



International Security News

International Security Programs
Dori Ellis, Director

The Cooperative Monitoring Center: The First Ten Years

Arian Pregenzer
FOCUS

In 1994, when Sandia National Laboratories' Cooperative Monitoring Center (CMC) opened its doors, international technical cooperation on security issues was still a new idea. Sandia's theory was that if experts in other countries understood more about available monitoring technology, they would be less distrustful of potential agreements

were underway in the Middle East, South Asia, and East Asia on possible security agreements and confidence building measures. Many countries had little experience with the technical aspects of monitoring such agreements. Indeed, a great need for the development of indigenous technical expertise was obvious.



1994

2004

with their neighbors or with the United States. Policy experts in the United States and in the international community would be able to negotiate more effective treaties if they had a better understanding of both the capabilities and limitations of technology.

In addition to the bilateral arms control treaties between the United States and Russia and global treaties such as the Chemical Weapons Convention and the Nonproliferation Treaty, discussions

We established the CMC to provide a forum for technical and political experts from around the world to come together to explore how unclassified, shareable technology could help implement confidence building measures, treaties, or other agreements. A central element of the CMC has been the Technology Display Area, where participants could get hands-on experience with technology, systems, and analytical tools.

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From the beginning the inadvertent transfer of sensitive information to unauthorized individuals was a major concern, addressed in part by locating the CMC outside the boundaries of Kirtland Air Force Base, where Sandia is housed, and closely monitoring the information that was available at the site. This location and strategy proved to be especially helpful during the numerous intense security reviews of laboratory interactions with foreign visitors in the late 1990's.

The CMC's first workshop was organized for a group from the Middle East and included participants from Egypt, Israel, Oman, Qatar, and Kuwait. The multilateral Middle East Peace Process was still very active at that time, and participants were actively engaged in developing ideas for arms control in the region. A major focus of the first CMC workshop was on the role of technology in monitoring agreements on borders and conventional force limitations. One goal was to help the participants think through the process of designing and evaluating different monitoring systems. We also wanted to remove some of the mystique that sometimes accompanies technical monitoring.

One participant attested to the importance of this latter objective, recalling his own experience as an

Army officer in the Sinai: he had not understood the monitoring system established by the United Nations to monitor troop movement through selected passes, and he characterized himself as an obstructionist in dealings with the other side as a result. He strongly encouraged efforts to help military officers from the region attain a better understanding of monitoring technologies.

Another early workshop for Pakistani military officers dealt with the technical aspects of arms control agreements. According to one of the participants, the material provided during the workshop formed the basis for establishing an Arms Control Unit at Army General Headquarters in the succeeding year.

Over the years, the scope of the CMC has increased, and its activities have achieved greater depth. For example, the CMC became a key forum for pursuing the US-Russian laboratory-to-laboratory initiative that began the technical engagement between the US nuclear weapons laboratories and the nuclear weapons institutes of the Russian Federation. Major involvement with other US-RF programs, such as Material Protection, Control, and Accounting and the Warhead Safety and Security Exchange, also were

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carried out at the CMC or supported by the CMC infrastructure.

The Visiting Scholars Program, initiated in 1995, has brought together scholars from India and Pakistan, from Jordan and Israel to jointly analyze the technical aspects of border security, maritime security, and demilitarization agreements. Scholars from Taiwan, China, South Korea and elsewhere have considered how confidence building measures could improve security in their region or how they could work cooperatively to counter the threats of international terrorism. In some cases, these studies have been briefed at high levels in the US government and to high-level officials in the home countries of the participants. Some have resulted in specific policy changes.

The Technology Display Area has evolved from a display area of a few hundred square feet in 1994 into a comprehensive display of historical and current technical monitoring systems covering more than 7,000 square feet. The area, now named the Technology Training and Demonstration Area (TTD) provides demonstrations of approaches to material security, border security, biological security, and transparency. The TTD also provides space for training and analysis on issues such as radiation detection and commercial satellite imagery. An outdoor test facility for evaluating and demonstrating

larger scale systems in an operational environment has also been established.

In addition to expanding the capabilities of the CMC in Albuquerque, in 2003 we officially opened our first sister center in Amman, Jordan – the CMC@Amman. The CMC@Amman will provide a forum for the Middle East region to pursue joint projects that promote regional peace and stability. Its first international workshop on border security for participants from several Middle Eastern countries was successfully completed in April 2004. In addition to border security, the CMC@Amman will focus its attention on developing cooperative projects in the areas of nonproliferation, public health, and meteorological monitoring.

The world has changed profoundly in the first ten years of the CMC. India and Pakistan tested nuclear weapons in 1998, which has increased the urgency of finding joint approaches to preventing nuclear war. The terrorist attacks of September 11, 2001, have made cooperation on counterterrorism an international priority. In addition, revelations about nuclear programs in North Korea, Iran, and Libya have

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demonstrated the need to develop new approaches to strengthening the global nuclear nonproliferation regime. While arms control measures to reduce the size of existing nuclear arsenals continue to be a major emphasis of the CMC, much of today's work addresses the international challenges posed by the proliferation of weapons of mass destruction.

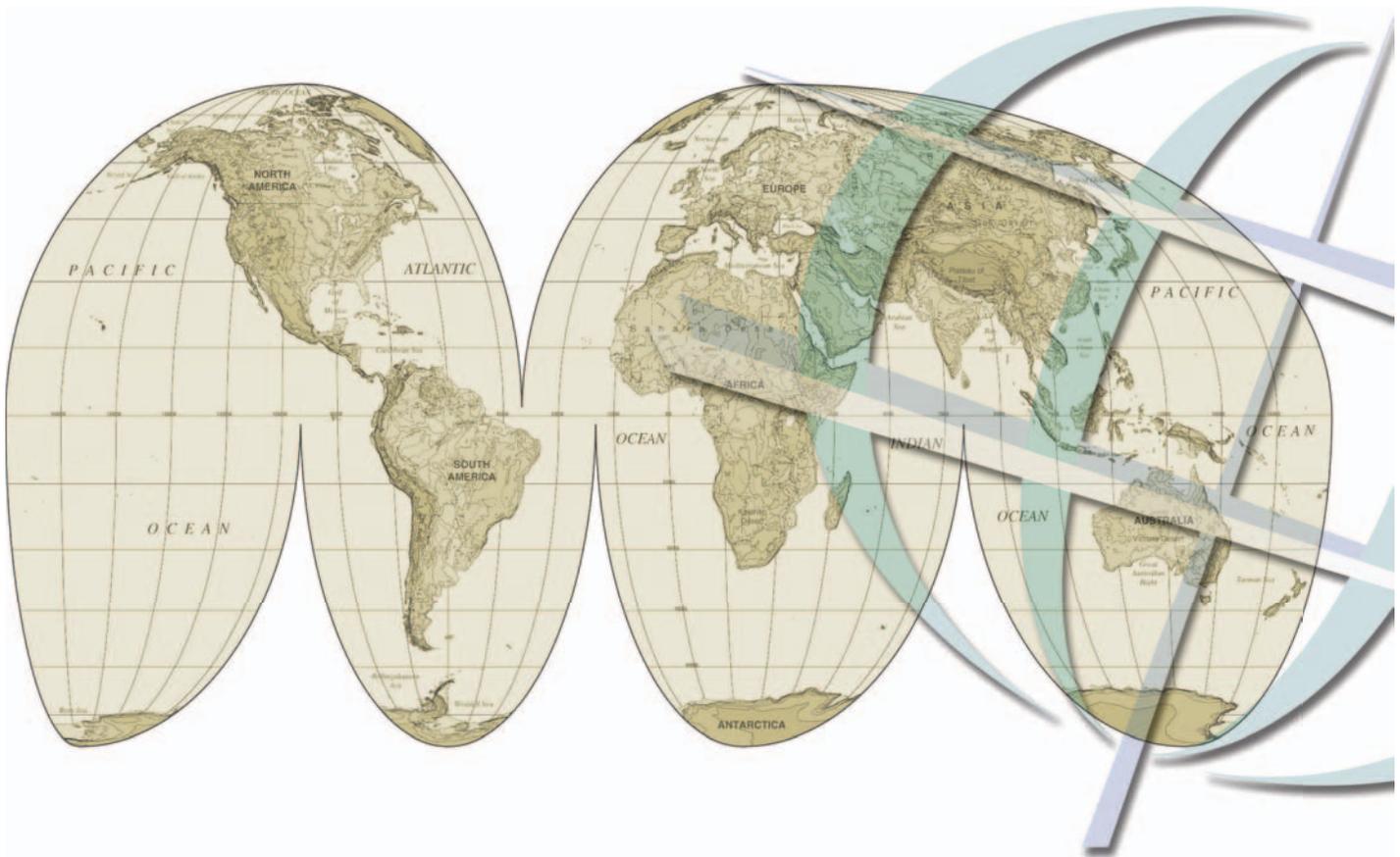
achieving national security objectives and that better understanding of the principles and technologies of cooperative monitoring results in more effective international partners. The CMC looks forward to developing new partnerships and to working on new international security problems in the next ten years.

Source: Arian Pregoner 6920, MS 1373, 505-844-4967, fax 505-284-5055, alprege@sandia.gov

The world now widely accepts that international technical cooperation is a key element of



In the summer of 1993, Dr. Arian Pregoner, Senior Scientist at Sandia National Laboratories, originated the concept for a regional security assurance center. In response to her proposal, the Department of Energy provided \$250 thousand to initiate the project, and Arian assembled a team of experts from various Sandia organizations to establish the Cooperative Monitoring Center. The team's original focus was on technology demonstration for security situations of interest in the Middle East. When Arian was promoted to manager of Sandia's Verification and Analysis Department in the fall of 1993, the CMC represented about half of her portfolio. She recruited numerous team members to work on regional security and on the CMC project. The annual funding Arian was able to secure from DOE increased from the original \$250 thousand to \$800 thousand, then \$2.5 million, and eventually about \$6.5 million.



Cooperation - The CMC Variety

Major General Mahmud Ali Durrani (Retired)
Pakistan

Opinions expressed by Guest Editors are not necessarily the opinions of Sandia National Laboratories.

As the military attaché at the Embassy of Pakistan (1977 – 1983), I had a fair knowledge about the leading think tanks and research organisations in the US. RAND, Brookings, the School of Advanced International Studies (SAIS), the Center for Strategic and International Studies (CSIS), and the Council on Foreign Relations are some of the better known institutions that I visited during my tour of duty in Washington, DC. Postretirement (1998), as a researcher, I revisited many of these think tanks and also had the pleasure to work in SAIS in Washington, DC, and the Foreign Policy Research Institute in Philadelphia to complete my book *India and Pakistan – The Cost of Conflict and the Benefits of Peace*. During my postretirement scholastic activity, I had the good fortune of being introduced to and visiting the CMC in Albuquerque, New Mexico.

During my tour of duty in Washington, DC, I had visited many states of the US, but New Mexico had not been one of them. I found the grandeur and rugged beauty of New Mexico very captivating, maybe because of its similarity to the rugged region of Pakistan where my forefathers originated. The land of the Navajo was very similar to the land of the brave Pathans who reside in northwest Pakistan. The paintings of Georgia O'Keefe and a Tony Hillerman novel I had read came to life as I roamed the state of New Mexico during the weekends. Visions of the Sandia Mountains and Shiprock, White Sands National Park, the ski slopes only an hour from New Mexico's capital city of Santa Fe, and the most dramatic sunsets in the world will forever live in my memory. Albuquerque is a name I could barely pronounce, and now for me this city of the high desert has a rhythm and a pace that appeals to my inner soul.

Since 1999, the CMC has become my favourite research facility, especially in the area of technology-

assisted confidence building between nations. My initial contact with the CMC occurred in March 1999 when the CMC hosted an India-Pakistan peace group of which I am a member, the Balusa Group. A year later, in consultations with scholars at the CMC, I decided to undertake a study to develop a cooperative border monitoring experiment between India and Pakistan. With the support of the military leadership in Pakistan, the understanding of friends and officials in India, and above all the advice of competent technologists at the CMC, I was able to develop and propose a Cooperative Border Monitoring Experiment between India and Pakistan: A border monitoring experiment that, when implemented, would help develop a high level of cooperation and reduce the mistrust between the uniformed forces of India and Pakistan. Both countries have shown a high degree of interest in this proposal. The CMC now boasts an experimental site depicting a possible cooperative border setup based on my study.

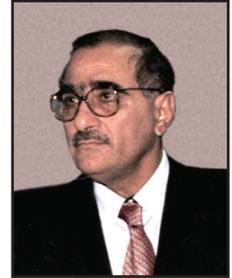
In 2003, once again in collaboration with the CMC, I launched yet another and more ambitious project of evaluating Pakistan's strategic thinking and the role of nuclear weapons. Focused against the backdrop of the views and misgivings in the West regarding Pakistan's nuclear program, the study was conducted essentially in Pakistan. The study addressed the issues of command and control, security of nuclear weapons and materials, nuclear doctrine, and nuclear stability in South Asia. The study has made some important recommendations for both the leadership in Pakistan and also for the US administration to help move toward a stable nuclear environment in South Asia and also to minimize the risk of nuclear proliferation from Pakistan. A draft of this study is under review and will shortly be published as a CMC occasional paper.

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Besides the technological edge, what makes the CMC so different from other think tanks in the US? The professionals who manage the CMC make the CMC a class in itself. Researchers and visiting scholars at the CMC are given full liberty to exercise their minds, no

opinions are thrust on them, and support is ungrudging in the field of logistics and professional work. The CMC represents the best of the American tradition: Open arms, an open mind, generosity of spirit, trust, and fair play.

General Durrani was commissioned in the Pakistan Army in 1961 and retired as a major general in 1998. He served as Pakistan's Defence and Military Attaché in Washington, DC, from 1977 to 1982 and as President Zia ul Haq's Military Secretary from 1982 to 1986. He also served as Chairman and Chief Executive of the Pakistan Ordnance Factories Board, the largest defense industrial complex of Pakistan, during the years 1992 to 1998.



Presently, as part of a group of Indians and Pakistanis, General Durrani is working toward peace in South Asia. He is also involved with a UN-sponsored initiative to develop the contours of a peaceful solution to the Afghanistan conflict. Gen. Durrani is the author of a book titled India and Pakistan – The Cost of Conflict and the Benefits of Peace, published in 2000. In 2000 he undertook a study for the Pakistan Army titled Pakistan's Security Imperatives Year 2000 and Beyond.

From November 1999 to January 2000. General Durrani was concurrently a visiting scholar at SAIS, Johns Hopkins University in Washington, DC, and a visiting fellow at The Foreign Policy Research Institute in Philadelphia, Pennsylvania. He served as a visiting scholar at the Cooperative Monitoring Center, studying the prospects for technical border monitoring collaboration between India and Pakistan. He is currently undertaking a study on Stabilizing South Asian Nuclear Policy: the Case for Pakistan.

Calendar: Visits, Workshops, and Conferences

July 18-22 Orlando, FL: The 45th Annual Meeting of the Institute of Nuclear Materials Management. www.inmm.org, John Matter 6923, INMM President, 505-845-8103

July 17-28 Orlando, FL, and Albuquerque, NM: Sandia's International Science and Technology Department hosts VNIIEF representatives from Russia in Orlando for the annual INMM meeting and in Albuquerque at the International Programs Building for a technical exchange regarding monitoring systems for weapon material storage. (NA-241) Joe Saloio 6927, 505-845-3067

July 17-29 Madison, WI, and Albuquerque, NM: Sandia hosts VNIIA representatives from Russia for training in Wisconsin on the use of Thermo Nicolet infrared spectroscopic equipment and then for discussions at Sandia on testing of polymeric materials and to define experiments to be performed at VNIIA. (NA-118) Roger Clough 1811, 505-844-3492

July 28-30 Albuquerque, NM: Sandia's International Science and Technology Department hosts VNIIA representatives from Russia for a strategic planning meeting regarding current and future collaborations. (NA-10, NA-20, DTRA/TDND) Joe Saloio 6927, 505-845-3067

July 29 Albuquerque, NM: International Security Center hosts a celebration at the International Programs Building in honor of the tenth anniversary of the Cooperative Monitoring Center. Ruth Duggan 6901, 505-844-9320

September 20-24 Berlin, Germany: The German Federal Institute for Materials Research and Testing in cooperation with IAEA and INMM hosts the 14th International Symposium on the Packaging and Transportation of Radioactive Materials (PATRAM 2004). www.patram2004.com, Ken Sorenson 6141, 505-844-0074

September 25 – October 2 Albuquerque, NM: Sandia's International Science and Technology Department hosts VNIITF and VNIIEF representatives from Russia for contract discussions on nuclear threat studies. (NA-241) Joe Saloio 6927, 505-845-3067

CMC Supports Russian Science and Technology Programs



Ten years ago, as the Cooperative Monitoring Center was developing its portfolio of collaboration with the international community, Sandia's International Security Center was engaged in initial security collaborations with Russia and the other countries of the former Soviet Union (FSU). Under the sponsorship of the US Departments of Defense, Energy, and State, numerous laboratory-to-laboratory scientific collaborations were initiated with key FSU institutes in warhead safety and security, basic scientific collaboration, and defense conversion.

After several years of parallel development, the focused FSU initiatives began to leverage the approaches developed by the broader CMC collaborations. The FSU initiatives utilized the CMC's capabilities in modeling and simulation and expanded the scope of their initiatives to include joint policy studies of nuclear strategic stability and nuclear spent-fuel management. The CMC's Visiting Research Scholars program was effectively used to broaden and deepen the collaborations with Russian institutes.

The CMC was able to support the Russian programs more effectively after the two groups were collocated in the new International Programs

Building in 2002. Closer staff connections were available, and the expanded Technology Training and Demonstration area facilitated the blending of the maturing Russian collaborations into the larger CMC message of cooperative monitoring.

More importantly, the collocation of staff and programs resulted in more opportunities to develop joint projects. Working together, the CMC and Russian programs teams have initiated new proposals for addressing US national security priorities. For example, blending the success of Sandia's contribution to the State Department's Russian defense conversion program with the insights and contacts of the CMC in the Middle East resulted in an initiative to actively engage Russian scientists and engineers with weapons of mass destruction (WMD) qualifications in Iraq. The lessons learned from ten years of experience in defense conversion and scientific engagement will ensure the success of this effort.

Additional synergies are being identified with projects in South Asia, Central Asia, and East Asia. These projects indicate that, for the next ten years and beyond, the strength of Sandia's International Security Programs will rely heavily on the combined strengths of the Cooperative Monitoring Center and the Russian programs. Source: Bob Huelskamp 6926, MS 1371, 505-844-0496, 505-284-8870, rmhuels@sandia.gov



Evolution of the CMC South Asia Program



From its origins in 1993, Sandia National Laboratories' Cooperative Monitoring Center (CMC) has focused significantly on South Asia. With nearly one-fourth of the world's population, a history of conflict, and ongoing nuclear proliferation concerns, this region represents both a challenge and an opportunity to use technology in support of confidence building, tension reduction, regional stability, and nonproliferation. While South Asia includes India, Pakistan, Bangladesh, Nepal, Sri Lanka, Bhutan, and the Maldives, most of the CMC work in the region has concentrated on the India-Pakistan strategic relationship and on the proliferation concerns that dominate the region.

The philosophy of the CMC South Asia program has remained relatively unchanged over the first decade as the program has grown in magnitude and stature. From the beginning, efforts have been made to supplement the technical expertise at Sandia with close working relationships with policy agencies in Washington, DC, with knowledgeable scholars on South Asia, and with specific subject matter experts on various security issues in the region. Because of legal and political sensitivities in dealing with the most pressing security issues in the region, such as nuclear nonproliferation, the program has been willing to work on a variety of important issues in the region to establish credibility, build regional relationships, and address some of the root causes leading to proliferation. These topics range from territorial and border disputes to sharing of natural resources, such as water. In each topical area the CMC seeks to maintain a technical focus in contributing to the security and policy debates for the region.

The CMC's Department of Energy(DOE)/National Nuclear Security Administration (NNSA) sponsors made possible the success of this program not only through their financial support but also through their willingness to make the CMC available to support the work of other agencies of government. Thus, rather than creating a competitive environment for

the CMC, NNSA offered an opportunity to build effective and lasting interagency partnerships. A prime example is the early collaboration in hosting cooperative monitoring technology workshops for Pakistani and Indian delegations in 1994 and 1995 under joint sponsorship with the US Arms Control and Disarmament Agency (ACDA). ACDA was eventually merged into the US Department of State, but the relationships and collaborative efforts have continued and expanded as the CMC has also been included in regional efforts to combat terrorism threats. Relationships are also growing with several elements of the Department of Defense (DOD).

Regional expertise has also contributed to the evolution of the CMC program. South Asian experts in the US such as Shirin Tahir-Kheli (Special Assistant to the President and National Security Council Senior Director for Democracy, Human Rights, and International Operations), Stephen Cohen (The Brookings Institution), Michael Krepon (President Emeritus, The Henry L. Stimson Center), Scott Sagan (Stanford University), Sumit Ganguly (Indiana University-Bloomington), Gaurav Rajen (independent researcher and consultant on nuclear and environmental affairs), and many others have provided insights, ideas, and contributions to our work. In addition, a host of visiting scholars from the region have each spent three to nine months at the CMC developing a collection of reports and proposals for advancing regional cooperation and threat reduction. Scholars from different countries have conducted joint studies to seek workable solutions from both sides of a conflict. Our first scholars were academic researchers. As time has progressed, we have expanded to include studies by senior retired military officers seeking actionable proposals for cooperation on specific subjects. Scholar reports cover a wide range of topics from nuclear transparency and missile controls to border security and the environment. These reports can all be accessed at the CMC website: www.cmc.sandia.gov (click on *Research & Analysis* in the menu across the top, then *Papers Reports & Seminars*, then *Papers & Reports*).

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As the CMC has become better known, more and more organizations have sought CMC participation and involvement to bring a technical perspective to regional security discussions. As mentioned earlier, from the beginning ACDA made use of CMC expertise and capabilities. Soon afterward we were asked to participate in annual multilateral workshops for young and mid-career regional strategists sponsored by the Regional Center for Strategic Studies in Colombo, Sri Lanka. These annual workshops were held throughout the region and in China. Later we participated actively with the Balusa Group, a “track II” dialogue between high-level retired officials from India and Pakistan.

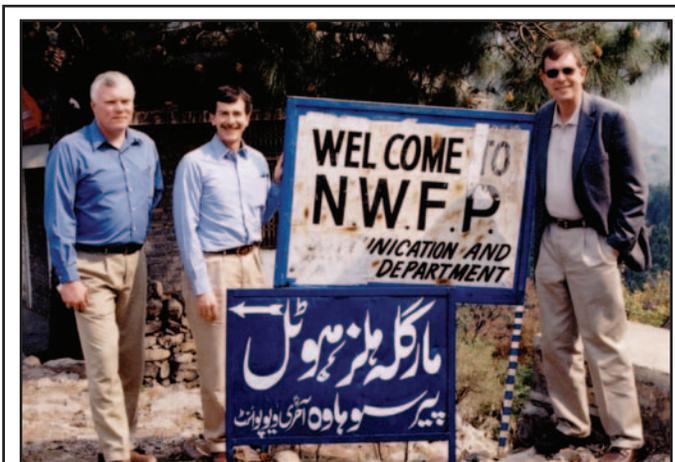
Since 2001 CMC has participated in the US-India Joint Working Group on Counterterrorism and the DOD-India Security Cooperation Group dialogue. We have also briefed key Pakistani leaders on topics of border security including security on the Pakistan/Afghanistan border. The Mountbatten Center in the United Kingdom has also invited CMC participation in their global efforts to assess missile proliferation and controls, and the Center for Strategic and International Studies (CSIS) has included us in assessment of options for nuclear risk reduction between India and Pakistan.



Meeting of Balusa Group on the Role of Technology in India/Pakistan Agreements

While far from a complete list, these examples point to an ever increasing role for the CMC in contributing technical expertise and insights into the challenging security topics facing the countries of

South Asia. Perhaps most significantly, much of our involvement with foreign governments has come at the request of those governments who have become familiar with our work. While our efforts focus primarily on promoting regional cooperation, some of our work utilizes bilateral cooperation with the US in order to establish credibility and comfort levels with technology.



Tim Crawford, Mike Vannoni, and Kent Biringering along the border of the Northwest Frontier Province in Pakistan.

The CMC staff and support personnel have been key to our successes. From scientists, engineers and technologists knowledgeable about sensor technologies, missiles, nuclear weapons and materials, border and maritime security, and the environment to those able to assist with budgeting, hosting foreign visits, and arranging workshops and foreign travel, we have a unique cadre of personnel to get the job done.

As we move forward we anticipate increased technology field demonstrations as well as increased involvement in topics directly related to the nuclear proliferation concerns of the region. Whether through analysis, workshops, or technical demonstrations, our goal is to use technology to contribute to the reduction of threats and the increase of cooperation in South Asia for the betterment of the region and the world.

Source: Kent Biringering 6924, MS 1373, 505-284-5048, fax 505-284-5055, klbirin@sandia.gov.

TTD Supports Mission of CMC



An important aspect of the Cooperative Monitoring Center (CMC) is the Technology Training and Demonstration Area, often referred to as the TTD. The TTD provides a venue to display technologies that can be applied to cooperative monitoring. The technology displays differentiate Sandia National Laboratories and the CMC from other think tanks



by demonstrating technology for monitoring applications. As noted by George Baldwin, an early CMC staff member, “TTD displays are a tangible way to demonstrate to nontechnical people how monitoring technologies work. It is one thing to hear that an infrared breakbeam sensor could detect someone entering a room and another to walk into the room and actually cause a light to turn on or an alarm to sound.”

From the beginning, CMC displays have represented a wide variety of the technologies available, technologies developed at Sandia, at other DOE labs, at universities, and by commercial vendors. Emphasis has been on the application of existing technologies to what was originally the relatively new idea of cooperative monitoring. The initial CMC Technology Display Area occupied five rooms not much bigger than staff offices, each demonstrating one of the following areas:

- Global cooperative monitoring
- Ground sensors
- Seismic sensor data, airborne and satellite data, and environmental monitoring
- Entry control, access delay, and intrusion detection
- Tamper indication, data authentication, and nuclear material control

The display rooms, all clustered around a central conference room, were located in one end of a leased commercial building. Space was cramped, electrical power was barely adequate, and a shoestring budget meant everything must be on loan or free. Nevertheless, the number of displays kept growing. At the beginning of 1997, the CMC moved into newly-acquired space in the same building, more than doubling the display area.

In 2002 the CMC and the Technology Display Area joined the other International Security Programs in the new International Programs Building (IPB). (See “Support Teams Housed in International Programs Building,” page 18.) The new space in the IPB added about 5000 square feet of available display space, as well as training rooms



and a poster session area to support workshops and conferences. The space was renamed the Technology Training and Demonstration Area in April 2003 to

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TTD Supports Mission of CMC continued from page 10

reflect its expanded role in promotion of cooperative monitoring. The move to the IPB, has also allowed the TTD to expand its outdoor facilities beyond a small area formerly used for demonstrating equipment. With the installation of its Outdoor Test Facility, the TTD has become a center for exercising and evaluating border monitoring technologies and techniques.

In the IPB, one group of TTD displays represents Sandia's historical contributions to verification of arms control treaties. Here visitors learn that the Vela satellites, designed at Sandia and Los Alamos to verify the Limited Test Ban Treaty, made the first observations that led to the development of gamma ray astronomy. Other areas of the TTD demonstrate technologies for physical protection, monitoring nuclear materials, border monitoring, and cooperative approaches to regional stability.

As sophisticated as the equipment may appear, all the technologies on display are unclassified and exportable. This is the heart of the mission of the

TTD: hosting visitors from all over the world who are looking for technologies applicable to problems in their own countries and regions. In 2003, visitors from dozens of countries toured the TTD, along with scores of visitors from US companies and government agencies. (See "IPB Receives Visitors from Around the World," page 20.)

Verification technologies are the backbone of the CMC. According to Pauline Dobranich, who first developed the idea of the TTD, "A country may be more willing to enter into an agreement if it is possible to verify that other countries are adhering to the agreement." Technologies, such as those used for international arms control agreements and security monitoring, can be used to verify compliance with regional agreements. Discussions of technology applications, along with exercises, such as in border monitoring, reinforce the displayed verification options. Source: Sally Bangora 6902, MS 1376, 505-284-2848, fax 505-284-5055, sjbango@sandia.gov



Cooperative Monitoring Center @ Amman



The US government and the international community have been chronically concerned about the risk of conflict, terrorism, and the proliferation of weapons of mass destruction (WMD) in the Middle East. Examples of these challenges include the rehabilitation and reconstruction of Iraq and attempts to counter the ongoing Palestinian-Israeli violence. To help reduce these risks, Cooperative Monitoring Center Visiting Research Scholars from national laboratories in Jordan and Egypt recommended the establishment of a Middle East cooperative monitoring center.

In the summer of 2002, the US Department of State and the Jordanian government approved the establishment of a regional CMC at the Royal Scientific Society in Amman, Jordan. The inauguration ceremony for the CMC@Amman was held in October 2003 with about 70 dignitaries in attendance, including Jordan's Prince Rashid bin Hassan, the US Ambassador in Amman, the President of the Royal Scientific Society, and several Jordanian government ministers and officials.

The new CMC, modeled after the CMC at Sandia National Laboratories and the only partner of CMC-Sandia outside the US, provides a forum for regional training on nonproliferation technologies, development of new monitoring capabilities, monitoring experiments, and multidisciplinary interactions among scientists, engineers, and policy makers. The Center's vision is to promote cooperation in a region of the world that has seen an abundance of war and violence over many years. Creating trust and confidence among the parties is of vital importance for all.

The CMC@Amman is focused on promoting a culture of peace in the Middle East through the application of cooperative security concepts and confidence building measures. Currently, the center focuses on areas of concern such as border security and management, nonproliferation of weapons of mass destruction, public health, and resource management and environmental security. The CMC@Amman manages projects, hosts research scholars, conducts training courses, and delivers presentations and workshops in these areas. The center's technical displays are unique in the region.



Workshop participants and organizers include (front row, right to center) Gen. Mohammad Shiyab, CMC@Amman director; Professor Michael Yaffe, National Defense University; and Jordan's Prince Hassan.

In April 2004, the CMC@Amman partnered with the Near East South Asia Center for Strategic Studies of the National Defense University to host an advanced workshop on border security operations. The Defense Threat Reduction Agency, Sandia's Megaports program, the Department of State's Export Control Office, the US Coast Guard, and the US Border Patrol actively contributed to the workshop,

which was held in Amman, Jordan. In addition, Jordanian government officials presented briefings on Jordan's border operations and the challenges they face. High level officials represented Jordan, Egypt, Iraq, Oman, Qatar, Saudi Arabia, United Arab Emirates, and Algeria at the workshop. These military and civilian officials have responsibility for their respective countries' border control operations, such as implementing and enforcing their respective countries' borders and export control laws and policies.

In the future the CMC@Amman facilities will be expanded to provide additional space for meetings and technology demonstrations and to improve its information management capabilities. Future events planned at the

CMC @ Amman continued on page 13

facility include: workshops on cooperative monitoring, border security, and export control; multinational cooperative projects on sustainable land use, border security, and operations; and food-borne disease monitoring. The center is making excellent progress

toward accomplishing its mission and providing indigenous cooperative options for mitigating regional security issues. Source: Amir Mohagheghi 6924, MS 1373, 505-844-6910, fax 505-284-5055, ahmohag@sandia.gov

A Word from CMC@Amman

General (Retired) Mohammad K. Shiyab
Director, CMC-Amman, Jordan

As you know, nowhere on earth is safe. Unfortunately, we live in a region that is relatively less safe than others. Fear, uncertainties, and threats to security in the Middle East should not be underestimated. Our joint efforts are essential to effectively address unresolved conflicts over territories and resources.

Further, the future will bring high demands and opportunities for regional cooperation on issues ranging from weapons proliferation to managing the environment and natural resources. These are indeed the broad objectives of establishing CMC-Amman in the heart of the Middle East.



Primarily, our partnership with CMC-Sandia aims at promoting a culture of peace and building confidence among states in the region through the application of cooperative monitoring technologies and security concepts.

In this context, our thanks are due to the outstanding contribution and collaboration of the staff of the Cooperative Monitoring Center at Sandia National Laboratories. Their sincere and wholehearted support is greatly appreciated. Their vision and experience has helped us establish and sustain our center, which will have a lasting value for the region and beyond.



The CMC: A Decade of International Security Collaboration

In only ten years, the Cooperative Monitoring Center has established a world-class reputation for the creative application of science and technology to difficult international security issues. The CMC's work in proliferation-prone areas around the world is an integral part of NNSA's efforts to increase regional security and thereby reduce proliferation incentives. In particular, we are very excited with the CMC's work to reduce the risk of nuclear war between India and Pakistan, to engage Iraqi scientists in rebuilding Iraq, and to break new ground by establishing a sister facility in the Middle East, the CMC@Amman. In the last decade, the CMC has made a valuable contribution to US national security, and I am confident that it will continue to play an important role in the years to come.

Patricia Dedik

Director of the Office of International Policy and Analysis
DOE/NNSA

A lot has changed since the Cooperative Monitoring Center conducted its inaugural workshop, focusing on the Middle East with a group of twenty, in July 1994. At that time we were unsure if there was an audience interested in what the CMC had to offer. Today, the center is housed in a custom-built facility with rooms capable of holding nearly 100, the staff has expanded exponentially, and the scope of activities is worldwide. While the CMC's activities have grown, the principle mission has remained unchanged. These are all marks of success.

I am truly grateful to Arian (Pregenzer), Kent (Biringner), Mike (Vannoni) and all the others at the CMC for their dedication and hard work. We have conducted a lot of workshops on the Middle East together (in my capacity at the US Arms Control and Disarmament Agency, the Department of State, and the Department of Defense) during the last ten years, and I look forward to many happy collaborations over the next ten. Congratulations to all!

Michael Yaffe, PhD

Academic Dean, Near East South Asia Center for Strategic Studies
National Defense University



Tom Sellers (right) discusses CMC collaborations with an attendee at a 1996 foreign media event.



George Baldwin conducts a demonstration for the 1999 CMC Training Course.



Arian Pregenzer (left) visits with a delegate to the Egyptian workshop in 1997.

The CMC has come a long way from its modest beginnings - participants in the first international gathering were met with the smell of fresh paint, which the staff had just applied in a rush to make the rooms presentable. That first meeting was on the Middle East, which perhaps foreshadowed the eventual establishment of the CMC in Jordan.

The CMC is unique in many ways. It puts the NNSA/DOE complex in the middle of US regional arms control and nonproliferation efforts. Because it is such a valuable resource, it gives foreign officials and analysts a reason to engage with the Department of Energy.

Ed Fei

Foreign Affairs Specialist, Office of Nuclear Transfer and Support
DOE/NNSA

The CMC: A Decade of Regional Security Support continued on page 15

The Cooperative Monitoring Center has added an enormously important, new dimension to Sandia's portfolio. The CMC's work takes Sandia to the front lines in troubled regions outside the former Soviet Union, especially South Asia, the Middle East, and the Korean peninsula. The CMC provides training to problem solvers in these regions. The CMC seeds useful ideas in ways that are respectful of national sensitivities. In the region I know best -- South Asia -- I can attest to the high regard the CMC has in diplomatic and military circles. National security decision makers in India and Pakistan are quite familiar with the CMC's publications and proposals. At long last, political conditions in the subcontinent may permit the implementation of some of these proposals.

Cooperative threat reduction has become a core component of promoting US national, regional, and international security in these troubled times. The CMC reflects Sandia's contributions to the advancement of cooperative threat reduction. In a very short period of time, the CMC has become a world-class institution for helping others to develop low-cost, low-technology solutions that make our world safer.



Chinese visitors view a demonstration during a workshop in 1998.



Arian Pregonzer (right) poses with a participant in the Egyptian workshop in 1997.

Ten years ago, when Sandia National Laboratories established the Cooperative Monitoring Center, it signaled a recognition of the end of the Cold War and the need to shift from primarily developing and sustaining the American nuclear deterrent against the Soviet threat to promoting global and regional conflict resolution. The founders of the CMC had the vision to understand the benefits of marrying the technical capabilities of Sandia and other laboratories to efforts to prevent, monitor, and resolve emerging regional and international security problems. The CMC has developed into a pathbreaking organization that effectively leverages the technical capabilities of the country's national laboratories in support of a wide variety of global arms control, threat reduction, and confidence-building efforts. Congratulations on 10 years of successes!

Dr. Amy Sands, Dean
Graduate School of International Policy Studies
Monterey Institute of International Studies

Please allow me to say: "Congratulations on Your Tenth Anniversary." I look forward to being with you on this very special occasion...Allow me to wish CMC-Sandia and all the staff at our "Sister Organization" the very best and continued success in their future endeavors. Above all, we look forward to further collaboration with you in the campaign for regional stability and security, hoping to positively contribute to making the Middle East a safer place for all.

General (Retired) Mohammad K. Shiyab
Director, CMC-Amman, Jordan

Visiting Research Scholars

...The unique feature of the CMC is that it blends politics and technology, which means that it is trying to translate the political intentions into real and practical ideas, which other think tanks do not necessarily do...This institute makes a big difference...

Brigadier General (Retired) Feroz Hassan Kahn
Pakistan Army

...In this particular scenario in the CMC, where as a subset the two of us (Ansari and Vohra) have been brought together, we tend to share almost everything, whether it be contentious or it be anything else, and then go to the depth of trying to see the other side's point of view and find a medium point where both of our ideas agree and that we could come to an agreement. And I would rather like to think that if the problems were left to the two of us, we could probably solve most of them...

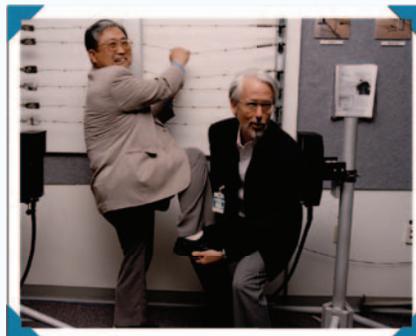
Rear Admiral (Retired) Ravi B. Vohra
Indian Navy

...Our (Vohra's and Ansari's) chemistry has been outstanding, and we have become very good friends. I think we work very well. It could have gone wrong, the other way, one realizes that. But if this can happen, a lot more can happen in the future...This is a very inspired move, I think...

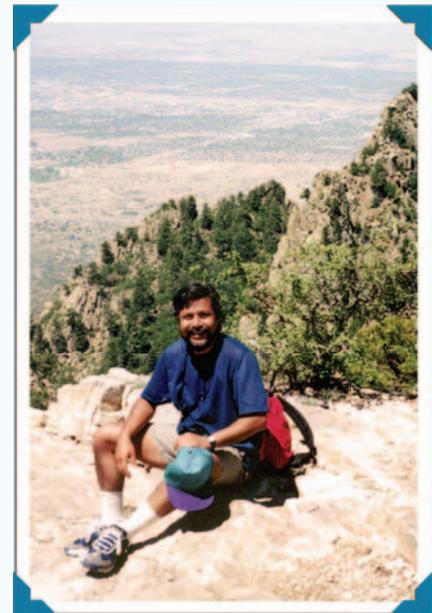
Rear Admiral (Retired) Hasan M. Ansari
Pakistan Navy



Rear Admiral (retired) Ravi Vohra (India) and Rear Admiral (retired) Hassan Ansari (Pakistan) study operationalizing naval Confidence Building Measures.



John Olsen (right) assists a visitor in an attempt to defeat the taut-wire fence.



Nazir Kamal (Pakistan) enjoys the Sandia Mountains.

...The Cooperative Monitoring Center provides the best ambience for scholarly work. It promotes independent thinking and respects all views, which are essential for a truly academic institution...I can say with a firm conviction that the CMC promotes new and independent ideas, provides technical solutions to a number of complex problems, which the world has been confronting with, and if recommendations of the research work are followed then one can visualize a very peaceful globe...

Arvind Kumar (India)

Visiting Research Scholars

...It is hard to believe that there is such a group of people who want to bring traditional enemies close to let them understand each other. I personally gained a good friend in (Air Marshal, retired) Carriappa (India) and learnt that so many across the border want friendship and understanding...

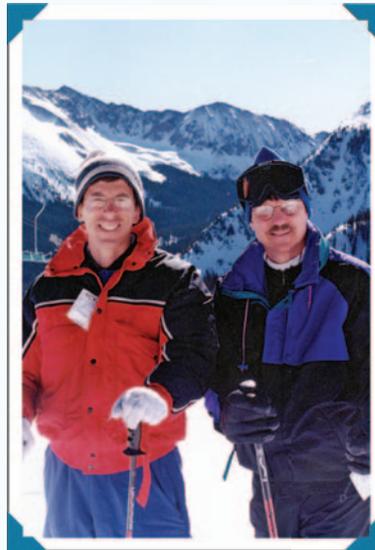
Air Marshal (retired) Arshad Chaudhry (Pakistan)

...Yes, world peace rests on the cooperative effort of the world; especially as we are in unprecedented times. We face challenges we didn't even know about before, and these challenges require cooperation among all countries. I hope this advice should continue to be the guideline for the CMC's mission and applied to all of its future undertakings...

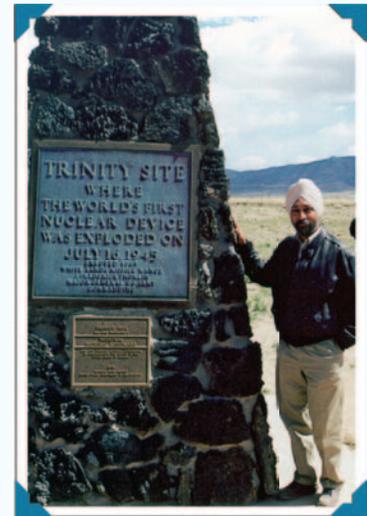
Rongrong Le (China)



Air Marshals Arshad Chaudhry (Pakistan) and Kodendera Cariappa (India) assess aerial monitoring options.



Canadian Walter Dorn (left) and Sandian Dave Barber ski New Mexico.



Waheguru-Pal-Singh Sidhu visits the Trinity Site in New Mexico.

...The biological weapons nonproliferation group at the CMC has taken a leading role in the development of national policies and the implementation of technologies at several US federal laboratories to prevent the illicit acquisition of dangerous biological agents. I am very grateful to have had the opportunity to work with this group at the CMC/Sandia since they have been critical in my development as a research scholar on biological weapons issues...

Kathleen Vogel, (USA)

As a Visiting Research Scholar at the CMC, I focused on verification and inspection technologies and methods to be applied in our future inspection process in North Korea...Without dealing with this important issue, our security interests will not be promoted. For us it is imperative to directly deal with this issue.

Consul Duk-Ho Moon (South Korea)

Support Teams Housed in International Programs Building

Sandia National Laboratories' International Programs Building (IPB), located at Sandia Science and Technology Park in Albuquerque, New Mexico, has been home to the International Security Center and its Cooperative Monitoring Center (CMC) since August 2002. The IPB brings together a broad range of international security programs to take advantage of synergies among its programs, such as US/Russia nuclear security, international safeguards and security, regional security, arms reduction



The International Protocol Team

support, and defense nuclear materials stewardship, in addition to a variety of emerging international security initiatives, such as biosecurity. Collocation in the IPB also allows all the programs to more fully utilize the CMC. The IPB provides a neutral place for the US Departments of State and Defense and the Department of Energy/National Nuclear Security Administration to meet with policy and military experts of foreign governments on aspects of nonproliferation, arms control, and other security issues.

The IPB creates a cooperative and accommodating environment by collocating support services with the International Security Programs. A full support team parallels the unique global focus of the technical staff housed in the IPB, ensuring compliance with US and foreign government regulations and providing risk management for successful interactions. The International Protocol Team, consisting of a protocol office, foreign travel support, a program for visiting scholars, and an operations support service, partners with the staff to complement the technical mission.

To facilitate smooth conference coordination, the International Protocol Office provides unparalleled logistic support and in-depth hospitality analysis and schedules tours of the CMC Technology Training and Demonstration area for visitors and conference attendees. Collaborating with domestic and international partners to further the International Security Programs' mission is an integral part of the team's success.

In association with the University of New Mexico's Institute of Public Policy, the Visiting Scholars Program has hosted more than 50 academic, industry, and government colleagues. These visiting scholars explore how technology can support the development and implementation of security policy and agreements. In addition to providing administrative support and maintaining a library for the visiting scholars, the International Protocol Office is often an ambassador in promoting the international security mission. The staff balances the visiting scholars' technical work with cultural activities to promote good will in these international relationships.

Foreign travel is an essential ingredient in the pursuit of successful exchanges and communications in international programs. The Foreign Travel Team



Visiting Research Scholars: (left to right) Naoko Nakashima (Japan), Aleksey Sokovishin (Russia), Kodendera Cariappa (India), and Adel Ali (Egypt)

pioneers innovative solutions to the logistics of international travel, including granted country clearance cables, in-country logistics, and passports

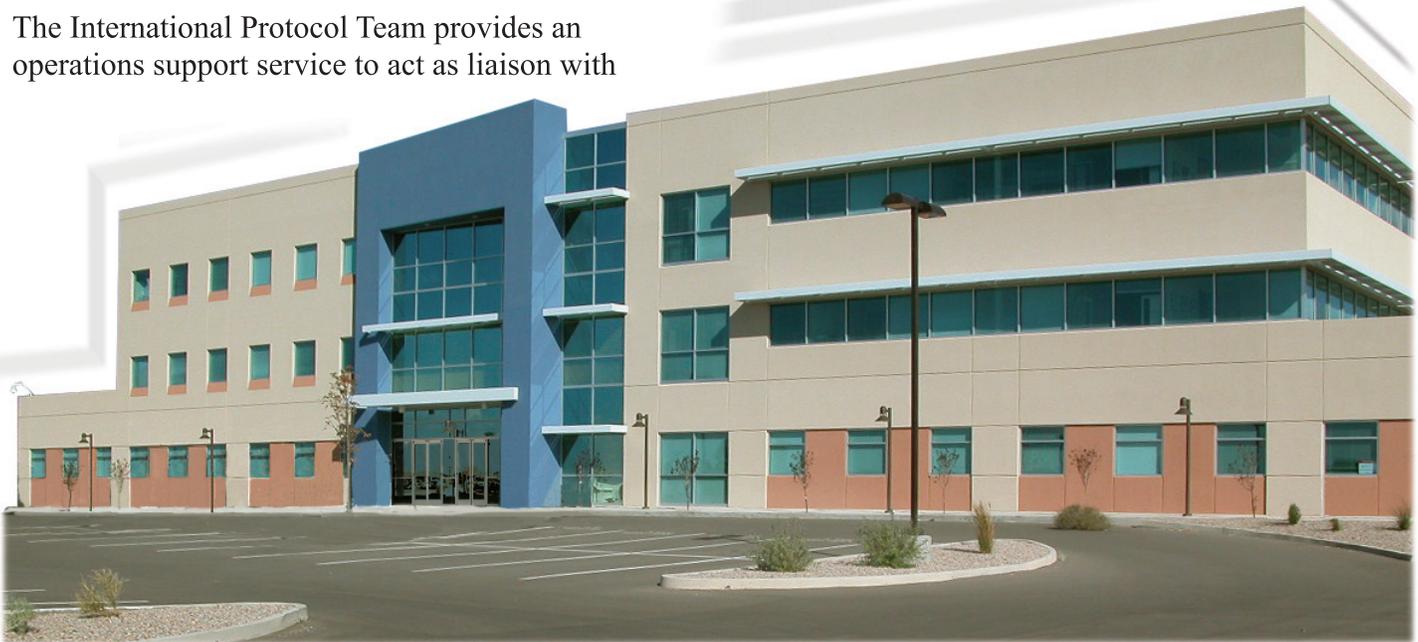
IPB Support Teams continued on page 19

IPB Support Teams continued from page 18

and visas. Offering full service support in a true teaming approach, the team has streamlined the cumbersome approval process for obtaining travel authorizations. The Foreign Travel Team publishes useful country-specific information cards, offers travel tips, and maintains the center's foreign travel database for emergency contacts.

The International Protocol Team provides an operations support service to act as liaison with

the management company for the IPB. From air conditioning to patching to outlets, the team processes requests to improve the comfort level of the staff. The Operations Team also manages the contracts for guard and custodial services as well as other vendors. Source: Lynn Fitzpatrick 6929, MS 1371, 505-845-9816, fax 505-284-9088, lfitzpa@sandia.gov



Acronyms

ACDA	Arms Control and Disarmament Agency (US)
CMC	Cooperative Monitoring Center
CSIS	Center for Strategic and International Studies
DOD	Department of Defense (US)
DOE	Department of Energy (US)
DTRA/TDND	Defense Threat Reduction Agency/Technology Development, Nuclear Detection (DOD)
FPRI	Foreign Policy Research Institute
FSU	Former Soviet Union
INMM	Institute of Nuclear Materials Management
IPB	International Programs Building (SNL)
NA-10	Defense Programs (DOE/NNSA)
NA-20	Defense Nuclear Nonproliferation (DOE/NNSA)
NA-118	Office of Pit Projects (DOE/NNSA)
NA-241	Nonproliferation Policy Division of the Office of Nonproliferation and International Security (DOE/NNSA)
SAIS	School of Advanced International Studies (Johns Hopkins University)
SNL	Sandia National Laboratories
TTD	Technology Training and Demonstration Area (CMC)
VNIIA	All-Russian Scientific Research Institute of Automatics (Russia)
VNIIEF	All-Russian Scientific Research Institute of Experimental Physics (Russia)
VNIITF	All-Russian Scientific Research Institute of Technical Physics (Russia)
WMD	weapons of mass destruction

IPB Receives Visitors from Around the World

The CMC and other International Security Programs housed in the International Programs Building (IPB) often host workshops, conferences, and visits for colleagues from around the world. So far this year, the IPB has hosted 260 visitors from 47 nations. Several countries produce frequent visitors, often collaborators on projects in South Asia, Northeast Asia, Central Asia, the Middle East, the Caucasus, Russia, Australia, Europe, and South America. Russia has sent the majority of visitors to the IPB, but China, Japan, Canada, and the United Kingdom are not far behind. The map below indicates the places from which visitors have traveled to the IPB since it was built.



International Security News is on the web (PDF)
<http://www.cmc.sandia.gov/newsletter.htm>

International Security News is on the SNL Internal Restricted Network (PDF and HTML)
<http://www.csu836.sandia.gov/organization/div6000/ctr6900/ctr6900.html>

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