROM-based courses, and specific training for selected participants to improve the S&T quality of their research grant proposals, increase their competitiveness in research grant competitions, and expand their ability to attract contract research income from a variety of technology clients.

The STCU has also embarked on organizing our internal staff responsibilities so that our staff members become specialists in the strengths and capacities of former weapons institutes within broad areas of R&D interest. STCU staff will become a value-adding capability that can organize and match the scientific strengths of the former weapons scientists and institutes to the interests and needs of national and international S&T markets.

When I became Executive Director in August, I set out to encourage our staff to develop their abilities as S&T research

THE NEW STRUCTURE OF THE STCU



organizers. The staff has always been a shining example of professionalism, and they possess an unmatched ability to manage diverse portfolios of projects and activities. In addition, the STCU Regional Offices in Ukraine, Azerbaijan, Georgia, as well as Uzbekistan serve as key liaisons between the STCU and the local government, academic and scientific communities in these regions. Now, the STCU is entering an exciting

period of development for itself and for its Parties, and we look forward to the challenges ahead. We are committed to applying the STCU's strong professionalism and motivation in assisting former weapons scientists and institutes in becoming successful non-weapons R&D centers of excellence: competitive on the international stage, attractive to new customers, and able to deliver on new sources of financial support.



2004 HIGHLIGHTS AND ACCOMPLISHMENTS

March 23, 2004

France Incubation Signs Agreement with the STCU

France Incubation promises to work with the STCU in supporting the establishment of contacts, exchanges and collaboration between innovation enterprises in France and scientific groups in Ukraine as well as to transfer their expertise to Ukrainian entities and incubators.

June 16, 2004

STCU Office Opens in Baku, Azerbaijan

Led by Dr. Adalat Hasanov, the new STCU office in Baku begins its mission of aiding the former weapons of mass destruction scientists of Azerbaijan.



June 17, 2004

Eighteenth STCU Governing Board Meeting Held in Baku

The STCU Governing Board approved 42 new regular, government funded scientific projects for a total of US \$3.5 million and EUR €1.8 million as well as Partnership Project funding valued at US \$1,206,272 & EUR €57,500.



August 25, 2004

Andrew Hood Commences His Tenure as the New STCU Executive Director

Mr. Hood comes to the STCU after many years as the Senior Coordinator for the Science Centers at the U.S. Department of State in Washington, D.C.

August 25, 2004

STCU and the International Science & Technology Center (ISTC) in Moscow Initiate Closer Cooperation

A delegation lead by ISTC Executive Director Norbert Jousten visits the STCU for formal talks on how to improve cooperation between the Moscow and Kyiv Science Centers.

I S T C

M H T Ц

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August 31, 2004
US Senator Lugar Visits the STCU

Senator Richard Lugar, along with former Senator Sam Nunn, was the co-author of the Nunn-Lugar Act which was the driving force behind the U.S. participation in the creation of the STCU.

October 7, 2004
Dr. Landis Henry Commences Tenure as New Canadian Deputy Executive Director

Previously with the National Research Council of Canada Dr. Henry has brought his years of expertise and leadership to the STCU as the head of the Technology Advancement Department.



October 7-8, 2004
Grant Writing Workshop in Tashkent, Uzbekistan

With an audience of over 100 scientists from Azerbaijan, Georgia, Uzbekistan along with presenters from the EU, USA and the STCU, the event focused on strengthening researchers' skills in approaching Western funding organizations to obtain financial support for their basic and applied work.



November 15-19, 2004
Canadian International Development Agency (CIDA) Mission to Ukraine

Ten companies from across Canada participated in this twelfth CIDA Mission to Ukraine focused on materials and equipment. The companies took part in 67 meetings at 28 R&D institutions organized by the STCU. The result of this latest mission was the signing of 5 new Partnership Projects.



December 7, 2004
Moldova Joins the STCU

Completing the accession process, Moldova becomes the STCU's fifth and newest recipient state.



FINANCIAL ACTIVITY IN 2004

The year 2004 featured a steady amount of new STCU project funding, continuing the positive trend in new funding since 2000. In 2004, the STCU Governing Board approved over **US \$14.95 million** in new projects, a slight decrease in total new project funding from the previous year, but consistent with the average amount of new project funding over the past five years.

New Partnership Project funding in 2004 saw a moderate decrease in levels as compared to that achieved in 2003. However, the US \$5.77 million in Partnership Project funding is the third largest annual total since 2000, and the percentage of project funding coming from STCU Partner organizations continues to be significant during the same five-year period. In 2004, new project funding from Partner organizations represented almost 40% of the total amount of new STCU project funding approved in that year.

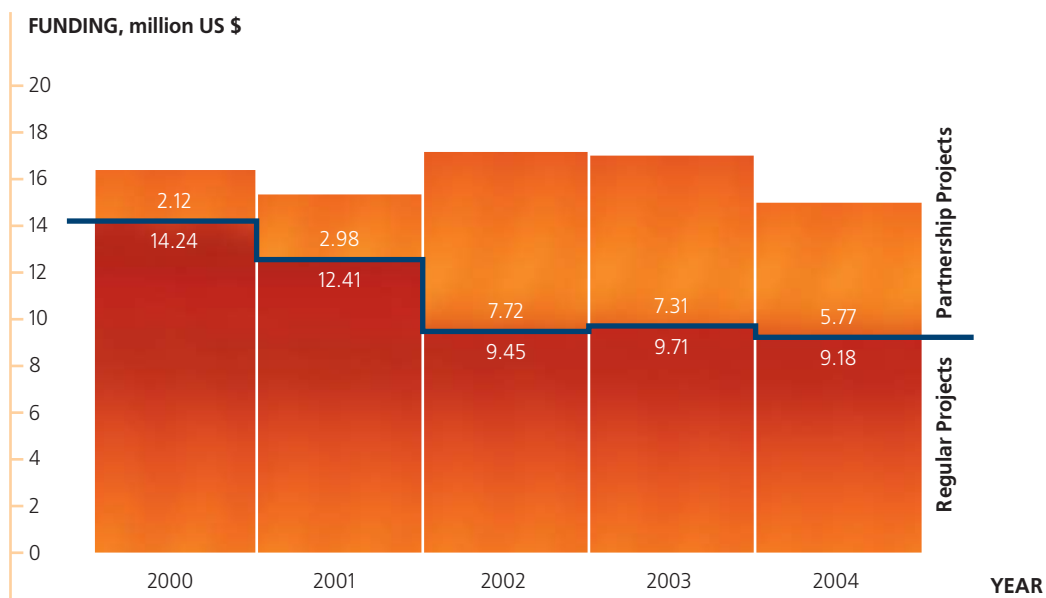
As in previous years, external auditors from both Lubbock Fine and the Defense Contract Audit Agency audited the financial management and accounting systems as well as

the system of internal controls for both the operations of the STCU administration and STCU-funded projects. Lubbock Fine Chartered Accountants audited the December 31, 2004 financial statements, a copy of which may be obtained in the Document Center of the STCU website at:

<http://www.stcu.int/documents/reports/audit/2004/>. Some minor weaknesses were identified in conjunction with the December 31, 2004 financial statement audit and will be corrected during the course of 2005.

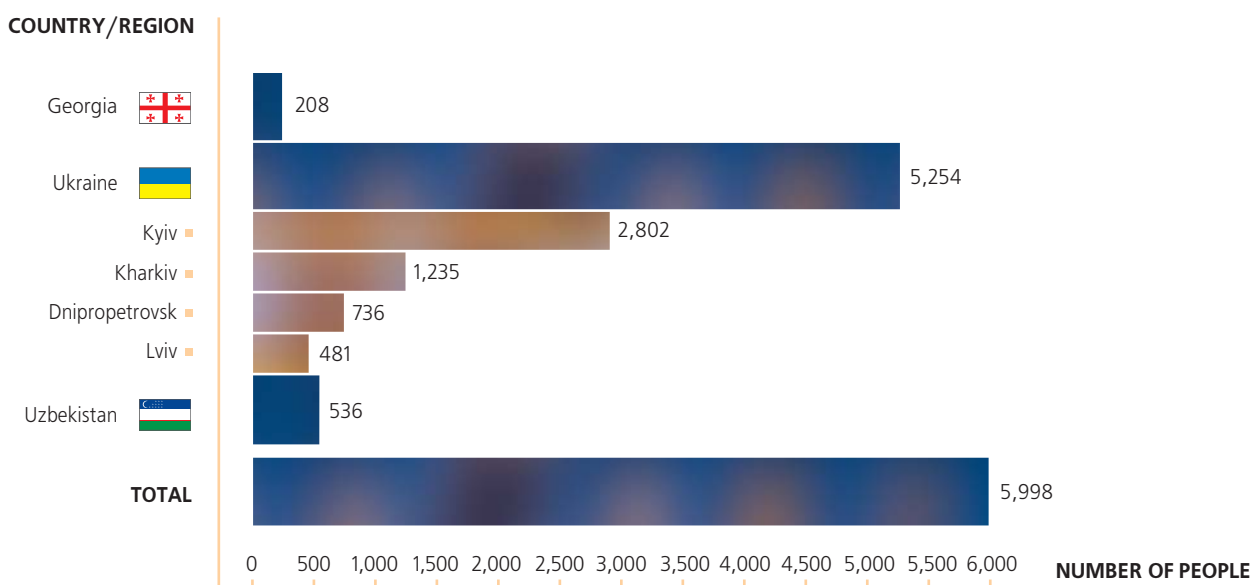
The Defense Contract Audit Agency audited approximately 20 projects during 2004, and worked closely with technical auditors from various organizations (University of Wisconsin, University of Michigan, Texas Tech University, Texas State University at San Marcos, and the U.S. Department of Energy) on all of these audits to produce both financial and technical audit findings. The project audits performed by DCAA and the technical auditors identified only minor weaknesses which will also be corrected during 2005.

STCU PROJECT ACTIVITY, 2000-2004

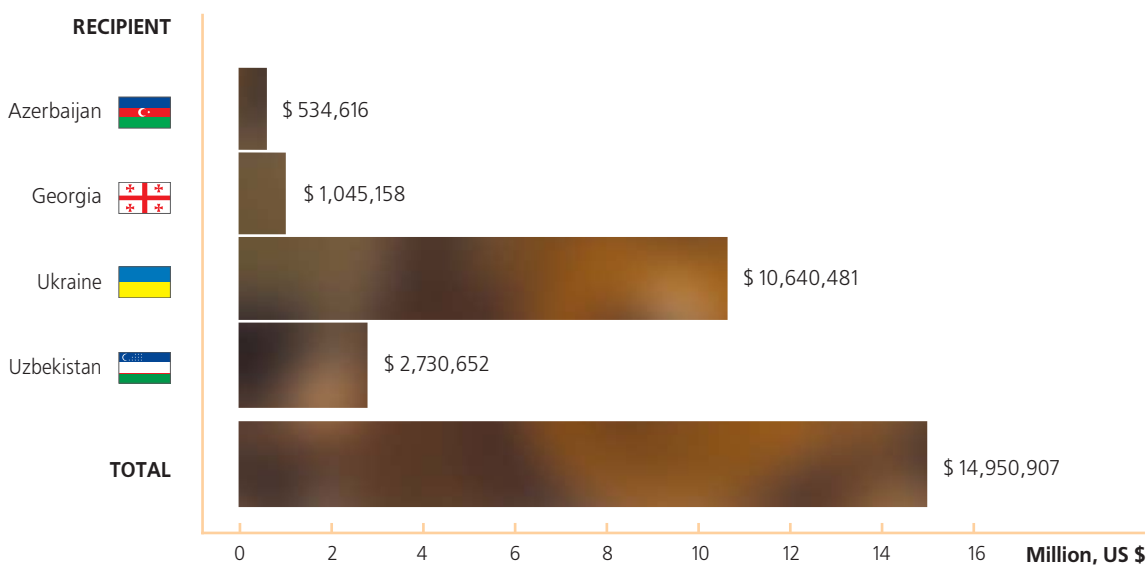




PARTICIPANTS INVOLVED IN STCU PROJECTS BY COUNTRY/REGION, 2004

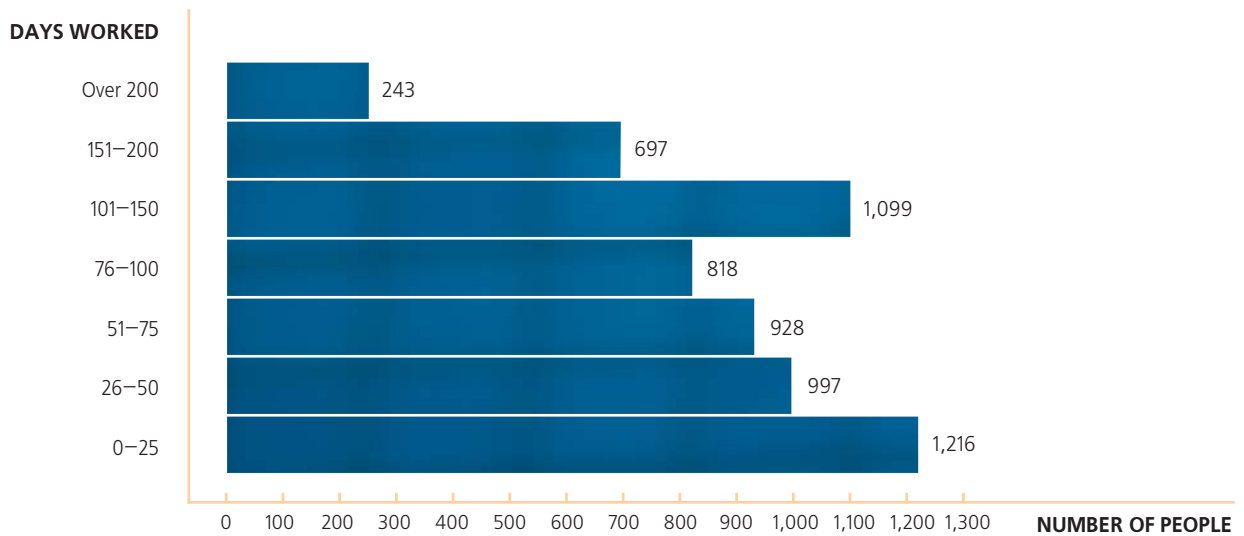


NEW PROJECT FUNDING BY RECIPIENT COUNTRY, 2004

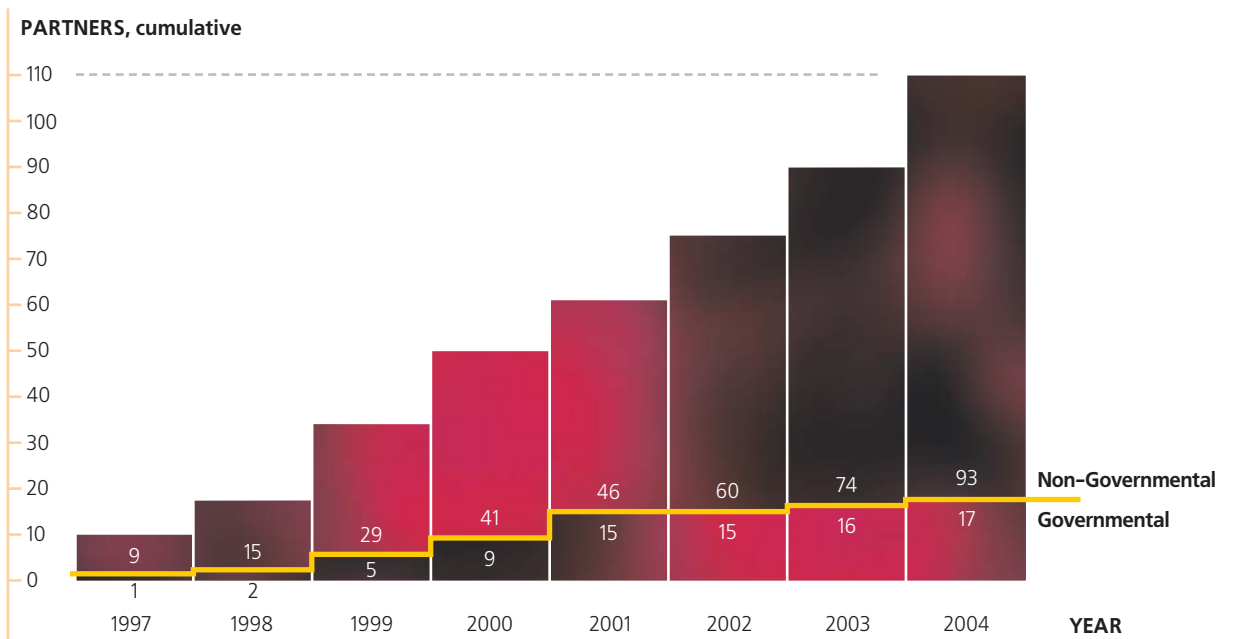


FINANCIAL ACTIVITY IN 2004 continued

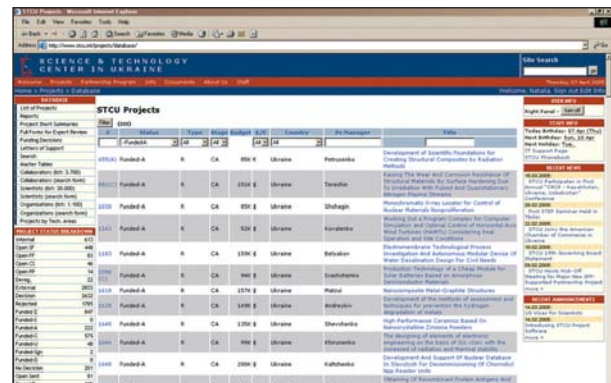
PARTICIPANTS INVOLVED IN STCU PROJECTS BY DAYS WORKED, 2004



STCU PARTNERS, 1997-2004



INFORMATION TECHNOLOGY ACTIVITY



The screenshot shows the 'STCU Projects' database interface. It features a search bar at the top right and a main table with columns: ID, Status, Type, Budget, and others. The table lists various projects with their respective details.

ID	Status	Type	Budget	Country	PI/Manager	Title	
0100	Partnered-A	R	CA	800.0 \$	Ukraine	Polushenko	Development of Specific Preparations for Testing the Initial Conditions in a Laboratory
0101	Partnered-A	R	CA	150.0 \$	Ukraine	Troshchuk	Testing the High-Speed Processes of Synthesis of Various Polymers by Surface Hardening Due to Interaction with Various Acid-Induced Polymerization Systems
0102	Partnered-A	R	CA	800.0 \$	Ukraine	Shelagin	Development of a New Generation for Control of Nonconformities in the Laboratory
0103	Partnered-A	R	CA	500.0 \$	Ukraine	Korotkiy	Development of a New Generation for Control of Nonconformities in the Laboratory
0104	Partnered-A	R	CA	1000.0 \$	Ukraine	Selivanov	Development of a New Generation for Control of Nonconformities in the Laboratory
0105	Partnered-A	R	CA	100.0 \$	Ukraine	Trushchynskiy	Development of a New Generation for Control of Nonconformities in the Laboratory
0106	Partnered-A	R	CA	100.0 \$	Ukraine	Makus	Development of a New Generation for Control of Nonconformities in the Laboratory
0107	Partnered-A	R	CA	100.0 \$	Ukraine	Andriyenko	Development of a New Generation for Control of Nonconformities in the Laboratory
0108	Partnered-A	R	CA	100.0 \$	Ukraine	Shcherbak	Development of a New Generation for Control of Nonconformities in the Laboratory
0109	Partnered-A	R	CA	100.0 \$	Ukraine	Shcherbak	Development of a New Generation for Control of Nonconformities in the Laboratory
0110	Partnered-A	R	CA	100.0 \$	Ukraine	Kulshreshtha	Development of a New Generation for Control of Nonconformities in the Laboratory

STCU Project Database Page

The STCU Project Database redesign and improvement effort which began in early 2003 came to fruition in 2004. The Database now contains all the necessary data about a project, both Regular and Partnership projects, including all stages and full details about the project. Via the password-protected portion of the STCU website, an authorized user can see each stage of an individual project, can browse each section of the project (such as organizations, scientists, work schedule, financial information, etc.) or look at a comprehensive summary of the project. The Database also features a full-text search capability which allows a user to search for projects using very specific criteria.

With the Project Database now operational, the STCU is positioned to provide much-improved stewardship over its project information, as well as provide timely analysis and standard reporting information about its project activities throughout the ten-year history of STCU operations. With the upcoming installation of its new integrated financial system, the STCU soon will be able to provide accurate, up-to-date information about each project's current status at a given moment in time. Finally, both of these robust IT capabilities will allow the STCU to move further towards an electronic, "near paperless" environment in terms of project proposal submission, proposal processing, internal review and approval of project-related documents, and final project agreement processing.

In 2004, the STCU also moved closer to launching the STCU Project Software (STCUPS) system, which will move the STCU's project preparation documents into electronic format. Scientists will be able to use STCUPS to format and develop their STCU project proposals and project workplans via a computer-driven system which will provide the scientists with a certain amount of data validation and quality control before the project documentation is submitted. The STCUPS system will also ensure that all the data is saved in a highly structured way so that when the STCU receives it, it can be added to the Project Database in a matter of minutes. The STCUPS system is expected to be operationally deployed in early 2005.

Also in 2004, the STCU installed 'internet cafés' at selected institutes in both Azerbaijan and Uzbekistan. One café was installed at the Institute of Geology in Baku, Azerbaijan, and one each was installed at the Institute of Bio-Organic Chemistry and the Institute of Genetics in Tashkent, Uzbekistan. Each internet café installation has a server, five workstations, and a printer. The connections are high-quality, dedicated and have been pre-paid in full for one year by the STCU. With these internet cafés, the scientists at these institutes will have a better chance of networking with scientists around the world, and in interacting with the STCU. During the last two years, the STCU has installed a total of seven internet cafés in the Recipient Countries, and plans foresee a continuation of this program in 2005.

SCIENCE EXCELLENCE DEPARTMENT



STCU Deputy Executive Director (European Union) Esa Manninen, giving a presentation to visiting scientists on the reorganization of the STCU

The Science Excellence Department leads the effort to advance the scientific and technical capabilities of STCU recipient scientists and institutes. Under this function are grouped those activities that create high-value collaborative research projects as well as activities that provide recipients with the opportunities to compete in the international science and technology communities, and participate in these communities as peers.

In 2004, the Department managed all aspects of ongoing Regular and Partnership projects and supervised the proposal processing procedure. This includes a careful review of proposals for basic completeness, coherence, clarity, explicitness of objective, potential for sustainable work after completion, and the means to achieve successful results. The department is also responsible for the STCU Regional Office located in Tbilisi, Georgia (in 2005, a new Regional Office in Chisinau, Moldova will also fall under this Department).

The Science Excellence Department initiates and participates in organizing workshops and seminars, and builds on the existing program to target interaction between institute managers, scientists and their Western counterparts in both science as well as business. The Department identifies and promotes opportunities for STCU project participants to showcase their research to both regional and the international science communities. The Department also maintains active, cooperative relationships with other assistance/development programs and with science foundations, regional and international science initiatives, and national government officials responsible for science advancement in their countries. Through these relationships, the STCU will seek to

integrate STCU projects and project participants into competitive and open research grant opportunities offered by these other organizations and programs.

Project Management

During year 2004, the Science Excellence Department prepared 142 Partnership and Regular Project Agreements, and at the end of 2004, was managing over 200 active projects totaling over US \$40 million. With the implementation of the STCU reorganization, STCU projects management will be divided (by R&D area) between this Department and the Technology Advancement Department with full changes to be completed in 2005.

The Department successfully completed the European Union-funded, two-stage research initiative entitled the "Antipersonnel Land Mine Project" in June 2004. Based on the positive results of this EUR €400,000 project, the Department is now assisting in the preparation of tender documentation for industrial destruction of these dangerous ammunitions. In 2004, the Department also began investigating future possibilities for STCU-managed research efforts like cooperation with the TACIS 6th Framework Programme, including joint preparation of a project proposal with the TACIS Office in Kyiv within the framework of the TACIS Ukraine Action Programme 2005.

Workshops/Seminars

The Science Excellence Department organized a one-day Workshop on Commercialization of Biotechnologies



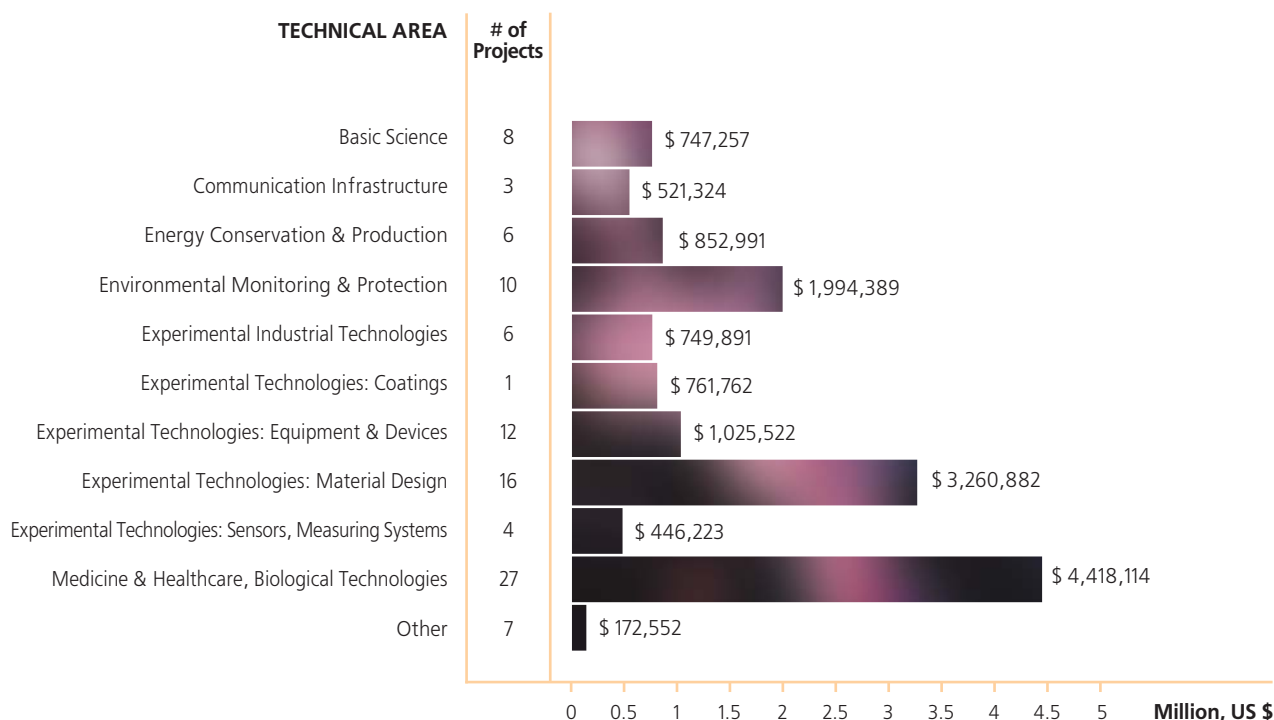
together with the Institute of Bio-colloidal Chemistry of the National Academy of Sciences of Ukraine. As a result of this event, a central laboratory for common use by other researchers has been organized at the Institute. Additionally, the Science Excellence Department coordinated the STCU's participation in 8 workshops and seminars, with the STCU sponsoring 7 of those events.

STCU-NATO Workshop on Commercialization

Toward the end of 2004, the Department began the process of organizing a joint STCU-NATO Workshop entitled

“From Science to Business” (<http://workshops.stcu.int/>) in cooperation with the National Academy of Sciences of Ukraine and Ministry of Science and Education of Ukraine. This Workshop is planned for late 2005 in Kyiv. The focus will be on Ukraine, but with the participation of scientists from Azerbaijan, Georgia, Moldova, and Uzbekistan. The Workshop will provide scientists from those countries a platform to meet local and foreign industries and initiate industry-oriented research and technology transfer. The Workshop is also an opportunity for practical cooperation between NATO and the STCU, and both organizations are contributing jointly to the workshop.

NEW PROJECT FUNDING BY PRIMARY TECHNICAL AREA, 2004



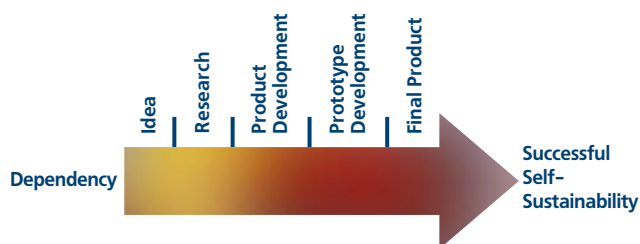
TECHNOLOGY ADVANCEMENT DEPARTMENT



Scientists at the I.I. Mechnikov Anti-Plague Research Institute, Odessa, Ukraine, listen to a presentation by the STCU's Canadian Deputy Executive Director, Dr. Landis Henry, on the self-sustainability of scientific institutes. The Technology Advancement Department is responsible for the Regional Offices in Dnipropetrovsk, Kharkiv, and Lviv which provide STCU services throughout Ukraine

As the STCU Recipient Countries move towards market and 'knowledge-based' economies, the activities of scientists and their institutes will play an increasing role in the economic development of these countries. The primary objective of the STCU, the permanent redirection of former military scientists to sustainable, civilian work, fits well with the trend of scientists contributing towards the improvement of their nation's technological position, both domestically and internationally.

The establishment of the Technology Advancement Department (TAD) in 2004, epitomizes the increasing importance that the STCU is placing on taking promising technologies, developed within Recipient Countries, from the laboratory to the marketplace. It is noteworthy that at the completion of most STCU funded projects, the technology is generally at a pre-proof of concept stage. As such, the department is engaged in advancing the technologies across a continuum by adding value at each step.



In addition to providing a range of services (including financial, mentoring and competitive intelligence) the Department identifies, facilitates and builds partnerships with appropriate external collaborators.

The partnerships often involve the private sector and technology transfer with the aim of strengthening activities and core competencies within the scientific institutes of the Recipient Countries. For example, this is achieved through the focused "match-making" technology missions to Ukraine, jointly organized by the Canadian International Development Agency (CIDA) and the TAD. CIDA's role is critical for building partnerships between Canadian Small & Medium Size Enterprises (SMEs) and Ukrainian technical teams and clearly facilitates the development of promising technologies. It is noteworthy that the majority of Canadian SMEs are too small to support the level of R&D, design and manufacturing necessary to compete in global markets. As such, the SMEs value the interactions with Ukrainian technical teams.

The TAD is engaged in the identification of technologies and scientific areas of distinctive competencies within institutes, nurturing these areas and ultimately working with other stakeholders to commercialize the technologies and/or utilize the expertise in a global arena. Thus, the TAD is an effective catalyst through which universities and government research institutions, in STCU Recipient Countries can collaborate to create new technologies and/or improve existing products. As such, the STCU is



Dr. Ashok Koul (President, Life Prediction Technologies Inc.) meets with Professor Sergey Epifanov, an expert on jet engines, at the Kharkiv Aviation Institute during the October CIDA Mission to Ukraine



now directly engaged in working with institutes/scientists in areas of self-sustainability. Moreover, the actions of the TAD have increased the effectiveness of the innovation infrastructure by fostering national and international networks, strengthening research in key areas of national priorities and facilitating the development of promising technologies.

TARGETED R&D INITIATIVES

– A New Initiative of the STCU –

The TAD is focusing its efforts and directing financial support in an attempt to strengthen scientific areas of distinct technical competencies and areas of national priorities within the Recipient Countries. Moreover, the Center is using its financial resources to leverage external investment for the targeted research areas.

The areas of national priorities and technical distinctiveness were determined through a process of consultation with key stakeholders. Next, institutes/technical teams positioned to take advantage of emerging technologies within the targeted areas were identified. Through the effective interaction with scientists in the Donor Countries, the STCU will provide the necessary “value-added” input during the evaluation of research proposals as well as develop national and international networks aimed at strengthening the targeted areas. Dialogue with represen-

tative institutions and scientists across Ukraine has confirmed the need for this initiative as well as the willingness of the technical teams/scientific institutions to lend it their full support.

The establishment of partnerships with external institutions in an attempt to build a stronger more coherent innovation infrastructure is demonstrated by the STCU’s interaction with the National Academy of Sciences of Ukraine. Indeed, the parties have established a framework for collaboration, including co-funding the targeted research areas within Ukraine. Overall the Targeted Initiative Program will:

- strengthen institutes/universities that are engaged in the development of knowledge/expertise that underlies the building of a knowledge based economy in the selected areas (e.g. nanotechnologies and nano-materials, environmental technologies);
- build infrastructure to facilitate the growth of institutes’ technical and innovation capabilities (e.g. internet cafés, UAR Net);
- enhance institute sustainability by focusing on moving promising technologies from the laboratory to the marketplace (sustainability of institutes);
- increase institutes’ understanding and use of competitive intelligence;
- facilitate the development of clusters of science strength.

SUSTAINABILITY PROMOTION DEPARTMENT



Deputy Executive Director (USA) John Zimmerman (right) at the Biophotonics Conference in Ottawa, Canada

The Sustainability Promotion Department seeks to increase the number of opportunities for STCU recipient scientists to enhance their abilities to support research activities through their own efforts by developing stable sources of income. Included within the Department are those activities which prepare a path for recipients to present themselves and their talents to potential clients in the science & technology and business communities, as well as activities that bring recipients into cooperative arrangements with potential Government and Non-Government Partners. In addition, the Regional Offices in Baku, Azerbaijan and Tashkent, Uzbekistan are managed by this Department.

1 Partnership Promotion

The Partnership Promotion group designs strategies to strengthen current Partner ties to recipient scientists and research groups while attracting new Partners from government agencies and private firms in Donor Party nations. The Sustainability Promotion Department organizes presentations for use during promotional missions, trade shows and conferences which match potential Partners with Recipient Country project teams and serve to augment regular matchmaking activities:

- **BIO2004** The STCU led a delegation of Ukrainian and Uzbek scientists to the world's largest biotech event, held in San Francisco, USA, in early June. The delegation spoke with numerous company representatives and visited biotech start-ups.

- **Biotechnology Workshop** Held in April at the Institute of Bio-colloidal Chemistry in Kyiv, the Workshop featured a series of speakers on commercializing bio-projects, sustainability, joint bio-laboratories and how to write and submit proposals to the STCU.

- **Biophotonics Conference** In early autumn, the STCU led a delegation of Ukrainian scientists to Ottawa, Canada, to participate in a NATO workshop, a biophotonics trade show and a series of meetings with high-tech companies and government officials.

In addition to promotional missions to Europe, in 2005 the group plans to restructure the way STCU scientists are organized for participation in overseas events and to team with the U.S. Civilian Research and Development Foundation (CRDF) on an innovative approach to linking the science & technology and business communities in Georgia.

2 Market Analysis

The Department is in the process of creating a function which is completely new to the STCU. A Market Analysis group will provide assistance and advice to recipient research groups and institutes on tools and services available in conducting basic public- and private-sector market research and corporate planning. In particular, this new group will strengthen the STCU Sustainability Plan; gather market information for sharing within the STCU and with scientists; and advise scientists and institutes on



how to market their own skills, expertise and products by matching these with customer needs.

3 Sustainability Development

The Sustainability Group creates, promotes and implements various activities to encourage self-sustainability with recipient institutes and research groups. In coordination with the Patent and IPR Support Program, and using guidance from other STCU departments, this program focuses on guiding organizations towards successfully exploiting project results and attracting funding from a variety of sources. Some activities will be new to the STCU: for example, working with organizations to create strategic forecasts along with business plans and setting up methods to match customer R&D needs with Recipient Country strengths.

- **Caspian Region Commercialization Seminar – Oil, Gas and Environmental Technologies** Held in Baku, Azerbaijan in March, the STCU brought researchers from Georgia and Uzbekistan (as well as from within Azerbaijan) to attend this event. Organized by the Azerbaijan National Science Foundation and the U.S. Civilian Research and Development Foundation, the STCU also served as a co-sponsor of the event.

4 Patent and IPR Support

The Patent and IPR Support Program has long played a key role in protecting intellectual property gained through research. The Program concentrates on assisting scientists to safeguard the outcome of their efforts through effective patent protection and equitable division of intellectual property rights (IPR). In addition to advising scientists on patent application processes and licensing procedures in the territories of the Parties, the Program provides general oversight on the interactions between Non-Governmental Partners and researchers on IPR issues, acts as an intermediary between inventors and STCU Party officials with regards to invention disclosures from Party-funded projects, and provides financial assistance to inventors for their patent applications. The key functions of the Program include inter alia the arranging of seminars, providing patent support, negoti-

ating non-disclosure agreements and maintaining the IPR Handbook.

- **Commercialization of Intellectual Property Workshop** Along with the National Academy of Sciences of Ukraine, the STCU hosted a workshop on intellectual property rights which saw the participation of government and private-sector specialists. A special edition of the key IPR journal in Ukraine, *Intelektualna Vlasnist*, was devoted to the Workshop.



STCU Governmental Partnerships Manager Lyubov Taranenko with Uzbek scientists at BIO2004 in San Francisco, June 2004



A session at the STCU's "Commercializing Intellectual Property: New Opportunities" workshop held in Kyiv in September 2004

PERFORMANCE/ PUBLIC OUTREACH DEPARTMENT



The newly-created Performance/Public Outreach Department is targeted towards providing the foundational support to recipient scientists and institutes in their transition to self-sustainability. Under this function will be grouped those activities that provide recipients with the skills, materials, and capabilities to effectively operate in the science and business communities. This includes providing promotional materials to showcase the talents of recipient scientists as well as supporting workshops and promotional missions to advertise these talents. This function also provides the STCU with promotional materials for its own public outreach as well as performance data gathering to assist the STCU executive staff and the Parties in evaluating and improving STCU effectiveness.

To achieve the department's objectives the Performance/Public Outreach Department has started a number of programs:

1 Public Outreach

This program is aimed at expanding and improving public awareness of the STCU and its activities, developing professional presentation materials to assist STCU Recipient Country scientists in designing effective presentations of their capabilities, and promoting the STCU's successful work to the local, national, and international science and technology communities.

Public Outreach publications in 2004 included the 2003 Annual Report, promotional brochures, information sheets on STCU activities and accomplishments, as well

as an STCU News and Announcements section on the STCU website.

2 Travel Grant/Conference Support

This program sponsors, on a competitive basis, visits by scientists and technological personnel from STCU Recipient Countries to research units, public organizations and private industries located in STCU Donor and other countries. Travel Grant/Conference Support co-sponsoring provides additional opportunities for Recipient Country scientists to meet representatives of the Western scientific community. This approach has proven to be a rather effective tool in aiding the matchmaking process.

In 2004, the Travel Grant/Conference Support programs supported a number of targeted initiatives including the BIO2004 Tradeshow in San Francisco, the STCU-CRDF Commercialization Seminar in Baku, the Biophotonics trade show in Ottawa, the First Annual Chemical Science and Commercialization Conference in Moscow, and the Biosafety/AntiPlague Workshop in Almaty. Moreover, this year, the STCU co-sponsored 21 conferences.

In 2004, the STCU supported 66 travelers who visited Canada, the EU, Japan, Morocco, Singapore, the USA and various CIS countries. It is anticipated that in the year 2005 there will be an increase in the amount of travel to meet the needs of new business missions and matchmaking efforts. This will allow for the involvement of more scientists in the program and for the STCU to reach a new level of matchmaking.



A meeting between the STCU and the National Academy of Sciences of Ukraine. From left to right, Borys Atamanenko, STCU Principal Deputy Executive Director, Academician Borys Paton, President of the National Academy of Sciences of Ukraine, and Andrew Hood, STCU Executive Director



3 Performance Measuring

This program will design and implement methods for evaluating the performance and effectiveness of STCU activities and programs, particularly in relation to targeting STCU self-sustainability development assistance to recipient scientists and institutes.

Only one aspect of this newly introduced program was performed in 2004 – the survey on Ukrainian institute sustainability initially requested by the U.S. Party. The results of the survey were reported at the joint STCU-Ministry of Education and Science of Ukraine meeting in March 2004 as well as posted on the STCU website.

4 Targeted Training

This program will help institute managers, directors of scientific institutions and scientists acquire the specific skills needed to succeed when dealing with Western science and business interests as well as to encourage successful managers, competitors for research funding and high technology suppliers to expand their interests to the international business sphere. This program includes the following components:

- CD-ROM Assisted Training;
- Partner Event Preparation;
- Commercialization Short Course;
- Business Coaching.

In the framework of the Targeted Training Program, the STCU held Partner Event Preparation Sessions for BIO2004 (San Francisco, USA) as well as Biophotonics

(Ottawa, Canada); and a Workshop on Commercializing Intellectual Property, Patenting Procedures, Licensing Issues and the Patenting Process (Kyiv, Ukraine).

With the goal of strengthening the abilities of researchers to obtain support from grant-making institutions, the STCU organized a major Grant-Writing Workshop in Tashkent, Uzbekistan in October, bringing scientists from Azerbaijan and Georgia, as well as from some of the regions of Uzbekistan where the Center's programs had not been active.

The department has quite a number of ambitious plans for 2005 which, once implemented, should help the Center reach its main goal of introducing a model of transition to sustainability for Azerbaijani, Georgian, Moldovan, Ukrainian, and Uzbek scientists as well as science & technology institutions.



The opening session of the STCU's Grant Writing Workshop in Tashkent, Uzbekistan, October 2004

SUCCESS STORIES

STCU Opens National Radioanalytic Center in Uzbekistan

Two STCU projects at the Institute of Nuclear Physics (INP) in Tashkent, Uzbekistan have created this national analytical center and companion mobile field laboratories, which will provide the INP with a source of contract analytical work. The INP is at the



From left to right, Jon Purnell, US Ambassador to Uzbekistan, Andrew Hood, STCU Executive Director, Dr. Jeff Richardson, Principal Deputy Program Leader (Proliferation Prevention & Arms Control Program, Lawrence Livermore National Laboratories) and Academician Behzod Yuldashev, President of the National Academy of Sciences of Uzbekistan



Uzbek scientists conducting research at the National Radioanalytic Center within the Institute of Nuclear Physics in Tashkent, Uzbekistan

center of a joint U.S.-Uzbek program to improve the Uzbek capability to monitor, detect, and identify the transit of illicit radioactive materials across its borders. A key element of this border security system is a modern radioanalytic laboratory for analysis and characterization of materials detected and intercepted at Uzbek border crossings. But in addition to this nonproliferation mission, the center will also provide Uzbekistan with an important capability to study, evaluate, and monitor a wide variety of materials that play a role in Uzbekistan's industrial economy as well as its environmental and public health security. The laboratory can provide analytical services to Uzbek government agencies and companies involved in industrial metallurgy, recovery of precious metals, soil nutrient replenishment in agricultural land, geological studies for ore prospecting, medical diagnostics, food quality, and environmental monitoring. With

“The National Radioanalytic Center is a key element of a joint U.S.-Uzbek program to improve the Uzbek capability to monitor, detect, and identify the transit of illicit radioactive materials across its borders”

this radioanalytic laboratory, the INP is now positioned to further diversify its activities in the non-nuclear sphere, and make important contributions to Uzbek national development and quality of life for the Uzbek people.

The National Radioanalytic Center was officially opened during a Ribbon Cutting Ceremony at the Institute of Nuclear Physics on October 6, 2004. STCU Executive Director Andrew Hood participated in cutting the ribbon and the ceremony was attended by members of the diplomatic community, officials of the government of Uzbekistan as well as members of the Uzbek scientific community and STCU staff.



SUCCESS STORIES

Central Asia Seismic Risk Initiative (CASRI)

In an effort to address one of Central Asia's leading concerns, the STCU, together with the ISTC and Lawrence Livermore National Laboratory, has organized the Central Asia Seismic Risk Initiative (CASRI). On October 5-6, 2004 representatives of the STCU participated in the opening session of CASRI along with dignitaries and collaborators from the Uzbekistan Government, the European Union, the United States, the ISTC, and scientists from Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.

Following the experience gained from the ISTC's Caucasus Seismic Initiative, CASRI will be a multi-year/multi-institute effort to establish a technical basis for regional efforts to reduce seismic risks in Central Asia. Historically, the most catastrophic losses in the region (located in one of the most seismically active and hazardous zones within continental Asia) have resulted from strong earthquakes. Because of fairly recent population increases in Central Asia and the construction of non-seismically-resistant structures

“CASRI will be a multi-year/multi-institute effort to establish a technical basis for regional efforts to reduce seismic risks in Central Asia”

coupled with the poor disaster preparedness of the population, the generally weak economies in that region, and underdeveloped disaster-mitigation planning efforts, Central Asia is particularly vulnerable to the severe human, economic, and social consequences of dangerous earthquakes.

CASRI projects will engage seismological institutions across Central Asia, bringing together scientists from Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan to perform cooperative research on seismic hazard and risk assessment, monitoring seismological and other geophysical fields, and seismic risk reduction. It is envisioned that participating institutions will create shared regional databases with data quality control, which includes geological, geophysical, seismological, geodetic,



A few of the honoured delegates at the opening session of CASRI on October 5, 2004

geotechnical, as well as data on critical facilities that could have a significant impact on the region if damaged under severe seismic events. CASRI's true value lies in the fact that scientists from Central Asia have joined forces to address a region-wide public safety issue, and demonstrates the STCU's ability to organize and foster such regional cooperation as well as work together with other international organizations such as the ISTC.

The STCU is supporting CASRI by financing two Uzbek-based projects:

- (1) A communications /infrastructure support project to provide Uzbek seismological institutes with communications equipment, material, software, connectivity and training where existing capabilities are unable to support the implementation of CASRI projects;
- (2) A seismological risk assessment project in Uzbekistan that will (a) create a unified, shared, distributed, and common database, (b) characterize faults and tectonic structures, (c) conduct seismic and landslide hazard assessments, (d) appraise and select sites for establishing new regional seismic monitoring stations, and (e) provide information and recommendations to regional governments as the technical basis upon which to base decisions on seismic risk reduction actions.

SUCCESS STORIES

Destruction Methods for PFM-1 Mine Ammunition

Anti-personnel mines have become a serious problem throughout the world today. Death and injuries from mines in the world during the past decades now total in the hundreds of thousands. It is estimated that between 15,000 and 20,000 new casualties are caused by landmines and unexploded ordnance each year. Most of these casualties are civilians and most lie in countries that are now at peace.



Assessment of contamination after Open Burning Open Detonation (OBOD) Technology of PFM-1 Destruction



Inspection of the condition of KSF-1 cassettes from a military stockpile

Playing its part to help eradicate this serious problem, during 2003-2004 the STCU financed and successfully completed a project entitled *Research of the Technical Condition of Ammunition Containing PFM-1 Series Anti-Personnel Mines (APMs)*.

Financially backed by the European Union, this project was aimed at obtaining information regarding possible ways for safely destroying various forms of ammunition (canisters, bombs, and propelled shells) for special kinds of anti-personnel mines (APM) containing toxic liquid explosives. At nearly 6 million units, the total number of PFM 1 series APMs in Ukraine is quite great and poses a real security and environmental threat which is exacerbated by the fact that the shelf life for the mines has already expired.

“At 5.94 million units the total number of PFM-1 series APMs in Ukraine is quite great and poses a real security and environmental threat”

The head of the Common Arms Reduction Support Fund and Project Manager Roman Karpenko assembled a team of specialists in various fields (ammunition, explosive, toxicology, chemistry, etc.) who were capable of thoroughly exploring the problem, performing the necessary experiments (including field testing explosions of the ammunition and toxicological analysis employing animals), and preparing recommendations on what technologies could be employed for the utilization of the mines; all in less than one year. The project was performed in close collaboration with Peter Krejsa a European expert in the field of ammunition destruction.

The project results will be used in order to prepare and hold a tender on the choice of the most appropriate technology for the destruction of the mines.



SUCCESS STORIES

Europium Technology for Sanitizing Medical Products and Improving Food Safety

The medical industry demands the utmost in protection against infection from use of unsanitary medical products. Because of these needs, gamma processing has become the standard sterilization process as the final absolute step in the manufacturing of a variety of medical supplies, biomedicals, and many other types of medical devices. Improving the safety of food is a top priority for everyone. The market for microbial reduction services in the medical, consumer products, and food areas is growing rapidly and will continue to do so over the next decade.

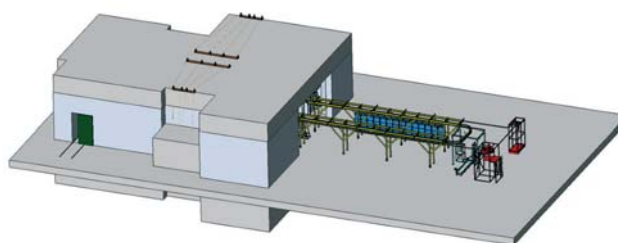
New Horizon Technologies, a US company, and Gammatech Plus, a joint Ukrainian/Russian company, are bringing a new technology to the market based upon europium gamma sources for sanitizing medical products and improving food safety. This initiative was financed by the U.S. Department of Energy's Initiatives for Proliferation Prevention program

“Thanks to these projects the accepted standard process in Western Europe and the U.S. will be available in Ukraine”

through two projects: STCU Partnership Project P-095 and ISTC Partner Project 2376, and technically monitored by Pacific Northwest National Laboratory in the United States. Thanks to these projects the accepted standard process in Western Europe and the U.S. will be available in Ukraine. Completion and operation of the Kharkiv Europium Commercial Plant will provide a unique opportunity for a very worthy contribution to health and welfare brought to biomedical and medical product manufactures of Ukraine and those interested in selling products into the Ukrainian market. Other benefits include providing jobs and converting Europium to beneficial use, which otherwise is a waste and a security issue. The commercial partners in the Europium project are presently approaching international financial organizations concerning support for the next stage of this program.



An inside view of the Kharkiv Europium Test Facility which was demonstrated to members of the international scientific and business community in July 2004



Outer design of the Kharkiv Europium Demonstration Facility

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