



SCIENCE AND TECHNOLOGY TO COUNTER TERRORISM

Proceedings of an Indo-U.S. Workshop (2007)

As the largest democratic countries in the world, India and the United States have a shared belief in human freedom, which is sometimes exploited by terrorists using science and technology to conduct attacks across national boundaries. Although there is great hope that careful use of science and technology will make it difficult for terrorists to conduct further acts of violence, complete protection is not possible. Terrorism can be addressed more effectively if there are cooperative and multilateral efforts by affected states, rather than a series of uncoordinated activities by individual states.

Science and Technology to Counter Terrorism: Proceedings of an Indo-U.S. Workshop presents papers and summarizes the discussions of a workshop held in Goa, India, in January 2004 organized by the Indian National Institute of Advanced Science (NIAS) and the U.S. Committee on International Security and Arms Control (CISAC) of the National Academies. During the workshop, Indian and U.S. experts examined the terrorist threat faced in both countries and elsewhere in the world, and explored opportunities for the United States and India to work together. Bringing together experts with common scientific and technical backgrounds from different cultures provided a unique opportunity to explore possible ways to prevent or mitigate future terrorist attacks.

The expectation was that the workshop would yield a deeper understanding of terrorist threats to both countries, and identify steps by which science and technology can be used to deter, prevent, monitor, mitigate, respond to, and recover from potential terrorist acts. The agenda of the workshop was driven by the desire to maximize the experience and expertise of the Indian and American participants, and to lay the groundwork for long-term collaboration. The main objectives of the workshop included:

- To better understand the nature of the terrorist threat faced in both countries and elsewhere in the world, and how it became a global phenomenon so that Indian and U.S. specialists will be better prepared to work together to counter the networks responsible for a variety of terrorist attacks.
- To see how science and technology could help in the fight against terrorism. Conscious of the fact that science and technology alone will not solve the problem, experts who had dealt with terrorism from perspectives beyond those of the more traditional science and technology communities were part of the discussion. Nevertheless, science and technology can be of great assistance if properly employed, so the best ways to identify the areas where it can be most effective were explored.

- To explore opportunities for the United States and India to work together. The workshop was set up to bring together scientists and other experts from both countries to identify areas for joint research and action.

The workshop was organized into five sessions. Session I surveyed the terrorist threats in the United States and in India and relevant science and technology tools available in each country. Sessions II-IV covered the following specific themes: threats to information technology and communications, vulnerabilities of urban and infrastructure targets, vulnerability of nuclear power facilities, and risks to human and animal health from bioterrorism. The final session outlined possible future cooperation.

Many valuable insights on countering terrorism were gained through the joint workshop and remain relevant today. Some of these insights include:

- Science and technology cannot eliminate the problem of terrorism, but they can help in opposing it.
- “Counter science and technology”—how the state uses technology to *prevent* terrorists from using science and technology maliciously—is as important as how the state uses science and technology to *respond* to terrorist acts.
- Most science and technology counterterrorism tools are highly useful for public health, law enforcement, or general intelligence purposes.
- The most important contribution of science and technology to terrorism prevention is in respect to communications. Wherever interception of communications has been effective, states have been able to prevent acts of terrorism.
- While science and technology play a role in counterterrorism, it is not known what is available unless scientists offer expertise.
- India and the United States have the opportunity to work together to reduce the vulnerability of civil nuclear energy facilities to terrorist attacks.

COMMITTEE ON SCIENCE AND TECHNOLOGY TO COUNTER TERRORISM

Kumar Patel (*Chair*), University of California, Los Angeles

Stephen P. Cohen, The Brookings Institution

Richard L. Garwin, IBM Thomas J. Watson Research Center

Rose Gottemoeller, Carnegie Endowment for International Peace

John P. Holdren, Harvard University

Jonathan D. Pollack, The RAND Corporation

Rita Guenther, Study Director

For More Information

For more information on the project, contact staff at (202) 334-2359 or visit the Policy and Global Affairs website at www.nationalacademies.org/pga (see Science and Security). Copies of *Science and Technology to Counter Terrorism: Proceedings of an Indo-U.S. Workshop* are available from the National Academy Press (NAP); (800) 624-6242 or (202) 334-3313, or visit the NAP website at www.nap.edu.