Sandia National Laboratories and International Security Programs

Overview

Presented at the

International Biosecurity Symposium

February 2-6, 2004

Presented by

Dori Ellis, Director

International Security Center 6900

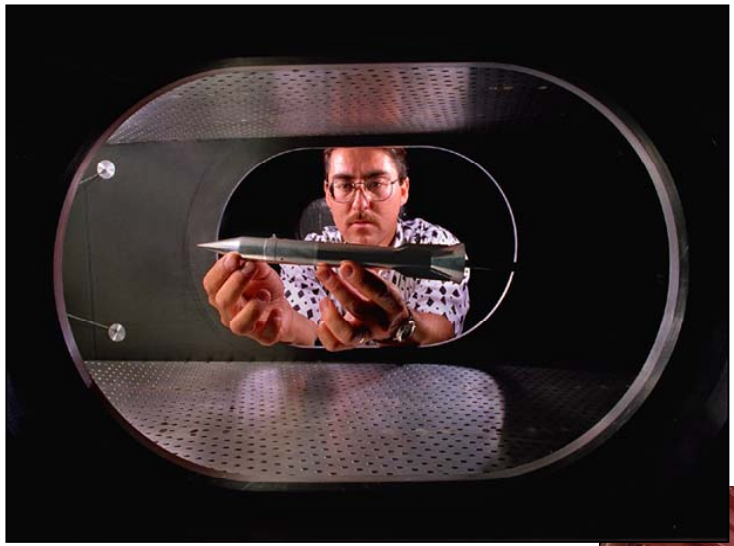
Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

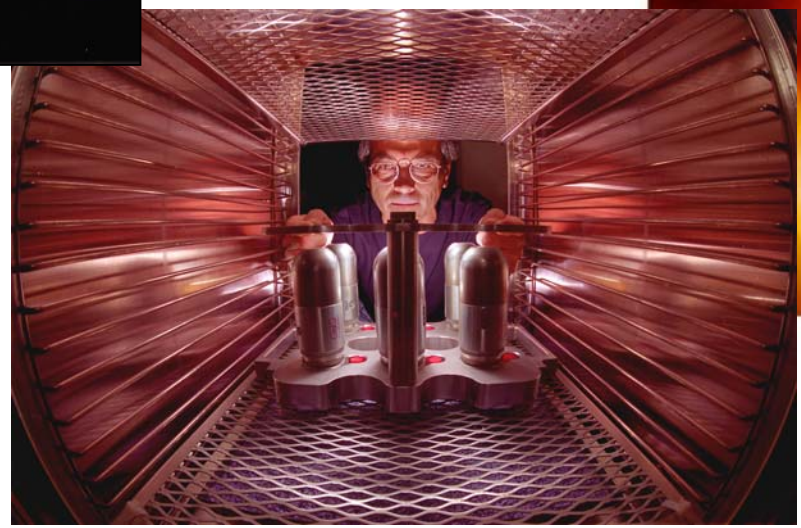
Sandia VISION

Helping our nation secure a peaceful and free world through technology.

Sandia National Laboratories

Who are we?





- National security laboratory
- Primary mission in nuclear weapons
- Broader mission in science and engineering to meet national security needs

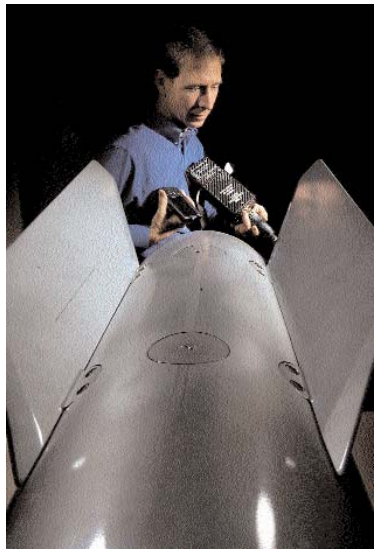
Where are we?

- New Mexico
- California

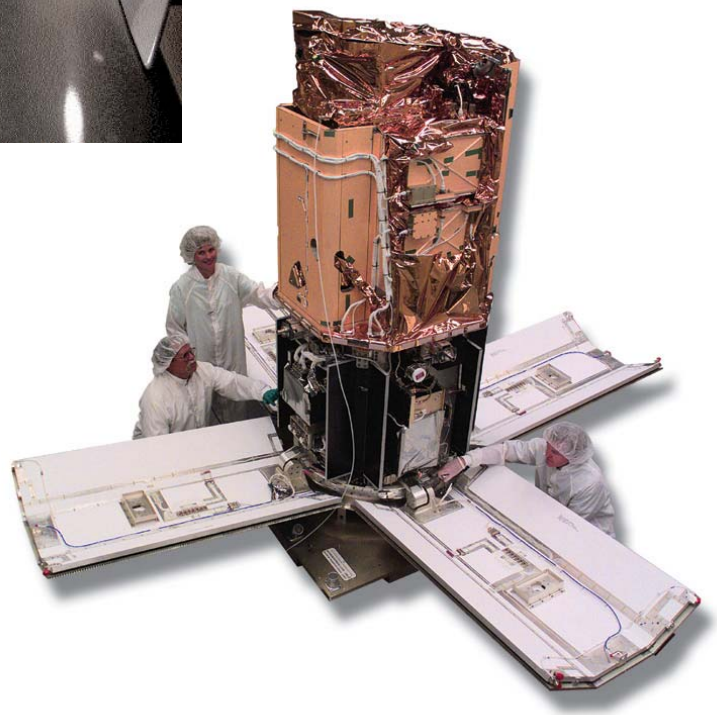
- Nevada
- Hawaii
- Texas
- Washington, D.C.

Sandia National Laboratories

Main lines of business supported by science and engineering



- Nuclear weapons
- Nonproliferation and assessments
- Energy and infrastructure assurance



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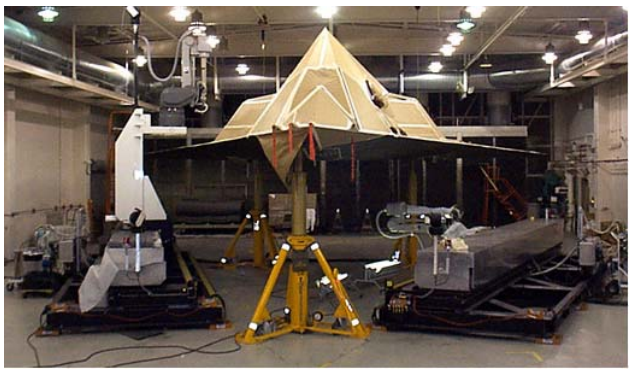
Main lines of business supported by science and engineering

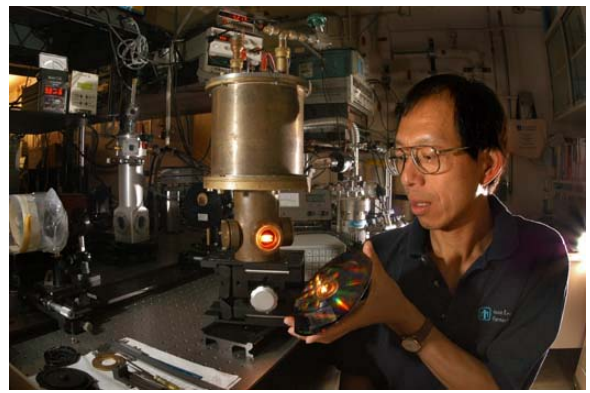
- Military technologies and applications
- Homeland security
- Science, technology, and engineering

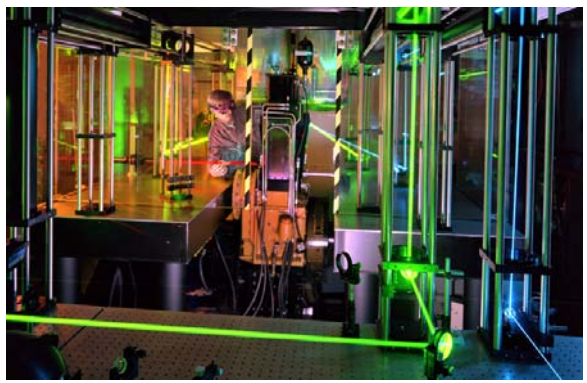


Robotic Stealth Coating

MicroChemLab

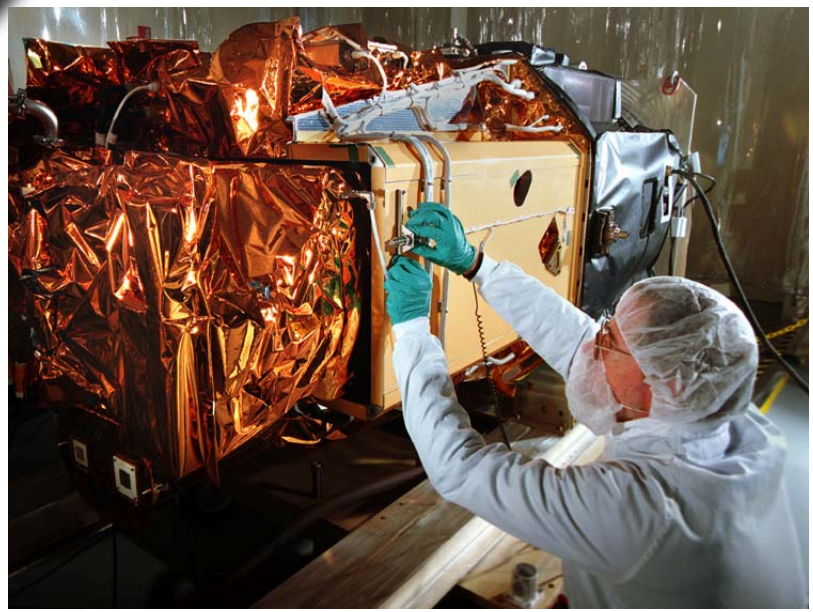
Photonic Lattice filaments





Combustion Research Facility

Nonproliferation and assessments



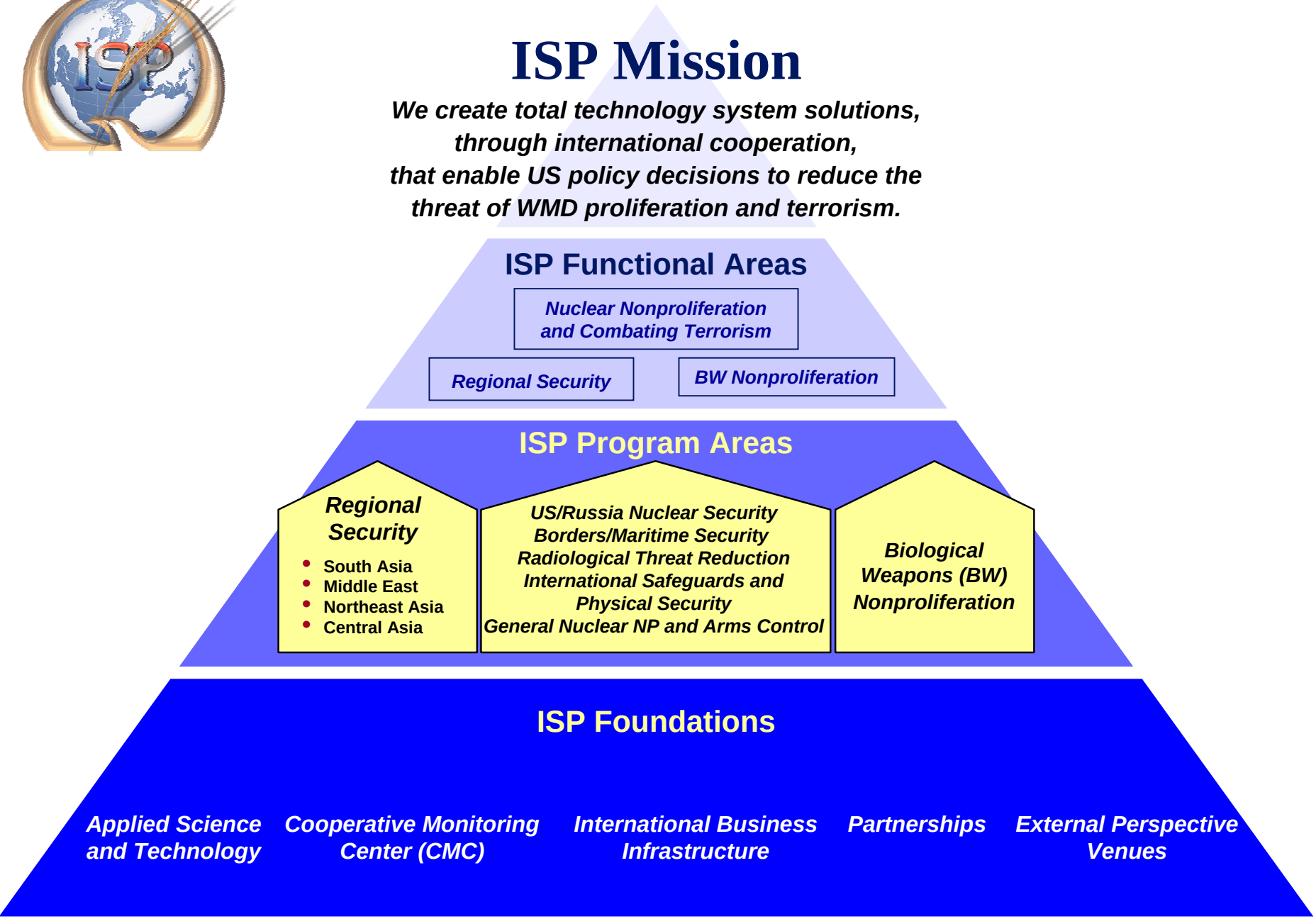
Multispectral Thermal Imager Satellite

Synthetic Aperture Radar technology

International security

ISP Mission

We create total technology system solutions, through international cooperation, that enable US policy decisions to reduce the threat of WMD proliferation and terrorism.



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The Cooperative Monitoring Center (CMC) Enables International Technical Cooperation on Critical Security Issues

Technology integration, testing, demonstration, and operation

System analysis, modeling, and simulation for design and evaluation

Technology training courses and workshops

The CMC Averages 100 Tours Per Year From 121 Countries

Technical collaborations and experiments

Visiting scholars program, research, and analysis

procurement, export control, foreign travel/visits

International business infrastructure

Sandia National Laboratories

Nuclear Nonproliferation and Combating Terrorism

Functional Area: Nuclear Nonproliferation and Combating Terrorism

Reduce the risk of nuclear weapon proliferation and terrorism by

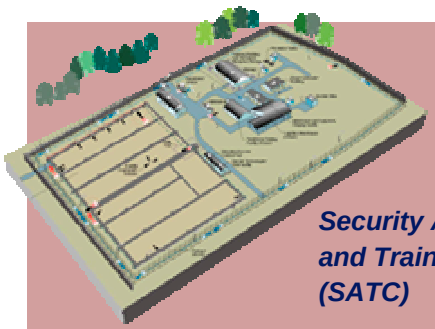
- **Enhancing the security of foreign nuclear weapons and materials in Russia, South Asia, and other countries of concern**
- **Detecting, deterring, and interdicting illicit trafficking in these weapons and materials**
- **Assisting the international community to detect/mitigate state-level diversion of civilian nuclear material, technology, and expertise for defense purposes**

- **United States/Russian Federation Nuclear Security**
  - **Safety and Security of Nuclear Weapons**
  - **Security of Nuclear Materials**
  - **Verification of Fissile Materials (monitoring and inspection)**
  - **Defense Conversion**
- **Radiological Threat Reduction**
- **Border/Maritime Security**
- **International Safeguards and Physical Security**
- **General Nonproliferation and Arms Control**

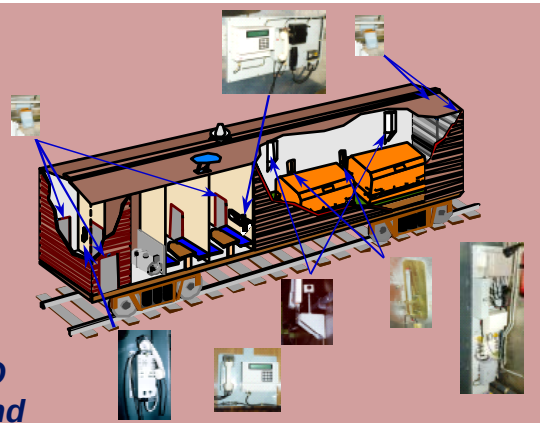
Safety and Security of Nuclear Weapons and Materials

Material Protection, Control, and Accounting (MPC&A) for warheads

Warhead Safety and Security Exchange (WSSX)



Security Assessment and Training Center (SATC)



MOD 12th GUMO warhead sites and railcar security

MPC&A for nuclear materials

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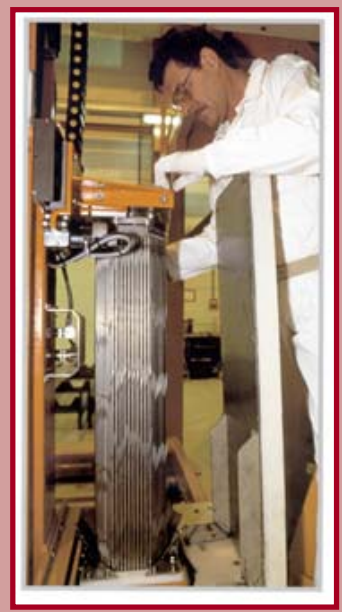
Verification of Fissile Materials

Mayak Fissile Material Storage Facility Transparency



Plutonium Disposition

HEU Transparency

Testing for proper nest installation

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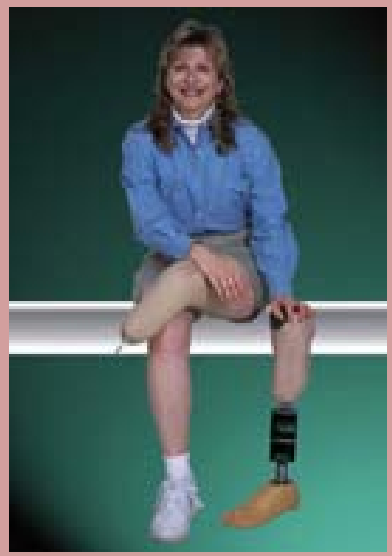
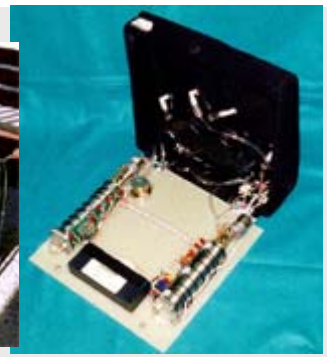
Defense Conversion

Smart Integrated Lower Limb (SILL)



Prosthetic foot

Prosthetic knee prototype



Generic Total Contact Seat (GTCS) for treatment and prevention of pressure ulcers

Wound Dressing Material (Developed at MCC)

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Radiological Threat Reduction

SNM storage vault

Maishiagala Waste Repository Entry control point in Lithuania

Transport housing container for waste or spent fuel

Example of an RTG (radioisotope thermal generator)

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Border/Maritime Security

Second Line of Defense (SLD)

Operation Safe Commerce (OSC)–Pacific (Los Angeles/Long Beach)

International Safeguards and Physical Security

International Safeguards

Site visit – spent fuel cooling pond in Lucas Heights, Australia

Monitoring systems implementation – environmental monitoring station in Helsinki, Finland

Iraq Nuclear Verification Organization (INVO)

International Physical Security

Material container dual-control tie-down

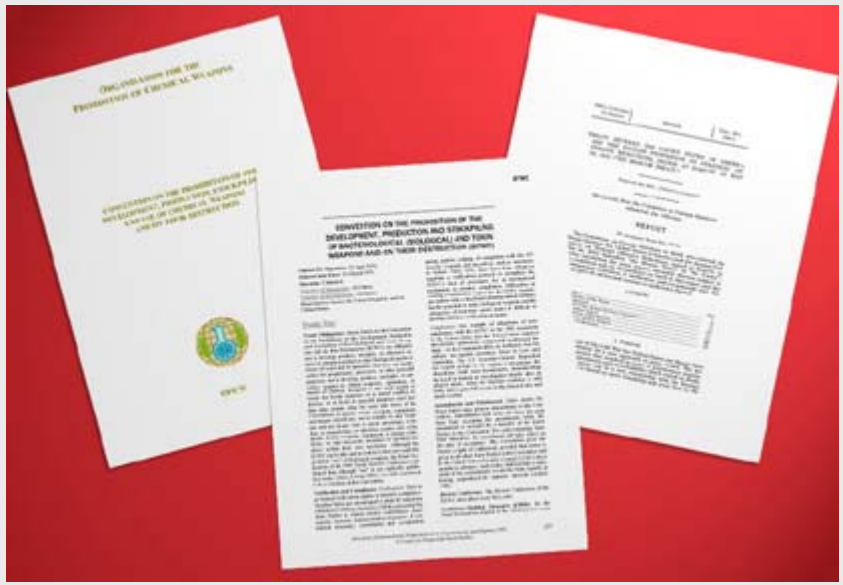
International Training Course (ITC) on Physical Protection

Sandia National Laboratories

General Nuclear Nonproliferation and Arms Control

Global Nuclear Futures

A Sandia initiative to facilitate the understanding of unified policies that address the interrelationships between nuclear weapons, proliferation, nuclear energy, and disposition of radioactive materials in order to further national interests in defense, energy security, and environmental protection for the US



Treaties and Agreements

Technology development, systems design and evaluation, and training for negotiation and verification, such as

- ***Fissile Material Cut-Off Treaty***
- ***Moscow Treaty***

Regional Security

Functional Area: Regional Security

Reduce tensions that could escalate into proliferation or use of nuclear weapons in key regions through technical collaborations such as cooperative monitoring

South Asia

Proposed monitoring of the official India/Pakistan border crossing

Central Asia

Water quality and radionuclide sampling in Uzbekistan

Middle East

Cooperative Monitoring Center Amman, Jordan

East Asia

Nuclear transparency Web site for Northeast Asia

Sandia National Laboratories

Biological Weapons Nonproliferation

Functional Area: Biological Weapons Nonproliferation

Reduce the risk of biological weapons proliferation and terrorism through

- **Biosecurity**

  Enhance the security of high consequence pathogens and toxins (HCPT) and critically related information against theft or sabotage

- **Biosurveillance**

  Monitor public and animal health and provide early indications of outbreaks of highly infectious disease

- **Bioengagement**

  Facilitate the transition of BW scientists from defense to civilian activities and increase the transparency of legitimate facilities

- **Export Controls**

  Control and track the movement of high consequence pathogens and BW technologies and information

- **Biodetection/Biodefense (Countermeasures)**

  Develop, demonstrate, and deliver technologies to rapidly detect and mitigate the dissemination of BW agents

ISP FOREIGN NATIONAL VISITS BY COUNTRY

THE COOPERATIVE MONITORING CENTER AVERAGES 100 TOURS PER YEAR FROM 121 COUNTRIES

Summary

- **Mission - create total technology system solutions, through international cooperation, that enable US policy decisions to reduce the threat of WMD proliferation and terrorism**
  - **Nuclear Nonproliferation and Combating Terrorism**
  - **Bioweapon Nonproliferation**
  - **Regional Security**
- **As global proliferation and terrorist threats to US national security have grown, the International Security Center has played an increasingly important role in reducing the threats of nuclear and biological proliferation and terrorism**
  - **Providing the critical link between technology and policy, and**
  - **Leveraging established international relationships, particularly through our cooperative monitoring programs.**