1540 COMPASS

WINTER 2015 — ISSUE 8

Photo courtesy of INTERPOL

CBRN Security Culture Discussion at the Global Partnership: Moving Forward — p. 12

INTERPOL's CBRNE Capacity and UNSCR 1540 — p. 18

1540 Compass

http://cits.uga.edu/1540compass

A journal of views, comments, and ideas for effective implementation of UN Security Council Resolution 1540 to prevent WMD proliferation and terrorism by non-state actors.

Editorial Staff

Editor in Chief: Igor Khripunov
Managing Editor: Christopher Tucker
Assistant Editors: Brittany Peace
Designer: Ronda Wynveen
Consultant: James Holmes
Business Manager: Karen Cruz

Published by the Center for International Trade & Security, University of Georgia in cooperation with the United Nations Office for Disarmament Affairs and using contributions from Kazakhstan, the Republic of Korea, Norway, the United States and the European Union. The views expressed within are those of the authors and do not necessarily reflect those of the Center for International Trade & Security, United Nations or those of the donors namely Kazakhstan, the Republic of Korea, Norway, the United States and the European Union.

CITS
THE UNIVERSITY OF GEORGIA
CENTER *for* INTERNATIONAL TRADE & SECURITY

UNODA
United Nations Office for Disarmament Affairs

The 1540 Compass is licensed under the Creative Commons Attribution-NonCommercial License. Its contents may be reproduced for non-commercial purposes, so long as the source is properly attributed. The full license can be viewed online at http://creativecommons.org/licenses/by-nc/3.0/legalcode.

The views expressed within are those of the authors and do not necessarily reflect those of the Center for International Trade & Security or the United Nations.

The Compass welcomes letters and articles from all concerned with 1540 implementation. Articles should be 1,500-2,000 words in length and written in English. Digital photographs should be submitted in their native format, typically JPEG; scanned photographs should be saved in a lossless format like TIFF or BMP. Send submissions to compass@cits.uga.edu.

Table of Contents

From the Editor 2
Igor Khripunov
Op-Ed: It was a Good Year 3
Ambassador Oh Joon

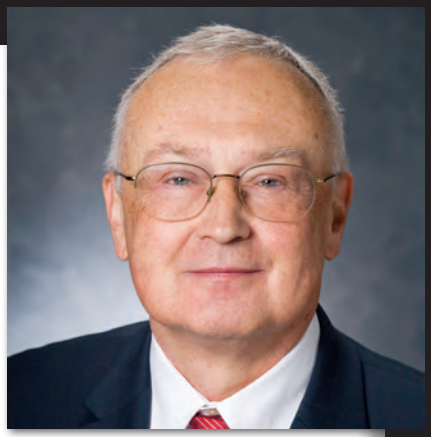
DISCUSSION FORUM

CARICOM and UNSCR 1540 5
O'Neil Hamilton
Multidisciplinary Perspectives in CBRN Security Culture 6
Nisreen Al-Hmound
CBRN Security Culture and STCU's Mission 6
Curtis "BJ" Bjelajac
Creating Safety and Security Cultures in and by the University 7
Falah H. Hussein
Promoting Security Culture through Education: Experience of University Ibn Tofail (UIT), Morocco 7
Oum Keltoum Hakam
CBRN Security: Managing the Emerging Threats 8
Mohamed A. Hashim
The "Art and Science" of Countering Weapons of Mass Destruction and CBRN Terrorism 9
Dana Perkins
Securing Borders through a Public-Private Partnership 10
Captain Teotimo Borja
Corporate Governance and Internal Compliance Management 11
Karlheinz Schnaegelberger

ARTICLES

CBRN Security Culture Discussion at the Global Partnership: Moving Forward 12
Ambassador Bonnie D. Jenkins
INTERPOL's CBRNE Capacity and UNSCR 1540 18
Ali Rached
UN Security Council Resolution 1540 and India 23
Rajiv Nayan
ISO 19600 as a Benchmark for Management of Proliferation within an Integrated Compliance Management System 27
Dr. Bartosz Makowicz
Does Not Compute: Robotics and UN Security Council Resolution 1540 31
Iraki Beridze & Odhran James McCarthy
Examining the Interface Between Nuclear Security Culture and Nuclear Safety Culture 34
Terry Kuykendall & Igor Khripunov
Building Strategic Trade Control Culture: Toward a New Phase in Nonproliferation 38
Dr. Andrea Viski
New Delhi Civil Society Forum Identifies Effective Practices for Implementing UNSCR 1540 41
Ian J. Stewart & Rejiv Nayan
Continuation of the Wiesbaden Process Promotes Exchange of Best Practices to Fight Proliferation Risks - Meeting Proliferation Threats with Effective Compliance Management Systems 46
Michael Weiss
Events of Interest 50

From the Editor:



From the vantage point of early 2015, looking back over the past year, UNSCR 1540 stakeholders have every reason to be quite content. This issue of the 1540 Compass offers an article by Ambassador Oh Joon with the overview of the activities and achievements of the 1540 Committee under his leadership as the Committee Chair.

Now that the last year's busy agenda is complete, a new and challenging mission looms on the Committee's horizon: arranging, between now and December 2016, a Comprehensive Review on the status of the implementation of resolution 1540. As of yet, little is known about what this will entail. UNSCR 1977 states only that it should be "a comprehensive review", "including, if necessary, recommendations on adjustments to the mandate." Beyond that general guidance, resolution 1977 handed the Committee a blank slate on which to inscribe ideas for upgrading nonproliferation and export control measures across the globe.

In short, the Review Conference constitutes an opportunity to shape the agenda. Help us. How can the *1540 Compass* help design a conference that yields maximum results? At a minimum, the editorial staff plans to compile the ideas and best practices suggested by *Compass* contributors in past and future articles and letters—and in writings yet to come. We will forward this to the 1540 Committee as it commences preparations for the gathering. Starting with the summer 2015 issue, consequently, our emphasis for the next several issues will be on how governments and international institutions can bolster UNSCR 1540 implementation and sustainability during the next five years of the resolution's extended mandate.

Dear readers, your contributions are most welcome.
Let your minds—and pens—run free!

IGOR KHRIPUNOV
EDITOR, 1540 COMPASS
CENTER FOR INTERNATIONAL TRADE & SECURITY

Op-Ed: It was a Good Year

Ambassador Oh Joon
PERMANENT REPRESENTATIVE OF THE REPUBLIC OF KOREA TO THE UNITED NATIONS IN NEW YORK AND CHAIR OF THE 1540 COMMITTEE 2013-2014

December 31, 2014, was the Republic of Korea's last day as an elected member of the Security Council, which also marked the end of my chairmanship of the 1540 Committee. It was a great privilege as well as responsibility to serve as the chair of this important subsidiary body of the Security Council. As such, it would be worthwhile to look back over what the Committee has achieved over the past two years and look ahead, in particular, having marked the tenth anniversary of the adoption of resolution 1540.

Substantial Increase of Reporting National Implementations

Let me begin by illustrating some of the progress that has been made in implementing resolution 1540. States are required to report on the measures they have taken to implement the resolution, and by the end of 2014, 90 percent of the 193 UN member states had made such reports. This shows overwhelming support by the international community for UNSCR 1540. However, twenty states have yet to report despite substantial efforts aimed at encouraging them to do so. Bringing these states into the fold must continue to be a priority for the Committee.

Given the rapidly advancing scientific, technological, and commercial developments—not to mention the changes in the international security landscape—the effective implementation of the resolution requires constant attention. In this regard, resolution 1977 (2011) encouraged states to make additional reports. It is heartening that in 2013 and 2014, there was a sharp increase over previous years in the submission of national reports. In the previous four years, the average number of reports received each year was seven. In 2013 the Committee received 28 reports—and in 2014 this level was maintained.

There are two factors to which this increase could be attributed. First, in 2013 and 2014 there has been a substantial increase in the number of outreach events of various kinds conducted at the national and regional levels. In 2013 Committee members and experts participated in 90 events. This was a 75 percent increase over the previous year. In 2014 the activity was maintained at about the same level, with 87 events. A vital element in these activities has been the opportunity for direct engagement with states, to which the Committee assigned a high priority. This direct engagement was in the form of visits to states, at their invitation, and in national roundtables with key national stakeholders. I very much hope that this priority will be maintained in future years.

In my view, a second important factor that spurred the increased engagement is the greater awareness promoted through activities in 2014 marking the tenth anniversary of the unanimous adoption of the resolution. The Security Council provided key momentum in the High-Level Open Debate on resolution 1540 on May 7, 2014. The strong support for resolution 1540 expressed in the Presidential Statement and the individual statements by more than 60 member states were instrumental in galvanizing our work. In addition to the Security Council meeting, there were six events dedicated to the tenth anniversary held around the world, including in New York.

Improving the Effectiveness of Assistance Mechanism

With regard to assistance, from the interactions that the Committee members and the experts have had with states, it is clear that a number of them very much need assistance to build their capacity to implement the 1540 obligations effectively. Particularly in the past year, the Committee and its experts have made a special effort to help states that need assistance refine their requests and identify appropriate assistance providers. It is encouraging that no less than 47 states have indicated to the Committee that they are ready to provide assistance to others to support the implementation of various aspects of the obligations. Also, in the same way, 19 international organizations of various types have signaled their readiness to offer assistance.

I am certain that there are ways to improve the system by which assistance is delivered. When an assistance request is received, a prompt response is essential to advance capacity-building and thus cause the full implementation of the resolution. I hope that the upcoming Comprehensive Review of the resolution will examine this matter thoroughly, including giving the Committee the necessary financial resources to respond to specific assistance needs in a more efficient

way. Delivering such assistance will bring important dividends in the form of better implementation by those states that have limited capacities.

Working with International, Regional, and Subregional Organizations and Civil Society

I have also observed that regional approaches to promoting better implementation appear to bring positive results. This is the case whether the effort is led by a regional or subregional organization—or unfolds directly between states that might be neighbors or have common or converging interests. Through my own participation in regional activities, such as with the Organization for Security and Cooperation in Europe in Vienna, with the African Union in Addis Ababa, and in an Asian regional seminar in Seoul, I have seen the benefits firsthand. I have noted how the national 1540 points of contact can be engaged and energized at the regional level. This experience leads me to support the idea of providing training for points of contact on a regional basis, in order that local conditions and requirements are properly taken into account.

I must also acknowledge the immensely valuable and increased support provided by the UN Office of Disarmament Affairs' regional offices in Africa, Asia, and Latin America in recent years. This has helped strengthen our work in those regions.

I must also pay tribute to those international organizations with mandates that overlap with resolution 1540 obligations, in particular the International Atomic Energy Agency, the Organization for the Prevention of Chemical Weapons, the UN Office on Drugs and Crime, INTERPOL, and the World Customs Organization for their collaboration and engagement with the Committee and its experts.

An important element in the Committee's outreach over the past two years is its engagement with civil society, in particular academia, industry, and parliamentarians. This has been an important feature of the Committee's work during this period. The very nature of the obligations under resolution 1540 means that they will not be effectively and fully implemented without direct engagement with this sector. I will mention just two of the several civil-society events in which I have been personally involved.

I was fortunate to have the opportunity to address the Inter-Parliamentary Union's (IPU) 2013 Assembly and help raise parliamentarians' awareness of resolution 1540. In most countries these are the people who are required to pass the necessary domestic legislation to implement the obligations under resolution 1540—and to approve the provision of the financial resources required. The Committee should find ways to continue to develop engagement with this sector that is so important to the implementation of the resolution.

In October 2014 I participated in a meeting with industry in Frankfurt. This was the third in an annual series hosted by Germany known as the "Wiesbaden Process." Regular and sustained engagement with industry is vital to help develop and maintain effective implementation of the resolution. Global trading is in a constant state of evolution, and it is a challenge for governments to maintain effective laws and regulations without impeding legitimate commercial activities. An important example, meriting close attention, is the rapid expansion in intangible-technology transfers and, allied to this, the requirement to prevent proliferation financing. Both these areas should be closely examined in the upcoming Comprehensive Review.

Two other areas that warrant particular attention are biological security and export controls. In general states have taken fewer implementing measures in these two areas. These are areas deeply affected by the advances in technology and developments in global commerce, and thus present particular challenges to states in terms of effective and sustainable regulation.

Looking Ahead—Comprehensive Review Process and Future Challenges

Looking ahead, the 1540 Committee will begin its work on the Comprehensive Review of implementation as called for in resolution 1977. Strategies to achieve the goals of resolution 1540 and practical ways to implement them will be discussed. In my view it will also be very important in this process to take account of the implications of the advances in science and technology, the evolving nature of global commerce, and the unprecedented impact of these developments on the activities of non-state actors and terrorists—an impact that, in some respects, is already manifest.

While the Republic of Korea is departing from the 1540 Committee, my government will always be a strong and proactive supporter of resolution 1540—as we have been since its adoption in 2004. Our financial contribution this year to the UN Trust Fund to support the Committee's activities is a demonstration of this commitment. I look forward to the successful and full implementation of resolution 1540 in the coming years.

1540 COMPASS

DISCUSSION FORUM

Please send letters for the Discussion Forum to Editor in Chief Igor Khripunov at i.khripunov@cits.uga.edu. Letters should not exceed 500 words.

CARICOM AND UNSCR 1540

Advancing nonproliferation activities in the Global South has remained a fairly demanding and daunting enterprise in light of the myriad capacity challenges these states—particularly small ones—still face in leveraging the financial and human resources requisite for meeting legal, enforcement, and administrative requirements. Indeed, this reality pertains not just to the implementation of UNSCR 1540 but to similar difficulties in meeting obligations under the Nuclear Non-Proliferation Treaty (NPT), the Chemical Weapons Convention (CWC), and the Biological and Toxin Weapons Convention.

Over the past five years, senior policy and enforcement officials throughout the Caribbean region have demonstrated their commitment to advancing nonproliferation activities, notwithstanding competing priorities on the traditional security front—particularly preventing trafficking in illegal narcotics and small arms, which remains a perennial problem in the Caribbean. These officials also pointed out, however, that the incremental pace of nonproliferation-related activities accelerated markedly once member states of the Caribbean Community (CARICOM) adopted a regional approach to advancing nonproliferation. The cooperative approach applies not only to resolution 1540 and the three multilateral nonproliferation regimes but to resolution 1373 and the sanctions regimes.

This approach has not only advanced UNSCR 1540 implementation within the Caribbean but has also paid dividends by helping CARICOM members fulfill their responsibilities under the CWC and NPT. Indeed, close cooperation between the CARICOM 1540 Implementation Program and the Technical Secretariat of the Organization for the Prohibition of Chemical Weapons (OPCW) has resulted in significant gains within the region, helping states meet their obligations under Articles VII and X of the Convention and build frameworks for responding to chemical emergences. With regard to the NPT, cooperation with the International Atomic Energy Agency (IAEA) has realized significant gains, not just in traditional areas of emphasis such as nuclear safety and security but also in safeguards and verification. Moreover, recent cooperation with the CARICOM 1540 Implementation Program in areas relevant to the health and productive sectors within the Caribbean—notably response mechanisms for nuclear and radiological emergencies and procedures for transporting radioactive material—have deepened and enhanced national and regional action relating to the NPT.

With this new and expanding approach centered on leveraging regional mechanisms like the CARICOM Program to advance nonproliferation objectives, it is fundamental that the international community supply enough resources to these entities to sustain progress in the nonproliferation realm.

Lastly, discussions are already underway to assess the way forward on 1540 implementation within the context of the 2016 Comprehensive Review. It is fundamental that these deliberations examine ways to leverage regional mechanisms and approaches to advance the implementation process. Without question, the experience within CARICOM demonstrates that focusing implementation processes in a regional manner can benefit member states—particularly those confronting significant resource challenges and limited capacity.

O'Neil Hamilton
REGIONAL IMPLEMENTATION COORDINATOR, UNSCR 1540,
CARICOM SECRETARIAT

MULTIDISCIPLINARY PERSPECTIVES IN CBRN SECURITY CULTURE

Chemical, biological, radiological, and nuclear (CBRN)-focused applied sciences and technology lie at the heart of many answers for human welfare. At the same time, ethical and other associated issues must be taken into consideration. The interdisciplinary nature of new technologies, combined with steadily increasing accessibility, has opened the path to new challenges. Security architecture, security culture, and engagement of informed scientists are the three main pillars of global security. Since sensitive knowledge and expertise are in the hands of individuals, CBRN-related issues directly involve the human factor. Thus there is a need to shed light on some aspects of professional responsibility, investigating scientists' visions of future work and notions of professional responsibility in fields related to CBRN.

Drawing together policy-makers and the international scientific community within different regions is a vital first step to action and outreach. New regional networks are necessary to promote security culture among scientists. This applies whether these scientists work in industry, academia, health, defense, or related fields such as engineering and information technology. Such a culture of responsibility is also needed within institutions that employ scientists and fund research in different CBRN disciplines. Indeed, this multidisciplinary approach reminds us that we are all stakeholders in building a world where "responsible science" defines policy.

Entrenching the principles of education, outreach, and adherence to international standards is a vital first step to promoting CBRN security culture. In the past, scientific initiatives dealing with public safety and security have all too often been structured from the top down, making them bureaucratic, unresponsive, and inaccessible. There is a need to focus on bringing science into the service of people. It is also vital that we facilitate the empowerment of the next generation of scientists in different regions. It is important that we give them the tools to respond to challenges in a multidisciplinary and sensitive manner.

Therefore, a coordinated strategy for promoting a culture of safety and security that advances CBRN risk mitigation should be developed. Such a strategy must encourage countries to take local ownership of the process, promote regional and international partnerships, and foster an integrated approach and methodology for assessing CBRN threats. The objective is to build a bridge from pertinent ethics and laws—embedding a culture of responsibility within the scientific community to prevent deliberate misuse of emerging technologies.

Nisreen Al-Hmoud
PROJECT DIRECTOR, CENTER FOR EXCELLENCE IN BIOSAFETY, BIOSECURITY, AND BIOTECHNOLOGY, ROYAL SCIENTIFIC SOCIETY (RSS)

CBRN SECURITY CULTURE AND STCU'S MISSION

The Global Partnership, Centers of Excellence, and CBRN Security Sub-Working Group meeting, "A Road Map for Comprehensive and Sustainable CBRN Security Culture," impressively demonstrated the commitment of countries and international organizations to developing CBRN security culture. The meeting, which was held in Berlin on 3 November 2014, was a reminder that the human element of CBRN security is as important as the physical elements—often more so.

As discussed at the meeting, one challenge facing any program to improve CBRN security culture in any organization is to devise metrics that accurately measure success or failure. Physical security is much easier to measure than culture. The number of meters of security fence installed, the number of guards employed, and other factors lend themselves to measurement. Quantifying improvements in security culture at an organization is far more difficult.

At the Science and Technology Center in Ukraine, we have encountered this same challenge. It is difficult to quantify the number of former CBRN scientists who did not proliferate their knowledge because of the STCU's activities in Azerbaijan, Georgia, Moldova, Ukraine, and Uzbekistan. Despite this challenge, our Center has developed methods over the years to measure its success in minimizing this threat. It is clear from our meeting in Berlin that countries and international organizations are well on their way to overcoming this challenge related to CBRN security culture.

Curtis "B. J." Bjelajac
EXECUTIVE DIRECTOR, SCIENCE AND TECHNOLOGY CENTER IN UKRAINE

CREATING SAFETY AND SECURITY CULTURES IN AND BY THE UNIVERSITY

There are several considerations that make this subject of great importance. First, a university is usually highly considered and trusted by the community. Thus instructions issued by the university command respect and trust from all members of the community. Second, universities are such qualified, trustworthy, and convincing centers that they can disseminate concepts related to safety culture and chemical security within the community. Third, at present you can rarely find a city without a university. It is quite easy, therefore, to disseminate information related to the safety and security of chemicals across the world.

Fourth, all universities have large numbers of academic staff, administrative staff, and students. This facilitates the transmission of information to communities via the families and acquaintances of university of employees. This ensures transmission of ideas related to chemical safety and chemical security to a large number of people as a byproduct of normal social interactions. Fifth, university graduates usually work in different sectors in the community. Sectors such as industry, agriculture, and health often deal directly with chemicals. Graduates thus bring the ideas and habits of mind they learned at the university—ideas and habits favorable to chemical safety and security—to many different fields.

Sixth, most universities deal with chemical, biological, and radioactive materials directly. Some of them even prepare some of these materials. Thus the university is the most reliable institution to determine the risk posed by these materials and take precautions assuring their safety and security. In order to spread chemical safety and security throughout the community, then, a center for chemical safety and security must be developed in every university.

Falah H. Hussein
CHEMISTRY DEPARTMENT, COLLEGE OF SCIENCE, BABYLON UNIVERSITY, IRAQ

PROMOTING SECURITY CULTURE THROUGH EDUCATION: EXPERIENCE OF UNIVERSITY IBN TOFAIL (UIT), MOROCCO

Since the 2010 Nuclear Security Summit that was held in Washington, Morocco has taken several initiatives aimed at developing its national nuclear security architecture, updated its legal and institutional infrastructure, and strengthened its national capacities, including its human resources. Moroccan universities understood the need and agreed on the urgency of developing and incorporating nuclear security curricula as part of the education program for nuclear scientists and engineers. They now highlight the importance of nuclear security while promoting a sustainable nuclear security culture.

In February 2012, a number of educators from multiple Moroccan universities were invited to participate in a workshop on Nuclear Security Curriculum Development. Co-sponsored by PNS (Partnership for Nuclear Security), CRDF-Global, and CNESTEN (the National Center for Energy, Sciences, and Nuclear Techniques), the gathering convened in Rabat, Morocco.

One of the outcomes of this workshop was that the University of Ibn Tofail manifested a strong desire to join the IAEA Nuclear Security Education Network (INSEN) and develop its own nuclear security modules for integration into master's-degree programs.

To gain the experience necessary to accomplish these tasks, I, the head of the master's program in nuclear techniques and radiation protection at UIT, and other faculty members participated in INSEN professional development courses and PNS-sponsored nuclear security curriculum workshops. These gatherings offered opportunities to exchange information and share new ideas, teaching tools, and lessons learned.

I also benefited from a three-week study tour in the United States of America in 2013, accompanied by five other faculty members. We visited four U.S. universities that lead different nuclear security programs: the University of North Carolina, University of Tennessee (and Oak Ridge National Laboratory), University of Texas-Austin, and University of Georgia. There we had the opportunity to discuss a variety of nuclear security

curricula.

As a follow-up, UIT organized a train-the-trainers nuclear security workshop in which local officials, regulators, operators, NGOs, faculties, and students participated. This was a building block for raising awareness of nuclear security culture at the national level. Furthermore, I coordinated seminars and workshops and taught nuclear security concepts in the framework of our master's program. The courses were so well-received that some of our students have pursued their master's theses in nuclear-security-related topics. Others are presently involved in the WINS Academy program to become certified professionals.

This effort led to the establishment of the first Institute of Nuclear Materials Management (INMM) student chapter in Africa. Three UIT INMM Student Chapter members were invited by PNS in July 2014 to participate in a Nuclear Security Insider Threat Exercise at Oak Ridge National Laboratory. While in the United States, the team also attended the 55th Annual Meeting of INMM in Atlanta, Georgia, where the creation of the Moroccan Student Chapter was celebrated.

On September 13-17, 2014, in the framework of the Fourth Regional African Congress of the International Radiation Protection Association, an event organized by the Moroccan Radiation Protection Association in Rabat in collaboration with many international organizations, I coordinated nuclear security activities aimed at expanding the understanding of the need to build radiological/nuclear security culture. Such a culture is crucial for the proper use of nuclear applications and the establishment of nuclear power programs in the future. These activities included a refresher course on "Radioactive Sources in Africa and Worldwide," a nuclear security workshop on "Strengthening Security of Radioactive Sources in Medical and Industrial Facilities," and the first UIT INMM event on "Nuclear Security for the Next Generation: Ensuring Continuity of Knowledge." These activities were well-received by the African participants, who emphasized the need to raise awareness, share knowledge, build a strong security regime, and establish and maintain a strong nuclear security culture throughout the world—and perhaps more so in the African continent.

Oum Keltoum Hakam

PROFESSOR, UNIVERSITY OF IBN TOFAIL, MOROCCO

CBRN SECURITY: MANAGING THE EMERGING THREATS

CBRN-related security threats unequivocally pose the most serious challenge to global peace and security. Despite the universal adoption of UNSCR 1540, which calls on states to take effective steps in this regard, many states still lack a stringent security culture within their societies.

Though the respective national authorities are responsible for implementing the resolution, it is highly important to direct more attention towards the private sector, including academia, nongovernmental organizations, and industry. For instance, vulnerable storage facilities for chemicals pose a serious threat and therefore merit stringent security arrangements. In such a situation, it is imperative to promote a CBRN-related security culture in different societies in order to promote general awareness and better acquaint the personnel working in this domain with the best security practices and habits.

One of the most grave challenges posed to CBRN-related security is that formal arrangements carried out at the governmental level generally do not include all actors in the society. Since every segment has a crucial role to play, efforts to promote security culture should include these actors.

Since security-related threats are transnational in nature, observing no border restrictions, the lack of synergy and cohesion among different nations' efforts might also prove counterproductive. Efforts to promote security culture thus should encourage different states to devise a commonly agreed approach that acknowledges the transnational character of this problem.

Keeping in view the ever-expanding militancy in various parts of the world, it is observed that the masses in these regions are prone to extremist ideologies. There is a significant possibility that militants might possess CBRN-related weapons-usable material. To take the same approach to these troubled states as toward stable states could engender dangerous consequences in less stable regions—thus posing a serious threat to international stability.

It is highly recommended that the security culture for different regions be analyzed separately,

with special focus on the least-developed countries. There is a need for capacity-building within various institutes, enabling personnel working there to cope with emerging threats. Special attention should be directed to CBRN security projects and activities, which have proven highly beneficial in promoting awareness, building capacity, and fostering technical expertise. Dialogue, discussions, exchange programs, and technical training programs are means through which we can achieve our objectives.

Furthermore, there is also the need to develop cross-cultural cooperation, helping people learn from each others' experiences, ideas, and security-related practices. Only through a unified approach based on diversity of experiences and ideas can we counter transnational CBRN-related security threats.

Mohamed A. Hashim, Ph.D.
SANA'A UNIVERSITY, AND SCIENTIFIC CONSULTANT OF YEMEN NATIONAL AUTHORITY

THE "ART AND SCIENCE" OF COUNTERING WEAPONS OF MASS DESTRUCTION AND CBRN TERRORISM

I am a recent graduate of the U.S. Army War College's Defense Strategy Course, where I mastered the strategy model designed by Arthur F. Lykke Jr. He applied the model (strategy = ends + ways + means) to the subject of military strategy, but the analysis of ends (or objectives), ways (or courses of action), and means (or resources) is a concept useful for any and all kinds of strategies—including those aimed at countering weapons of mass destruction (WMD) and CBRN terrorism through UNSCR 1540 implementation. In other words, strategy is all about *how* (ways or concepts) governments will use the *power* (means or resources) available to the state to exercise control over time, space, and circumstances to achieve the *objectives* (ends) outlined by the UN Security Council in UNSCR 1540.

The three main obligations specified in UNSCR 1540 define "what" is to be accomplished (ends or objectives) in order to create the conditions for or contribute to the achievement of the desired end-state, namely countering WMD and CBRN terrorism. Ways (strategic concepts and courses of action) explain "how" the ends are to be accomplished by the employment of resources. A useful checklist of "ways" is provided by the 1540 matrix's main sections, which pertain, for example, to joining certain legally binding instruments, enacting codes of conduct, and making other arrangements; prohibiting, and penalizing through national legislation, persons and entities engaged in certain WMD-related activities; accounting for, securing, and protecting WMD and related materials.

Indeed, the 1540 matrix is quite comprehensive and explicit enough to provide planning guidance to those who look to implement and supply adequate resources for UNSCR 1540. Means (resources) can be tangible (for instance people, equipment, or money) or intangible (political will) and explain what specific resources are to be used in applying the concepts to accomplish the objectives. The core concept for formulating a strategy for UNSCR 1540 implementation is about balancing ends, ways, and means.

However, as strategist H. Richard Yarger explains, there is always some risk in strategy. A gap, that is, always exists between what is to be achieved and the concepts and resources available to achieve the objectives. Or, the concepts are not all-encompassing enough to assure 100 percent success in a dynamic international environment. Managing this risk is achieved through the strategy development process. Last but not least, the strategy needs to be examined for suitability, feasibility, and acceptability.

Applying the U.S. Army War College's strategy model to UNSCR 1540 implementation makes the process more manageable but also assumes linear logic. In other words, it assumes the whole is simply equal to the sum of its parts. Considering that countering WMD and CBRN terrorism is an unpredictable "open system" with many variables, it follows that systems theory is also applicable. Interactions and interconnections within and outside the system must be considered by strategic thinkers contemplating UNSCR 1540 implementation.

As such, I would argue that countering WMD and CBRN terrorism is both an art and a science. A successful outcome demands more than implementation of UNSCR 1540 obligations. It demands that governments hone their ability to blend and balance the legislative and enforcement measures required by UNSCR 1540 with additional measures and programs focused on the human factor. Promoting the development of

codes of conduct, implementing education, training and awareness-raising campaigns, and devising other culture-building initiatives is critical.

For instance, persistent public vigilance and a culture of responsible CBRN science and security are not specified requirements of UNSCR 1540. Such concepts could hardly be codified into law and legally enforced. However, they are critical elements in countering WMD and CBRN terrorism, as they will empower the public and the scientific community to prevent, prepare for, mitigate, and respond to WMD and CBRN-terrorism risks and threats. In the end, what governments strive to achieve, behavior change, requires a combination of "hard" and "soft" power. In other words, this involves a balance of ART and SCIENCE.

Dana Perkins, Ph.D.
FORMER MEMBER OF THE 1540 COMMITTEE'S GROUP OF EXPERTS

SECURING BORDERS THROUGH A PUBLIC-PRIVATE PARTNERSHIP

Border security is the cornerstone of any program to control the possession and movement of WMD. Simple geography has traditionally presented a great challenge to the Philippines, a republic composed of more than 7,000 islands with 22,000 miles of coastline. Some remote islands are havens for terrorist groups. Waterborne criminals often evade law enforcers and even outrun government boats. Patrol range is limited, and so is the ability to detect suspect vessels by "line of sight." Success in intercepting threats is often a matter of luck. Land-based aircraft add little to the security equation, because when they detect a suspicious boat, they must still rely on surface vessels to intercept, stop, and search it. Usually the suspect disappears before that happens.

Recently, the Philippine government has been determined to find a better way to secure its maritime domain, comply generally with UNSCR 1540, and implement an effective, sustainable solution. Several civil agencies conduct operations related to Philippine waters, including the Philippine Coast Guard, Bureau of Customs, National Police, and Department of Environment and Natural Resources. All of these agencies have personnel positioned to see who enters national waters and who travels among the islands.

Seeking to improve patrols and multiply limited resources, these agencies explored the use of seaplanes. Such aircraft had to be able to land on the ocean to stop and inspect suspicious boats, and, importantly, had to be affordable to operate. The agencies investigated and found the Seahawk, a single-engine, amphibious, fixed-wing airplane manufactured by Millennium Aerospace in the United States. It carries six people and flies 1,000 miles at 150 mph using automobile petrol. We invited Millennium to meet and discuss whether its aircraft could help secure our borders and curtail the movement of weapons.

Several agencies met with a Millennium executive in Manila in November 2013 to review our requirements and determine whether the Seahawk could meet them. We developed a good, integrated working relationship. Our agencies developed a plan for a National Coast Watch System drawing from several security agencies, as well as agencies with technical expertise in handling CBRNE (CBRN plus explosive) materials.

While we developed this multiagency task force, Millennium worked closely with them to put together an equipment list to make the Seahawks into "1540 tools." Seahawk aircrews, for instance, carry CBRNE detectors when they search vessels, and infrared imaging systems to spot boat engines or humans at night, examine ambulance interiors, and so forth. The coast guard was designated to lead the task force, and construction of a National Coast Watch headquarters began. Recently, the Philippines submitted a request for assistance through the 1540 Committee donor-matching program in hopes of fielding a "pilot project" using Seahawks to multiply our border security resources. One Seahawk with a small crew can cover more ocean area than ten traditional surface vessels, and at much lower operating cost.

These advances came faster than we expected. Thanks to effective partnership-building, our public agencies have worked seamlessly with a private-sector supplier to share technical knowledge and expertise. By this time next year, I hope to follow up with a report on the successful deployment of this pilot project.

Captain Teotimo Borja
DEPUTY CHIEF OF COAST GUARD FOR PLANS, PROGRAMS, AND INTERNATIONAL AFFAIRS, CG-5/DESIGNATED DEPUTY POINT OF CONTACT, PHILIPPINES

CORPORATE GOVERNANCE AND INTERNAL COMPLIANCE MANAGEMENT

Merck is a leading global pharmaceutical, chemical, and life-science company with a history that began in 1668. As a family-owned German business present in more than 60 countries worldwide, it aims to produce meaningful benefits for consumers, market partners, and the world community.

Today, in times of globalization, compliance principles have become even more important as the company increases our sales and presence in emerging markets, internationalizes its supply chains, and experiences rapid technological and social change.

Merck is a company striving for responsible conduct in its operations, supply chains, and overall business relationships worldwide. The company does its business on the basis of a strong ethical foundation that has always been an integral part of its corporate culture. This foundation is reflected in our mission statement and values.

A worldwide trade-compliance policy has been established by Merck and is binding for managers and employees in the company worldwide. The core of our compliance program is:

- A clear statement about corporate risk and compliance
- A better definition of people's roles and responsibilities, as well as clear guidelines, controls, and practices that result in better employee motivation and teaming for a common purpose
- Motivation and recognition of employee contributions
- Management recognition of trade compliance as a key responsibility that leads to better appreciation of those people who "make it happen" on the ground

Merck has stringent management practices in place to ensure that its employees abide by the relevant legal, ethical, and scientific standards in all our research—whether in industrialized or developing countries.

Karlheinz Schnaegelberger
VICE PRESIDENT, MERCK KGAA, GERMANY

1540 COMPASS
ARTICLES

CBRN Security Culture Discussion at the Global Partnership: Moving Forward

Ambassador Bonnie Jenkins[1]
COORDINATOR, THREAT REDUCTION PROGRAMS AND U.S. REPRESENTATIVE, GLOBAL PARTNERSHIP

The Global Partnership Against the Spread of Weapons and Materials of Mass Destruction ("Global Partnership" or "GP") was established in 2002 to fund projects and programs to prevent weapons of mass destruction (WMD) proliferation and terrorism. An important aspect of this overall goal is programs focused on the "human dimension," consisting of the engagement of scientists, technicians, and engineers who work on aspects of chemical, biological, nuclear, and radiological (CBRN) security. The Global Partnership Kananaskis Principles of 2002 highlighted the priority of funding projects focused on former weapons scientists in the following statement:

> Among our priority concerns are the destruction of chemical weapons, the dismantlement of decommissioned nuclear submarines, the disposition of fissile materials *and the employment of former weapons scientists* (emphasis added).

Since 2002, the GP countries have funded programs that engage scientists and others in CBRN security projects. Some countries, like the United States, have directly funded scientist-redirection projects. Alternatively, Global Partnership members have funded programs through the Science and Technology Center (STCU) in Ukraine and the International Science and Technology Center (ISTC) in Russia. These two centers were initiated to redirect scientists with knowledge about the development of WMD and their means of delivery into nonmilitary pursuits.[2] In 2009, under the Italian chairmanship of the Global Partnership, the GP agreed that

1 I would like to acknowledge the important role that Ms. Caitlin McKibben from the University of Georgia played in taking notes at the Global Partnership meeting, which helped capture the results of the discussion highlighted in this article.

2 The STCU was established in 1993 by the United States, Canada, Sweden, and Ukraine. The European Union acceded to the STCU agreement on November 26, 1998, and in so doing replaced Sweden as a party to the STCU agreement. Canada withdrew from the STCU Agreement on November 6, 1993 (<http://www.stcu.int/weare/missionstatement/aboutus/>). The ISTC is an intergovernmental organization established in 1992 by agreement between the European Union, Japan, Russian Federation, and United States of America. Since that time, Armenia, Belarus, Georgia, Kazakhstan and the Kyrgyz Republic have joined the ISTC. Norway acceded in 1997, the Republic of Korea in May 1998, and Tajikistan in March 2003 (<http://www.istc.ru/istc/istc.nsf/va_WebPages/MissionEng>).

> the proliferation of WMD expertise, or any sensitive knowledge in chemical, biological, radiological, and nuclear (CBRN) areas, remains a serious concern. Preventing the illicit use of such knowledge is one of the most difficult nonproliferation challenges to address, as we are dealing with scientists, engineers and technicians who, in some cases (those doing biological research, for instance), may not consider their expertise and current activities as potentially vulnerable to misuse by others for whom their "proliferation-critical" knowledge could represent a route to developing a WMD capability. They should be made aware that their legitimate work could have dual-use applications and be diverted for malicious purposes.

It was recognized that the Global Partnership should focus its attention on redirecting former WMD scientists into the development of sustainable non-weapons-related R&D and commercial activities. However, as noted in 2009, the Global Partnership began to refocus attention on engaging scientists and

> *raising awareness and responsibility* among them, to prevent their knowledge in legitimate scientific disciplines to be diverted for unintended malicious purposes, and to strengthen frameworks within which to prevent the spread of sensitive information and to promote collaborations to advance common non-proliferation objectives (emphasis added).

The Global Partnership also noted that an increasing number of projects in new geographical areas will be directed toward fostering awareness of the multiple uses of high-risk materials and sensitive know-how and technologies, thereby contributing to a "*risk-conscious culture among scientists at all levels*" (emphasis added). In this respect, "Education and training are becoming increasingly important, notably in areas where the knowledge and expertise are rapidly advancing." The 2009 report also highlighted the GP as a platform to provide a coordinated approach that would enhance international collaborations.

In 2011, in preparation for the upcoming G-8 summit in Deauville, the Global Partnership agreed on an "Assessment and Options for Future Programming" document that provided the foundation for the extension of the initiative beyond its ten-year original mandate. In that document are clear references to a continued focus on scientist engagement and security culture as important areas of funding for projects within the GP. More specifically, the document maintains that a "renewed" Global Partnership could continue to be an important mechanism for global scientist engagement. Future programs, it notes, could help

- Strengthen and promote awareness and responsibility among CBRN scientists
- Promote best practices and collaboration in CBRN security among the international scientific community
- Develop a safety and security culture
- Promote responsibility regarding access to CBRN curricula and intangible technologies

The above bullet points highlight the importance of security culture, responsible science, and awareness. In addition, a focus on the human dimension and security culture can, importantly, help sustain the positive results from the enormous time, money, and energy that have gone into, and continue to go into, strengthening chemical, biological, nuclear, and radiological security. In this respect, that means recognizing the importance of the individuals implementing the projects, and developing within this group an understanding and acceptance of why they do what they do regarding CBRN security.

G-8 leaders highlighted four areas of future GP focus when they extended the GP's mandate: nuclear and radiological security, biosecurity, implementation of UNSCR 1540 *and scientist engagement*.

On November 3, 2014, on the margins of the first Global Partnership meeting hosted by Germany as the Chair of the Global Partnership, the Centers of Excellence (CoEs)[3] and CBRN Security Sub-Working Group met in Berlin to discuss CBRN security culture. The Global Partnership meeting provided

3 An Instrument for Stability funded by the EU, the Risk Mitigation CoE Initiative is designed to mobilize national, regional and international resources to develop a coherent CBRN policy at all levels, thereby aiming to ensure an effective response.

an opportunity to reengage the Global Partnership in the area of scientist engagement and security culture, which is important since the Global Partnership funds chemical, biological, nuclear, and radiological security programs and has not only a mandate to fund scientist engagement but to care about the sustainability of its programs. As recognized in 2009, the Global Partnership provides a place where the work on scientist engagement, including CBRN security culture and responsible science, can be better organized and coordinated.

The representation at the November 3 meeting reflected the breadth of the discussions taking place on the topic and the multidisciplinary nature of the subject. In addition to the 27 Global Partnership members at the meeting, participants were also from Yemen, Indonesia, South Africa, Austria, Morocco, and Iraq. Representatives of several international organizations attended the meeting, including the International Atomic Energy Agency (IAEA), the Organization for the Security and Cooperation in Europe, the Organization for the Prevention of Chemical Weapons (OPCW), and the UN Office for Disarmament Affairs. The participants represented the CBRN spectrum of expertise in security culture and were from government, academic institutions, international organizations, research and scientific institutions, and think tanks.

Participants at the meeting noted a strong interest for experts, international organizations, nongovernmental organizations (NGOs), and initiatives like the Global Partnership to work together in promoting CBRN security culture and addressing some of the challenges posed by this area of work, to include discussion of assessments, and how the four disciplines can learn from one another to find commonalities and gaps. Panelists observed that the community is now reaching the point that culture is recognized as a necessary component of CBRN security. The next stage, they agreed, is to develop tools and test them, possibly in the context of the network of CBRN CoEs. Following the meeting, the international experts who have been engaged in these discussions established an informal group to better organize and ensure the engagement of countries in the CBRN discussions.[4]

4 This network of experts working on CBRN security culture is called the "Berlin Group."

The participants discussed a definition of CBRN security culture. The definition that drew the most attention was as follows:

> CBRN security culture is an assembly of beliefs, attitudes, and patterns of behavior of individuals and organizations that can support, complement or enhance operating procedures, rules, and practices as well as professional standards and ethics designed to secure CBRN materials, achieve nonproliferation goals and prevent their criminal use.

It was generally agreed that the human dimension is critical in implementing CBRN security, since the individuals who are actively handling the CBRN materials, work at associated facilities, or are responsible for security at sites, labs, and facilities are the ones who most directly affect the security of the items of concern. Complacency among the work force is, therefore, a key source of weak security culture. Taken in conjunction with other security-culture elements, such as organizational and political factors, the human dimension is critical in preventing sabotage, unauthorized removal of hazardous substances, or other security failures at CBRN facilities.

In addition, due to the global nature of CBRN security threats, security culture needs to be operationalized on a global scale. Scientists and others should understand that sabotage and substate militant activity do not just happen elsewhere. It could happen here. Consequently, there should be an elevated awareness of security among all persons responsible for handling CBRN materials, even in countries facing little to no perceived threat.

Working globally includes working with different sectors that are engaged in security or share expertise in these areas. CBRN security experts should work closely with industry because companies apply their risk-based approaches at their facilities on a regular basis. Laws that criminalize unauthorized activity within facilities and their supply chains mean that both industry and political leaders should be invested in CBRN security culture. NGOs that carry out CBRN security-culture-related work can better fulfill their

mission with information and input from industry and governments.

The discussion in Berlin also touched on the important issue of how one measures the effect of security culture. A reliable method for verifying that CBRN security culture is actually working is needed. Such a method is under development in the area of nuclear security culture and has undergone some testing. However, means of testing the effectiveness of chemical and biological security culture have not been developed. Culture is of course intangible, so proving the effectiveness of security culture initiatives presents some challenges.

DIFFERENCES AMONG THE SUBFIELDS OF CBRN SECURITY CULTURE

Security culture is currently at varying stages of development in the four CBRN security fields, and efforts to foster it vary from subfield to subfield as well. In chemical security, security culture will fulfill a critical need for security in emerging markets and expanding supply chains, which will benefit developing nations and the global chemical industry. Biological security culture is still at an early stage of development, as safety culture is generally seen as more important. Safety culture thus provides an entry point for discussion of biological security culture. Both the chemical and biological fields are more fragmented than the nuclear field when it comes to regulations, and less attention is generally given to security at both types of facilities. These conditions make chemical and biological targets more accessible to substate groups and other criminals. Malefactors could exploit new gray areas that are less regulated. One of these gray-area threats is the convergence between the biological and chemical fields. Radiological security culture has its own specific challenges, as radiological security addresses the issue of thousands of sources at hospitals, businesses, and other institutions. Such sources could be lost and thus are generally more vulnerable than nuclear reactors and associated materials.

More specifically, a general consensus emerged from the November 3 meeting in Berlin that nuclear security culture is the most developed within the CBRN spectrum. The IAEA has developed a guidance document that can be used to conduct self-assessments of security culture at nuclear facilities. It uses surveys, interviews, document reviews, and observations to determine the extent to which security culture is in place and observed. This assessment is designed to serve as the basis for an action plan that will address culture-related weaknesses identified by the assessment. Nuclear-security-culture self-assessments were successfully performed for Indonesia's three research reactors. The Indonesian national nuclear-power agency, BATAN, recently announced the creation of its Center for Security Culture and Assessment, which opened in the fall of 2014. Best practices and lessons learned from the IAEA model can provide an applicable framework for the other CBRN areas.

In addition to the above, the IAEA Nuclear Security and Support Center network is currently discussing how developing and existing nuclear-security training centers can provide training on nuclear security culture and how best practices can be shared among the centers. Centers of excellence focus on training and projects with scientists, engineers, and others within the CBRN spectrum and provide an important foundation for promoting CBRN security culture through training. Some CoEs, for example the Japan CoE, already include security culture as part of their training. In this respect, the EU CBRN Centers of Excellence are a logical point of cooperation on CBRN issues, and security-culture outreach and training would fit well within the EU CBRN regional projects. Ongoing training and documents being developed by the IAEA on nuclear security culture will be an important part of that effort. The IAEA International Security Education Network is also developing teaching and course materials on nuclear security culture.

Among chemical-security-culture stakeholders, industry was identified as critical in this effort. Industry is driven by the bottom line, meaning that security culture must be affordable, as well as appealing and manageable, to companies of all sizes. The greatest concern regarding chemical security culture is not the multinational chemical industries, but the small and medium-sized enterprises, as well as weak points along the global chemical supply chain. The OPCW representative noted that the OPCW functions as an interface among different stakeholders and works with

other international organizations to help coordinate chemical-security-culture work. Chemical security culture, however, requires considerable investment and a multidisciplinary approach because the constantly changing nature of chemical research and development makes formulating a tailored approach difficult. Again, this is especially true with regard to small and medium chemical companies, which often cannot meet global safety and security standards.

The true picture of the threat posed by biological facilities is still unclear, as safety is prioritized over security in many biological facilities. The "publish-or-perish imperative" in the biological sciences within universities and other research settings poses a particularly sensitive problem to monitoring the release of security-sensitive information. The biosecurity sector may prove especially resistant to adopting a security culture. As with chemical security, the price of implementing security culture is also a deterrent.

Participants in the Berlin meeting agreed that the best way to introduce security culture into the biological sciences is by marrying security culture to safety culture, which is already well understood and implemented in most workplaces. Safety and security do have common objectives to protect human lives, society, and the environment.

Despite the different levels of maturity in the area of security culture among the relevant subfields, members of the CBRN security-culture community need to be talking to each other to avoid redundant work and wasted resources. A common platform or method of information-sharing would be beneficial. Participants pointed out that leaders from the Biological Weapons Convention-Implementation Support Unit, the OPCW, and the IAEA have yet to engage in a systematic discussion of CBRN security culture. International organizations' cooperation is necessary to coordinate global CBRN security culture. This is an area where the Global Partnership can provide assistance, particularly since all the relevant international organizations participate in GP deliberations.

Regarding CBRN security culture and UNSCR 1540, it was generally accepted that security culture is implied by the 1540 mandate. The challenge lies in developing best practices and establishing cooperation in the form of information-sharing. States should be encouraged to implement security culture nationally because it is in their own interests, not just because they are being pressured from outside. States can develop their national UNSCR 1540 action plans by constructing a system of outreach to engage their industries, civil societies, and academic communities to promote security culture.

CONCLUSION

Several conclusions about CBRN security culture were reached at the November 3 meeting. The conclusions include the following:

1. Stakeholders in security culture must use all available existing resources to make CBRN security culture a reality.

2. Proponents of security culture should increase industry engagement in order to include all stakeholders, especially small and medium enterprises involved in the chemical industry.

3. Stakeholders must take ownership of the problem to make CBRN security culture sustainable.

4. All stakeholders in CBRN security culture have to believe that security truly matters to prevent CBRN security threats.

5. It is not clear whether biological or chemical security requires the most immediate attention. A general lack of security culture in biology was noted, but at the same time, security culture is clearly not as advanced in the chemical as in the nuclear field.

6. One participant posed the question whether there is really a single security culture or whether there are four. The changing nature of the CBRN threat will make compatible definitions and unified approaches to security culture all the more critical.

7. Current CBRN security-culture practitioners would benefit by bringing more young people into the discussion, particularly regarding workforce sustainability and continuity and identifying new and emerging CBRN technologies and threats.

8. Training and education are the key to achieving CBRN security culture and sustainability. Centers of excellence can play a fundamental role in providing training on security culture.

In the past, the GP funded human development as part of its mandate for scientist engagement. A challenge now is to draw on this experience, and to expand the framework. A move from assistance-based CBRN security outreach to cooperation-based CBRN security-culture outreach can yield more tangible and sustainable results. Clear formulations of the CBRN security threats and the mission of security culture are needed, so that the Global Partnership can find its place in addressing them.

INTERPOL's CBRNE Capacity and UNSCR 1540

Ali Rached,
POLICY ADVISOR, INTERPOL, CBRNE SUB-DIRECTORATE

THE THREAT THROUGH INTERPOL'S EYES

The potential use of chemical, biological, radiological, nuclear, and explosive (CBRNE) materials by terrorist groups, criminals, and other non-state actors has become one of the most significant challenges to today's public safety, to national security, and to economic and political stability on a global scale. However, terrorists' desire to become end-users of CBRNE materials for attacks against innocent civilians is not a new thing. Organizations such as al Qaeda, Aum Shinrikyo, and other extremist groups have expressly announced their intention—backed by real attempts—to develop, acquire, and deploy weapons of mass destruction (WMD) against civilian populations.

Nonetheless, several emergent dynamics have made the threat more real and imminent than ever. First, the complexity of today's terrorist organizations' architecture and operational methods within a globalized world have a direct impact on the CBRNE dimension of the threat. The increasing cross-border movement of foreign fighters is allowing terrorist organizations to reach out to a wider sphere of recruits in a targeted fashion, in turn allowing them to gain access to advanced CBRNE expertise. These groups adopt quasi-identical *modus operandi* as they plan and execute terrorist attacks involving CBRNE materials around the world.

Second, the accessibility of CBRNE materials and technology is increasing significantly due to several factors such as technological advancements (e.g., the expanding field of synthetic biology), the complexity of controlling the transfer of dual-use goods, and the democratization of what was once perceived as sensitive military-grade expertise within the worldwide scientific community.

Third, the complex, interdisciplinary nature of CBRNE attacks and the indiscriminate nature of their devastating consequences across borders make their prevention and containment almost impossible for one agency, ministry, or country to accomplish in unilateral fashion. The lack of coordination among relevant stakeholders creates loopholes that could easily be exploited by terrorists to successfully translate their malign intentions into harmful actions.

From the law-enforcement perspective, CBRNE crimes are perceived as "low incidence, high impact." The infrequent nature of CBRNE incidents in general (including research, industrial, and transportation accidents, disease outbreaks, etc.) and malicious actions involving CBRNE materials means that law-enforcement authorities around the world often make the decision to allocate the majority of their resources to preventing and responding to more conventional and frequent crimes. Despite this logic, however, the high impact and grave human, social, economic, and political consequences of one successful CBRNE attack warrant investing in the development of prevention and countermeasures programs.

In reacting to this reality, the International Criminal Police Organization made the strategic decision in 2010 to launch a comprehensive CBRNE terrorism prevention and response capacity in support of its 190 member countries. This decision was unanimously endorsed by the global INTERPOL community through the adoption of Resolution AS-2011-RES-10 at the 80th session of the INTERPOL General Assembly. It was then that a Sub-Directorate specializing in CBRNE (CBRNE SD) was officially established within the INTERPOL Counter-Terrorism, Public Safety, and Maritime Security Directorate. The CBRNE SD supports, enhances, and coordinates individual efforts of INTERPOL's 190 member countries by deploying an intelligence-driven, prevention-oriented methodology bound by the interagency approach.

CRUCIAL MOMENTUM

The launch of INTERPOL's CBRNE capacity came in response to the growing concern over the phenomenon of non-state proliferation and smuggling networks

trafficking in CBRNE materials. At that time, a robust global mechanism was already in place to address the threat posed by states' proliferation of WMD and their means of delivery. However, this classic nonproliferation regime and its various instruments needed to adapt to face a CBRNE threat from non-state actors. In response, the international community started to shape a novel approach with the objective of tackling the emergent non-state CBRNE threat in a pragmatic and tangible fashion. While UN Security Council resolution (UNSCR) 1540 was the first global instrument to explicitly address the non-state-actor element of the proliferation dilemma, initiatives such as the Nuclear Security Summit (NSS) started addressing the issue on the highest political level. Nevertheless, concrete tools and implementation mechanisms were still lacking. Within that framework, INTERPOL was perfectly positioned to address this gap. Its operational mission and apolitical mandate allowed it to address CBRNE crimes in a practical and tailored fashion.

The use of chemical weapons in the Syrian conflict in 2013 raised the alarm about the serious possibility of non-state "actors" acquiring and using WMD. Furthermore, the activation of the UN Secretary-General's mechanism (UNSGM) for investigating alleged uses of chemical and biological weapons and the deployment of an onsite fact-finding team—a team composed of experts from the Organization for the Prevention of Chemical Weapons (OPCW) and the World Health Organization (WHO)—within a war zone revealed the vital importance of adding a security component to the mission. That reality pushed INTERPOL to consider offering tangible support to the UNSGM through active participation in training exercises[1] and adding law-enforcement expertise to the mechanism.

THE INTERPOL-UNSCR 1540 NEXUS

Owing to INTERPOL's mandate and constitution[2], the organization has fixed the boundaries of its CBRNE field of action, concentrating exclusively on threats from non-state actors. In other words,

Rebecca Hoile getting donned in PPE to enter the isolation ward of the hospital.

INTERPOL does not focus on any matters related to state-sponsored WMD proliferation programs, which are being addressed through other international legal and institutional mechanisms. INTERPOL's definition of non-state actors encompasses not only terrorist groups, lone wolves, and other criminals as end-users, but also the larger picture of illicit trafficking in CBRNE materials and its different components. Suppliers, middlemen, buyers, and smuggling networks, all fall within INTERPOL's purview. Accordingly, UNSCR 1540's explicit mention of non-state actors made the resolution a natural point of reference for INTERPOL's CBRNE-related activities.

Since the early days when INTERPOL established its CBRNE capacity, it has exchanged official letters with the 1540 Committee regularly, outlining the terms of their ongoing collaboration and designating respective points of contact (POC). In July 2013, the United Nations recognized—in its Secretary-General's report

1 Two staff members of INTERPOL's CBRNE SD participated in a two-week UNSGM exercise in Germany in early November 2014.

2 Article 3 of INTERPOL's constitution enshrines the guiding principle of neutrality by explicitly forbidding INTERPOL from engaging in matters of a political, military, religious, or racial character.

(A 68/164) to the General Assembly—INTERPOL's efforts to prevent terrorists from acquiring WMD. In 2014, as stakeholders celebrated UNSCR 1540's tenth anniversary, INTERPOL participated actively in meetings that took place to discuss the current status of the resolution's implementation and its future prospects. Furthermore, INTERPOL and the UN Office for Disarmament Affairs (UNODA) are currently developing methods for formalizing their collaboration and relations within the framework of resolution 1540. Commenting on INTERPOL's growing role in this area, Jeffrey Muller—Assistant Director for INTERPOL's CBRNE SD, and the designated official POC to the UNSCR 1540 Committee—affirmed that "we need to make sure that the mechanisms put in place by the international community to prevent and respond to such CBRNE incidents are fully integrated. Law enforcement is an essential component of these mechanisms."

INTERPOL'S SUPPORT FOR UNSCR 1540 IMPLEMENTATION

Since the launch of INTERPOL's CBRNE SD, most activities conducted by its three specialized units[3] have directly or indirectly supported the implementation of UNSCR 1540 and its general guidelines. Examples of activities INTERPOL has conducted in support of countries in their national 1540 implementation efforts include:

(Develop and maintain appropriate effective physical protection measures:

1. Operation S³OMMET *(Secure, Safe, Surveillance of Microbiological Materials and Emergent Technologies)*: Science is advancing so quickly that governments and international bodies must monitor emerging technologies. They must develop guidance that helps the scientific community use and safeguard these technologies responsibly, and do so in a manner that avoids impeding future scientific developments. The goal of Operation S³OMMET is to enhance the safety and security of biological materials, and to introduce or enhance disease surveillance in regions where it is needed most. Operation S³OMMET also aims to enhance the implementation of disease-surveillance mechanisms on a global scale.

   It does so by raising awareness among law-enforcement and public-health officials, biosafety professionals, and academics. Workshops are designed to build capacity and assess gap analysis, so that participating countries can be provided with bespoke toolkits. As it executes these functions, INTERPOL leverages partnerships with relevant regional and international organizations and with agencies working in the fields of biosafety and biosecurity. The initiative is run in collaboration with the International Federation for Biosafety Associations (IFBA) and the Connecting Organizations for Regional Disease Surveillance (CORDS).

2. INTERPOL Chemical and Explosives Countermeasure Program : This program is aimed at key law-enforcement authorities, government bodies, and chemical industry partners. It provides them with the knowledge and tools to implement national chemical-security programs. By engaging directly with all sections of the chemical industry—including manufacturing, distribution, transportation, and retail—the law-enforcement community can play a pivotal role in preventing criminals and terrorists from obtaining CBRNE materials as weapons for an attack, or in detecting preparations for an attack if non-state actors do obtain bombmaking materials.

   This program also promotes countermeasure activities designed to identify, interdict, and investigate the illicit diversion of chemicals. The training courses it offers are designed to improve member countries' chemical physical security, both within their national borders and in cooperation with neighboring countries, in order to prevent the smuggling of chemicals across international borders.

3. INTERPOL Radiological and Nuclear Countermeasures Program: INTERPOL receives support from the UNSCR 1540 Committee in the

3 INTERPOL's CBRNE SD is structured around three distinct, specialized units: (1) the Bioterrorism Prevention Unit; (2) the Radiological and Nuclear Terrorism Prevention Unit; and (3) the Chemical and Explosives Terrorism Prevention Unit. Each of the units is headed by a current or retired senior law-enforcement officer who serves as coordinator and is staffed with seconded officers, subject-matter experts, intelligence analysts, and support staff.

The interview team with the suspected Orthopox patient in the isolation ward.

delivery of its Radiological Nuclear Investigations training and its Countermeasures Program. The Committee has also provided expert support to INTERPOL's Counter Nuclear Smuggling Workshops, one of INTERPOL's deliverables under the NSS gift-basket process.

Develop and maintain appropriate effective border controls and law enforcement efforts to detect, deter, prevent and combat, including through international cooperation when necessary, the illicit trafficking and brokering in such items (i.e. CBRNE materials) *in accordance with their national legal authorities and legislation and consistent with international law*:

1. Operation Fail Safe: INTERPOL initiated Operation Fail Safe, which helps the international law-enforcement community track the transnational movement of individuals involved in the illicit trafficking of radioactive or nuclear materials. Under Fail Safe, law-enforcement officers at border crossings or other key locations can instantly query INTERPOL's databases to check whether an individual is the subject of a Green Notice.[4] INTERPOL's 190 member countries continue to engage within the framework of Operation Fail Safe through increasing the level of information sharing.

In a separate yet related development, in December 2014, INTERPOL supported an operation in Moldova in which the authorities intercepted and seized 200 grams of highly enriched uranium worth

4 INTERPOL's Green Notice provides warnings and intelligence about persons who have committed criminal offences and are likely to repeat these crimes in other countries.

1.6 million euros on the black market. They arrested seven members of an organized criminal group that specializes in smuggling radioactive materials.[5]

2. Program CHASE *(Chemical Anti-Smuggling Enforcement)*: The CHASE Program is a global effort to counter the international smuggling of chemicals used to manufacture chemical and explosive devices. It increases the capacity of police, customs, border, immigration, and security agencies to work collaboratively, and it builds on the strengths of individual organizations to expand their information-exchange networks. CHASE uses a multi-agency and multinational approach to deliver advanced chemical, explosive, and investigative training to member countries. In a practical application of the skills developed through CHASE training initiatives, INTERPOL coordinates operations in the field and provides practical support with a range of databases, tools, and services. The ultimate goal is to identify, interdict, and investigate the movement of criminals and the chemical materials they smuggle.

3. Program Global Shield: The program is a joint initiative of INTERPOL, the World Customs Organization (WCO), and UNODC. It targets the illicit diversion and trafficking of 14 chemical precursors used by terrorists and other non-state actors to manufacture improvised explosive devices (IEDs). INTERPOL's role is to coordinate multi-sectorial, cross-border operations among customs and law-enforcement authorities with the objective of:

    - Identifying and interdicting falsely declared explosive precursor chemicals
    - Initiating investigations of smuggled or illegally diverted IED materials
    - Uncovering smuggling and procurement networks that foster illicit trade

    In a July 2013 operation conducted along the Thai-Malay border under the codename Hawk, INTERPOL coordinated with the WCO and local authorities to seize 73 kilograms of sodium chloride (a precursor chemical utilized in the current IED campaign) and arrest several illicit traffickers in dangerous chemicals.

Throughout the last few years INTERPOL has become a key lead international organization within the global strategy against CBRNE terrorism. Furthermore, INTERPOL has integrated all major global frameworks on behalf of the global law-enforcement community, establishing close ties with relevant international partners under the interagency approach. INTERPOL believes that consolidating these partnerships through the establishment of legal frameworks and implementation mechanisms is crucial to the sustainability of integrated efforts. UNSCR 1540 provides the perfect umbrella under which these initiatives can function harmoniously.

5 Further information regarding the information is available on INTERPOL's official website, <http://www.interpol.int/News-and-media/News/2014/N2014-238>.

UN Security Council Resolution 1540 and India

Rajiv Nayan,
INSTITUTE FOR DEFENSE STUDIES AND ANALYSIS, INDIA

On February 25-26, 2014, a civil society meeting dubbed "Identification of Effective Implementation Practices by Examining UNSCR 1540 (2004) after a Decade of Its Existence" was convened in Delhi, India. Two Indian nongovernmental organizations—the Institute for Defense Studies and Analyses (IDSA) and the Institute for Strategic Studies—organized the event, in cooperation with King's College London and with support from the UN Office for Disarmament Affairs (UNODA). It was attended by around 100 representatives of NGOs from Asia, Africa, Europe, the Middle East, Oceania, and the Americas. Officials from different countries and the United Nations also participated in the event.

Before this, on November 30, 2012 in Delhi, the Indian government hosted the"1540 Workshop on Building New Synergies on Nuclear Security" in cooperation with UNODA. Speaking at the second Nuclear Security Summit, held in Seoul in March 2012, Indian prime minister Dr. Manmohan Singh had announced India's intention to hold such a workshop. The idea behind the workshop, declared Singh, was "to bring together important stakeholders for a brain-storming session for building synergies that would contribute to the overall objectives of nuclear security." The workshop represented a continuation of the Indian government's engagement with UNSCR 1540 and manifested the evolution of its policy vis-à-vis the resolution.

These two workshops are interesting indicators of India's growing relationship with UNSCR 1540. In the February 2014 workshop, Indian civil society supported UNSCR 1540 and demonstrated its willingness to work with international organizations and international civil society to implement the resolution. There was an overwhelming presence of representatives from Indian civil society at the workshop. In fact, more than two-thirds of the participants were from different Indian organizations.

In the beginning, interestingly, India was skeptical of the resolution. For instance, it sided with the Non-Aligned Movement (NAM) group of countries, which opposed UNSCR 1540 on the grounds that that the Security Council is not the appropriate body for legislating international law. However, realizing the danger of weapons of mass destruction, India joined other countries in supporting the resolution and later taking measures to implement it. An April 27, 2004 letter from the permanent representative of India to the United Nations, addressed to the president of the Security Council, summarized Delhi's evolved position on UNSCR 1540. In the letter, India voiced "unwavering commitment" for efforts to fight WMD proliferation.

However, it attached some reservations. India objected to Security Council's tendency to assume legislative and treaty-making authority "on behalf of the international community, binding on all States." It maintained that the UN Charter had given no such power to the council. India also made it clear that it would not adhere to any treaty to which it had not consented. In other words, India will not comply with obligations set forth in any treaty that India has not signed or ratified. India also stated that it would not "accept externally prescribed norms or standards, whatever their source, on matters within the jurisdiction of its Parliament, including national legislation, regulations or arrangements, which are not consistent with India's constitutional provisions and procedures or are contrary to India's national interests or infringe on its sovereignty."

Since the passage of UNSCR 1540, India has supported efforts to strengthen the UNSCR 1540 Committee. It supported the 2009 comprehensive review of the functioning of UNSCR 1540. It not only backed the formation of the 1540 Committee but also supported different resolutions extending its tenure. India voted for UNSCR 1977, passed in 2011, to extend the Committee's term of office until April 25, 2021. The resolution requires the Committee to conduct two reviews after every five years. The first of these reviews

to be conducted in or before 2016 have full Indian support.

India has submitted its reports to the UNSCR 1540 Committee. The first two reports were general in nature, but India complied when the Committee asked countries to file their national reports using the Committee's matrix. India has periodically updated its reports. Reporting is indeed a great opportunity for India to showcase its legislative, regulatory, and enforcement frameworks before the international community. At the same time, filing reports and subsequent assessments has also made India realize that gaps linger in its export control structure.

By Jiuguang Wang (Own work) [CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0) or GFDL (http://www.gnu.org/copyleft/fdl.html)], via Wikimedia Commons

To implement UNSCR 1540, India had to fill in the gaps in its legislative system, and for this purpose, the Indian parliament passed the Weapons of Mass Destruction (WMD) and Their Delivery Systems (Prohibition of Unlawful Activities) Bill on May 13, 2005. After receiving presidential assent, the bill became an act, or law, on June 6, 2005. It is popularly referred to as the WMD Act. On a number of occasions, Indian officials have stated: "Specifically, the WMD Act fulfills India's obligations pursuant to the UN Security Council resolution 1540 on nonproliferation of weapons of mass destruction by prohibiting the possession, manufacture, transportation, acquisition, development of nuclear weapons, chemical weapons or biological weapons by non-state actors."

This act introduced several global good practices for WMD control into the India system. Through the WMD Act the Indian export control system now has transit and transshipment controls, retransfer controls, technology transfer controls, brokering controls, and end-use-based controls. The act also led to changes in other laws like the Foreign Trade (Development & Regulation) Act. This amended act now incorporates technology and services within its scope. It helps India properly implement and enforce the general objectives of UNSCR 1540 by providing statutory authority to the government's licensing and customs departments. India also amended its Chemical Weapons Convention (CWC) Act to facilitate better licensing of chemicals.

Engagement is continuing in other implementation activities related to UNSCR 1540. India has supported the UNSCR 1540 Committee's efforts to implement the resolution's mandate. The 1540 Committee is also supposed to coordinate with other international organizations such as the International Atomic Energy Agency (IAEA) and the Organization for Prohibition of Chemical Weapons. Under the aegis of the IAEA, for instance, India organized a training course on physical protection of nuclear installations. India is also prepared to share its expertise with any country that voices interest. An Indian official stated at the February 2014 Delhi meeting: "Measures for the implementation of the resolution should be undertaken by the states based on their national practices and processes. Assistance and cooperation

for states requesting such assistance is a key element of the implementation process. Such assistance programs should be suited to the specific national or regional requirements."

The Indian government, then, has supported the cause of UNSCR 1540 and its implementation in different regional forums and organizations. India actively participates in the ASEAN Regional Forum (ARF) on UNSCR 1540 implementation. Its officials give presentations at ARF meetings regarding the Indian approach to implementation of the resolution. Showcasing the Indian way of implementing UNSCR 1540 is their way of sharing experience with ARF countries. India has also offered its facilities for training officials from ARF countries.

THE FUTURE ROLE FOR INDIA AND ITS CIVIL SOCIETY

After a decade of existence for UNSCR 1540, India is serious about and active in WMD security. Nuclear India is not only active in the NSS process but also promotes nuclear security through other institutions, such as the Global Center for Nuclear Energy Partnership (GCNEP). By the end of 2013, GCNEP had conducted eleven courses relating to nuclear security and other nuclear issues. In 2014, as of August 15, it had already conducted six courses and planned ten more. It has extended special invitations to Asian countries for the course on nuclear security. In the coming years, India should put more resources in such commendable activities. In the post-NSS era, these centers of excellence may be epicenters for promoting nuclear security and safety.

India is a signatory of both universal disarmament treaties in the other two categories of WMD—chemical weapons and biological weapons. Indian civil society and government have both actively participated in activities relating to biosafety and security, as well as chemical security and safety. India acknowledges challenges such as the emergence of synthetic biology research in India and the country's entry into chemical production. Even stakeholders sympathetic to such technology point out the need for a proper regulatory system to manage it. India has developed a regulatory system for these technologies. It should further refine the system and share it with other aspirants.

Similarly, India has not only implemented the Biological and Toxin Weapons Convention (BTWC) at the domestic level but also participated in BTWC review meetings. It has been a long-time supporter of strengthening the BTWC. India should take the lead in global or international and regional outreach activities and other meetings to tighten the convention. India has a fast-developing biotechnology industry. Its experiences, including challenges in managing this industry, could be useful for other countries. India may play a more active role for biosafety and biosecurity in Asia and in other developing regions.

Actually, Indian civil society and the government both need to be more active in the Asian region. Civil society may help Asian national governments by training important stakeholders who in turn may implement the mandate of UNSCR 1540. For this task, Indian civil-society organizations must network with global civil society. Global civil society may integrate Indian civil society into research and training programs. Through research activities, contentious issues surrounding the implementation of UNSCR 1540 may be mutually resolved. The Indian government, for example, may play a more constructive role in Southeast Asia and West Asia. India may act as a bridge between these predominantly NAM countries and the rest of the world.

For this purpose, India should actively participate in all key global, international, multilateral, and regional organizations and bodies. As discussed before, it is already active in different UN bodies such as the UNSCR 1540 Committee and the OPCW, regional bodies like the ARF, and initiatives like the NSS. India should strive to join all the multilateral export control regimes, which originate most of the best practices disseminated through UNSCR 1540. For sure, the Indian experience could be extremely useful to these multilateral bodies. The older members of these bodies need to acknowledge the usefulness of facilitating the entry of a country like India into these regimes. The relationship between the old tools and new actors will assist the cause of UNSCR 1540 in the long run.

India, a country constantly facing terrorism, has to move beyond being a passive participant country in international meetings. In fact, for several decades, India as a victim of terrorism has left no stone unturned to see that terrorism is countered effectively at the global level. India has campaigned

at the United Nations for the Draft Comprehensive Convention on International Terrorism. It wants to see the conclusion of a convention as early as possible. As India gives priority to "the challenges posed by nuclear terrorism to international peace and security" and the "catastrophic dangers" from transfers of WMD to non-state actors and terrorists, India should sponsor or cosponsor a resolution at the UN General Assembly to combat WMD terrorism and strengthen efforts undertaken under UNSCR 1540. In 2014, the United Nations observed a decade of the functioning of UNSCR 1540. India and its civil society have been active in promoting implementation of the resolution. It is quite appropriate for them to keep doing so.

ISO 19600 as a Benchmark for Management of Proliferation within an Integrated Compliance Management System

Professor Dr. Bartosz Makowicz,
CENTER OF INTERDISCIPLINARY COMPLIANCE RESEARCH,
EUROPEAN UNIVERSITY VIADRINA, FRANKFURT, GERMANY

INTRODUCTION

We are living in the 21st century, and never before have national economies been so interconnected and so closely linked as nowadays. Mobility and the rapid transit and transportation of goods, persons, services, and capital have reached a remarkable level, which until recently was hardly conceivable. This has given rise to a global infrastructure that embraces complex and versatile shipping of goods.

The progressive liberalization of global trade, however, has not only recorded success but also opened the door to new dangers and security risks. Various bilateral and multilateral initiatives attempt to monitor and minimize those risks. Thus, ten years ago the United Nations rightly recognized in Security Council resolution 1540 that "proliferation of nuclear, chemical and biological weapons, as well as their means of delivery, constitutes a threat to international peace and security."

While this resolution is primarily aimed at the global community, the real protagonists in proliferation are organizations—especially privately owned companies—which remain in the background. So the question should be: how can we entice those actors to comply with the rules governing nonproliferation?

The answer must be: through an integrated Compliance Management System (CMS) that also embraces proliferation risks. For this purpose the standard ISO 19600, which was published on December 15, 2014,[1] provides an excellent benchmark which an organization can use to implement a Compliance Management System.

In the following, I will explain (1) today's conception of compliance, (2) its connection to proliferation, (3) how a CMS covering proliferation risks in accordance with ISO 19600 could work, (4) whether proliferation risks should be monitored separately or integrated, and finally, (5) the outlook and prospects for such systems. While there are already several sectorial initiatives on good practices or codes of conduct, ISO 19600 proposes a cross-sectorial und universal solution for all kinds of organizations.

CURRENT DEVELOPMENT AND MEANING OF COMPLIANCE

Diverse scandals involving non-compliance within large, leading global enterprises have generated a deterrent effect, prompting most organizations in the private sector to implement CMSs to manage diverse compliance risks. Nowadays, however, industry leaders have come to believe that "doing compliance" is "doing the right thing," and will result in a variety of advantages for their organizations. Various studies have revealed that effective and efficient CMSs contribute to better organizational results, higher ratings, and—above all—a lower-risk environment for business.

To understand the idea behind a CMS, one has to grasp its core focus. But let us start with a definition: according to ISO 19600, *compliance* means meeting all of an organization's compliance obligations. Compliance obligations may be requirements that an organization *has to* comply with or that it *chooses to* comply with. Laws, industry codes, organizational standards, corporate governance, and best practices are examples of the former, ethics and community expectations examples of the latter.

Therefore, compliance means fulfillment of different obligations. But who, or what, is supposed to fulfill

1 For further information go to: <http://www.iso.org>.

these obligations? It is obvious that only a human being can comply with obligations or influence an organization's structure and processes so that it meets the requirements.

Thus a human being is—or, more accurately, all members of an organization are—the focus of Compliance Management Systems. An interface is constructed between the society to which a human being belongs and the organization of which he is part. Since compliance deals with human beings, it is obvious that a CMS is not only about structures and processes but also, most of all, about creating a sustainable compliance culture within the organization.

NONPROLIFERATION AND CMS

One could ask whether this question really has anything to do with nonproliferation. At first sight the question seems to be justified. However, when looking at it more closely, the answer is simple. Since the global market is exposed to new security risks and one of them is the phenomenon of proliferation, it seems to be rational to start with the term *risk*.

A compliance risk is defined by ISO 19600 as the effect of uncertainty on compliance objectives. It has been defined as the likelihood of a breach of the firm's compliance obligations and the consequences of noncompliance. The main risks posed by proliferation—as stated in UNSCR 1540—involve the development, acquisition, manufacture, possession, transport, transfer, or use of nuclear, chemical, or biological weapons or their means of delivery. If an organization neglects a standard relevant to these risks, it is found to have created a proliferation risk and is charged with a case of noncompliance.

Therefore, the assumption is more than justified that proliferation risks constitute a special type of compliance risk. Such hazards might be managed within an integrated CMS or a separate Nonproliferation Management System (NMS). In both cases, ISO 19600 provides a unique, universally and globally applicable benchmark.

ISO 19600

In order to demonstrate how ISO 19600 can be used to monitor proliferation risks, I will explain (1) the scope of the law, (2) its general function, and (3) the relevant measures.

UNIVERSAL APPLICATON OF ISO 19600

First, ISO 19600 does not focus on enterprises or corporations. The standard contains a set of guidelines for CMSs in organizations, which are defined as persons or groups of people with distinct functions. Organizations allocate responsibilities, authority, and relationships to achieve their objectives.

The definition has a broad meaning that makes the standard applicable for a variety of organizations dealing with nuclear, chemical, or biological dual-use materials. It applies not only to corporations and huge enterprises but to small and medium-sized enterprises as well.

As stated in the introduction, moreover, the standard is intended to be adaptable to the organization's needs. For that purpose, a flexibility clause in the standard states that the extent to which the standard applies depends on the size, structure, nature, and complexity of the organization. It is therefore also easily adaptable to state institutions, international organizations, enterprises, corporations, and foundations.

HOW IS A CMS UNDER ISO 19600 SUPPOSED TO WORK?

The CMS model set forth by ISO 19600 results from combining three management systems: the "high-level structure" established by ISO, the "risk management system," which is a basis for compliance measures, and the so-called "PDCA cycle" of continual improvement, well-known in the field of quality management. (PDCA refers to "plan-do-check-act," or sometimes "plan-do-check-adjust.") Originally developed by Walter Shewhart, the cycle was popularized by W. Edwards Deming in the 1980s.

According to ISO 19600, a compliance journey starts within an organization with determining

the scope, establishing a compliance management system by respecting good-governance principles, and identifying external and internal issues as well as interested parties' requirements. Already at this initial stage, proliferation risks should be identified and integrated in the following steps.

On this ground a compliance policy is established. According to the ISO standard, the policy is the core of compliance activities within an organization. It should be established by governing bodies and top management in consultation with employees, and should provide a framework for setting compliance objectives appropriate for the organization's purpose. The policy should articulate the scope of the CMS and the extent to which the CMS will be integrated into the organization's other functions. Finally, it should explain the consequences of noncompliance and other compliance-related topics. Organizations facing proliferation risks should cover them when establishing their compliance policies.

This process is directly linked to operational compliance, which under ISO 19600 is based on the aforementioned Deming cycle. For the purposes of a CMS, planning, doing, checking, and acting means developing, implementing, evaluating, and maintaining the system.

At the core of that system, adjusted to the needs of compliance, lies the leadership's commitment. An independent compliance function (which grants the governing body access to the compliance function, stipulates the governing body's independence, and allocates appropriate authority and resources to the governing body) assigns responsibilities at all levels and, finally, establishes the supporting functions.

The PDCA cycle starts with identifying compliance obligations and evaluating compliance risks. This process should also cover proliferation risks. Planning to address compliance risks and achieve objectives proceeds on this basis. This step is followed by operational planning and control of compliance risks, as well as performance evaluation and compliance reporting. It ends with management of potential noncompliance and continual improvement to the system.

SUPPORTING FUNCTIONS

ISO 19600 mandates a risk-oriented management system based on several operational measures, the so-called supporting functions. Only some of them will be mentioned here.

One of the key elements of a successful CMS is the staff's awareness of noncompliance challenges as well of proliferation risks. This brings us back to the initial statement that a human being is the focus of any CMS.

As stated in the ISO standard, any person doing work under the organization's control should be aware of the compliance policy and of his role and contribution to the effectiveness of the CMS. The CMS aims to develop and maintain a compliance culture. That requires the active, visible, consistent, and sustained commitment of the governing body, top management, and subsidiary management toward a common, published standard of behavior that is required throughout the organization.

Proper communication will strongly support compliance. According to ISO 19600, compliance communication should consist of open and appropriate communication about compliance. Such communication unfolds through ongoing compliance training (including updates to the training), through ongoing dialogue about compliance issues, and through making a clear link between the organization's strategy, individual performance on compliance matters, and the organization's success. The fundamental purpose of compliance communication is to create a whistleblowing mechanism for staff members to report suspicious cases. It is equally important to implement a system to protect whistleblowers from retaliation.

Another crucial supporting measure is the code of conduct, a statement of practice developed internally, by an international, national, or industry body, or by some other organization. A code of conduct usually contains a set of rules whereby organization members are bound. It should be constructed according to the organization's needs and the risks it faces. It is also important to use understandable and clear language, supported by continuous training, so that the members know how to comply with it.

A CMS, furthermore, provides for different actions that might be undertaken to respond to noncompliance. Organizations usually launch internal investigations, not only to quickly and effectively clear up the case, but also to strengthen and improve cooperation with the authorities and correct the system's failure.

A further ISO-standard-mandated element of compliance is the "compliance third-party due diligence," which can be of major importance for monitoring nonproliferation risks. This involves conducting assessments to avoid "infection" by a company's partners. (I use the word infection deliberately, to illustrate the tremendous damage a partner's bad reputation and image can do to an otherwise healthy company.) Assessing risk and eliciting information is an integral part of third-party due diligence. This process often exposes proliferation risks.

These and other supporting measures should contribute to the main goal of compliance: the creation of a sustainable compliance culture as defined by the ISO standard. Fostering values, ethics, and beliefs that permeate an organization and interact with its structures and control systems to produce behavioral norms conducive to compliance is the paramount goal.

GOOD PRACTICE–WHICH WAY TO CHOOSE?

Once an organization decides to manage the proliferation risks using ISO 19600 as a benchmark, there are two possible methods for setting up such a system.

In the first scenario, an organization may establish a CMS that deals only with nonproliferation. This is an NMS. ISO 19600 directly allows this option, stating that a CMS as a management system can address a single discipline or several disciplines. The system's scope thus may embrace the whole of the organization, specific functions, specific sections of the organization, or one or more functions across a group of organizations.

However, the second option seems to be far more effective. An integrated CMS manages proliferation risks alongside all of the other compliance risks. But why is an integrated solution more favorable?
For several reasons. The integration of systems leads to significant profits as well as other positive side effects. Said benefits include thoroughgoing sustainability in organizational structures, incorporation of proliferation risks into an aggregated risk portfolio confronting the organization, reduction of costs and complexity through convergence of structures, higher efficiency and profitability, and the avoidance of disputes over competencies. Further positive effects include the higher efficiency of homogeneous structures, a higher degree of acceptance, a lower degree of complexity, and a high level of transparency. These advantages give the organization's members greater confidence in the systems and the organizational culture. Lastly, ISO 19600 states that compliance is made sustainable by weaving it into the organizational culture, and thence into the behaviors and attitudes of the people who work there.

SUMMARY

While global trade brought evident advantages to the international community, it also engendered various security risks, proliferation among them. Resolution 1540 mostly applies to countries and states, to the neglect of actual players, organizations, and private firms. An integrated CMS's main purpose lies in monitoring and reducing proliferation risks. It can play a big role in achieving the goals of Chapter VII of the UN Charter, which covers "threats to the peace, breaches of the peace, and acts of aggression."

Thus, for this purpose ISO 19600 can be viewed as a benchmark. In order to induce companies to invest in such structures on a national and international level, further incentives must be created. (For this, legislators are responsible.) Compliance culture has a real chance for creating a sustainable nonproliferation culture within organizations. As stated in the introduction to ISO 19600, integrity and compliance furnish not only the basis but also an opportunity for a successful and sustainable organization. Firms should grasp that opportunity in order to suppress proliferation and bolster their overall performance.

Does Not Compute: Robotics and UN Security Council Resolution 1540

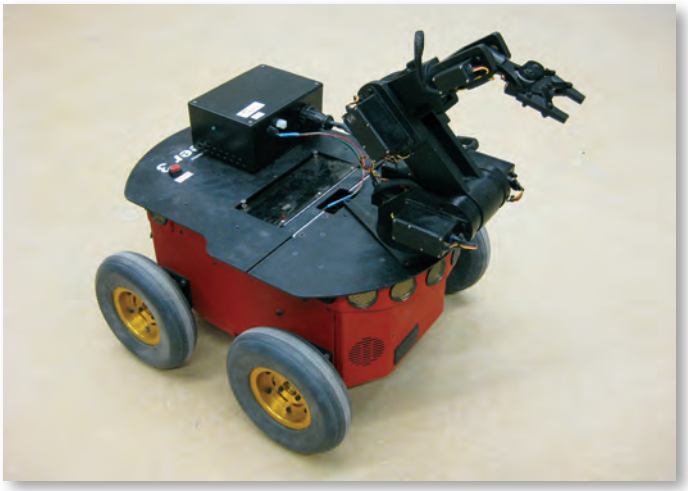
Irakli Beridze,
SENIOR STRATEGY AND POLICY ADVISOR, UNICRI
Odhran James McCarthy,
PROJECT OFFICER, UNICRI

Whether it is Isaac Asimov's positronic robots, Robby the Robot from the *Forbidden Planet*, or *Star Trek*'s Lieutenant Commander Data, we are all familiar with robots in some shape or form. More often than not though, our consideration of robots is confined to the realm of science fiction—a subject of daydreams. While it is true that the fully autonomous robots of science fiction do not yet exist, research and development in the field robotics is rapidly accelerating and the robotics industry is booming, making robots much more a part of our world than most expect.

Today, robots with varying degrees of autonomy (semi-autonomous robots) are a reality, and virtually every day the robotics industry announces a multitude of new civilian and military applications for robots. As the robotics industry continues to expand, it is becoming increasingly commonplace to hear of robots being used to clean homes, farm lands, determine the rate of melting of the icecaps, inspect the integrity of oil and gas pipelines, watch for poachers of endangered animals, and even care for the elderly. At the same time, major companies—even those with little or no history in robotics, such as Google and Amazon—have awoken to this robotic revolution and started to invest heavily in building and fortifying their own robotics capabilities. Without a doubt, robots have begun to step out of the pages of our science-fiction stories, off the silver screen, and into our daily lives—marking the dawn of the robotics era.

CBRN RISK MITIGATING ROBOTS

Somewhere on the long list of applications for robotics is the mitigation of risks associated with chemical, biological, radiological, and nuclear (CBRN) materials. Even to those with little technical knowledge of either robotics or CBRN risks, the inherent benefits of utilizing robots to respond to incidents involving CBRN materials should be immediately apparent. By keeping



By Jiuguang Wang (Own work) [CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0) or GFDL (http://www.gnu.org/copyleft/fdl.html)], via Wikimedia Commons

first responders at a safe distance, highly mobile robots equipped with CBRN sensors can be used to remotely and automatically carry out CBRN reconnaissance, detect and monitor the presence of CBRN materials, alert responders or other relevant authorities, and even carry out rescue operations from within contaminated areas. On top of this, robots can operate virtually nonstop for extended periods of time and reach areas that responders cannot, even when wearing full hazardous-materials suits.

The recent award of a 9.6 million dollar contract by the Canadian Department of National Defence to iRobot for the delivery of twenty 510 PackBot CBRN Recce Systems suggests that states are beginning to recognise the massive potential for robotics in CBRN operations. The PackBot is one of the leading and best-known examples of robots designed specifically for dangerous tactical operations and has been relied on by U.S. defense forces in Iraq and Afghanistan, primarily for the identification and disposal of improvised explosive devices. In the past, the PackBot and its more physical brother robot, the 710 Warrior, have also been used in various CBRN operations, perhaps most famously when they were deployed to help clean up radioactive debris and investigate the interior of the Fukushima nuclear plant in the aftermath of the tsunami that struck in early 2011.

Unfortunately, however, technology is a rising tide that lifts all boats, and with every new development in technology comes the potential for misuse or exploitation. Whether it is mobile phones, video games or the Internet, terrorist organizations and other non-state actors rely increasingly on technology as another weapon in their arsenal. Robotics is no different. While robotics can be used as a tool for supporting CBRN risk-mitigation operations, consequently, it could also be misused or exploited by terrorist organizations and other non-state actors for a number of things—including launching attacks using CBRN materials. The same advantages that robotics affords to CBRN first responders make robotic delivery systems appealing for terrorist organizations and other non-state actors.

While state-of-the-art robotics may be hard to come by, this will not prevent some knowledgeable non-state actor from hacking into the robots states employ for military or other purposes, and hijacking or diverting them for their own malicious purposes. At the same time, the robotics revolution has also made small, low-cost, and easy-to-operate drones (also known as quadcopters) widely available. Such drones can be bought in a wide range of shops, in some cases for as low as 100 euro, and can be easily operated by remote control, or even by smart phone or tablet. Perhaps even cheaper is the option to "build your own drone." Countless guides are available online, simplified for the even the least technically minded individual.

Even though the fully autonomous robotics familiar from science fiction may not yet be available—and thus we have little reason to fear a fully autonomous fleet of terrorist robots—the existing semi-autonomous and even human-controlled robots present a serious concern in the present day. Indeed, in his book *Wired for War*, P. W. Singer reiterates the sentiments of an employee assigned to a Defense Advanced Research Projects Agency (DARPA) project. (DARPA is a technology research agency of the U.S. Department of Defense.) This employee forewarned of the coming "intersection of robotics and terrorist groups."

MITIGATING THE RISK OF CBRN ROBOTS

In light of the potential for misuse and exploitation of robotics and the ease at which a robot can be converted into a delivery system for CBRN material, there is merit in turning to the international framework for CBRN risk mitigation and, in particular, to UN Security Council resolution 1540.

In brief, UNSCR 1540 acknowledges that the proliferation of CBRN weapons or their means of delivery constitutes a threat to international peace and security. The resolution therefore seeks to supplement the existing international framework by obliging states to enact appropriate and effective national countermeasures, putting controls in place to protect against the proliferation of CBRN weapons and their delivery systems.

Considering robotics as a potential delivery system for CBRN weapons that is easily accessible to non-state actors, one would imagine states already have or are in the process of adopting the measures and controls required under UNSCR 1540. Regrettably, however, this is not the case. There exists little in terms of governance for robotics at present.

In the works of renowned science-fiction author Isaac Asimov, this was not a problem because the governance of robotics was very straightforward. Asimov famously curtailed all the potential dangers of robotics by programming three laws into the positronic brains of each of his robots. As recounted in Asimov's *I, Robot*, these "Three Laws of Robotics" read as follows:

- Law One: A robot may not injure a human being or, through inaction, allow a human being to come to harm.
- Law Two: A robot must obey orders given to it by human beings, except where such orders would conflict with the First Law.
- Law Three: A robot must protect its own existence, as long as such protection does not conflict with the First or Second Law.

Although nice on paper, these laws have never been transmuted into reality because roboticists have been unable to translate them from a fictional plot tool into the language of robotics. Limited as they may be, though, Asimov's fictional laws nonetheless remain the best we have in terms of governance of the "Wild West" of robotics—an ungoverned space that flies in the face of the binding obligations and underlying objectives of UNSCR 1540.

A STEP IN THE RIGHT DIRECTION

The good news is that robotics is finally beginning to appear on the international radar as meriting serious consideration for not only the future but also for the present. At the moment the discussion focuses on the legal, ethical, societal, and operational aspects of lethal autonomous weapon systems (LAWS)—known colloquially as "killer robots"—within the framework of the Convention on Certain Conventional Weapons (CCW). According to a recent report of the International Committee of the Red Cross in May 2014, LAWS are weapons systems that have "autonomy in the 'critical functions' of acquiring, tracking, selecting and attacking targets."

Acknowledging the potential risks posed by such weapons—weapons devoid of human control, judgment, or compassion—the High Contracting Parties to the CCW convened the first multilateral discussion of LAWS on May 16, 2014 at the UN office in Geneva. The objectives of this expert meeting were to gain a better understanding of the issues raised by autonomous robotic weapons and to share the various different views of the concerned governments and technical experts.

Subsequent to this first meeting of experts, the High Contracting Parties reconvened in Geneva for the annual CCW meeting from November 13-14, 2014 in order to decide how to proceed further with the issue of LAWS. Even though most states possessing significant robotics technology are party to the convention and were in attendance, the resounding conclusion of both meetings was that there is a need to develop a better understanding in order to really assess the capabilities of LAWS, identify their true potential for harm, ascertain the applicability of the CCW, and determine the place of LAWS under international humanitarian law.

Although it is less than ideal that a more proactive decision was not taken at either event, the commitment of states to develop a better understanding is commendable. Decisions taken by the relevant authorities must be fully informed because robotics has great potential to positively and negatively influence our lives. In this regard, it may be apt to draw an analogy to the dual-use nature of certain chemicals, such as chlorine. Chlorine can be used peacefully as a substance to purify water, making it safe for drinking, or it can be used in its gaseous form as a chemical weapon. Similarly, robotics can be used to assist first responders after a CBRN incident, or they can be used as a delivery system for a CBRN weapon. They too are dual-use in nature.

At the same time, it is vital to remember that the weapons side of robotics, the "killer robots," is but a part of the much larger and growing robotics industry. The military application of robotics is very much linked to the domestic and industrial application of robotics. Take for example iRobot, the aforementioned company that designed the PackBot. It also produces the Roomba, the autonomous household vacuum cleaner. iRobot has also forged a partnership with Taser International, a leading manufacturer of stun guns. Similarly, Boston Dynamics and SCHAFT Inc. were recently acquired by Google as part of its "moonshot" to create a new generation of robots. In the not-so-recent past, though, both Boston Dynamics and SCHAFT had close associations with the military applications of robotics. Boston Dynamics' LS3, for example, was recently field-tested by U.S. Marines during the Rim of the Pacific Exercise—a multinational maritime exercise—while the SCHAFT robot won the DARPA Robotics Challenge 2013 Trial.

Viewing robotics as a dual-use resource and considering civil and military robotics as interlinked, it becomes very apparent that a fully informed decision in an important forum such as the CCW is of the utmost importance. Poorly informed or misinformed discussions could well damage an industry that is changing the face of modern times—setting loose a wave of repercussions for research, development, and use of robotics in the civil environment.

TOWARD THE FUTURE

Although far from comprehensive, the CCW debate about robotics represents a promising start. With a little luck, it may be the first of many international discussions of the safety, security, and privacy concerns associated with robotics—one of which, of course, is the threat stemming from CBRN materials. Given the relative ease with which a terrorist organization or other non-state actor could mount a CBRN attack using a robotic delivery system, and given the rapid rate of development and ready availability of robotics, there is a need to carry this debate forward—raising awareness and promoting a comprehensive understanding of our robotic present and future. Only by doing so can we ensure that the aspirations of instruments such as UNSCR 1540 are fulfilled—protecting against the proliferation of CBRN weapons and their delivery systems.

Examining the Interface Between Nuclear Security Culture and Nuclear Safety Culture

Terry Kuykendall, Ph.D., REM, CEP, CESCO,
VICE PRESIDENT, EVOLVE ENGINEERING & ANALYSIS, LLC
Igor Khripunov, Ph.D.,
DISTINGUISHED FELLOW AND ADJUNCT PROFESSOR,
CENTER FOR INTERNATIONAL TRADE & SECURITY,
UNIVERSITY OF GEORGIA

The commonality between elements of nuclear security culture and nuclear safety culture has been widely discussed and acknowledged at the conceptual level for over a decade. The need for a cultural basis for nuclear safety was conceived first; nuclear security culture evolved as a concept years later. The idea behind the development of nuclear safety culture as an important requirement in international nuclear program management was first introduced by an IAEA review conducted in 1986, after the Chernobyl accident. This preliminary concept was developed further by IAEA in support of nuclear power-plant safety and evolved into a stand-alone initiative that has direct application for a wide range of nuclear program applications.

The basic ideas and elements of nuclear safety culture as developed by IAEA were instrumental in the identification of the need for a parallel nuclear security culture. The necessity for nuclear security culture was stated specifically in a 2001 IAEA report on "Measures to Improve the Security of Nuclear Materials and Other Radioactive Materials," issued immediately after the September 11 terrorist attacks on the United States. Detailed guidance for the establishment and promotion of the concept of a nuclear security regime and nuclear security culture was provided in the IAEA's 2008 "Implementing Guide on Nuclear Security Culture," published as Report No. 7 in the agency's Nuclear Security Series. Section 2.4 of this document briefly discusses the relationship between security culture and safety culture, stating that:

> "...the principal shared objective of security culture and safety culture is to limit the risk resulting from radioactive material and associated facilities. This objective is largely based on common principles, e.g. a questioning attitude, rigorous and prudent approaches, and effective communication and open, two-way communication."

The IAEA's concept of shared objectives between security culture and safety culture is manifest by the agency's organizational structure, which places the responsibility for both disciplines within an integrated IAEA Department of Nuclear Safety and Security. (The functions of nuclear security and nuclear/radiological safety, however, fall under different divisions within this department.) The common elements of these two areas are integral to security and safety operations. Understanding where safety and security intersect and interface, and discerning where there are opportunities to exploit synergies between the two, is critical to nurturing an overarching culture of integrated security and safety. Since these elements of a comprehensive organizational culture are inextricably intertwined, the most effective and efficient approach to creating a program that fosters security and safety culture demands that leaders determine which functions are complementary and which are not.

As a binding legal instrument, UNSCR 1540 requires all States to adopt and enforce appropriate measures against the proliferation of weapons of mass destruction, thereby keeping them from falling into the hands of terrorists. In this context, a functional nuclear security culture is critical at the state, national, and international levels. Included in the consideration of security risks are the attendant safety concerns that drive many security requirements.

Although there are shared elements at the interface between nuclear security culture and nuclear safety culture, it is important to acknowledge that it is impractical (and undesirable) to attempt to fully combine (or force) safety and security programs into a single function. Security culture is sufficiently distinct in its objectives and approaches to justify its status as a separate field. For safety culture, the primary focus

is on unintended acts or conditions that could lead to disruptions, breakdowns, and releases of hazardous substances from authorized research, production, and transportation chains. Responses emphasize engineered protection and safety management. For security culture, the primary focus is on the intentional misuse of infrastructure and products by terrorist, criminal, or other elements. Responses emphasize intelligence gathering, physical protection, vigilance, and compliance. Their common objective is to protect human lives, society, and the environment, but their subordinate objectives are achieved through different means.

Given that the rationales behind security culture and safety culture differ—again, this is the difference between willful/intentional and accidental/unintentional hazards—it should be evident that there will be areas of contention. The goals of safety and security programs may at times conflict, or otherwise have mutually exclusive objectives. For example, while for safety purposes it may be desirable to identify and quantify the amount and types of radiological/nuclear materials in a specific area or facility, from a security perspective this disclosure could increase the attractiveness of the site as a prospective terrorist target. It would be advantageous to assess the safety hazard with consideration of the design basis threat, to develop a program of requirements that ensures physical protection while maintaining safety restrictions, and to consider the emergency requirements for both security and safety.

However, while conflicts between security and safety may require detailed consideration at the program or regime level, the objectives of security culture and safety culture are more universal and less likely to conflict at the higher, organizational-culture level. Nuclear safety culture and nuclear security culture function best when the common elements and functions are recognized and exploited while preserving the distinct objectives and goals of each cultural program within the organization. This dualism demands negotiation, cooperation, and understanding among participants, but an organizational culture that includes active, coordinated, and integrated elements of nuclear security culture and nuclear safety culture is attainable. For these reasons, finding the common ground between these cultural programs is imperative. Hence, though UNSCR 1540 speaks exclusively of security, the safety component of overall organizational culture is present as well.

A key area where security and safety cultures intersect and interface is in evaluating the results and effects of safety- and security-related events. Although the initiators may be quite different, the results of an event initiated by a manmade, intentional act may have some or all of the same consequences as an event initiated by accident. The Fukushima Daiichi nuclear disaster of 2011 provided a primary example of this concept. Although the damage to the reactors was caused by an earthquake and tsunami, it is feasible to envision a manmade attack with the same intent, capable of crippling a country's economy and power supply. Given this paradigm, the interface between security events (manmade, intentional, malicious events) and safety events (natural events) requires a carefully calibrated combination of culture-driven safety and security, as shown in Figure 1.

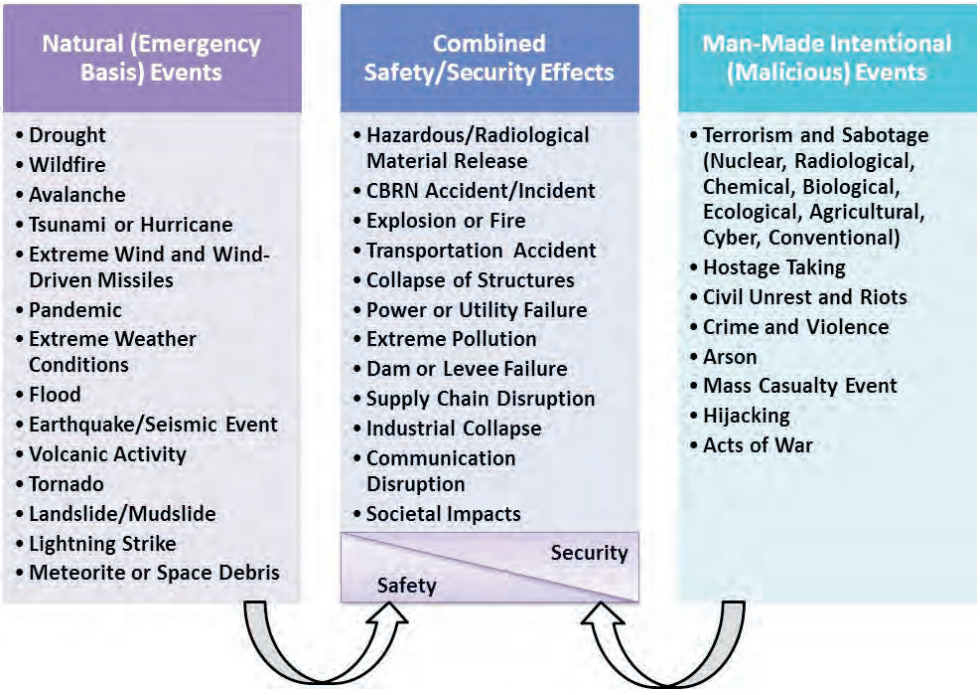


Figure 1. Security/Safety Interface for Natural vs. Manmade Events

Given that the outcomes of these events, however initiated, may result in the same requirements (e.g., emergency response, military or paramilitary action, mobilization of health or medical resources, tapping of international support, etc.), considering the security/safety interface and combined effects is essential for devising programs and using limited resources efficiently.

In addition to evaluating the security/safety interface for the impacts of nuclear security and nuclear safety events, it is also feasible and desirable to evaluate how the intersection between these two cultural programs can be used to benefit an organization or operation. When evaluating the interface between nuclear security culture and nuclear safety culture at the highest levels within an organization or governmental entity, it becomes evident that the cultural aspects of the two programs provide opportunities for optimization, streamlining, and effective resource allocation. Table 1 presents examples of areas where nuclear security culture and nuclear safety culture programs may interface, presenting opportunities for cooperation, sharing, and efficiency.

A specific common element with major impact on both nuclear safety and nuclear security cultures is the human factor, meaning the human element within the organization or entity. The 1986 Chernobyl accident—largely a result of human error—initiated the process of developing viable standards for nuclear safety culture, factoring human error into analyses of acts of violence and terrorism, as well as breaches of security, has been instrumental in the development of the concept of nuclear security culture.

As with safety, the ultimate success of a nuclear security culture depends upon the human element (including leadership, commitment, understanding, accountability, and other factors) for implementation and maintenance. As previously stated, both nuclear safety culture and nuclear security culture have the shared objective of limiting the risks associated with nuclear/radioactive materials and facilities. To meet this objective, it is necessary to apply common principles and guidance, accentuating leadership values and actions; problem identification and resolution; personal accountability; work planning and control; continuous learning; a safety- and security-conscious work environment; effective communications (both horizontally and vertically throughout an organization); development of trust and respect; and encouragement of a questioning attitude among the staff. These shared traits of security and safety cultures emphasize the importance of human factors and human risks as interface points.

Introducing cultural change can be a challenging and time-consuming endeavor. Since safety culture is somewhat more tangible, and thus more acceptable to constituents within organizations, exploiting the interface between these two cultural programs offers a vehicle to generate support for security culture by association. Invoking well-accepted tenets of safety, that is, helps constituents transpose concepts to security efforts. In any case, the interface between security culture and safety culture can benefit from consolidated management.

Table 1. Interface Opportunities between Nuclear Security Culture and Nuclear Safety Culture

Nuclear Security Culture	Interface Opportunities	Nuclear Safety Culture
Development of a mission statement and program implementation guidance for Nuclear Security Culture	Development of an integrated mission statement and program implementation guidance to accommodate both Nuclear Security and Nuclear Safety Culture	Development of a mission statement and program implementation guidance for Nuclear Safety Culture
Training for Nuclear Security Culture programs	Utilization of common and shared elements in Security Culture and Safety Culture training; combined or integrated training	Training for Nuclear Safety Culture programs
Nuclear Security Culture self-assessments	Combined Security & Safety Culture self-assessment	Nuclear Safety Culture self-assessments
Corrective action program for Nuclear Security Culture	Combined Nuclear Security Culture & Nuclear Safety Culture corrective action program	Corrective action program for Nuclear Safety Culture
Continual improvement program for Nuclear Security Culture	Combined continual improvement program for Nuclear Security and Nuclear Safety Culture	Continual improvement program for Nuclear Safety Culture
Logging and dissemination of lessons learned and experience for Nuclear Security Culture	Integrated program for logging and dissemination of lessons learned and experience for Nuclear Security and Nuclear Safety Culture	Logging and dissemination of lessons learned and experience for Nuclear Safety Culture
Utilization of web-based IT resources for management of Nuclear Security Culture information, guidance, standards, etc.	Integrated utilization of web-based IT resources for management of Nuclear Security and Nuclear Safety Culture information, guidance, standards, etc.	Utilization of web-based IT resources for management of Nuclear Safety Culture information, guidance, standards, etc.
Emergency response planning for Nuclear Security events/actions	Integrated emergency response plans/ program for Nuclear Safety and Security	Emergency response planning for Nuclear Safety accidents/incidents
Interfacing with Nuclear Security regulators and oversight organizations	[Where feasible] Open/cooperative interfacing between Nuclear Security and Nuclear Safety regulators and oversight organizations	Interfacing with Nuclear Safety regulators and oversight organizations
Risk assessments and evaluation of security threats	Shared information (and resources, as applicable) for evaluation of risks, threats, and protective requirements	Risk assessments and evaluation of Nuclear Safety Programs
Consideration of physical protection for Nuclear Security	Optimized/integrated design of features that accommodates security and safety	Consideration of design features for Nuclear Safety

Building Strategic Trade Control Culture: Toward a New Phase in Nonproliferation

Dr. Andrea Viski,
SCIENTIFIC OFFICER, EUROPEAN COMMISSION, JOINT RESEARCH CENTER

INTRODUCTION

Unlike other domains such as the regulation of nuclear energy or chemical agents, no law-based institution exists that oversees and sets international standards for strategic trade control. While United Nations Security Council resolution 1540 (2004) constituted a significant step forward in obligating States to implement national trade-control systems, there remains no single, overarching expert body that is dedicated to tying together the plethora of existing and distinct best-practice models. While the creation of such an organization—or the importation of strategic trade control into an existing organization—remains a rather distant prospect, the underlying question of whether such reform is necessary depends on whether the groundwork for a common global trade-control culture already exists and, if it does, can be described. This article will identify why such a strategic trade-control culture (STCC) is both necessary and a natural and logical progression from current worldwide implementation practices and trends.

The structure of this article is as follows. First, it identifies how STCC can be defined and why its development is necessary on a general level. Second, it identifies which actors are relevant to the formation of a common culture. Third, it suggests what kinds of basic principles of a strategic export control culture can be formulated, taking into account the lack of uniformity in the application of controls on the international level. Finally, the article examines how a more detailed exercise could take place with the objective of coming to a consensus regarding the "code of conduct," namely a set of basic international principles of strategic export control culture.

WHY STCC?

Significant and high-quality literature already exists in the domain of nuclear security and safety culture, as published by the International Atomic Energy Agency as part of the agency's nuclear security and safety series. Further work has been undertaken by national and international authorities, to the point that many countries now have dedicated institutions that take up these issues. Yet more work has been done to identify what a common CBRN culture would consist of.[1] While a lot of material has been developed to draw from these specific fields, the concept of implementing culture draws on even more distant areas such as medicine, air traffic management, and the food industry, and much literature has been produced to help formulate a distinct and specific STCC. Publication of an International Standard on "Compliance Management Systems—Guidelines" (ISO 19600) is only one step in this direction.[2]

So far, discussion of whether to apply the concept of culture to strategic export controls has been non-existent. This is surprising given that this important nonproliferation tool relies on the basic tenet of compliance—compliance by industry, academia, and research institutes, as well as awareness-raising activities and encouragement and enforcement of compliance on the part of export control authorities. Nevertheless, as this domain is only now beginning to flourish, especially in research and academia, discussion of culture is timelier than ever.

Several factors have converged over the past decade that have increased the importance and utility of export controls in stemming the proliferation of materials, equipment, and technology to state or non-state actors that could use them in WMD programs. UN Security Council resolution 1540 helped widen the debate over how to reach universal implementation of export controls, given countries' diverse profiles and capabilities. That debate—and the goal of reaching compliance with the resolution to the highest extent

1 Khripunov, Igor. "A Blueprint of CBRN Security Culture" 1540 Compass.

2 ISO 19600 "Compliance Management Systems – Guidelines", December 15, 2014. See also the article by Dr. Bartosz Makowicz in the current issue

possible—can benefit from the use of the concept of culture in order to identify common, agreed-upon principles that all parties can relate to and apply.

Doing so would require in the first instance assigning a definition to STCC. Borrowing from the definition of nuclear security culture, which in the author's view is the most relevant and appropriate for this exercise, such a definition would be: "The assembly of characteristics, attitudes, and behavior of individuals and institutions which serves as a means to support and enhance nonproliferation through strategic trade controls." Stemming from this definition, specific steps can be taken to enhance STCC on the part of each class of institutions and individuals involved in the export control process. The next section identifies these actors.

WHO NEEDS CULTURE?

As events have nudged the international community to make strategic trade controls a nonproliferation tool of choice, the understanding of which parties are involved has likewise evolved to reflect new realities. Today there are many important actors that must work toward the common goal of nonproliferation within and among countries. It is possible to demarcate these actors in general categories: the international community, states, exporters, and the general public. All four have a role to play in creating and sustaining a common STCC:

A) *International Community:* Strategic trade controls have moved on from being applied only by members of export control regimes. They are now a legal obligation for all states thanks to UNSCR 1540. This shift signals a recognition of a common interest uniting the international community in using strategic trade controls to prevent actors with malicious intent from acquiring the capability to use WMD. It also recognizes that this threat touches all states. The roots of a common culture have formed through the 1540 Committee, which has raised awareness while matching providers of capacity-building assistance with those needing it, and through the outreach initiatives of individual countries, regional institutions, and international organizations. The international community can play an important if not essential role in supporting, defining, and assisting in the implementation of an STCC.

B) *States:* Different aspects of an STCC should be applied as appropriate within the ministries and agencies that play a role in trade control. These include licensing agencies, customs, ministries involved in interagency input and decision-making on trade, border guards, prosecutors, and others involved in investigations, risk assessment and enforcement, and intelligence. As delineated in IAEA Nuclear Security Series no. 7, the structure for implementing STCC in each body should rest on three pillars:

1. The policy adopted by the state

2. The organization introduced into each body

3. The attitude adopted by individuals at all levels[3]

While this fundamental structure can be borrowed from the nuclear security field, the real substance of an STCC will come from identifying what is behind each pillar that is particular to strategic trade controls.

C) *Exporters:* This is perhaps the category of actors where establishing an STCC can have the most positive and significant effect in strengthening the overall nonproliferation objective. Exporters of dual-use goods, technology, and materials can include industry, but more often the discourse has included academia and research as well. Rather than focusing on tangible goods exclusively, moreover, questions are being asked about how best to control intangible transfers.

The consensus usually finds that increasingly, traditional licensing as a form of strategic trade control is only one piece of the puzzle. Effectiveness in controlling all forms of sensitive dual-use trade necessitates compliance. While compliance can easily be defined as "conformity in fulfilling official requirements,"[4] a *culture of compliance* would see exporters understand,

3 IAEA Nuclear Security Series no. 7, "Nuclear Security Culture," 2008.

4 Merriam-Webster, <http://www.merriam-webster.com/dictionary/compliance>.

support, and adhere to official requirements—the most important being nonproliferation. Looking at strategic trade control from the perspective of culture can help overcome difficulties in fostering compliance. It can help develop specific actions that induce exporters (as well as brokers, trans-shippers, etc.) to embrace and internalize compliance throughout all levels of management.

D) *General Public:* Now that strategic trade control is becoming not just the purview of a few officials in a few countries, but expanding as a legal obligation for all states and for many actors within states, the public also has a role to play in developing a basic level of awareness. How achievable this goal is should not be exaggerated, as the field is technical, but a basic STCC can be adopted by the public through specific steps. A plan to nurture such a culture should be elaborated.

WHAT NEXT?

The next step in building an STCC after identifying the types of institutions and individuals involved is formulating specific measures to be introduced for each actor. As mentioned, considerable work has already been done in other fields that can serve as a starting point for this exercise. But what is necessary first is a consensus on these steps among the strategic-trade-control community. Without some agreement, the support necessary for actually implementing the measures will be tenuous. It is therefore not within the scope of this article to go into detail and come up with answers, but rather to set the stage for further work on the global level to reach consensus on what comprises the international community's common security interests.

Building an STCC reflects the natural progression of the strategic-trade-control field itself, and the process of culture-building can help overcome many obstacles faced in the implementation of UNSCR 1540, and specifically of its paragraph 3[5]. This is tied to the issue of defining what "appropriate" and "effective" means in the resolution's text—that is, what exactly is required for States to comply with the resolution. At present, unfortunately, there is no international consensus. How states implement trade controls varies widely. These disparities are reflected in the capacity-building outreach initiatives carried out by assisting actors. While countries may not agree on specific measures related to trade-control implementation, discussing and defining a common culture is a practical and realistic step forward.

One way to begin the process would be to form a committee made up of international policy, technical, and academic experts in the strategic-trade-control field to examine the feasibility of producing an implementation guide for STCC. Once the feasibility of such an endeavor becomes apparent, next steps would include identifying measures pertaining to each group of actor in the strategic-trade-control field.

A NEW PHASE IN NONPROLIFERATION

Now that resolution 1540 has passed its tenth anniversary, there is a continuing need to keep up the momentum toward compliance culture. Because strategic trade controls lack an overarching international organization charged with implementing, harmonizing, and improving them, they are complicated for countries to implement. Yet progress is being made, and more and more countries now have systems in place. As compliance increases worldwide, a common culture is beginning to take root. This culture—a common culture favoring strategic trade controls—should be identified, discussed, and nurtured on the international level.

5 "*Decides also* that all States shall take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons and their means of delivery, including by establishing appropriate controls over related materials.."

New Delhi Civil Society Forum Identifies Effective Practices for Implementing UNSCR 1540

Ian J. Stewart,
DEPARTMENT OF WAR STUDIES, KING'S COLLEGE LONDON, UNITED KINGDOM
Rajiv Nayan,
INSTITUTE FOR DEFENSE STUDIES AND ANALYSES, INDIA

A civil-society forum for identifying effective 1540 implementation practices was held in New Delhi, India, on February 25-26, 2014. The Institute for Defense Studies and Analyses convened the event in cooperation with the Institute for Strategic Studies, New Delhi, and King's College London, and with support from the UN Office of Disarmament Affairs. Held in the IDSA auditorium, the conference was attended by civil-society experts from five continents.

Taking place close to the tenth anniversary of UNSCR 1540's adoption, the event provided an opportunity for civil society to reflect upon progress, challenges, and opportunities for implementing it at the national, regional, and global levels.

The general mood of the conference was upbeat, recognizing that great progress has been achieved in the decade since resolution 1540's inception. Although much work remains to be done to meet the resolution's objectives, participants evidently felt that these goals remain worthy of their support. They presented a number of innovative ideas for improving implementation. In this spirit, it was notable that the event was held in India, a country once skeptical of supply-side nonproliferation controls. More recently, India has taken significant steps to support the objectives of UNSCR 1540. Indeed, it was recognized at the conference that 1540's objectives benefit—and therefore should be supported by—all stakeholders. Neither governments nor civil society want non-state actors to traffic in or use weapons of mass destruction.

CHALLENGES

Despite the optimistic mood at the conference, both speakers and participants made clear that there are real challenges to meeting 1540's objectives that, unless addressed, could undermine fulfilment of these objectives. Three main themes were identified: political commitment, resource availability, and technical implementation challenges. It was suggested that the advance of globalization and the dynamic nature of the proliferation threat compound the challenges before those striving to put UNSCR 1540 into effect.

Political commitment and resource availability are linked to some extent. In many countries, there are simply more urgent problems than the risk of non-state actors' becoming involved in proliferation. These challenges include war, famine, and other factors that have both security and humanitarian consequences. However, it was suggested at the conference that the involvement of heads of state in the Nuclear Security Summit process shows how increased political commitment can improve the security environment, even in countries where resource availability is limited. Specifically, it was suggested that heads of state can help overcome the interdepartmental barriers that often misalign effort within bureaucracies. Top-level attention also channels more resources into an issue. Likewise, it was suggested that openness to innovative solutions—such as the further involvement of civil society in meeting 1540's requirements—could to some extent counter the challenges posed by a lack of resources.

Technical implementation challenges were raised in most of the presentations given at the conference and in many of the participants' comments. Resolution 1540 requires states to enact a wide variety of measures. While it can be relatively easy to draft a law, practical day-to-day implementation of the law is often more difficult. For example, some requirements for effective export control enforcement include: furnishing clear guidance for industry and the authorities, creating a well-trained bureaucracy, and conducting often complex case-by-case assessments. Much work has

been done to provide training and to produce guidance during the resolution's first decade of existence, yet numerous gaps remain. Specific challenges identified at the conference include how to implement end-use controls at national borders, how to implement controls with support from academic institutions (see below), and how to ensure that industry is aware of and complies with national legislation.

On the subject of industry awareness, several presentations highlighted successful programs aimed at industry outreach. It was suggested that there was more work to do to promote dialogue between government and business on nonproliferation issues[1]. Speakers contended that civil society could play an impartial role in such dialogue. And indeed, as noted in a previous edition of the *1540 Compass*, Project Alpha at King's College London, one of the co-hosts of the Delhi event, has taken on this role since 2011.

These technical implementation challenges, it was suggested, are compounded by the increasingly global business environment and the dynamic nature of proliferation. As a result of globalization and other factors, supply chains are becoming longer and more complex, information is becoming more freely available on the internet, and the supply base for proliferation-sensitive items is spreading. In turn, determined proliferators continue to adapt to changing controls, often using non-state actors to acquire technology through complex supply chains from the expanding global manufacturing base. These factors increase the pressure on those states with the least experience and fewest resources to implement the requirements of resolution 1540, and to prevent proliferation in so doing. Event participants also reported that much of the equipment used at national borders to enforce controls is out of date. Neutron-detector technology that exceeds three decades old is one example.

OPPORTUNITIES

The primary takeaway from the conference was that civil society, if appropriately engaged, can help remedy many of the challenges that governments face in implementing 1540's requirements. There are two principal reasons for this. First, civil society is often able to marshal resources for capacity-building, outreach, and training beyond the means of states with fewer resources. Second, civil society often faces fewer political difficulties in conducting work across borders. It can share expertise and effective practices more readily.

One particular area where conference participants maintained that civil society could play an increased role was in reporting. Presently, nearly two dozen states have still not submitted national reports to the 1540 Committee. Of those reports that have been submitted, the quality and completeness also vary. A primary reason for this relates to the limited resources available within government. Civil society could help lessen the burden on states of preparing reports. It can either help states prepare their reports or monitor implementation.

To render such aid, Alpha at King's College London is developing an experimental crowdsourcing platform through which accredited members of civil society can suggest updates to a parallel version of the 1540 reporting matrices. This tool, while still in its development phases, could provide a practical route through which civil society can contribute to the monitoring of 1540 implementation. (For more information, see http://www.acsss.info.) The tool also provides a searchable mechanism through which to view the information in existing 1540 matrix and national reports.

Improved reporting, possibly with the help of civil society, will be key to the next decade of resolution 1540. Only by knowing how the resolution is being implemented at the national level can capacity-building resources be prioritized effectively.

EFFECTIVE PRACTICES

A primary purpose of the conference was to identify effective practices for implementing the resolution. The role for civil society in identifying such practices is obvious: to date only a few states have recommended effective practices to the 1540 committee as called for in resolution 1977.

Further work is clearly required on certain issues that were explored only partly during the conference. One important area that was raised was controls

1 See also the article by Mr Michael Weiss in the current issue

on intangible technology. At the conference, it was evident that few fully understand how national authorities should go about controlling intangible technology. It was also clear that the academic and research communities are generally unaware of the existence of nonproliferation controls (particularly controls on intangibles), and thus are poorly equipped to implement such controls within research institutions. Specifically, it was recognized that academic freedom must be safeguarded. Progress through generating new knowledge has the potential to make the world a safer place. This leads to the question: how can governments and universities best balance benefits against the risks?

On the subject of academia, it was also recognized at the workshop that universities are well-placed to educate future generations on the risks of technological risks and proliferation. This raises the question of whether universities can bolster nonproliferation norms through the adoption and teaching of codes of conduct and related measures[2].

LOOKING TO THE FUTURE

Because the workshop took place at the tenth anniversary of resolution 1540's adoption, it provided a valuable opportunity for civil society to reflect upon how the resolution's aims can best be realized in its second decade, and ahead of the comprehensive review scheduled for 2016.

To improve implementation in the future, it was suggested that identifying a mechanism for tracking and more fully understanding 1540's implementation should be a priority. It was also suggested that a mechanism should be identified to ensure that civil-society resources are used effectively and efficiently to support the implementation of the resolution's measures at the national level. The conference report makes a variety of recommendations to the 1540 Committee on this and other matters.

The major finding from the conference is that civil society can do more to aid the 1540 implementation. The novel crowdsourcing tool developed by Alpha at KCL and the legislative tools developed by VERTIC provide examples of what civil society can offer. In addition to providing tools and information, however, civil society can also offer assistance to states. These bodies can help draft legislation or national reports, or conduct outreach and training for industry and academia. Governments must fully tap the support and capabilities of civil society if 1540's objectives are to be met. The 1540 Committee should also consider how to ensure that civil society's resources are drawn upon where appropriate.

Planned follow-on activity, including work relating to universities and academia, will also help address outstanding implementation challenges. Building upon the success of this workshop, the authors believe that every opportunity should be taken to engage civil society in the practical implementation of resolution 1540.

2 An event was held in London in November 2014 to fully explore issues related to intangible technology and nonproliferation controls. The event also explored how universities can instill awareness of proliferation risks in future generations.

Why Effective Practices?

Resolution 1540 can be thought of as being goal-setting rather than prescriptive in nature. It tells states what to do, but not how to do it. Since resolution 1540 was adopted, however, it has become apparent that states sometimes need to know more than what goal they have to achieve; they need suggestions on how to achieve it. The purpose of effective practices is to bridge this divide. By knowing how other states have achieved the goals of 1540 in specific areas, it is hoped that each state will be better placed to meet its goals. This principle was included in resolution 1977, which encourages states to submit effective practices to the 1540 Committee.

It should be recognized, however, that there is often no one right answer with regard to national implementation. As such, implementation of effective practices should not be considered an obligation. That said, it could be argued that where states opt not to implement effective practices, they should make known why they are not doing so. Have they found something else that works, or are they failing to address the issue?

Examples of 1540 Effective Practices Identified during the New Delhi Civil Society Forum

Outreach and Capacity-Building

Effective Practice	Description	Implementer
EP1	Regional forums of states on 1540 should create working groups on 1540 implementation.	National authority via regional organizations
EP2	Efforts to appoint regional coordinators should be redoubled in order to coordinate capacity building and share best practices amongst states in the region.	1540 Committee with regional organizations and states
EP16	States use civil society when preparing 1540 implementation reports.	National authority
EP17	States prepare and submit national action plans to the 1540 Committee.	National authority
EP18	Maintenance of an outreach calendar of upcoming 1540 activities by various governments, including those of the United States, Japan, and Germany.	Like-minded states

Industry and Related Engagement

Effective Practice	Description	Implementer
EP10	Manufacturers of particularly sensitive goods conduct due diligence on domestic sales to ensure that their goods are not destined for end-uses outside of the territory, reporting concerns to national authorities where necessary.	Businesses
EP11	Codes of conduct should be adopted by appropriate professional or trade bodies to maximize buy-in from affected organizations and individuals.	Professional and trade bodies
EP12	Codes of conduct should, where possible, be included on education curricula for relevant courses.	Educational bodies
EP14	Publish enforcement actions, including prosecutions, administrative penalties, and no further action letters.	National authority
EP19	Conduct sector-specific outreach activities.	National authority
EP20	Maintain export control guidance, such as “elements of a compliance system” and similar items.	National authority
EP21	Governments maintain a web-based information system.	National authority
EP22	Free e-learning at an “awareness” level on export controls.	National authority
EP28	Free e-learning courses on national laws relevant to 1540 implementation, including on the implementation of export controls.	Anyone
EP29	Sector-specific guidance on compliance with 1540-related issues, including export controls, for the following sectors: academia, manufacturers (including sub-categories), insurers, financiers, and shippers.	National authority or delegated organization

Export Controls

Effective Practice	Description	Implementer
EP3	Publish an export control list based upon the categorization provided in the Wassenaar export control regime or some other international standard.	National authority
EP4	Provide a service to screen end users.	National authority
EP5	Provide industry with assistance to identify the control status of products against the country's control list.	National authority
EP6	Assess export licenses against published criteria.	National authority
EP7	National authority's maintenance of red-flag guidance.	National authority
EP8	Companies maintain an auditable export-compliance system for intangible technology transfers, which includes details of what was transferred, to whom it was transferred, and how it was transferred.	Business sector

Other National Implementation

Effective Practice	Description	Implementer
EP9	That states maintain a "student approval" or "vetting" scheme to ensure that personnel associated with UN-sanctioned WMD programs cannot gain access to know-how through advanced taught or research degrees overseas.	Governments
EP13	That the 1540 Committee endorse the good practice guidelines for corporate social responsibility, as drafted by KCL and British industry, then recognized by members of the Nuclear Suppliers Group.	1540 Committee
EP15	Implement an electronic customs declaration system that is tied to the export licensing system.	National authority

Information Sharing

Effective Practice	Description	Implementer
EP25	Sharing licensing outcomes with the IAEA, and other relevant organizations such as the OPCW, with regards to all WMD-related technology imports and exports.	Licensing authority
EP26	Sharing of denial notifications for export license refusals.	Licensing authority
EP27	Publish case studies involving noncompliance or illicit trade in order to alert business to compliance risks and challenges.	Anyone
EP23	Maintain an anonymous communications route through which industry can share suspicious inquires with the appropriate authorities.	National authority

Continuation of the Wiesbaden Process Promotes Exchange of Best Practices to Fight Proliferation Risks — Meeting Proliferation Threats with Effective Compliance Management Systems

Michael Weiss,
EU-OUTREACH PROJECT ANALYST, GERMAN FEDERAL OFFICE OF ECONOMIC AFFAIRS AND EXPORT CONTROL (BAFA)

During the last couple of years, the so-called Wiesbaden Process initiated by Germany has become a well-known buzzword for government-industry cooperation that has gained prominence in the nonproliferation and export control communities. This process is based on the very fact that private industry plays a significant role in effective implementation of nonproliferation efforts, notably those proceeding under the auspices of UNSCRs 1540 and1977. Given the evolution of new, multifaceted threats in an interconnected, globalized world, the role of private industry is becoming even more important.

The reason why is simple. The private sector is able to provide government officials and regulators with crucial expertise and practical input that is urgently required for identifying effective implementation practices. From this perspective, the industry should be considered a key partner for successfully addressing proliferation risks. Authorities are well-advised to listen to the private sector's know-how and practical experiences if they are to create regulatory frameworks that actually work without hampering business operations. Therefore, states' efforts to work with relevant industry sectors on nonproliferation efforts constitute a key issue of which the international community should be aware.

To provide a regular exchange of views from both ends of the public-private-partnership, the Wiesbaden Process—named after the German city where the first conference took place—was established by Germany, which has taken to hosting a regular series of annual Wiesbaden Conferences for dialogue between the 1540 Committee, governments, and regulators on the one hand and industry representatives on the other hand. While the first Wiesbaden Conference in 2012 aimed at strengthening the partnership between government and industry in general, the subsequent, 2013 conference focused on detailed aspects of UNSCR 1540 implementation in the area of biosecurity.

The most recent conference, on November 20-21, 2014, carried on the Wiesbaden Process tradition by focusing on nonproliferation-related compliance strategies and management within companies. The two-day event, entitled "Nonproliferation Risks: Governance and Compliance Management—Dialogue with Industry in Support of UN Security Council Resolution 1540 (2004)," was hosted by the German federal government in cooperation with the UN Office for Disarmament Affairs and the European Commission's Outreach in Export Controls of Dual-Use Items Program, the latter being implemented by the Federal Office for Economic Affairs and Export Control.

The goals of the conference were:

- Facilitation of eye-to-eye dialogue between industry and regulators.
- Providing a global forum for dissemination of best or effective industry nonproliferation-related practices and experiences across different sectors.
- Informing governments about current industry trends and industry compliance practices in the area of nonproliferation.
- Helping regulators provide better guidance.
- Enhancing awareness and understanding of cross-sectional nonproliferation strategies.

The 2014 conference brought together private actors from numerous industry sectors affected by UNSCR 1540-related controls and regulations. Representatives from the nuclear, biological, and chemical fields, aerospace engineering, telecommunications and information technology, and the transport sector appeared glad to share their sector-specific challenges and debate how to address them. The majority of the approximately 70 participants represented industry associations and initiatives, as well as global enterprises operating in multiple jurisdictions. Representatives from AREVA, Commerzbank, General Electric, Lufthansa, Phillips, and Rolls Royce took part. Regulators and academics from many different countries contributed to the conference's balanced mix of participants, letting them carry on in-depth discussions of effective practices.

Ambassador Oh Joon, Chairman of the 1540 Committee, opened the conference by stressing the need for continuous dialogue between industry and regulators and commending the Wiesbaden Process that has proved so successful in the past. It was obvious that participating companies are well aware of nonproliferation-related compliance risks and supportive of UNSCR 1540. One industry representative poignantly remarked that "risk is there and it seems to be there to stay. We are obliged to recognize it, devise and implement measures that reduce it, and remain vigilant that our procedures ensure the best compliance with the rules in place." The current situations in Ukraine, Syria, Libya, and Iraq, recall the rationale for UNSCR 1540 and the importance of further implementation efforts.

Government and industry representatives shared the view that endeavors to prevent WMD proliferation require fostering a common understanding of nonproliferation on the global level. Organizational culture was identified as a key driver for nonproliferation efforts. Government and industry should cooperate closely to support nonproliferation-savvy organizational cultures and raise awareness throughout the supply chain. Moreover, the risk of seeing a firm fall into disrepute was identified as a key motivation for compliance efforts. In general, shareholders and the public are wary of the slightest chink in a company's reputation, Noncompliance thus carries potentially detrimental financial consequences for the organization affected.

In several informative presentations, industry representatives outlined the complex regulatory backgrounds of the jurisdictions in which they operate, along with effective practices set forth in their compliance strategies. They also described the challenges unique to their sectors. For example, the nuclear industry reacted to increased scrutiny and fears of terrorists' acquiring WMD after the 9/11 attacks in 2001. Industry leaders took proactive efforts to

address nonproliferation-related concerns—not least for institutional self-protection. At the same time, the transport industry had to develop sophisticated strategies and systems to screen critical shipments.

The varying levels of resources and expertise available for WMD proliferation control in different countries remain a major challenge. There is an urgent need to strengthen regional initiatives to meet the minimum requirements for effective nonproliferation policy.

In order to be effective, moreover, internal compliance programs must be adapted to the size and scale of the individual business. Small and medium-sized enterprises in particular require more support. In that regard, industry representatives suggested that government authorities provide more resources to the private sector for industry outreach activities.

Concerning the important challenge of information-sharing, one speaker declared that "the changing patterns of modern trade are rapidly breaking the dimensional barriers to trade access." The slogan "know your customer," therefore, has become increasingly important. Enhanced cooperation is required to identify mechanisms "how to better harvest valuable intelligence that comes in the form of suspicious inquiries which are never actually acted upon by industry recipients." As a result, there was agreement among industry representatives about the value of information-sharing among affected companies and of establishing trust and security throughout the supply chain. In that context, making data available is of crucial importance in addressing proliferation risks. It was stressed that "companies can act as the first line of defense against proliferation, as they are in the best position to recognise suspicious orders."

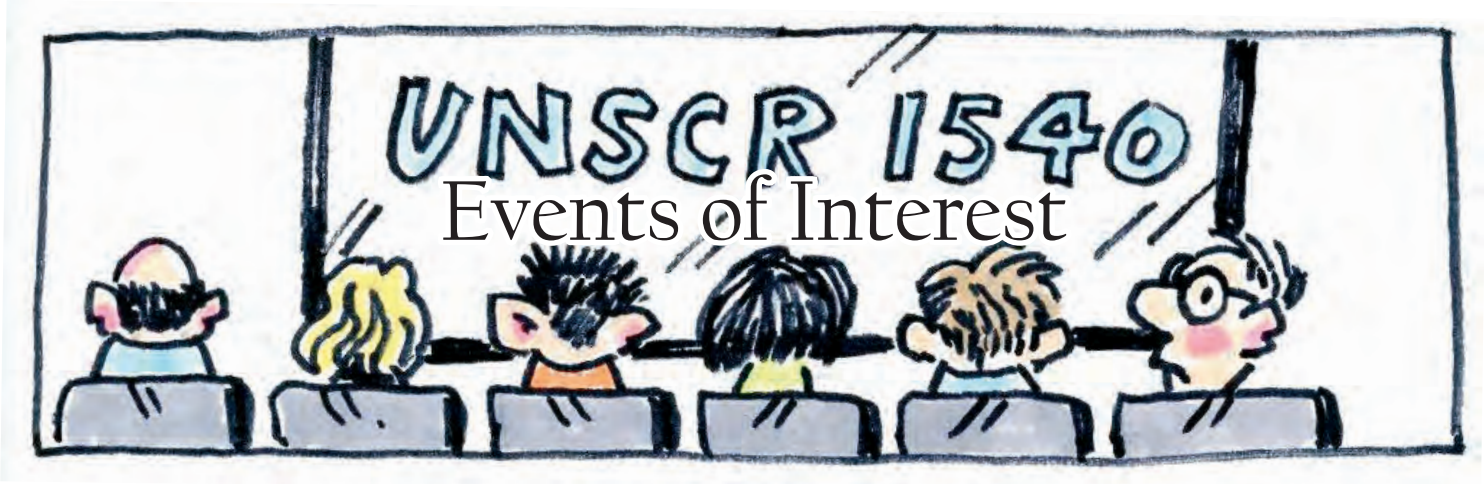
Industry representatives also addressed their needs and expectations and what they wanted governments to deliver. Many speakers called for more clarity and greater standardization of legislation, especially with regard to control lists. Industry demands practical, clear, implementable, and enforceable regulating frameworks. Keeping it clear and simple was a recurring theme in discussions about effective compliance practices. One speaker advocated that WMD non-proliferation compliance become "part of the DNA of global trade."

Participants criticized the myriad of international regulations that are implemented differently across the globe. More consistent approaches and standards are required to balance market disparities and create a level playing field. More precisely, as one participant put it, "consistency, predictability, and common standards are really important concerns for industry, and obviously it is of high importance to find a balance between the security concerns and economic efficiency and profit-making." Consequently, the private sector should be included early in drafting and setting international regulations or even sanctions. At the same time, regulators should consider introducing incentives or rewards for outstanding compliance efforts.

Continuing work on fighting proliferation and ensuring safety and security in trade remains an undertaking that must be mastered by a common approach

among all stakeholders involved, most importantly regulators working in concert with the private sector. All speakers emphasized the implications of current international crises for UNSCR 1540 implementation and welcomed the contribution of the Wiesbaden Process to raising awareness about proliferation risks on the global level. Continued dialogue between industry and government authorities—on both the local and the international levels—was repeatedly suggested.

Close and trustful cooperation among businesses and industry associations, governments, and regional and international organizations remains a key factor for success. What about the near future? Many participating companies hailed the idea of creating a global industry compliance network. Ideally, different networks should be either linked or consolidated to make them more effective. In any case, the Wiesbaden Process will continue pursuing its main goal: to unite officialdom and business behind the cause of nonproliferation.



Events of Interest

Date	Title	Organizer(s)/ Sponsor(s)	Location
2-3 March 2015	NATO Annual Conference on WMD Arms Control, Disarmament and Non-Proliferation	NATO	Doha, Qatar
16-19 March 2015	1st International Conference on CBRN Research and Innovation	CEA, DGA, IRBA, SDIS06, Univ Nice	Juan-les-Pins, France
17-18 March 2015	The 7th Biodetection & Biosensors 2015 conference	SELECTBIO	Berlin, Germany
23-26 March 2015	BioTerrorism Prevention Unit, Project RHINO	INTERPOL	West Africa
24-25 March 2015	SECUREX West Africa	UBM Montgomery Pty Limited, Lagos, Nigeria	Lagos, Nigeria
7-8 April, 2015	CARICOM 1540 Programme-CDEMA-OPCW Symposium on the Establishment of a Chemical Emergency Response and Management Framework	CARICOM	Port-of-Spain, Trinidad &Tobago
11-17 April, 2015	CSCM – World Congress on CBRNE Science & Consequence including a workshop on information technologies for safety systems & crisis management in chemical industry (11 -12 April)	World Congress on CBRNE Science & Consequence Management, in coordination with, and under the auspices of the Government of the Republic of Croatia	Zagreb, Croatia
20-24 April 2015	Advanced Training Course: Regional Cooperation in CBRN Response and Preparedness	NATO SPS	Montana, Bulgaria
21-22 April 2015	World Counter Terror Congress	Supported by Home Office, UK	London, UK

Date	Title	Organizer(s)/ Sponsor(s)	Location
22-24 April 2015	CARICOM 1540 Programme-Caribbean Maritime Institute National Seminar on Port & Maritime Security	CARICOM	Kingston, Jamaica
26 April 2015	INMM/ANS Workshop on Safety-Security Risk-Informed Decision-Making	INMM	Sun Valley, USA
30 June-2 July 2015	Global conference on Biological Threat Reduction	OIE	Paris, France
14-16 September 2015	INMM Vulnerability Assessment Tools Workshop	INMM	Boston, USA
19-21 October 2015	3rd International Symposium on Development of CBRN-Defence Capabilities	Under the auspices of the German Federal Ministry of Defence, supported by the German Federal Ministry of the Interior, the Bundeswehr CBRN-Defence Command, the Federal Office for Civil Protection and the CBRN-Defence Working Group of the German Army Association	Berlin, Germany
16-18 November 2015	Global Chemical Safety and Security Summit	ICCSS under auspices of the Ministry of Economy of the Republic of Poland	Kielce, Poland

The 1540 Compass
Center for International Trade & Security
120 Holmes/Hunter Academic Building
Athens, GA 30602
USA

Holmes/Hunter Academic Building, University of Georgia

The 1540 Compass is a publication of the Center for International Trade & Security at the University of Georgia

The Center for International Trade & Security's mission is to mitigate the global spread of nuclear, biological, and chemical weapons. The Center carries out this mission by researching the dynamics of arms trade control, training government and industry representatives to implement policies that limit the spread of these weapons, and educating students in the discipline of nonproliferation and international security. With offices on the University of Georgia campus and in the U.S. capital, CITS bridges the worlds of research and policy, bringing the best of each to the other.

706-542-2985 http://cits.uga.edu

Contact the Compass:

http://cits.uga.edu/publications/compass

Editor in Chief: Igor Khripunov
i.khripunov@cits.uga.edu

Managing Editor: Christopher Tucker
c.tucker@cits.uga.edu