1540 COMPASS

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UN Photo/JC Mcllwaine

UNSCR 1540 Review Conference

- Two Years before the Mast, HE Mr. Roman Oyarzun Marchesi
- Discussion Forum: UNSCR 1540 Priorities for the Next Five Years

1540 Compass

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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.

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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.

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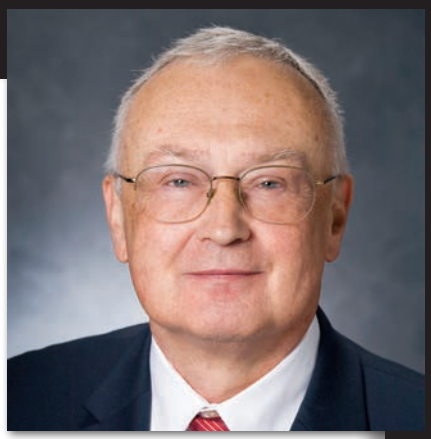

Welcome to issue 11 of 1540 Compass!

This issue concentrates on the UN Security Council resolution (UNSCR) 1540 Review. The entire year was filled with events designed to help the international community take stock and chart a path to traverse another five-year period. Looking back, two main themes reverberated through UNSCR 1540-focused discussions.

First, implementing UNSCR 1540 increasingly hinges on whether all stakeholders have a chance to contribute and what form the opportunities take. For example, protagonists to 1540-related debates repeatedly implored "civil society" to make a long-term commitment to executing the resolution. Civil society embraces nongovernmental institutions such as industry, academia, professional associations, and the public. UNSCR 1540's strength resides in its mandatory legal status for all States. But how can friends of nonproliferation enlist nongovernmental stakeholders whom the resolution does not bind? What incentives attract their support when the force of law is lacking?

Secondly, the 1540 Committee extended the resolution's mandate by ten years. Where do we stand at the halfway point of the renewed mandate? Are there any signs that the resolution has become a powerful tool for weapons-of-mass-destruction (WMD) non-proliferation and a barrier to prevent WMD from falling into the hands of nonstate actors? For this issue of 1540 Compass, we invited readers to share their visions of what needs to be accomplished under the resolution in the next five years. Specific topics raised in this issue's Discussion Forum range from training and awareness-raising to export control and nuclear security.

I hope you enjoy reading issue 11 of 1540 Compass.

IGOR KHRIPUNOV
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Two Years before the Mast

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OF SPAIN TO THE UNITED NATIONS, NEW YORK

INTRODUCTION

The United Nations Security Council adopted resolution 1540 in 2004 at a time of grave concern about the threats of proliferation of nuclear, chemical, and biological weapons and their means of delivery. Illicit trafficking in materials related to WMD and the risk that nonstate actors might acquire, develop, traffic in, or use WMD, in particular for terrorist purposes, heightened this concern. In 2004, these concerns coalesced. The Security Council used its authority under Chapter VII of the Charter of the United Nations to obligate all member states to take steps designed to keep these threats from being realized.

Resolution 1540 is part of the international nonproliferation regime. But it is not merely an addition. It strengthens the regime by making important features of other international instruments applicable to all member states; by filling in important gaps in the coverage of other instruments with respect to actions by nonstate actors; and by requiring member states to implement robust domestic controls on materials related to weapons of mass destruction and their means of delivery in a manner absent from other international instruments.

I became Chair of the 1540 Committee at the beginning of 2015 and am now near the end of my two-year tenure. Like Richard Dana, who recorded his voyage at sea in Two Years before the Mast, my "voyage" has been challenging and demanding. His experience was harrowing. Fortunately, mine was not.

Indeed, it has been a rewarding two years and much has been accomplished, especially in the course of completing a Comprehensive Review of the status of implementation of the resolution. At the time of writing, the review is not complete, nor has the Security Council adopted an anticipated new resolution that will address how to move forward and enhance implementation of resolution 1540.

In this article, therefore, I will share with you, in my national capacity, some of the things that I have learned during my tenure and some of my own thoughts about how to move ahead. I will read this article with interest when it is published, for then I will be able to compare these thoughts with the outcome of the Comprehensive Review and the decisions made by the Security Council regarding resolution 1540.

ROLE OF RESOLUTION 1540

It is not often remembered that when it was adopted, the resolution was seen by some as an unfortunate example of the North imposing new requirements on the South, indeed, dictating their domestic law. For example, the Final Document of the Non-Aligned Movement's Ministerial Conference in 2004 called on its member states to support international efforts to prevent terrorists from acquiring WMD and their means of delivery and urged them to strengthen national measures to prevent

terrorists from acquiring WMD. But it also included a caution from the ministers "against a practice where the Security Council utilizes its authority to define the legislative requirements for member states in implementing Security Council decisions."

One leading member of the Non-Aligned Movement went so far as to say 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 [its] constitutional provisions and procedures, or are contrary to [its] national interests or infringe on its sovereignty."

I remember these tensions very well. Spain was a member of the Security Council, and I was a member of the Spanish Permanent Mission to the United Nations in New York at the time the resolution was adopted.

When I reentered the world of 1540, becoming the Chair of the 1540 Committee in January 2015, I found that it was entirely otherwise—a welcome finding. Resolution 1540 is recognized as an important element of the international nonproliferation regime, and support for its implementation is worldwide.

Is there evidence for this? For sure! One hundred and seventy-six states have provided initial reports to the 1540 Committee on their implementation of the resolution, and many have provided more than one. At the open consultations held by the 1540 Committee in June 2016, fifty-eight member states made formal interventions supporting implementation of the resolution. Of note is the intervention in 2016 of the state cited above. In contrast to its earlier statement, it aligned itself with the call of others for the "full and effective implementation of resolution 1540 (2004)" and stated that "Resolution 1540 is still one of the most important instruments in preventing nonstate actors from gaining access to nuclear, chemical or biological weapons and their delivery systems."

Support is also evident at the regional level. At the June 2016 open consultation, statements supporting implementation of the resolution were made by the African Union, the Commonwealth of Independent States, the European Union, the Organization of American States, and the Organization for Security and Cooperation in Europe. The League of Arab States and the ASEAN Regional Forum have also issued statements supporting implementation of resolution 1540.

It is clear to me that in 2016 there is little if any divide between states about the importance of full and effective implementation of resolution 1540. States recognize that, unfortunately, proliferation and terrorism are problems confined to no one region or group of states. Implementation of resolution 1540 is seen as an important part of the solution to these problems.

I welcome the fact that this view is also held in civil society. Fourteen participants from civil-society organizations, including industry, NGOs, and academia made formal interventions at the open consultations. Industrial enterprises, large and small, participated in a multi-year exercise, the "Wiesbaden process" organized by Germany, with the goal of enhancing the effectiveness of their controls on related materials.[1] Many NGOs and universities have organized meetings to address issues related to implementation of resolution 1540.

COMPREHENSIVE REVIEW

The challenges of 2004 have been further complicated by the dynamism and pace of change in science and technology. As wonderful and beneficial as they might be, improvements in science and technology and new discoveries—for example, new and simplified means of genetic manipulation—may enhance the abilities of both states and nonstate actors to misuse these developments to threaten us with WMD. Globalization and the extraordinary increase in the ability to store and transmit information at almost no cost make the effective control of intangible technology transfers more important but also more difficult.

The relentless increase in the threat of terrorism is obvious to all. We live in a time where terrorist groups are widespread and well-organized, use sophisticated communications tools, control territory, and have substantial financial resources at their disposal. Their penchant for extreme violence puts them outside acceptable norms of behavior. Altogether, the risk that nonstate actors will obtain

and use nuclear, chemical, or biological weapons has increased.

We are well aware that we are reacting to risks that are not merely hypothetical. The Security Council is seized of the use of chemical weapons in Syria, and many reports from reliable and knowledgeable sources make it clear that ISIL has a chemical-weapons program and is developing improvised devices drawing on available technology and materials. We know that ISIL has used chemical weapons in Iraq and also that if terrorists had the opportunity and capability to do so, they would not shrink from using a weapon of mass destruction.

It is against this background that, in 2011, the Security Council requested the 1540 Committee to undertake a Comprehensive Review of the implementation of resolution 1540 and to submit a report to the Security Council detailing the conclusions of the review before December 2016. We started the review last year, and I can assure you that it has consumed a great deal of the time of the Committee and its Group of Experts.

In the course of this review, the Committee consulted with member states, international and regional organizations, parliamentarians, and appropriate sectors in civil society, in particular industry and academia. In addition, the review took advantage of profiles of 193 states (the so-called "matrices," as revised in 2015) that depict the measures each has taken to fulfill its obligations under resolution 1540.

At the time of this writing, the Comprehensive Review is not complete. Nonetheless, I can say that our preliminary efforts have illuminated our understanding of the status of implementation of the resolution and suggested ways to move forward toward its full and effective implementation.

Because the Comprehensive Review is not complete, it is not possible to speak for the Committee. The following reflects my sense of where we are and what I have learned since I became Chair of the Committee in 2015. Let me first describe where we are.

The first point I would make is that the status of implementation is improving. More improvement is needed, but I expect to see it happen at a steady pace. One reason for my confidence is that, as I observed above, many states have adopted implementation of the resolution as an important national objective. Seventeen states have not submitted reports to the Committee on the measures they have taken, but 176 have, and many have submitted more than one. The development and adoption of voluntary National Implementation Action Plans, furthermore, is on the increase.

As noted above, many international, regional and subregional organizations support the resolution. Nineteen made formal interventions at the open consultations, which I welcomed. Such inputs contribute in important ways to implementation of resolution 1540 by providing relevant advice, training, and capacity-building assistance to member states.

We have learned that regional approaches are effective. For example, the decision by the African Union in 2013 to request the Commission of the African Union "to further promote and enhance the implementation of resolution 1540 (2004) in Africa" was quickly followed by a significant increase in the participation of states in Africa in 1540-related events, and in their implementation of the resolution. This is an excellent example of the valuable role that regional "champions" of UNSCR 1540 can play in promoting and facilitating implementation.

One area to be addressed is that progress is not uniform along two dimensions. One dimension is regional. In areas or regions where national development is relatively weak, so too is implementation of the resolution. As noted above, regional or subregional approaches provide added value. This speaks in favor of greater collaboration between the Committee and relevant regional organizations, both to provide the Committee with greater insight into shared needs and to achieve efficiencies in meeting them.

The other dimension is substantive. There is a distinct differential in how thoroughly UNSCR 1540 has been implemented in the nuclear, chemical, and biological domains.

I suspect that one reason for this is that international instruments and organizations in the nuclear, chemical, and biological sectors have sharply different characters. These stem in part from intrinsic

differences between the science and technology involved, as well as their scales of operation and deployment.

One consequence of these differences is that the IAEA has longstanding programs of assistance in the nuclear sector; the Organization for the Prevention of Chemical Weapons provides support with respect to chemical controls, but with fewer resources than are available to the IAEA; and no comparable mechanism is available in the biological sector. Indeed, the nature and ubiquity of biological activities in commerce and academia present special challenges.

Recognition of these two areas of differentiation should help guide the Committee in establishing priorities for attention. Careful consideration should be given to possible means to narrow these gaps.

But there is another area of differentiation that should be addressed. It is self-evident that states differ, and greatly so. Yet some members of the Committee have observed that these differences are not reflected in the tool that the Committee uses to gauge the status of implementation, the 1540 matrix. (The matrices for almost all of the 193 states we reviewed in 2015 are on the Committee's website.) I am not talking about, for example, the rich diversity of cultural, linguistic, or religious differences, but rather about meaningful differences that are measurable and relevant.

Do such differences exist, and is there a way to depict the status of implementation in a way that reflects them? I think so.

The most straightforward example of a meaningful and measurable difference is the one between states with nuclear fuel cycles and nuclear research installations and states that do not and have no plans to pursue them. In the latter case—if a state has no nuclear material—what is to be done to satisfy the resolution's obligations to, for example, account for and secure it during production, use, storage, or transport, or to develop and maintain effective physical-protection measures for it? In such cases UNSCR 1540's obligations have been satisfied without specific action, other than having a relevant IAEA Safeguards Agreement or a Small Quantities Protocol. (Of course, states must fulfill the obligations of these and other international instruments to which they are parties.)

Differentiation in the nuclear field could therefore be based on an objective criterion that relies on a decision from the IAEA Board of Governors to approve a Small Quantities Protocol. In another context, in fact, the IAEA has adopted a phrase that describes this well: "differentiation without discrimination." Such circumstances could be better reflected in the 1540 matrix, so as to provide a better sense of whether the situation in a given state is satisfactory.

The situation is more complex in the chemical and biological areas, where there are currently no clearly developed criteria as in the example above. But there is value in exploring the extent to which meaningful, objective criteria could be developed in these areas. I suspect it would be possible.

I should emphasize, though, that with regard to the prohibitions in Operative Paragraph 2, there is no such difference between states. Without diminishing the difficulties of doing so, all states can adopt legislation. Where needed, doing so should be given attention right away. The result is meaningful and, unlike implementation of domestic control systems, there is no question about sustainability. The analysis of matrices, in fact, reveals that states have generally proceeded in this way even as it also reveals that more is needed.

With respect to domestic controls, resolution 1540 is unique. No other international instrument requires a system of controls as robust as the one required in resolution 1540—a system robust in both its scope and coverage. The scope includes requirements to account for and secure related materials; to develop and maintain physical-protection measures and border controls; and to enforce national controls on exports, transit, and transshipment as well as related funds and services. Unlike most other international instruments, coverage extends to technology, in addition to materials and equipment. And the definition of "related materials" expands the types of materials and equipment to be controlled well beyond the types covered by other international instruments.[2]

Resolution 1540, moreover, applies to all states. At first glance, the controls required by Operative Paragraph 3 may not seem to be relevant to states that do not use or manufacture related materials, either at all or not in significant ways. However, this impression is wrong. Nonstate actors might use any state as a

route for illicit trafficking or for export, transit, transshipment, or reexport of related materials for prohibited purposes. No state is completely immune to serving as a place where nonstate actors can take advantage of legislative and regulatory differences or shortfalls in implementation to accomplish their ends.

As a result, it would be of significant value if all states put in place the legal and regulatory basis for border and export control. In addition, this speaks in favor of national control lists that align with relevant multilateral treaties and arrangements. This will help ensure that nonstate actors cannot obtain, traffic in, or broker materials, equipment, or technology by bypassing such controls elsewhere. Although these ideas have not been explored in detail during my chairmanship, I think they are well worth the Committee's attention in the future.

I would like to note that even where implementation of the resolution is literally a "paper exercise"—namely the adoption of implementing legislation—it still improves our ability to combat terrorism, both directly and indirectly. It bolsters counterterrorism directly through the legislation and domestic controls that are put in place, and indirectly by helping to ensure that nonstate actors who violate them can find no safe haven. When legislative and implementing rules and regulations are uniform, that uniformity facilitates extradition of violators for prosecution if they are not otherwise prosecuted.

While I recognize the progress that has been made, let me not be seen as looking entirely through rose-colored glasses. Improvement is needed everywhere, but there are distinct regional differences. These reflect, in part, differences in the human, technical, and financial resources available to implement the resolution. They also reflect the point made above—that states differ significantly in the extent to which they produce or use "related materials." As outlined above, this is illustrated most clearly in the nuclear area. Because of these differences, states that do produce and use related materials have historically been more aware of the need to control them. As a result, when resolution 1540 was adopted in 2004, they had a head start in implementing its obligations. Even so, many states with a head start still have some way to go to achieve full implementation.

Because of these differences, accomplishing the objective of full implementation of the resolution is a long-term task that will require continuous attention at the national, regional, and international levels, along with sustained and intensified support from the Committee and continued bilateral programs of assistance.

ASSISTANCE

There is no doubt that some states require assistance in implementing the resolution. It is essential to find means to provide such assistance if we are to realize our long-term goal.

Since its inception, resolution 1540 has recognized that some states may require assistance in implementing its requirements, and has invited states that are in a position to do so to offer assistance in response to requests from states that need it. Since 2004, 59 states and 2 regional organisations have requested assistance through the Committee. The Committee has received 45 official, positive responses to these requests, which came mainly from international organizations.

While this is not very many, the Committee recognizes that there are more than a few bilateral assistance programs in operation, including in states that have requested assistance to the 1540 Committee. It must be recognized, too, that international organizations play a very important role in building 1540-relevant capacity in their regular programs, in addition to responding positively to assistance requests.

There are very few examples of responses that have addressed the specific aspects of requests that have come in, even when the assistance has actually been provided. Not surprisingly, bilateral assistance programs are generally concentrated in a limited number of states. This illustrates why enhancing the Committee's ability to facilitate assistance is so important.

To do so, though, we need to admit that a significant number of requests are not specific enough or technically sound enough to be adequately considered. Ways should be found

to meet this challenge, and thereby enhance the Committee's ability to facilitate assistance.

It is not too hard to think of means by which the process could be improved. For example, establishing a dedicated allocation of funds would allow for financing of selected programs by relevant international organisations. It would allow for the joint development, alongside international organizations, of assistance projects to help states fulfill their 1540 obligations promptly. And it would make possible regional approaches, chiefly through convening regional assistance conferences that provide a real platform for matchmaking. (Regional approaches can improve efficiency and effectiveness by identifying regional needs and priorities and meeting them regionally, or subregionally, rather than on a case-by-case basis.)

One of my regrets is that during my tenure, the Committee did not find better ways to enhance its ability to match requests for assistance with potential providers of such assistance.

LOOKING AHEAD

The Committee needs to maintain the momentum of its current mode of operation. Openness and transparency are valued by member states, and the voluminous records that depict the work of the Committee and its Group of Experts are available to all on its website (http://www.1540.org).

The Committee's collaborative approach needs to continue through dialogue and cooperation with member states and international and regional organizations, as well as with relevant sectors of civil society.

A problem common to all requires not only that states fulfill their responsibilities but also that others support their efforts. For example, donors must share their experiences and, where possible, provide financial and technical support.

I have seen firsthand the importance of direct interaction among the Committee, its Group of Experts, and individual states. Such interactions provide an invaluable opportunity to identify implementation gaps, contribute to better understanding of progress made by the state toward implementing the resolution, and help states to establish priorities. To realize these benefits, the Committee should be more proactive in encouraging such invitations. A visit to a state should be seen as the beginning of a series of engagements between the Committee and its Group of Experts and that state to facilitate its implementation of the resolution.

We see that states use these outcomes as inputs for developing National Implementation Action Plans. Although voluntary in nature, these plans have the potential to act as an important confidence-building measure, demonstrating states' commitment to implementing the resolution. This is especially so for states that have, on balance, relatively fewer identified implementation measures—and thus fewer opportunities to show good faith.

Given these benefits, it would be advantageous to member states for the Committee to increase its interaction with states during the drafting of National Implementation Action Plans. Specific international or regional organizations could be of assistance in specific areas of implementation, such as nuclear, chemical, and biological security measures and export controls. An area not yet fully addressed is continuing dialogue and interaction that focuses on the progress of implementation, assistance required, and the timely identification of future actions.

The phrase "identified implementation measures" refers to the 1540 matrix, which is the tool used by the Committee to assess how well a state is implementing the resolution. Each matrix provides a snapshot of the status of a state's implementation. The information gained from the matrix indicates where assistance is needed, identifies areas where fewer measures have been taken, and reveals areas where engagement by the Committee could add value to implementation efforts. (The observations above about differentiation among states and the input data for the figures were drawn from national 1540 matrices.)

The matrix data constitute a unique database of nonproliferation measures states have taken. It would be beneficial to consider developing a simplified matrix that focuses on the resolution's core obligations and takes differentials among states into account. This would provide a better understanding of individual states' progress. Of course, taking

advantage of modern information technology in acquiring, analyzing, and displaying data will work to our advantage.

Overall, visits to states and the opportunity provided for direct dialogue with officials involved in implementing the resolution have enhanced and supported states' efforts to strengthen their capacity to implement resolution 1540. It would be valuable for the Committee to pursue these interactions more actively, especially where they provide the most value.

We need to continue to recognize the importance of engagement between the Committee, member states, and relevant sectors of civil society, where appropriate.

States in a position to do so should consider voluntarily contributing to international organizations directed towards enhancing implementation of resolution 1540. In particular, they should respond to assistance requests whenever possible.

Implementation of UNSCR 1540 is complex. The resolution cannot become a fully effective instrument unless all relevant entities play supportive and effective roles. Central, of course, are states. They have direct responsibility implementing it. However, key roles are played by international and regional organizations and civil society, including industry. Scientists and engineers must remain alert that transfers of intangible technology are consistent with the objectives of resolution 1540.

NEXT-TO-LAST THOUGHTS

It is important to recall that resolution 1540 is a nonproliferation instrument that has secured its place in the weapons-of-mass-destruction nonproliferation architecture. With its focus on nonstate actors, it plays an important role in closing gaps in the array of relevant treaties and legal instruments. Its success depends on states implementing their obligations effectively, and on collaboration among member states with support from international, regional, and subregional organizations.

The breadth of the obligations imposed by UNSCR 1540 requires engagement from all stakeholders—nationally and internationally. The resolution is designed to prevent the catastrophic outcome of WMD use by nonstate actors. The investment of political will and resources now will be worthwhile it if it helps prevent a disaster that costs far more in humanitarian and economic terms later.

FINAL THOUGHT

We all need to do our part to make resolution 1540 a success. I plan to continue to devote my energies to doing so. I am ready to spend more than "two years before the mast."

I trust that you, dear readers, will do the same.

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1 The Republic of Korea is initiating a similar exercise for industrial enterprises in Asia.

2 It is not a coincidence that the Conventions for the Suppression of Unlawful Acts against Maritime Navigation and Civil Aviation also cover materials, equipment, and technology in the context of maritime and civil air transport. They were negotiated after Resolution 1540 and, in part, address the transport requirements of resolution 1540 with respect to sea and air traffic.

1540 COMPASS

DISCUSSION FORUM

UNSCR1540 PRIORITIES FOR THE NEXT FIVE YEARS

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.

UNSCR1540 and the Global Partnership: A Complementary Agenda to Prevent Global CBRN Proliferation

THE GLOBAL PARTNERSHIP AGAINST THE SPREAD OF WMMD

The Global Partnership (GP) against the Spread of Weapons and Materials of Mass Destruction (WMMD) was meant to ameliorate this baneful legacy of the Cold War, in particular in the former Soviet Union (FSU) space. In the ten years after Kananaskis, the 2002 summit at which the G-8 instituted the Global Partnership, the GP moved from large-scale projects in the FSU—notably dismantling decommissioned submarines and destroying vast chemical-weapon stockpiles—to a multitude of small-scale projects on the worldwide level. Furthermore, the GP concentrated the attention of the international community on countering the potential spread of WMMD-related knowledge and dual-use expertise, and on raising chemical, biological, radiological, and nuclear (CBRN) nonproliferation awareness in the global scientific community through engagement strategies that harnessed the global scientific community, education and training, and proliferation awareness.

The GP has recorded an impressive array of achievements since its inception at the Kananaskis summit. In 2014, however, Russia was suspended from the G-8, leaving the GP a multilateral instrument of the G-7. While there was a range of views among partnership countries regarding the approach the G-7 GP should take after 2014, two chief priorities have emerged: to develop a portfolio of concrete projects with a global focus, and to widen the partnership to new countries. Many of the new projects are likely to have a strong training and educational focus, and to cost considerably less than the multimillion-dollar projects that characterized the partnership's work for the first decade after 2002.

THE UNSCR 1540 AND GP RELATIONSHIPS

The 2011 G-8 summit in Deauville, France, highlighted the role that the GP should play in facilitating the implementation of UNSCR 1540, since executing many of the GP's concrete projects offers a chance to enhance and further develop the 1540 resolution's objectives. Many of the projects, including those supporting 1540 priorities, will require access to expertise as much as to direct funding. Collectively, the GP partners enjoy significant resources—including diplomatic influence, technical expertise, and financial resources—to assist countries prepared to strengthen and enforce legal and regulatory measures against the proliferation of WMD or delivery systems to nonstate actors.

GP partners with strong legislative frameworks and the technical expertise required to prevent CBRN proliferation are well-placed to provide support in the context of resolution 1540. Furthermore, the voluntary, flexible, and non-legally-binding nature of the GP provides an appropriate framework to implement the objectives of UNSCR 1540 through tailored, coordinated involvement of several stakeholders, running from the GP partners to the relevant regional, multilateral, and international organizations.

1540-EU WORK THROUGH REGIONAL PILOT PROJECTS ANCHORED TO THE EU COE INITIATIVE

It is important to establish regional "pilot projects" with a few key countries that require support, are keen to comply with resolution 1540, and welcome help from G-7 GP members as providers of technical expertise, proliferation awareness, capacity-building, and legal advisory assistance.

Launched in 2010, the European Union's CBRN Risk Mitigation Centers of Excellence (CoE) initiative and CoE Regional Secretariats (RSs) supply a concrete framework to promote such collaboration. Namely, the EU CoE RS structure could foster pilot projects in each RS region aimed at analyzing regional legal structures, needs, and gaps, and determining how to modify laws to advance the objectives of UNSCR 1540 and the Global Partnership. The GP partners could offer guidelines and methodology, even apart from expertise, to bring this about. Furthermore, a "gift basket" mechanism similar to the one established at the 2010 Nuclear Security Summit, could furnish the necessary capacity-building and training resources.

EU CoE Regional Secretariats could act as catalysts for these regional pilot projects, as well as vehicles to harmonize underlying cultural, social, and legislative institutions with the global nonproliferation security architecture embodied by UNSCR 1540 and the GP.

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ENSURING SAFE AND SECURE WORK WITH BIOLOGICAL MATERIALS

The International Federation of Biosafety Associations (IFBA) recognizes that widespread and lasting results can only be realized by harnessing the power of multiple stakeholders. The 1540 Committee solicited input from academia, industry, and civil society during its June 2016 meeting in New York. In particular, daily sidebar sessions allowed for focused small-group discussion of targeted themes, helping formulate additional ideas. Our first recommendation is to continue the Committee's annual meetings in New York, to retain the side session meetings with academia, industry, and civil society, and to enhance the impact of the side meetings by:

- Soliciting participation and input from additional organizations within these sectors
- Distributing proposed draft agendas for side sessions in advance of the meeting
- Developing detailed action plans for moving resolution 1540 forward

The IFBA believes that the 1540 Committee should match UN member states' requests for assistance in implementing UNSCR 1540 to their local biosafety associations. Local biosafety associations have expertise to help states meet the requirements. These bodies can also help provide:

- Technical assistance and training in biosecurity, biosafety, and biorisk management
- Guidance on the development of national strategies, policies, and guidelines
- Stronger biosafety, biosecurity, and biorisk management practices
- Better biosecurity during use, storage, and transport of samples
- A mechanism for raising awareness of pathogen accountability and security
- Assistance in developing safe and secure laboratory infrastructure for handling dangerous pathogens

Additional suggestions for maintaining momentum towards our shared mission to ensure safe and secure work with biological materials include:

- Continue building on the success of a recent meeting with the African Union in Addis Ababa, Ethiopia. The IFBA was honored to offer presentations and training on the requirements set forth in UNSCR 1540, helping educate African governments, and looks forward to participating in similar events in the future.
- Further engaging with academia, industry, and civil society, helping increase the number of organizations registered with the 1540 Committee as technical assistance providers.
- Matching states that desire assistance from funding sources with experienced grant writers, ensuring that requests for funding detail specific needs for biological security support and include actionable items.

- Distribute UNSCR 1540-related materials, such as overviews of what the resolution requires of states, to regional biosafety associations for presentation at national and regional events.
- Encourage countries that are in conformity with UNSCR 1540 requirements to mentor country contacts from other countries that are not yet in compliance.
- Find funding to increase the numbers of professionals certified in biosecurity across the world. Doing so will provide more trained and competent experts in biosecurity to helps states meet their requirements under UNSCR 1540.
- Develop and distribute sample(s) national action plans explaining how to conform to with UNSCR 1540, based on models of national legislation that have been successfully implemented.

The IFBA will continue to support the 1540 Committee and will help promote the requirements of UNSCR 1540 to IFBA members and observers. The IFBA looks forward to participation in future UN meetings on the resolution, and to helping the resolution continue and mature to address existing and novel threats to global security.

Benjamin Fontes
BOARD CHAIR OF THE INTERNATIONAL
FEDERATION OF BIOSAFETY ASSOCIATIONS

APPLYING RESOLUTION 1540 TO NONSTATE ACTORS: PREVENT PRIVATE MILITARY AND SECURITY COMPANIES FROM GETTING ACCESS TO WEAPONS OF MASS DESTRUCTION

Resolution 1540 is a unique document that is aimed to keep weapons of mass destruction out of the hands of nonstate actors, including terrorists, armed groups of various types, and radical political, religious, or ideological groups like al Qaeda or ISIS. But there is another class of nonstate actors whose access to WMD could prove just as unpredictable and dangerous: private military and security companies (PMSCs).

It is widely recognized within the UN system that PMSCs represent a type of nonstate actor with significant influence in conflict areas. At the same time, they are almost unregulated by the international community. This is a major industry. PMSCs do some $120 billion worth of business per year. PMSCs, moreover, have been used intensively in countries and areas such as Iraq and Syria where weapons of mass destruction—only chemical weapons—and WMD delivery systems were present. PMSCs implement contracts concluded with states, international organizations, the business sector, corporations, politically motivated nongovernmental organizations (NGOs), movements, or even private contractors. Often, however, PMSCs deviate from the precise terms set forth by contract. And, as a rule, no mechanisms similar to democratic control of armed forces govern PMSCs' activities.

Private companies of various types conduct infrastructure and logistical work in the nuclear and chemical industries. They provide physical security for storage and production units in some countries, as well as for transport of dangerous substances or hardware related to WMD. Because of the activities that states delegate to PMSCs, these firms often possess, transport, and use arms of various types. That being the case, it is imperative to prevent them from undertaking activities related to weapons of mass destruction.

The Russian Federation, accordingly, enacted laws prohibiting private companies from performing military and security functions reserved to the state, as well as from exporting military services or functions that circumvent the state.

The European Union has also elaborated regulations on PMSCs. In 2014, for instance, the EU Council adopted the "EU Concept for Contractor Support to EU-led Military Operations."[3] The concept defines a number of state functions that states may not outsource under any circumstances. Among these functions are the use of weapons of mass destruction and activities connected to the use of WMD.

It is not enough to forbid PMSCs to have access to WMD. The execution of such laws must be monitored and verified. Neither on the national or international level is there a system for monitoring PMSCs' contracts or, more important, for overseeing activities that deviate from written contracts. A system of state-to-state and UN-to-state complaints, investigations, and legally binding limitations is urgently needed.

All of these instruments are included in a draft UN Convention on Private Military and Security Companies. A UN working group on mercenaries' abuse of human rights drafted the convention, and the UN Secretariat circulated it to all UN member-states.[4]

The draft convention obliges states to codify a list of inherent state functions that may not be outsourced to nonstate actors like PMSCs. This list must include access to weapons of mass destruction. Article 10, part 3 of the proposed convention clearly declares: "Each State party shall take such legislative, judicial, administrative and other measures as may be necessary to ensure that PMSCs and their personnel under no circumstances use, threaten to use and/or engage in any activities related to nuclear weapons, chemical weapons, biological and toxin weapons, their components and carriers."[5]

Dealing with WMD demands the highest level of state responsibility. States, unlike nonstate actors, are legally bound by international treaties, conventions, and decisions of the UN Security Council, including UNSCR 1540. Our interpretation of resolution 1540 requires states to take all possible legislative, political, administrative, and technical measures to deny PMSCs access to any activities related to WMD.

An alternative initiative, which competes with the draft UN convention, calls for self-regulation of companies on the basis of the so-called Swiss initiative, Montreux document, and code of conduct for PMSCs. This initiative includes no clause forbidding PMSCs to have access to WMD.

The convention text is under consideration by an open-ended intergovernmental working group established by the UN General Assembly. A provision proscribing PMSCs' access to WMD should be incorporated into documentation and activities of the 1540 Committee as well.

It is worth mentioning in this context a Russian-backed initiative toward a separate convention on the fight against acts of chemical and biological terrorism. Such a convention must involve measures denying nonstate actors access to materials and delivery systems related to chemical and biological WMD.

The Comprehensive Review of implementation of resolution 1540, along with the 1540 Committee's Group of Experts, should inquire into issues relating to safeguarding nuclear, chemical, and biological WMD, their delivery systems, and WMD-related activities from private security firms.

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EDUCATING THE 1540 IMPLEMENTERS: THE SECURITY AND STRATEGIC TRADE MANAGEMENT ACADEMY

The Center for International Trade and Security (CITS) was established at the University of Georgia in 1987, with the aim of examining the modalities and the consequences of "export controls" for East-West relations. From the start, the focus was on providing in-depth, non-partisan, practical recommendations for policymakers.

As the Soviet Union and the Warsaw Pact collapsed, the clarity in threat perceptions eroded. Globalization was accelerating, while manufacturing centers were being established in developing countries where low wages and availability of skilled labor made this move quite profitable. Innovations and applications of advanced technology were steadily moving away from the hands of government agencies towards the private sector. Businesses in the United States and Europe were actively looking at new markets for their products, especially in emerging market economies of Asia, Africa, and Latin America.

In this scenario, the steady diffusion of dual-use technology to far corners of the globe raised concerns about the growing possibility of CBRN proliferation, either through deliberate or inadvertent diversion of materials and technologies to weapons programs. CITS turned its attention to the broad issue of controlling proliferation through strengthening supply-side controls globally.

Our work started with trying to make sense of the various legal and regulatory mechanisms that countries had established to fulfill their nonproliferation obligations under the existing treaties: the International Atomic Energy Agency (IAEA), Nonproliferation

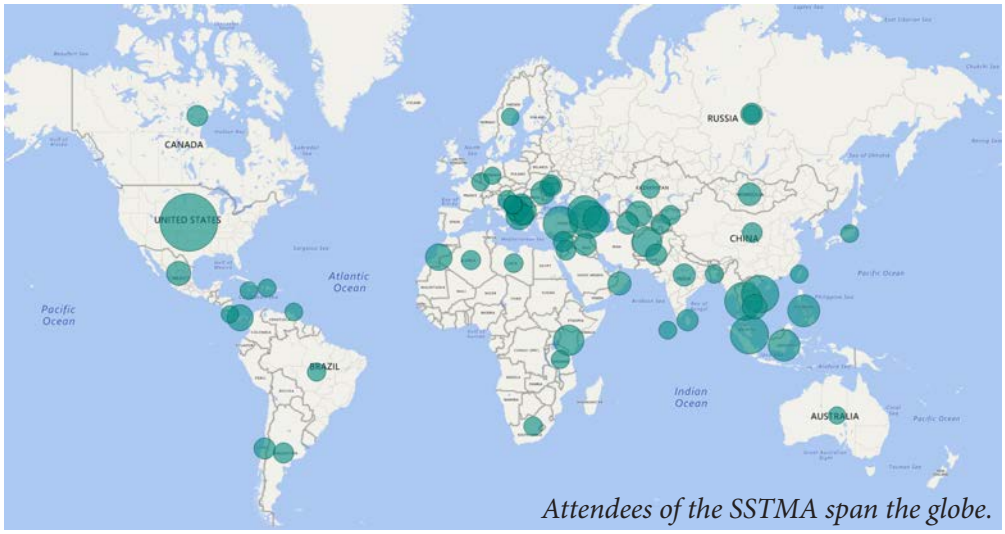
Treaty (NPT), Biological Weapons Convention (BWC), and Chemical Weapons Convention (CWC). We expanded this focus to include informal obligations accepted by members of the multilateral export control regimes (viz. Zangger Committee, Nuclear Suppliers Group, Australia Group, Missile Technology Control Regime, and Wassenaar Arrangement). By talking to practitioners and policymakers, we were able to identify the common elements of a developed export control system, and to convert it into a methodology that assessed countries' regulatory and enforcement infrastructures regarding export controls on dual-use technologies.

Based on extensive data gathered via reading of the full texts of laws, regulations, and forms, and combining these data with detailed interviews with stakeholders from government agencies, industry, and academia, we were able to create a body of knowledge that covered over 80 countries. We used this knowledge to generate user-friendly conclusions, or best practices, that help make the national and regional export control systems more efficient. These were then provided as briefings, outreach, and training sessions to officials and industry in numerous countries that were already engaged in strengthening their systems. The Export Control Academy started in the fall of 2006 to provide stakeholders a comprehensive view of proliferation threats, international nonproliferation initiatives, and the role of supply-side controls in fulfilling nonproliferation commitments.

As targeted UN nonproliferation sanctions and UN Security Council resolutions on terrorism and proliferation came into being, including UNSCR 1540 in 2004, we began to adapt our training program to the growing demand from government officials around the world to understand not just the requirements of UNSCR 1540, but also the most cost- and time-effective methods to implement its requirements.

Accordingly, we have refined our course material, reached out to an ever-broader set of experts from around the world, and included interactive sessions to make the training not merely informative, but broad-based and practical. Unlike most other training programs on this issue area, the CITS program has followed the lead provided by resolution 1540, and now explicitly acknowledges the connections between export controls (its Operative Paragraph 3d) and technology security (its Operative Paragraph XX). Given the larger number of trade related activities covered by resolution 1540, we renamed the program the Security and Strategic Trade Management Academy (SSTMA).

Acknowledging the crucial role of industry in managing strategic/dual-use trade and material security, we have intensified our focus on providing industry perspectives on compliance and on government-industry partnership. Finally, upholding the CITS tradition of bringing cutting-edge research and best practices on security and nonproliferation to the participants, we have incorporated a module on security culture in the SSTMA curriculum. This builds upon the years of work by Dr. Igor Khripunov in contributing to the IAEA's nuclear-security-culture initiative.



Attendees of the SSTMA span the globe.

Behind these refinements of curriculum and broadening of our speaker base beyond the NGO expert community lies our commitment to promoting implementation and compliance through innovative approaches: we show the attendees that 1540 compliance does not mean a one-size-fits-all approach. We discuss differing examples of policies, procedures, and processes from numerous states to illustrate how the same requirement or

obligation might be fulfilled by different approaches, based on national preferences, legal and bureaucratic traditions, and resource availability. Linking nonproliferation compliance to economic benefits, for countries and for industry, is another issue that we emphasize throughout the course. This includes examples of how 1540 compliance may be linked to ongoing national or regional initiatives aimed at facilitating trade and economic development.

Thus far, almost 850 officials from approximately 70 countries have been through this training program. A majority of the attendees were sponsored by the U.S. Department of State's Export Control and Related Border Security Program. Others were sponsored by their own government agencies. Many of these "alumni" keep in touch with CITS and with one another to share concerns and insights about implementation. They are the critical mass that is slowly but surely moving the dialogue and practice of nonproliferation towards greater harmonization and transparency within and across countries.

We hope to continue providing this assistance and related support to 1540 implementers in the coming years.

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EVOLVING STATE AND NONSTATE PROLIFERATION THREATS AND STRENGTHENING UNSCR 1540'S ROLE IN ADDRESSING THEM

UN Security Council resolution 1540 has come a long way since it was approved over a decade ago. Initially, many countries questioned the legitimacy of the Security Council "legislating" requirements for countries all over the world, and there were wide gaps in both reporting and action. Today, UNSCR 1540 is a broadly accepted part of the international landscape, only a few countries have not yet provided at least basic reporting on steps taken under the resolution, and many countries have taken action to fulfill the resolution's requirements, ranging from enacting export control laws to strengthening security for biological pathogens.

But the threats of both state and nonstate acquisition of nuclear, chemical, and biological weapons remain very real. These threats are changing, as terrorist groups morph into different forms, technology traffickers develop new tactics, and technologies advance and spread. There is much to be done to strengthen the international community's response to these evolving threats, including through more effective implementation of UNSCR 1540. As the Comprehensive Review of UNSCR 1540 proceeds this year, several areas should be considered to strengthen the resolution's effectiveness.

DEFINING WHAT IS REQUIRED

UNSCR 1540 requires states to put in place "appropriate effective" measures in areas ranging from nuclear and biological security to export controls. But no one has ever defined what essential elements would have to be in place for a nuclear security system or an export control system or any of the other systems called for by UNSCR 1540 to be appropriate and effective. This is a complex task, as the answer is likely to be different for different countries. A country with a major nuclear facility processing plutonium in bulk, for example, will require a detailed accounting system for keeping track of bulk nuclear material. Such a system will be entirely unnecessary in countries that either have no weapons-usable nuclear material or have it only in easily countable manufactured items such as fuel elements. In some countries, the export control requirements would focus heavily on sensitive technologies their firms manufactured, where in others, the key issue might be transshipment of items made in other countries.

Nevertheless, more in-depth common understandings of what elements need to be in place, and how they should be implemented, for a system to be both "appropriate" and fully "effective" in each of the key areas covered by UNSCR 1540 would greatly strengthen the impact of the resolution. Such understandings must go well beyond the broad yes-no questions of the 1540 Committee's existing matrix, looking more like the recommendations and guidance documents of the IAEA in nuclear areas. The job of laying out what is needed is likely beyond the expertise and political mandate of the Committee and the Group of Experts. But a group of interested member states could get together and develop a common understanding of what they saw as the

essential elements, and work to build broad support for that approach.

For example, in the case of what measures are needed for an appropriate and effective security system for nuclear weapons, it might make sense to begin with an experts' discussion among the permanent five nuclear weapon states, later broadening it out to other states.[6] A revised resolution in December 2016 should call on groups of interested states to join together, in cooperation with relevant international organizations, and develop common understandings of the essential elements of "appropriate and effective" systems for particular circumstances in each of the key areas covered by UNSCR 1540.

BETTER, AND MORE ACCESSIBLE, ASSESSMENTS OF IMPLEMENTATION

The Committee and the Group of Experts have done the international community a great service in developing, populating, and making available the UNSCR 1540 matrices. But there is a need for more in-depth, on-the-ground assessment of the quality of implementation—particularly if the international community manages to develop more detailed common understandings of what implementation steps are needed. The Croatia-Poland peer review a few years ago is an important step in the right direction. Given the breadth of UNSCR 1540, however, it is likely to be easier to organize a review that provides really in-depth feedback if it is focused on a particular area—export control, for example, or security of biological pathogens.

Ways should be found to encourage broad use of peer reviews in each of the substantive areas of UNSCR 1540 implementation. A revised resolution could call on states to request such peer reviews, request relevant international organizations to make review services available in their areas of expertise, and provide funding (or call on donor states to contribute funding) to support such reviews. A new resolution should also provide funding to assist states in addressing issues identified in such peer reviews—again, possibly from donor states, such as those participating in the Global Partnership against the Spread of Weapons and Materials of Mass Destruction.

Data on UNSCR 1540 implementation should also be made more easily available in forms that civil society can use and analyze. For example, all the matrices could be made available in a single data file, permitting statistical analysis, correlation with other datasets (such as World Bank governance indicators), and more.

BETTER TARGETED ASSISTANCE FOR IMPLEMENTATION

The donor states joined in the Global Partnership have focused much of their effort in recent years on helping states implement their UNSCR 1540 obligations. But the task of setting priorities among the many different specific obligations and the many countries that need to implement them is a daunting one, and better mechanisms for doing so are needed. A new resolution might call on interested states—such as a committee of donor states in the Global Partnership, to which other interested states might be invited—to develop proposed prioritization approaches based on risks to the international community.

ALIGNING IMPLEMENTATION WITH OTHER INCENTIVES

There is also the question of how to convince countries to take action that is genuinely effective and to sustain it over time, as called for by UNSCR 1540. For many countries, focused on immediate problems from feeding their people to providing medical care, countering proliferation is a low priority. But there are many areas where steps to control proliferation could reinforce efforts states care more about, or could align with commercial incentives. Better border controls, for example, can help control smuggling of drugs, people, and guns, not just proliferation-sensitive items—and some new detector technologies may be able to detect not only radioactive material, but also drugs, people, and more inside a container. The international community should look for these win-win options to align incentives.[7]

ADDITIONAL COVERAGE

Finally, there is the question of whether UNSCR 1540's coverage is broad enough to address the full spectrum of concerns on which it was targeted. In the nuclear space, UNSCR 1540 requires appropriate and effective security and accounting for nuclear weapons

and "related materials." It does not obligate states to protect nuclear facilities (or facilities with deadly chemicals, for that matter) from sabotage. Nor does it require security for radiological materials that might be used in a "dirty bomb." Terrorist action in these areas could also pose threats to international peace and security. The review should consider whether a new resolution should also cover action in these areas. Financing of proliferation and of terrorism is another area that might be more extensively covered.

The world has done a great deal to put controls in place to block terrorists and states seeking nuclear weapons and related technologies. But the struggle to prevent proliferation and mass-destruction terrorism is a never-ending one, as those seeking these technologies constantly find ways to get around existing controls. The types of controls envisioned by UNSCR 1540 must focus on continuing improvement in the face of an evolving threat, changing technologies, and the ongoing discovery of new vulnerabilities.

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SHIFTING THE FOCUS FROM ANNUAL OUTREACH ACTIVITIES TO OFFICIAL VISITS TO STATES

In an era of limited funding and greater accountability, appraising the budget of the Security Council committee established pursuant to resolution 1540, also known as the 1540 Committee, is a good starting point for reviewing the Committee's effectiveness with the aim of recommending ways to maximize its financial and human resources through the end of its current mandate in 2021. In 2016, the 1540 Committee's estimated budget is $3,143,100. The 2016-2017 appropriation is in line with the total expenditure for the years 2014-2015, which was $6,372,600. In addition, the 1540 Committee can tap a "Trust Fund for Global and Regional Disarmament Activities" amounting now to approximately $2 million.

The Committee has carried out an ambitious program of work since 2009. The Group of Experts grew to nine in 2012. Committee members and experts participated in 42 UNSCR 1540-related events in 2010, 54 in 2011, 47 in 2012, 88 in 2013, 83 in 2014, 64 in 2015, and 25 by mid-2016. The Committee, with the assistance of the Group of Experts, approved 183 matrices by December 2015 and an additional 7 by April 2016. Moreover, in addition to the 336 reports on national implementation received by the Committee through 2009 (including follow-up reports), the Committee received 7 in 2010, 11 in 2011, 8 in 2012, 28 in 2013, 26 in 2014, 11 in 2015, and 2 by mid-2016.

Since 2010, 18 states have sent requests for assistance to the Committee, as have two regional organizations. Twenty-three states have also submitted National Implementation Action Plans (NIAPs) to the Committee. Eleven states submitted requests for assistance and NIAPs to the Committee, suggesting that they are politically committed to implementing the resolution but recognize that international assistance would be useful to fulfilling their obligations. In addition, 1540 Committee members and experts have visited 14 countries since 2012.

Subsequent to the Open Consultations on the resolution in June 2016, how will the 1540 Committee, with its substantial financial and human resources, carry out its activities through 2021 in a way that achieves full implementation of the resolution? The outreach activities undertaken by the Committee, averaging 63 per year between 2010 and 2015, are very important in that they keep attention focused on the resolution. However, during this same period, there were significantly fewer Committee visits to countries (averaging 3.5 per year between 2012 and 2015), requests for assistance (3 per year between 2010 and 2015), and NIAP submissions (3.3 per year between 2010 and 2015). Yet the Committee's official visits to countries are effective: 4 out of 14 of them appear to have led to 4 requests for assistance and 3 NIAPs.

The 1540 Committee should consider the following recommendations, all called for under resolution 1977. Firstly, the Committee should shift its focus and expert capacity from annual outreach activities to more official visits to states. Secondly, the Committee should tie these visits to two outcomes by each state: the preparation of a

NIAP and an assistance request, with the objective of increasing the number of both that are submitted to the Committee through 2021.

The ultimate objective of resolution 1540 is more urgent than ever, namely to prevent nonstate actors from engaging in any activities involving nuclear, biological, or chemical weapons. Keeping related materials and technologies out of their reach also remains a top priority. Therefore, the Committee should move the focus away from outreach activities to many more official visits to states, followed by more NIAPs and assistance requests that can be matched with offers of assistance from willing and effective assistance providers—including civil society.

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PROGRAM DIRECTOR FOR
NATIONAL IMPLEMENTATION
VERTIC

ABOUT THE BOTTICELLI PROJECT

Every five years, all actors playing a role in nonproliferation, such as governments, institutions, civil society, and exporters are invited to contribute to the Comprehensive Review of UNSCR 1540.

During a three-day conference at the UN headquarters in New York in June 2016, UN member states made a unanimous declaration in support of resolution 1540. They also called for additional volunteers and funds to help countries reach an acceptable level of compliance, and to encourage exporters to undertake outreach and projects dedicated to implementing the resolution. Seventeen countries still remain to submit to the UN general reports on their efforts to implement the resolution. This is a weakness for the nonproliferation system, which is based on a comprehensive, coordinated network.

Institutions and civil society have their own programs, conferences, and meetings. Such gatherings constitute the main object of their work, but more coordinated effort between them would yield better results. The lack of coordination among these bodies results in confusion and sometimes competition—harming the nonproliferation system.

Exporters, including industry, academia, and research centers, play a fundamental role in the system. They lie at its origin, since they produce and export strategic products and technology. Yet, strangely enough, they remain somewhat detached from the nonproliferation system.

They respect the law and request export licenses when needed, meeting the minimum standard imposed by law and regulations. Their limited involvement stems mostly from mistrust. Exporters view themselves as targets and victims of export controls. They subscribe to the misleading idea that lawmakers and government officials see them as the source of the proliferation problem.

Such attitudes damage the export control system because exporters know their products better than outsiders are likely to. They know their markets, their clients, and their plans to develop new technologies which could comprise new challenges to nonproliferation. Firms, in short, are the experts in their respective fields as well as the first victims of proliferation.

Today, thankfully, they are coming out of the shadows and joining in "partner to partner" cooperation with governments and institutions to fight against the risk of proliferation, sharing their expertise for reciprocal and common benefits.

The BOTTICELLI Project, created within the framework of the Wiesbaden Program and in cooperation with governments and institutions, is a network of exporters (industry, academia, research centers) of strategic products in the biological, chemical, and nuclear sectors as well as the aeronautics, information technology, transport, and financial sectors.

"TIME to MOVE" is a series of actionable proposals by the BOTTICELLI Project comprising the project's roadmap to improving UNSCR 1540's effectiveness and adapting the export control system to new challenges. The roadmap aims to move the system:

> from an export control system to an export monitoring system from a standard approach to a risk-based approach from a regulator-to-regulated relationship to a partnership from

a distortion of competition to a level playing field from interpretation of stakeholders' roles to best practices

The BOTTICELLI Project is the answer to an invitation from the UN Office of Disarmament Affairs (UNODA) and the 1540 Committee to industry to take a greater role in the nonproliferation system. A detailed project has been presented to UNODA and the 1540 Committee for funding in line with the mission of these institutions.

We hope that the conclusion of the Comprehensive Review of resolution 1540 will bring support to this initiative—persuading exporters to do more than the legal minimum necessary to comply with national and international obligations. The capacity of governments, institutions, civil society, and exporters to cooperate is indeed the key factor for an export control system that faces new proliferation challenges.

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SYNDICAT DES INDUSTRIES EXPORTATRICES DE PRODUITS STRATEGIQUES

IDEAS FOR FUTURE IMPLEMENTATION

The members of the 1540 Committee, the Group of Experts, UNODA, and the UN Department of Political Affairs are reflecting on how to implement UNSCR 1540 obligations in the wake of the 2016 Comprehensive Review. The way ahead should recognize that the past twelve years have shown that the resolution has a place, but that place should conform to the current political and financial environment of 2016.

Everyone I have met within the "1540 community" of friends recognizes that numerous international, regional, and subregional organizations have contributed to UN endeavors to deal with global threats to peace and security—including proliferation of nuclear, chemical, or biological weapons for terrorist purposes. Under the prevailing division-of-labor strategy, functional intergovernmental organizations (nuclear security experts, for example) provide guidelines, standards, and technical assistance programs that states can implement in accordance with their national circumstances. Regional and subregional organizations have played a politically, and sometimes substantively, supportive role by conveying to their member states the urgency of implementing counter-terror and nonproliferation resolutions, such as UNSCR 1540.

Indeed, I would say that UNSCR 1540 has become even more important given recent terrorist actions showing that terror groups intend to acquire WMD. Countering their efforts requires constant vigilance. What really matters is the effectiveness of practical steps taken at the national level to implement the resolution. The 1540 Committee performs the essential function of monitoring these steps. It does so using a matrix covering the obligations and key indicators of implementation.

If the process of reviewing matrices that outline these obligations and key indicators is to work well, all important national stakeholders in implementing UNSCR 1540 must be engaged. There are many good examples of how to approach such dialogues with states, generally by invoking the public interest. Consultation helps close gaps and vulnerabilities in legislation, regulations, and controls. Ultimately, it is a strong recommendation for the review process that the 1540 Committee has set aside funds and compiled a matrix-related guidebook that walks any UN member state's interagency apparatus through how to report to the United Nations.

With regard to assistance, there have been long discussions calling for better coordination and matchmaking. The 1540 Committee should decide whether, and how substantial, a role the Group of Experts and UNODA should play in addition to coordination, as changing the plans of organizations that are driven by day-to-day requirements and budgets remains a challenge. It is never easy, furthermore, to advise another entity when and where to provide its assistance.

Therefore, consideration should be given to encouraging the development of funds dedicated to supplying technical assistance. The Group of Experts, UNODA, or some other organization could administer these funds under the rubric of UNSCR 1540. This assistance would be tied to the development of human capital in countries that have self-identified

a simple lack of nonproliferation expertise. It could pay for training UNSCR 1540 Points of Contact, or for country visits to improve reporting or the development of assistance requests. If 10 percent of the cost of every conference or workshop conducted since 2004 (including the travel expenses associated with such gatherings) had been placed in a fund, we would now have enough working capital to turn training into hands-on capacity.

New demands for assistance will arise once the 2016 Comprehensive Review is complete. Reserving 10 percent of every budget earmarked for capacity-building in collaboration with UNODA would impart credibility and sustainability to 1540 implementation—much as borrowers repose confidence in bank lenders who have ample money in the vault.

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CRITICAL TREND IN STRATEGIC TRADE COMPLIANCE: FROM GOVERNMENTS TO BUSINESS

UN Security Council resolution 1540 and the 1540 Committee have done much to promote the development of governmental export controls constraining WMD proliferation. While governments' capabilities have risen, the danger of proliferation extends far beyond governments. The new frontier of export control compliance is business.

Small, medium, and large businesses are increasingly the sources of the proliferation of dangerous technologies and items that go into WMD and their delivery systems. While large multinational corporations (MNCs) involved in international high-tech trade are generally well-informed and prepared for compliance, small to medium-sized businesses often are not. Nor are rapidly growing companies in emerging economies.

Hence the need to focus on exporters of all sizes, and to provide more compliance assistance. To be sure, governments have outlined what businesses should do to promote strategic trade compliance. These requirements have coalesced into what are increasingly called "global best practices." These internationally held standards offer an archetype to which businesses should aspire as they implement dual-use trade compliance. But there are many thousands of exporters that lack compliance assistance.

What are their most pressing needs? To start with, the export community has to become better informed about existing law and compliance responsibilities. Outside of MNCs, smaller business struggle against a constant flood of new national and international rules. A lack of understanding hardly serves as a foundation for building the "internal compliance programs" that most businesses need. Coupled with the overstretch in governments' time and resources, nongovernmental groups are better positioned to support entrepreneurs and exporters. Fortunately, there are hundreds of nonprofits, NGOs, and for-profits that specialize in providing such support.

I have directed a university-based center and a private advisory group involved in this work. We have found that businesses are willing to achieve best practices if they have the support to do so. We organized, delivered, and participated in hundreds of industry outreach programs helping prepare companies for strategic trade compliance in dozens of countries around the globe. We worked with individual companies to tailor our support to their needs.

We have also worked with small and medium-sized businesses. Their resources are more limited, and their needs are often greater. Many have no experience, little to no staff, and limited expertise in dealing with government regulations. Many are involved in producing, selling, and transferring dual-use items and technology with significant WMD applications and may not know the risk. Allowing, either through ignorance or intent, WMD-related items to get into the wrong hands holds unacceptable consequences. NGOs, nonprofits, and for-profits can help companies avoid these mistakes.

The greatest challenge is connecting businesses with support. Most businesses have enough trouble understanding their own compliance obligations, much less finding expert help. Governmental

organizations can fill this gap. By helping connect at-risk and in-need companies with experts, resources can be better spent widening corporate compliance than treading water with enlightened governments.

The successes attained by UNSCR 1540, UNODA, and the 1540 Committee in motivating and assisting governments to establish nonproliferation rules and regulations are an important first step, but these efforts cannot contain WMD alone. More must be done to connect nongovernmental assistance providers with businesses. By doing so, the compliance gaps that allow for proliferation can be narrowed. As more businesses tackle compliance obligations directly, the looming threat of WMD can give way to a more prosperous and safer world.

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OUTLAWING STATE-SPONSORED PROCUREMENT NETWORKS

State-sponsored procurement systems have been key enablers of suspect nuclear programs. Deliberately and repeatedly violating the export controls of nation after nation, these procurement efforts have illegally obtained a raft of essential nuclear and nuclear dual-use goods for sensitive facilities in these states. Such procurement programs need to be outlawed now to deter the next would-be nuclear weapon state from once again exploiting weaknesses in the international system of technology controls.

Topping the list of illicitly acquired goods have been high-strength aluminum, steel, and carbon fiber needed for uranium enrichment centrifuges; pressure transducers for managing the flow of uranium gas during the enrichment process; various corrosion-resistant pumps and valves; and special lubricants.[8] States of concern have not been able to manufacture these products domestically but, through a variety of illegal stratagems, have acquired them from more advanced nations, allowing suspect nuclear programs to be propelled forward with astonishing success.

Iran's enrichment plant at Natanz, for example, surged from having no operating centrifuges in 2002, when the initially secret facility was exposed, to having 10,000 operating units, with 9,000 more ready to be brought on line by 2015, when Tehran signed an agreement to restrict its nuclear activities. In 2010, North Korea revealed that it, too, had built a enrichment facility, this one more advanced than Iran's. Such facilities have the potential to produce uranium enriched to levels needed for nuclear weapons. Reports of UN Security Council committees, prosecutions in numerous states, and observations by visitors to the facilities themselves underscore the crucial contribution made by equipment smuggled from abroad.

These advances occurred despite significant efforts to slow this illegal trade. These efforts have included the 2003 Proliferation Security Initiative, a voluntary arrangement involving more than 100 countries that aims at interdicting smuggled goods in transit, and UN Security Council resolution 1540, a measure requiring all states to adopt export controls over weapon of mass destruction, missile delivery systems, and related dual-use items.

Why has such wholesale trafficking in nuclear and dual-use nuclear goods persisted? A key reason is that this conduct has never been treated as a serious offense by the international community:

- No treaty, including the Treaty on the Non-Proliferation of Nuclear Weapons, outlaws this conduct.
- The Security Council resolutions imposing sanctions on Iran and North Korea, starting in 2006, never penalized these countries specifically for illicit trafficking.
- The 48-member Nuclear Suppliers Group's guidelines, while requiring members to regulate exports of dual-use goods, lack provisions that threaten action against a state that repeatedly attempts to circumvent these vital controls.
- The International Atomic Energy Agency actually disregards such trafficking when it applies its monitoring procedures to nuclear installations and treats Natanz, which it began inspecting in 2003, as a peaceful nuclear facility despite its extensive reliance on illicitly procured goods.

Security Council resolution 1540, may, however, offer a fresh mechanism for meeting this challenge. Since the resolution requires all states to adopt export controls over WMD and state-sponsored trafficking in dual-use goods seeks to circumvent these very controls, such trafficking directly undercuts the Security Council's authority.

It was hoped that in its "Comprehensive Review" of the resolution, the Security Council would use the occasion to single out the threat to its mandate from state-sponsored trafficking; unambiguously deplore such conduct; and set the stage for a punitive response in future cases. The preamble to the resolution declares that trafficking in WMD goods "poses a threat to international peace and security" – the trigger for further Security Council action, including imposition of sanctions, under the UN Charter. The Council needs to underscore this point as a stern warning against further state-sponsored nuclear trafficking. It now appears that it will not do so as part of its Comprehensive Review, Nonetheless, the Security Council has made multiple adjustments to the original resolution outside the context of a Comprehensive Review of the document. Thus the Security Council will have further opportunity to address the issue of state-sponsored illicit procurement programs in the future and must be encouraged to do so.

Parallel measures must also be taken in other fora. The Nuclear Suppliers Group needs to declare that it will convene a special meeting to consider punitive action when members observe egregious state-sponsored circumvention of the group's controls. The IAEA, in turn, through a statement of its director general or, better, its Board of Governors, needs to declare that it may require added transparency measures if it finds evidence that a facility it is monitoring is built on a foundation of illegally acquired equipment. States that have been victims of trafficking—typically states with considerable diplomatic and economic clout—also need to work together to promote these measures and declare in concert their intent to respond forcefully when the next case arises.

The result will be the outlawing of state-sponsored illicit procurement activities through the accretion of international condemnation and threatened punishment in multiple settings.

Moreover, since such trafficking is often an early telltale of a clandestine nuclear program, outlawing the practice will also provide the basis for early intervention to counter such nuclear ambitions before they mature.

Action is needed now—in the Security Council, the NSG, the IAEA, and aggrieved states—to forestall the next state-sponsored nuclear procurement network.

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COMPREHENSIVE REVIEW OF UNITED NATIONS SECURITY COUNCIL RESOLUTION 1540

Somewhat similar to the review conferences for treaties, the UN Security Council mandated a Comprehensive Review of the implementation of UNSCR 1540 by December 2016. This has enabled both national governments and different streams of civil society to review the functioning of resolution 1540 as well as offer recommendations to shape the future of global regulation of WMD-related items.

One of the biggest achievement of UNSCR 1540 is internationalization of export control practices. Because of the binding nature of the resolution, national governments were obliged to implement the resolution in their domestic systems. This led a large number of skeptic countries to either introduce completely new export control systems or refine their existing systems.

The countries were asked to submit reports on the status of their WMD controls, using matrices to shape their reports. The cumbersome matrix catalogues best practices and was helpful to countries looking for gaps in their systems. Countries adopted best practices which they did not have, including best practices that may not be relevant to their circumstances.

Several national systems became better through this process, but many turned unnecessarily burdensome. The next level of export control reform should aim at tailoring best practices to individual states' needs instead of encouraging unnecessary practices in the name of best practices. Besides that, some provisions, such as ultimate end-user and intangible technology controls, look very relevant but are proving difficult to implement. This

problem exists for new and old export control countries both. The UNSC should take up such matters in the future.

The second major achievement was forming a committee. The 1540 Committee acted as a nodal agency for implementation of resolution 1540. It developed a matrix. The most significant task of the Committee, however, is coordinating assistance and raising awareness of the need for WMD controls. The Committee also has a Group of Experts that assists in implementation of the resolution.

The Group of Experts system, unfortunately, has not been very successful. Except a few experts who worked on export controls and were from academic backgrounds, most of them were retired government officials who contributed very little to the cause. Experts should be brought in from academic or industrial backgrounds.

Assistance work relating to 1540 activities got off to an impressive start. A number of countries and regional organizations came out with resources to assist countries across many regions, though Asia-Pacific, African, and Caribbean and Latin American countries were the focus. Now, however, several regions feel that assistance offered by different countries and organizations adds little value. But such countries feel that assistance or partnerships may be useful in solving unique and general problems they face.

The 1540 Committee and the countries which are active in providing assistance and training thus need to redraw the old strategy. In most of the countries, training of officials has gone in vain. After taking training, they serve where the training is not used. These trained persons need to be encouraged to undertake assistance and training programs. This will take care of the political sensitivity in many countries. The effort should be to build a cadre of academic experts in individual countries or some key countries within a region. In the age of global governance, the network of international experts may help implementation of the 1540 mandate—existing or modified.

In the final analysis, it may be asserted that UNSCR 1540 has done a commendable job for WMD control. As a point of contact, it may mobilize resources from member countries in meeting future challenges. Cheaper technologies need to be explored and popularized for networking among countries and different civil-society groups.

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3 EU Concept for Contractor Support to EU-led Military Operations, http://register.consilium.europa.eu/doc/srv?l=EN&f=ST%208628%202014%20INIT (accessed May 29, 2016).
industrial enterprises in Asia.

4 UN document A/HRC/WG.10/1/2, distributed May 13, 2011, submitted to UN General Assembly by the UN Human Rights Council.

5 Ibid., Article 10, "Prohibition of outsourcing of the use of certain arms," part 10.3.

6 For one effort to define the essential nuclear security and accounting elements required by UNSCR 1540, see Matthew Bunn, "'Appropriate Effective' Nuclear Security and Acounting - What is It?" paper presented at the Global Initiative/UNSCR 1540 Workshop on "Appropriate Effective Material Accounting and Physical Protection," Nashville, Tennessee, July 18, 2008, http://belfercenter.ksg.harvard.edu/files/bunn-1540-appropriate-effective50.pdf. See also Matthew Bunn and E. P. Maslin, "All Stocks of Weapons-Usable Nuclear Materials Worldwide Must be Protected against Global Terrorist Threats," Journal of Nuclear Materials Management 39, no. 2 (winter 2011): pp. 21-27.

7 The Henry L. Stimson Center in Washington, DC, has had a number of projects exploring efforts at such incentive alignment. See, for example, Brian Finlay and O'Neil Hamilton, "Sustaining Proliferation Prevention: Gaining Ground in the Global South" (Washington, D.C.: Stimson Center, February 23, 2011), http://www.stimson.org/content/sustaining-proliferation-prevention-gaining-ground-global-south; Debra Decker and Kathryn Rauhut, Nuclear Energy: Securing the Future: A Case for Voluntary Consensus Standards (Washington, DC: Stimson Center, January 28, 2016, http://www.stimson.org/sites/default/files/file-attachments/Nuclear-Energy-web-122315.pdf).

8 For detailed descriptions of items being sought by the two countries in recent years, see, also "Final Report of the Panel of Experts Established Pursuant to Resolution 1929 (2010)," June 3, 2013, UN Security Council document S/2013/331 (hereafter, "June 2013 UNSCR 1929 Panel of Experts Report"), <https://www.un.org/sc/suborg/en/sanctions/1718/panel_experts/reports>; "Final Report of the Panel of Experts Established Pursuant to Resolution 1874 (2009)," UN Security Council document, S/2013/337, June 11, 2013, <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N13/331/74/PDF/N1333174.pdf?OpenElement> (hereafter, "June 2013 UNSCR 1874 Panel of Experts Report").

1540 COMPASS
ARTICLES

Opportunities for Strengthening Biosafety and Biosecurity Oversight through International Cooperation and Compliance with International Obligations:

A Perspective from Mali

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public-health measures such as better awareness of correct sanitary procedures among populations, earlier case diagnosis, and increased availability of care within Ebola treatment units have helped slow the epidemic and limit its spread, better and more encompassing policy is now needed to consolidate these gains.

BIOSAFETY AND BIOSECURITY IN GLOBAL HEALTH AND SECURITY

In Sub-Saharan Africa, the presence of terrorist organizations (such as the al-Murabitun group, which seeks to "unite all Muslims from the Nile to the Atlantic in jihad against Westerners" and "liberate Mali from France") and other transnational threats such as the Ebola outbreak have brought the region to the forefront of international peace and security policy considerations. A World Bank report notes that beyond the three most affected countries (Guinea, Liberia, and Sierra Leone), there has been only a limited spread of the disease itself. A small number of cases were reported in Nigeria, Mali, and Senegal, but these three other countries were able to swiftly contain the epidemic, primarily due to "good policy." While

While the Ebola virus itself would be difficult to weaponize for a deliberate mass-casualty attack, a nexus of weak public-health infrastructures and national frameworks, the presence of terrorism, and outbreaks of any high-impact disease represents cause for great international concern. The security of biological materials, whether in facilities or during transportation, cannot be overlooked. Nor can biosecurity be built from the ground up during an outbreak. Look at the Ebola outbreak through a historical lens. The Japanese cult Aum Shinrikyo, infamous for releasing sarin gas in a Tokyo subway in 1995, also sought to acquire Ebola. Recent media reports indicate that African clinics have been looted or samples stolen while in transport. Terrorist groups are actively recruiting in certain African universities. These precedents all raise concerns that terrorists

could get access to biological agents that are under lock and key in maximum-containment research facilities.

The Ebola crisis has prompted the international community to reassess its global priorities and its preparedness for major public-health emergencies. However, the looming threat of terrorism is a stark reminder that we need to also be prepared to prevent and respond to deliberate attacks involving biological agents. A challenge for African countries in the aftermath of Ebola is to promote unity of effort between health-security and health-systems structures that are in large part perceived as distinct silos. Yet in countries such as Burkina Faso, the Democratic Republic of Congo, and Malawi, the World Health Organization (WHO) reports that there seems to be a "strong appetite and support" for integrating different "health security strategies" with efforts to strengthen national health systems as a whole.

For the purpose of this article, "health security" is defined as minimizing the vulnerability of populations to high-impact public-health risks and emergencies, and mitigating the consequences of biological incidents that endanger public health, affect multiple sectors of society, and may impact national or global security. Biosafety and biosecurity are interrelated, critical components of health security. In this context, biosafety and biosecurity encompass biological risk-management laws, policies, regulations, rules, procedures, and practices. They also include professional standards and ethics designed to prevent the loss, theft, misuse, or diversion of biological agents, related materials, technology, or equipment. Preventing unintentional or intentional releases of biological agents also falls under the purview of biosafety and biosecurity.

In Table 1 below, we highlight how the WHO International Health Regulations (IHR [2005]), Global Health Security Agenda, Biological Weapons Convention, and UNSCR 1540 overlap in their requirements with regard to biosafety and biosecurity. We do so to improve the understanding of African practitioners and policymakers of internationally mandated requirements, along with opportunities available for capacity-building assistance. We also discuss Mali as an illustrative case where specific steps can be taken to strengthen health security and ensure the security of biological agents and related materials, to prevent their falling into the hands of terrorists, criminals, and other nonstate actors.

Table 1: Biosafety and Biosecurity under the IHR, GHSA, BWC, and UNSCR 1540

	WHO International Health Regulations (2005)	Global Health Security Agenda	Biological Weapons Convention (1972)	UN Security Council resolution 1540 (2004)
Applicability:	Parties to WHO	States signing up/ committing to GHSA	Parties to the Convention	All UN member states
Purpose:	To prevent, protect against, control, and provide a public health response to the international spread of disease.	To strengthen both global capacity and nations' capacity to prevent, detect, and respond to infectious disease threats, whether naturally occurring, deliberate, or accidental.	To prohibit the development production, acquisition, transfer, stockpiling, and use of biological and toxin weapons.	To prohibit nonstate actors from developing, acquiring, manufacturing, possessing, transporting, transferring, or using biological weapons and their delivery systems.
Obligations:	Eight core capacities "to detect, assess, notify, and report events" (laboratory core capacity includes biosafety/biosecurity).	No obligations, only voluntary commitments.	Any necessary measures to prohibit and prevent the development, production, stockpiling, acquisition, retention, transfer, or use of biological weapons by anyone under BWC parties' jurisdiction; enact measures to prohibit/prevent encouraging, inciting, or assisting others in any of these acts.	Refrain from supporting, by any means, nonstate actors striving to develop, acquire, manufacture, possess, transport, transfer, or use biological weapons and their delivery systems; adopt legislation to prevent the proliferation of biological weapons and their means of delivery, and establish appropriate domestic controls over related materials to prevent their illicit trafficking.
Entry into force:	June 15, 2007	February 2014	March 26, 1975	April 28, 2004
Mandated reporting/ where/when:	Status of implementation / 1540 Committee / voluntary, "without delay".	Documentation or evidence for level of capability under Joint External Evaluation Tool (JEE).	CBMs voluntary reporting / BWC ISU / annually by 15 April.	Status of implementation/ WHO/ "As soon as possible but no later than five years from the entry into force".
Other reporting:	JEE	JEE, roadmaps	Points of contact, reports to Review Conferences	Points of contact, national implementation action plans
Assistance mechanism:	Upon request, WHO assists developing countries in mobilizing financial resources and provides technical support to build, strengthen, and maintain the capacities set out in Annex 1 of the Regulations.	Assistance requests are coordinated via the GHSA Steering Group of 10 countries (Canada, Chile, Finland, India, Indonesia, Italy, Kenya, Kingdom of Saudi Arabia, Republic of Korea, and USA) and several international organizations (such as WHO, FAO, OIE) serving as advisors.	Assistance database /BWC ISU has clearinghouse role.	Assistance database/1540 Committee has clearinghouse role.

IHR (2005) entered into force on June 15, 2007 as an international legal instrument binding on all 196 countries across the globe, including all WHO member states. The goal of the IHR (2005) is "to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade."

In order to achieve this goal, countries are required to develop public-health capacities in support of national health security. Since 2007, countries have used a questionnaire to self-assess the status of implementation and submitted the data to WHO for global compilation and reporting to the World Health Assembly. However, because of inadequate mechanisms for accurate collection and validation of data, the information shared by countries this way did not always correspond to the reality in the field. And this was a fact painfully brought to light by the recent Ebola outbreak.

Starting in 2016, accordingly, WHO member states use a new IHR monitoring tool called the Joint External Evaluation Tool (JEE). JEE includes self-reported data from governments, which are validated afterward by a joint external evaluation team comprised of national and international subject-matter experts. The review proceeds via in-depth discussion of the self-reported data as well as structured site visits and meetings organized by the host country. The evaluation team then drafts a report to measure the status of each indicator, as well as to supply an analysis of the country's capabilities, gaps, opportunities, and challenges. JEE includes three core elements: prevention and reduction of likelihood of outbreaks and other public-health emergencies; early detection of threats; and a rapid and effective response based on multi-sectoral, national, and international coordination and communication (Table 2).

While the IHR do not mention biosafety or biosecurity, these areas are specifically listed in the JEE as an indicator for the "prevention" core element, addressing both the national oversight system and biosafety/biosecurity training and practices, to ensure that a whole-of-government national biosafety and biosecurity system is in place, ensuring that especially dangerous pathogens are identified, held, secured and monitored in a minimal number of facilities according to best practices; biological risk management training and educational outreach are conducted to promote a shared culture of responsibility, reduce dual use risks, mitigate biological proliferation and deliberate use threats, and ensure safe transfer of biological agents; and country specific biosafety and biosecurity legislation, laboratory licensing, and pathogen control measures are in place as appropriate.

The adoption of JEE marks the foundation of a collaborative interface between health and security. It also illustrates the overlap and synergy between the IHR requirements and the biological risk-management obligations set forth by UNSCR 1540, in particular those requiring the implementation and enforcement of appropriate controls over biological weapons (BW)-related materials in order to: account for and secure items in production, use, storage, or transport; physically protect them; detect, deter, prevent, and combat illicit trafficking and brokering of these materials through effective border controls

Table 2: Biosafety and Biosecurity in the Joint External Evaluation Tool

CORE ELEMENT: PREVENT					
Indicator: Biosafety and Biosecurity					
Capacity requirements:	1. Whole-of-government biosafety and biosecurity system is in place for human, animal, and agriculture facilities			2. Biosafety and biosecurity training and practices	
Main technical areas:	1.1 Actively monitoring and developing an updated record and inventory of pathogens within facilities that store or process dangerous pathogens and toxins. 1.2 Implementing enacted comprehensive national biosafety and biosecurity legislation. 1.3 Implementing laboratory licensing and pathogen control measures including requirements for physical containment and operational practices and containment and failure reporting systems. 1.4 Completed consolidating dangerous pathogens and toxins into a minimum number of facilities. 1.5 Employing diagnostics that preclude culturing dangerous pathogens. Implementing oversight and enforcement mechanism, and ministries have made available adequate funding to support the comprehensive national biosafety and biosecurity system.			2.1 Country has a training program in place at all facilities housing or working with dangerous pathogens and toxins. 2.2 Training on biosafety and biosecurity has been provided to staff at all facilities that maintain or work with dangerous pathogens and toxins. 2.3 Country is implementing a train-the-trainers program. 2.4 Country has in place sustained academic training in institutions that train those who maintain or work with dangerous pathogens and toxins. 2.5 Country has funding and capacity to sustain biosafety and biosecurity training.	
Capacity evaluation levels:	No capacity	Limited capacity	Developed capacity	Demonstrated capacity	Sustainable capacity

and law-enforcement efforts.

Of note, for the purpose of UNSCR 1540, the Security Council defines "related materials" as "materials, equipment, and technology covered by relevant multilateral treaties and arrangements, or included on national control lists, which could be used for the design, development, production or use of biological weapons and their means of delivery." The matrices developed by the 1540 Committee to monitor the implementation of UNSCR 1540 identify the following areas where national controls should be implemented and enforced for BW-related materials: measures to account for and secure production of these materials; measures to account for and secure the use of them; measures to account for and secure storage facilities; measures to account for and secure transport of BW-related materials; regulations for physical protection of facilities, materials, and transport conveyances; licensing or registration of facilities and persons handling biological materials; reliability checks of personnel; measures to account for, secure, and physically protect means of delivery; regulations for genetic-engineering work; and other legislation or regulations related to the safety and security of biological materials.

Of note, an analysis of the UNSCR 1540 matrices (updated for all UN member states in December 2015) prompted several statements at the 2016 Comprehensive Review, including from U.S. Ambassador Samantha Power, highlighting biosecurity as one of the weak areas of implementation. Unlike the JEE, which provides a graded approach for assessing national capacities for biosafety and biosecurity (from "no capacity" to developed, demonstrated, and sustainable capacity), the 1540 matrix template provides no technical questions to assess relevant capacities or chart a roadmap for improvement.

Notably, the latest revision of the 1540 matrix template included a footnote for the section on accounting for, securing, and physically protecting BW-related materials stating that information required in this section may also be available in the state's Confidence-Building Measures (CBM) report, if submitted to the BWC Implementation Support Unit. CBMs' purpose, as originally agreed to by BWC member states, is "to prevent or reduce the occurrence of ambiguities, doubts and suspicions and in order to improve international co-operation in the field of peaceful biological activities."

CBMs include voluntary exchanges of information about research centers and laboratories, national biological-defense research-and-development programs, vaccine-production facilities, and unusual outbreaks of infectious diseases. In addition, states have the opportunity to report relevant laws, regulations, or other measures related to their national biosafety and biosecurity frameworks, which for the most part overlap with the requirements of UNSCR 1540.

In order to strengthen the BWC, parties to the Convention agreed upon the value of: implementing voluntary management standards on biosafety and biosecurity; apprising those working in the biological sciences and related professionals in the private and public sectors of obligations imposed by the Convention as well as national law; encouraging the development of education programs and voluntary codes of conduct to promote a culture of responsibility for those with access to biological agents and toxins relevant to the Convention; and strengthening methods and capacities for surveillance and detection of outbreaks of disease at the national, regional, and international levels.

The link between BWC implementation and UNSCR 1540 is emphasized in National Implementation Action Plans submitted to the 1540 Committee. The Security Council has called on all states to prepare such plans on a voluntary basis, mapping out priorities and paths forward for implementing the key provisions of UNSCR 1540. Sixteen out of the 25 plans posted on the 1540 Committee website discuss the BWC in various contexts. Further highlighting the synergy and convergence between UNSCR 1540 and the BWC, the parties to the Convention declared at the Seventh Review Conference that

> terrorism in all its forms and manifestations and whatever its motivation, is abhorrent and unacceptable to the international community, and that terrorists must be prevented from developing, producing, stockpiling, or otherwise acquiring or retaining, and using under any circumstances, biological agents and toxins, equipment, or means of delivery of agents or toxins, for non-peaceful purposes, and their recognition of the contribution of the full and effective implementation of United Nations Security Council Resolution 1540, United Nations General Assembly Resolution 60/288, and other relevant United Nations resolutions.

The Review Conference also noted that that "information provided to the United Nations by states in accordance with Resolution 1540 may provide a useful resource for States Parties in fulfilling their obligations under this Article [III]." It would be worth monitoring how BWC member states express their support for UNSCR 1540 at the upcoming Eighth Review Conference. After all, the conference will mark the first time representatives from the 1540 Committee and its Group of Experts have attended meetings of BWC experts and member states and provided statements and presentations.

The Ebola epidemic in Africa highlighted the urgent need to establish global capacities to prevent, detect, and respond to biological threats and to prevent future outbreaks from becoming epidemics. It also provided a fresh impetus for launching the Global Health Security Agenda in 2014. The GHSA is a multilateral and multi-sectoral initiative bringing together over 50 countries with international and nongovernmental organizations to strengthen global capacities to prevent, detect, and rapidly respond to infectious disease threats, whether naturally occurring, accidental, or deliberately spread. It also promotes progress toward full implementation of the WHO IHR, the World Organization for Animal Health (OIE) Performance of Veterinary Services (PVS) pathway, and other relevant global health-security frameworks.

GHSA members may undergo a voluntary, collaborative process to assess their health-security capacities. They can harness the JEE Tool for an initial self-evaluation, followed by an in-country evaluation conducted by a GHSA external evaluation team made up of subject-matter experts. Such evaluations unfold in close collaboration with the national government. Furthermore, the evaluation process informs the country's efforts to plan and set priorities, including highlighting areas where financial or technical assistance is needed so that both current and prospective donors and partners may help fill identified gaps with resources. Countries are encouraged to join any of the 11 GHSA "Action Packages." Built on a Prevent-Detect-Respond Framework, Action Packages commit participating governments to building capacity at the national, regional, or international levels.

The five-year target of the Biosafety and Biosecurity Action Package (GHSA Action Package Prevent-3) is identical to the desired impact in this area set forth in the IHR (as stated in the JEE). The Action Package focuses on putting a "whole-of-government national biosafety and biosecurity system" in place; ensuring that especially dangerous pathogens are identified, held, secured, and monitored in a minimal number of facilities according to best practices; ensuring that biological risk-management training and educational outreach are conducted to promote a shared culture of responsibility; reducing dual-use risks; mitigating biological proliferation and the threat of deliberate BW use; ensuring safe transfers of biological agents; and ensuring country-specific biosafety and biosecurity legislation, laboratory licensing, and pathogen-control measures are in place. It also measures progress in the number of countries with national frameworks and comprehensive oversight systems for pathogen biosafety and biosecurity, strain collections, containment laboratories, and monitoring systems. Also of interest is how many countries store national strain collections in as few facilities as possible.

To ensure successful implementation of the Biosafety and Biosecurity Action Package, countries are provided with lists of five-year national action items, baseline assessment and planning activities,

and monitoring and evaluation activity. The activities and capacities so developed are closely linked to these countries' obligations under UNSCR 1540. Unfortunately, this link is not highlighted in GHSA Action Packages. Practitioners or policy-makers, consequently, may remain unaware of additional opportunities for coordination and optimization of national resources. By contrast, the BWC is mentioned twice: in the GHSA Real-Time Surveillance Action Package and the GHSA Linking Public Health with Law and Multi-sectoral Rapid Response Action Package.

According to the World Food Program, about ten million inhabitants (69 percent of the population) of the landlocked West African country of Mali live below the national poverty line. The majority of the rural population is dependent on subsistence farming and livestock herding. The political and security situation in Mali has been particularly volatile in recent years. There was a military coup in 2012, while rebel attacks have left militant Islamist groups in control of the northern region. While a peace agreement was signed in 2015 between the government and two rebel coalitions (known as the "Platform" and "Coordination" groups), implementing the agreement remains a challenge. Security remains fragile, with jihadist groups continuing attacks on the UN force, the Malian army, and civilians in the capital of Bamako.

This situation also took a toll on the health-systems infrastructure, workforce, and services. With difficult security and development challenges, Mali embarked on a process with USAID support to implement a strategy aimed at improving health through high-impact health services and encouragement of healthy behaviors. In 2015, notably, the United States announced that it would invest more than $1 billion under the Global Health Security Agenda to prevent, detect, and respond to future infectious disease outbreaks in 17 countries—including Mali.

Mali developed a five-year roadmap to meet its GHSA targets. To meet the GHSA objective of "promoting national biosafety and biosecurity objectives," the Ministry of Health will establish a biosafety and biosecurity committee to draft biosecurity legislation and a strategic plan. The committee will collaborate with the Ministry of Agriculture to develop national policy on biosafety and biosecurity that covers both human and animal health. A regional Biosecurity Center of Excellence will be founded at the University of Bamako.

Mali's GHSA roadmap also includes plans to revise the "existing National Biosecurity Framework" and draft supporting biosecurity legislation. This seems to refer to Mali's National Biosafety Framework (French: Cadre National de Biosecurité) of April 2005, a measure undertaken to help implement the Convention on Biological Diversity—Cartagena Protocol on Biosafety. These accords seek to protect biological diversity and are loosely related to GHSA objectives at best. In the context of the Cartagena Protocol, translating "biosecurité" as "biosafety" may be acceptable to advance the cause of laboratory biosafety. Yet these are two separate concepts with distinct meanings and approaches to risk mitigation. Protecting people from germs, the goal of biosafety, is quite a different enterprise from protecting germs from people, the goal of biosecurity.

Notably, the roadmap illustrates international collaboration with U.S. agencies such as USAID and the U.S. Department of Health and Human Services (the National Institutes of Health and the Centers for Disease Control), as well as national stakeholders' participation (government entities, academic institutions such as the University of Bamako, and professional organizations such as the Mali Association for Biosafety and Biosecurity (MABB). Earlier this year, the MABB, co-organized a week-long course and hands-on training for scientists and laboratory staff in conjunction with the International Federation of Biosafety Associations. Topics covered included responses to real-life spill scenarios, the proper use of personal protective equipment, and the packaging and shipment of infectious materials. The five-year roadmap is expected to significantly improve Mali's efforts to meet its IHR obligations, putting core capacities in place for early detection, timely notification, and response to infectious diseases.

In the 21st century, because diseases emerged as critical and pervasive threats to both human health and security, they became a concern for the UN Security Council, which is charged under the UN Charter with maintaining international peace and security. Resolutions adopted by the Security Council effectively deemed the HIV/AIDS epidemic and the Ebola outbreak threats to international peace

and security. The UN Mission for Ebola Emergency Response (UNMEER) was the first-ever UN emergency health mission and was led by the WHO, UNMEER was established on September 19, 2014 and closed on July 31, 2015 as Guinea, Liberia, and Sierra Leone scaled up their response and established unity of purpose among responders in support of the nationally led efforts.

The response to the Ebola outbreak also prompted several statements and presentations on this topic at recent BWC meetings. Of note, Mali joined the BWC in 2002 but has never submitted a slate of CBMs and has only participated in four meetings: the Preparatory Committee meetings for the Seventh and Eighth Review Conferences, and the 2014 and 2015 meetings of parties to the Convention.

At the 2014 meeting of BWC member states, Mali ambassador Aya Thiam Diallo took the floor and provided a statement raising the the possibility that the life sciences could be diverted into non-peaceful purposes. Diallo also spotlighted the global threat that could be posed should nonstate actors such as terrorist groups acquire biological weapons. Such concerns fall directly under the scope of UNSCR 1540, which requires all UN member states to adopt legislation to prevent the proliferation of biological weapons and their means of delivery, and to establish appropriate domestic controls over related materials to prevent their illicit trafficking.

Even so, Mali is one of the few countries that has yet to submit a national implementation report to the 1540 Committee. The national matrix tailored by the 1540 Committee and its Group of Experts to monitor the implementation of UNSCR 1540 in Mali and facilitate technical assistance shows almost no measures pertaining to biosecurity (accountability and security of BW-related materials). The matrix mentions Decree 10-683/P-RM of December 30, 2010, which sets forth the attributions, composition, and operating procedures for the National Committee for Biosafety, an inter-ministerial body established to implement the Convention on Biological Diversity, not BWC provisions covering biosafety and biosecurity. It also mentions public-health measures such as Law 98-036, on the Fight against Epidemics and Mandatory Vaccinations; Decree no. 04-1683/MS-SG of August 25, 2004, which established a National Network of Laboratories to oversee integrated disease surveillance and rapidly confirm epidemics; and the 2005 Guide to Good Performance Analyses in medical laboratories.

Notably, Decree No. 09-049/PM-RM DU of 12 February 2009 created an inter-ministerial committee to support reporting on the implementation of international conventions ratified by Mali. Based on the geopolitical and security situation in Mali, this inter-ministerial committee could, in theory, undertake the additional tasks of evaluating the national implementation of UNSCR 1540, reporting to the 1540 Committee, drafting a National Implementation Action Plan, and submitting assistance requests to the 1540 Committee as needed.

In recent years Mali has received increased focus and support from the international community as it strives to strengthen health security. However, there is still a lack of inter-ministerial cooperation in linking public health and security, in particular as it relates to meeting the obligations of the IHR, the BWC, and UNSCR 1540. Mali also lacks awareness of international assistance mechanisms other than IHR capacity-building under the GHSA. In order to address its multitude of security and health challenges, Mali should pursue civic, scientific, and governmental partnerships to facilitate a common understanding of the BW and bioterrorism threats. And it should actively participate in and fully comply with its international obligations by taking advantage of the relevant mechanisms of assistance. It should capitalize, for instance, on the BWC Assistance and Cooperation Database and the 1540 Committee—the matchmaker between governments that request assistance and those that offer it.

A Roadmap for Nuclear Security Culture

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The International Atomic Energy Agency defines nuclear security culture as "the assembly of characteristics, attitudes and behavior of individuals, organizations and institutions which serves as a means to support and enhance nuclear security." Security culture is a supporting and enhancing tool for nuclear security. Its role can be deduced from the definition of nuclear security, which is "the prevention and detection of, and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear material, other radioactive substances or their associated facilities."

Developed in the aftermath of the 9/11 terrorist acts, this new concept of nuclear security is noteworthy in that it goes beyond physical protection, accounting, and control measures. This cross-cutting concept—explicitly or implicitly—covers a much wider playing field, including cargo inspection; customs and border security; export control; cooperation to identify and interdict shipments of dangerous material; interception of illicit trafficking; and personnel reliability screening and training.

Security culture is applicable to the entire workforce at a facility and can be an effective tool to address both unintentional and intentional breaches of security. While well-designed training programs, improved ergonomics, and efficient personnel recruitment policies deal with inadvertent security problems, deliberate breaches stem from malice. Insiders divert nuclear materials or commit acts of sabotage, either on their own or in collusion with outsiders. Security culture is a major tool to address the insider threat.

A multitude of sources can contribute to the goals of an effective and sustainable security culture. Prevailing practices now incorporate many of these sources:

- National leaders and industry managers who act as role models, for instance by convening a series of Nuclear Security Summits involving over fifty national leaders
- IAEA training activity and methodology development that contributes to enhanced, sustainable cultures of security
- Flexible management systems that conform to risk and vulnerability assessments and emphasize the role of the human element
- Continuous learning on the organizational level, including initial training, periodic training, education programs, and quality assurance for training and trainers
- Widely publicized IAEA-supported pilot projects on self-assessment, learning, and awareness-raising in select countries
- Participation of staff members in national and international events relevant to nuclear security
- Increased emphasis on nuclear security in university syllabi and in graduation requirements at higher-education institutions

An effective security culture can yield numerous benefits. It encourages the workforce to remain vigilant, question irregularities, execute its work diligently, and exhibit high standards of personal and collective accountability. It is no panacea, but it can contribute to a vibrant and robust security regime, and it spans the entire workforce. It is also responsive to a threat milieu in which risks are too numerous to predict, even for the most farsighted leader.

Other potential benefits of security culture include better IT security and protection of trade secrets; improved safety arrangement; across-the-board reductions of theft and diversion; reduced risks of vandalism and sabotage by employees and outsiders; improved mechanisms for personnel control and accountability under emergency conditions; and better relationships with local authorities and surrounding communities. In addition, an institutionalized security culture across a given sector, introduced in coordination with the government, may facilitate auditing and inspections

whereby government officials verify compliance with security standards.

NUCLEAR SECURITY CULTURE: PROGRESS MADE

In 2008, the IAEA published an Implementing Guide on nuclear security culture. The guide defines the concept and characteristics of nuclear security culture while describing the roles and responsibilities of institutions and individuals entrusted with functions in the security regime. Since then, the IAEA has conducted over 25 international, regional, and national workshops to promote security culture and train nuclear-security personnel at all levels in the application of the methodology.

Two draft Technical Guidance documents are under development and are expected to be released from 2016-2018. They are "Self-Assessment of Nuclear Security Culture in Facilities and Activities" and "Enhancement of Nuclear Security Culture in Facilities and Activities." The draft self-assessment methodology was successfully put to the test assessing security culture at Indonesia's research reactors (2012-2013); at Bulgaria's nuclear power plant (2014); and Malaysian hospitals employing radioactive sources (2014-2016). The results of these appraisals were submitted to IAEA technical meetings and discussed at international conferences.

Of equal importance was an IAEA initiative to launch a coordinated research project titled "Development of Nuclear Security Culture Enhancement Solutions" (NSCES). The project conducted analysis and research of approaches and methods while developing additional practical tools to assess and enhance nuclear security culture. The project is designed to refine assessment and enhancement methodologies while integrating security culture into well-established societal values using the IAEA model as a template. IAEA member states were invited to join one of four working groups established under this project and delegate experts to share their experiences and contributions in the realm of culture.

The Nuclear Security Summits in Washington (2010), Seoul (2012), The Hague (2014), and Washington (2016) boosted the concept and practical applications of nuclear security culture. The Hague summit, for example, encouraged all relevant stakeholders to build and sustain a strong nuclear security culture to effectively combat nuclear terrorism and criminal threats. The summit emphasized the need to develop a nuclear security culture, with a particular focus on the interface between safety and security. The Hague summit communique listed nuclear security culture as one of three pillars of nuclear security—the other two being physical protection and materials accountancy.

The Washington summit, held in March 2016, was the last in the series of Nuclear Security Summits. The summit adopted five action plans for five international organizations and initiatives that are to take over and further pursue the summit agenda. Three of them—the IAEA, United Nations, and Global Partnership against the Spread of Weapons and Materials of Mass Destruction—are assigned roles in nuclear security culture. The IAEA will (1) enhance the practice of nuclear security culture so that it is infused into all elements of national nuclear-security regimes, and (2) increase assistance to states to develop and foster their own nuclear security cultures, including through published guidance and self-assessment and training materials. The Global Partnership is invited to provide assistance and coordinate programs and activities that help develop nuclear security culture. The role of the United Nations is less precise, as the world organization is invited to provide assistance to improve nuclear security culture (<http://www.nss2016.org/2016-action-plans/>). It remains unclear how the post-summit players will interact and collaborate in pursuit of this objective.

A WAY FORWARD: CHALLENGES AND OPPORTUNITIES

The momentum propelling nuclear security culture has now reached the point where a global roadmap toward a comprehensive and coordinated strategy is needed. Given the diversity of institutions and stakeholders involved, it would be rational to identify three distinct tiers designed to interact with and complement each other, both vertically and horizontally: global, national, and IAEA tiers. Due to its unique expertise, the IAEA must be designated to play a leading role.

A. GLOBAL TIER

Efforts to encourage all states to consent to be bound by both the Convention on Physical Protection of Nuclear Material (CPPNM) and its 2005 Amendment, which came into force in May 2016.

It is paramount that the international community facilitate common or compatible approaches toward integrating provisions of the 2005 Amendment into national legal frameworks, including its Fundamental Principle F (security culture). The IAEA is expected to contribute to this process. According to Principle F, all organizations involved in implementing physical protection should give due priority to developing and maintaining security culture, implanting it throughout entire organizations (Amendment to the Convention on Physical Protection of Nuclear Material, <http://ola.iaea.org/ola/treaties/documents/FullText.pdf>). Now that the Amendment has come into force, member states that join via ratification accept that nuclear security culture is part of international law—on par with other major elements of physical protection.

Coordination of security-culture activities specified in the action plans adopted by the 2016 Nuclear Security Summit in Washington.

The objective of these plans was to sustain political momentum while continuously strengthening nuclear security at the national, regional, and global levels. As indicated above, three of them (corresponding to the United Nations, IAEA, and Global Partnership) contained recommendations to promote nuclear security culture. The past record of such coordination among international players and initiatives, however, provides little hope for effectively organized and smoothly implemented activity. The Nuclear Security Contact Group, an expanded version of the post-summit "Sherpa family" designed to convene on the margins of nuclear-security-related fora, must make a priority of addressing coordination problems. The first opportunity to do so will come at a ministerial meeting of the IAEA International Conference on Nuclear Security: Commitments and Actions, scheduled for December 5-9, 2016.

A mechanism to apply IAEA methodologies for nuclear security culture to other domains, in particular the chemical and biological domains, to achieve a common architecture of CBRN security culture.

Security culture exists in many areas beyond the nuclear domain, helping safeguard sensitive materials, protect assets, and prevent acts of sabotage. However, efforts to promote culture remain largely isolated from one another, bereft of sufficient horizontal communication. Security experts espouse similar ideas and concepts, but they need a platform to achieve cross-fertilization. Such platform resides in UNSCR 1540 (2004), whose strength lies in its mandatory legal status for all UN members. Importantly, the focus must be on enlisting nongovernmental stakeholders in UNSCR 1540 implementation. The business community, academia, nongovernmental institutions, and the public must act as partners in this endeavor. Culture is a crucial motivator where the force of law is lacking. In this spirit, the IAEA can take a significant step forward by reaching out to the 1540 Committee and its Group of Experts.

B. NATIONAL TIER

Support for national regulators to incorporate nuclear-security provisions into existing or new oversight documents.

Security culture will benefit significantly from systematically applied regulatory oversight at all facilities and activities, both throughout their operating lifetimes and during the commissioning and decommissioning phases. Regulatory oversight of security culture would complement compliance-based control, carried out through inspections of facilities and activities to verify a licensee's compliance with regulatory requirements. A major challenge is how to integrate regulatory bodies as major stakeholders, assigning them appropriate legal authority that takes into account the intangible nature and multidisciplinary complexities of nuclear security culture. Among the benefits deriving from effective regulatory bodies are (a) harmonizing good practices; (b) harnessing experience and lessons-learned from safety culture; (c) tightening the interface between safety and security culture; and (d) establishing channels for exchanging information and experiences.

Promotion of university-based education and professional training programs focusing on nuclear security culture.

Through supporting the growth of nuclear security as part of university courses, governments can fill an important educational and training gap in this area, and in doing so embed a culture of security from the early stages of future nuclear professionals' careers. Course development in this area represents a challenging task, due in large part to its broad and intrinsically multidisciplinary nature. This requires academia to reach beyond traditional disciplinary boundaries, cover unfamiliar topics, and employ a wide range of innovative teaching and assessment methods. In order to explore these complex topics, frameworks and concepts must be drawn from both the hard and soft sciences, with relevant fields including physics, engineering, information technology, applied security studies, management and behavioral studies, and psychology. The IAEA International Nuclear Security Education Network (INSEN) has been providing substantive support for national educational institutions. INSEN must expand its outreach to so-called nuclear newcomers, countries currently at the conceptual or implementation stages of building national nuclear-power infrastructure.

Making nuclear security culture sustainable at national facilities and institutions.

An important measure of success for security-culture promotion is whether its implementation is sustainable rather than fleeting. One way to achieve this goal is to integrate it into general societal values, using popular attitudes toward security to complement the facility-focused IAEA approach. Such a two-tiered architecture would consist of the facility-based model at the micro-level, deriving its strength in part from national perceptions and policies toward nuclear issues, and of societal values at the macro-level, as a source of such national perceptions and policies.

The input expected from the macro-level includes (a) popular pressure to comply with relevant international legal instruments and participate in international programs; (b) the weight national leaders place on nuclear security; (c) consistent focus from the nuclear industry on security and related issues; (d) action from national authorities to criminalize and prosecute crimes associated with nuclear material and the security of nuclear installations; (e) public awareness of and involvement in security matters; and (f) visible effort from educational institutions and academia to promote awareness of nuclear security and build capacity in these domains.

Ideally, the micro- and macro-levels combined will harness the human component to generate more sustainable nuclear security. In addition, a sustainable security culture will depend on the efforts of individual countries to assimilate generic international standards into their national cultures while integrating these standards into their prevailing organizational cultures. Such efforts may require a multidisciplinary approach involving a wide range of non-technical experts. They must incorporate all relevant stakeholders.

Treating the general public as a major stakeholder.

The general public should view nuclear security culture as a sign of professionalism, skill, and accountability by all actors involved in the protection of nuclear and radioactive materials, the facilities associated with these materials, and the conveyances and procedures used to transport them. Every group or organization in the nuclear field should work toward raising security awareness among the populace and media.

To communicate effectively about security-culture issues, government officials and nuclear-facility operators must understand and respect the public's very real worries about radiological safety and security. The public understands and is largely concerned that terrorists may breach the safety and security features built into nuclear installations. Citizens typically question whether security systems are adequate, and they take an active interest in making security robust enough to keep safety features reliably operational. Accordingly, meaningful strategies for conveying the nature and magnitude of risk and following up with the public are crucial.

C. IAEA TIER

The IAEA can play a pivotal role as a global coordinator and leader in the efforts to enhance nuclear security culture.

The IAEA is in a position to (a) provide IAEA member states with tools to promote and sustain a strong nuclear security culture; (b) evaluate the level of

nuclear security culture and progress made toward enhancing it; and (c) coordinate with international agencies to emphasize the importance of nuclear security culture. To this effect, the IAEA needs to acquire human, organizational, and technical capacity to accomplish the following missions:

- Promoting the IAEA's and other relevant methodologies among member states, and training nuclear personnel to use these methodologies
- Tailoring generic IAEA methodologies for nuclear security culture to specific types of facilities and activities, with due regard for risk and vulnerability assessments—for sites that house or transport radioactive sources, for example
- Promoting relationships between security and safety culture that pave the way for closely coordinated assessment and enhancement
- Collaborating with other organizations and initiatives to promote nuclear security culture
- Including components of nuclear security culture in ongoing programs such as the International Physical Protection Advisory Service, International Nuclear Security Advisory Service, Integrated Nuclear Security Support Plan, and Integrated Regulatory Review Service
- Engaging other international organizations and non-nuclear industries to share the IAEA experience and make nuclear security culture part of a comprehensive CBRN security culture
- Developing outreach materials such as program brochures, posters, and a website on nuclear security culture
- Involving academia in conducting in-depth research on security-culture-related topics
- Supporting submission of technical and non-technical papers to appropriate journals

CONCLUSION

As nuclear security culture becomes a widely recognized tool in efforts to bolster nuclear security, it is imperative to introduce a comprehensive and coordinated strategy for accommodating emerging needs and facilitating its further progress on three tiers: global, national, and at the IAEA. Specific actions outlined for each tier do not represent exhaustive lists in any way. Rather, these are samples and illustrations of what needs to be accomplished over the long term.

Development of such a roadmap for nuclear security culture poses a daunting challenge because intangible human characteristics like beliefs, attitudes, and perceptions comprise culture, while measuring and improving cultural traits requires a multidisciplinary and interpretive approach. Moreover, security culture is a multi-stakeholder construct and a cross-cutting element for many areas of nuclear security. Still, managing security culture can draw on rich experience with organizational culture and, in particular, nuclear safety culture. Proponents of these cultural domains must be open for collaboration and interaction, lending their expertise and insight to this effort.

Background Paper for the Formal Open Consultations by the 1540 Committee

On 20 April 2011, the Security Council unanimously adopted resolution 1977 (2011), which reaffirmed its resolutions 1540 (2004), 1673 (2006) and 1810 (2008), and stated that the Committee shall continue to intensify its efforts to promote the full implementation by all States of resolution 1540 (2004), and extended the mandate of the Committee for a period of 10 years until 25 April 2021.

Paragraph 3 of resolution 1977 (2011) states that the Committee will conduct a comprehensive review on the status of implementation of resolution 1540 (2004), both after five years and prior to the renewal of its mandate, including, if necessary, recommendations on adjustments to the mandate, and will submit to the Security Council a report on the conclusions of those reviews, and decides that the first review should be held before December 2016.

The Committee developed a set for modalities for the conduct of the 2016 Comprehensive Review[1] (the "Review"). In terms of these Modalities, the Review should be both retrospective and forward-looking. It should draw on an analysis of implementation of resolution 1540 (2004), based on information available to the Committee, including the approved matrices and inputs from Member States and related intergovernmental and regional and sub-regional organisations. The Review is intended to address ways of improving the implementation of the resolution by Member States by identifying and recommending specific, practical and appropriate actions to this end, and to analyse the operation of the Committee in the conduct of its tasks and recommend any changes considered necessary.

The Committee adopted a thematic approach for the Review based on the following themes:

MONITORING AND NATIONAL IMPLEMENTATION

1. An analysis of the status of implementation of the resolution by States including identifying the key trends in implementation, including identifying gaps in implementation and, as far as practicable, identify the reasons;

2. Identify shortcomings in the current system of data collection, storage, retrieval, presentation and analysis including in reporting by States and sharing of effective practices, and recommend ways to enhance the capacity to maintain, update, retrieve, present and analyse the data, including identifying the core data needed to assess implementation;

3. Drawing on experience with direct interactions with States, recommend appropriate ways to intensify and promote these interactions;

ASSISTANCE AND COOPERATION WITH INTERNATIONAL ORGANIZATIONS

4. Drawing on the experience in operating the 1540 assistance mechanism, analyse the Committee's role in facilitating "match-making" and recommend improvements to bring about the prompt delivery of assistance;

5. Seek ways to support States to better understand the assistance mechanism to identify needs and priorities, to prepare well-developed assistance requests and to enhance collaboration with potential providers on an individual or, possibly, a regional basis;

6. Analyse the experience of the Committee's collaboration with international and regional organisations and seek improved ways of enhancing the collaboration of the Committee with directly related international, regional and sub regional organisations, and other United Nations bodies;

7. Identify better methods for regional organisations to support building networks of 1540 Points of Contact, encouraging reporting to the Committee and developing opportunities for the Committee's direct interactions with States;

TRANSPARENCY AND MEDIA OUTREACH

8. Examine the experience of the Committee's outreach to States and civil society including academia, industry, professional associations and parliamentarians;

9. Recommend how best to improve outreach to these sectors including through publications and electronic means and, as appropriate, the use of social media and building a 1540 network including, in an appropriate way, civil society;

10. An examination of the current structure and methods for supporting the 1540 Committee in the execution of its tasks and to recommend any improvements needed flowing from the analyses.

OBJECTIVE OF THE CONSULTATIONS

The objective of the consultations is to provide participants with an opportunity to inform the Committee of their views on the implementation of resolution 1540 (2004), in particular to recommend practical ideas for the improvement of its implementation.

This background paper is intended to give an introduction to the principal themes of the agenda for the consultations. It is based on the data available through the matrices and the Committee's interaction with States and other entities. The Committee's conclusions and recommendations will be further developed drawing on the views of Member States and inputs from international, regional and sub-regional organisations and civil society.

WHAT HAS BEEN DONE SO FAR?

The Committee, in accordance with a schedule of outreach events engaged Member States, international, regional and sub-regional organisations and civil society on the Review. These events included in 2015 a briefing to the Security Council on the process of the Review; a 3 discussion by the Chair of the Committee with participants of the Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons; a meeting of former experts that supported the work of the Committee from 28-29 May 2015 in Cape Town, South Africa. In 2016 the Committee held a seminar on the changing nature of proliferation threats; an informal meeting of the Committee with relevant international organisations and other relevant United Nations Committees and Panels with representation in New York; participation in an African Union 1540 Review and Assistance Conference in Ethiopia, and; a Committee initiated dialogue with academia and civil society on 11-12 April 2016.

From 12-13 May 2016, a special Committee meeting was held in Madrid, Spain, to undertake an informal, forward looking discussion of how best to develop full and effective implementation of resolution 1540 (2004) on a global basis in the context of the Review. Relevant international and regional organisations also participated in the meeting.

From 2014 to 2016 the Committee, with the support of the Group of Experts, reviewed the data in the Committee's matrices of all 193 Member States. The matrices contain the data at the time they were reviewed of the measures taken by States to implement the obligations under resolution 1540 (2004). The revised matrices were sent to Member States for comment and the final versions were approved by the Committee for publication on its web site [2]. The data recorded in these matrices provide an important input to the Review.

PROLIFERATION RISKS

The setting in which States are implementing resolution 1540 (2004) obligations is being taken into account in the Review. This is not only in relation to the individual circumstances of States but also in terms of the proliferation risk environment. Two factors are of importance, namely:

- The evolution in the activities of non-State actors and, in particular, the nature of terrorism, in the period under review, and;
- The relevant advances in the fields and science, technology and international commerce.

The Review should, therefore, take account of the changes that have a material effect on such implementation. Terrorist groups and their supporters have indicated clearly by their actions and stated intentions that they are set on the use of extreme violence. The use of weapons of mass destruction is not a theoretical prospect. For example, improvised chemical weapons have been used in the Middle East. Terrorist groups such as ISIL occupy large areas of territory, engage in illicit commercial operations that provide them with significant financial resources and are known to recruit personnel with capabilities that might support the development of weapons of mass destruction programmes.

The need to counter the risk of the proliferation of weapons of mass destruction that is increased by the evolving nature of terrorism is further complicated by the rapid advances in science, technology and international commerce. While they bring important humanitarian and economic benefits, and should be promoted and safeguarded, there are risks of misuse that Member States must address in meeting their obligations under resolution 1540 (2004).

MONITORING AND NATIONAL IMPLEMENTATION

Analysis of the data shows that progress has been made in the implementation of resolution 1540 (2004) over the last five years. However, the rate of progress confirms that accomplishing the objective of full implementation of the resolution is a long-term task that will require continuous efforts with sustained and intensified support from the Committee. Continuing support will also be required from other components of the United Nations and relevant international, regional and sub-regional organisations. Continuing support from Member States and multinational arrangements remains essential.

It is clear that most States increased their measures for the implementation of resolution 1540 (2004), especially in taking legal actions to prohibit activities of non-State actors related to nuclear, chemical and biological weapons and their means of delivery. Although some progress has also been made in relation to accounting, security and export control measures, it is clear, that for many States there remain significant efforts to be undertaken to address gaps in these areas of implementation. At a regional level, there is also differentiated progress on the implementation of the resolution. There is also differentiation in implementation between the three types of weapons (nuclear chemical and biological) and related materials.

The recorded implementation measures increased globally over the period under review. The global increase of 7%, in recorded measures masks greater increases in some regions such as Africa and Eastern Europe. Importantly, States with lower implementation rates in 2011 have generally shown an increase of about 12% by 2016.

THE WEAPONS

NUCLEAR

In the nuclear area increases in implementation

in the area of prohibitions (operative paragraph 2) are encouraging, but the picture in the area of controls (operative paragraph 3) is more varied. There has been an increase overall in control measures adopted since 2011 in the nuclear area. However, the increases are mostly related to national legal frameworks and are not matched in the area of enforcement measures; this is not surprising as the majority of States have IAEA Safeguards Agreements, which encourage States to take action on legal frameworks. Another factor that influences the degree of implementation is that peaceful uses of nuclear energy differ significantly from one region to another. For example in one region there are more than 600 nuclear facilities while in another there are just four. There is a positive correlation between the scale of use of nuclear energy and the implementation rate for nuclear materials.

CHEMICAL

With regard to the chemical area the increase in the number of recorded measures of 15% between 2011 and 2016 is encouraging. There has been a satisfying increase in other aspects too. For example, in 2016, 161 States have a legal framework in place to prohibit manufacture of chemical weapons by non-State actors as compared to 135 in 2011. With regard to security of chemicals in transportation and physical protection measures in facilities the picture is less encouraging with only slight or no increases in recorded measures. This provides an indication of where more work and collaboration with partners are needed.

BIOLOGICAL

While there has been an increase in recorded measures for prohibitions on biological weapons (operative paragraph 2) with regard to non-State actors. As in the other weapons areas additional efforts are needed in the area of enforcement. For example in 2016, only 116 out of the 193 Member States are recorded as having a specific prohibition on the possession of a biological weapon by non-State actors. The weakest area for recorded legal measures is in the security, accounting and transport of biological materials. However, care must be taken in interpreting these data taking into account the relatively fewer legally binding measures for biological security arising from global legal instruments such as the Biological and Toxin Weapons Convention, as compared to the nuclear and chemical areas.

OTHER OBLIGATIONS

For proliferation financing issues, the trend reveals an overall increase in recorded implementation measures since 2011. For the most part counter-terrorism financing measures were used where their application could possibly cover weapons of mass destruction. However, very few States have dedicated proliferation financing legislation and controls for non-State actors.

With regard to trends in the field of export and border controls there is a steady increase in recorded implementation measures being put in place by States To give some numbers: For nuclear, chemical and biological materials, 178, 179 and 176 States respectively have adopted border controls, (compared to 163, 166, and 167 States in 2011): 137, 130 and 103 adopted legislation on export controls, (compared to 116, 124,113 in 2011) 94, 108, 77 have implemented Control lists (compared to 79, 85 and 72 in 2011).

In addition, more States have addressed their efforts to providing appropriate and effective sanctions for violations of border and export control regulations. With regards to licensing provisions, an increasing number of States have adopted enforcement measures to penalize violations too. For example, since 2011 in the NW field: 30 more States introduced enforcement measures generally related to licensing provisions, 39 more States introduced enforcement measures related to individual licensing and 16 more States related to violations of general licensing rules.

However, when it comes to the picture of regional implementation the analysis of the data shows that in general, there still are regional differences and the data analysis allows for assessment which regions are those where most assistance is likely to be needed. In this regard it is also important to take account of the widely varying industrial infrastructure within and between the regions concerned.

REPORTING

The data for the matrices originates primarily from information provided by States to the Committee in the form of national reports. In addition, publically available official government information as well as such government information made available to

intergovernmental organisations, are also utilised to record 1540 relevant implementation measures in the matrices. With the recent updating of the matrices, the Group of Experts had to increasingly rely on such information.

By 25 April 2016, 176 States had provided the Committee with their reports on measures taken for the implementation of resolution 1540 (2004). They contain a varying degree of information. Of those States that submitted reports, 61 States provided only one report, 29 States provided two reports, and 86 States provided more than two.

In terms of the 427 reports submitted to date, most, 331 (78%), were submitted between 2004 and 2008. From 2009 until 2010 only a further 12 reports were submitted. From 2011 until 2015 there was an encouraging increase with a total of 84 reports being submitted. Since 2011, the number of non-reporting States has been reduced to 17 States from. Of these remaining non-reporting States, 13 are from Africa, three from the Asia-Pacific region and one from the Latin America and Caribbean region. Efforts are ongoing to facilitate the submission by these 17 States of their first 1540 reports.

VISITS TO STATES

Since 2011, when the first visit (by invitation) was undertaken, the number of Committee visits to States, at their invitation, now totals 21. Seven visits were undertaken in 2015, five in 2014, four in 2013, three in 2012 and one in 2011. There were also about 40 other visits, such as national round tables, in States during which there was direct interaction between the Committee and its Group of Experts and government officials directly engaged in implementation of resolution 1540 (2004).

On some occasions during these visits, bilateral meetings have also been included at ministerial level or with other high-ranking officials contributing to the raising of awareness of the resolution at the high policy making levels of governments. These visits also facilitate the development within States of internal coordinating mechanisms because the visits often bring together all relevant stakeholders.

Another element, and possibly the most significant of these visits, is the consultations that take place in framework of roundtables in which relevant stakeholders meet with the Members of the Committee and its Group of Experts.

The results of these visits vary. In some cases the direct result has been the drafting of a national report or a voluntary National Implementation Action Plan.

All visits have offered an invaluable opportunity of identifying potential implementation gaps and future steps, thereby contributing to a better understanding of progress made by the State on the implementation of the resolution. Furthermore, through such visits, views have been shared on amendments and/or adoption of legislation/regulations to implement the resolution.

Visits to States have proven to enhance and deepen the direct dialogue with them and support States' efforts towards strengthening their capacity to implement resolution 1540 (2004) and to. The increased number in visits to States reflects the tacit recognition of the very positive dynamic associated with them.

VOLUNTARY NATIONAL IMPLEMENTATION ACTION PLANS

Since the submission of the first voluntary National Implementation Action Plan (NAP) in 2007, a total of 24 such plans have been submitted to date, the majority submitted since 2014. Although voluntary, these plans provide the Committee with an overview of specific actions a State intends to undertake to strengthen their implementation of the resolution. Also to develop such a plan requires the engagement of all the national stakeholders in the various ministries and agencies that have responsibilities for the implementation of resolution 1540 (2004).

Furthermore, many States interacted with the Committee and its Experts in drafting these plans. Such interactions provide for dedicated dialogue between the Committee and States, which facilitates a better understanding of the status of implementation.

ASSISTANCE

Since its inception, resolution 1540 (2004) recognized that some States may require assistance in implementing the resolution and invited States, in a position to do so, to offer assistance in response to requests by States lacking the legal and regulatory infrastructure, implementation expertise and or resources for fulfilling the provisions of the resolution.

Resolution 1810 (2008) urged the Committee to continue strengthening its role in facilitating assistance, including by engaging actively in matching offers and requests for assistance, therefore establishing its match-making role. Resolution 1977 (2011) recognized means such as visits to States as a way to support this match-making effort.

According to available data, since 2004, 59 States and two regional organisations have requested assistance through the Committee. Of these requests, 16 came from African States, 22 from States in the Asia-Pacific region, six from Eastern Europe and 11 from Latin America and the Caribbean. Since the date of the last review, most of the assistance requests, came from African States (8), followed by three from Latin America and the Caribbean, two from Eastern Europe and one from Asia-Pacific. The requests from the Asia-Pacific and Eastern Europe were focused primarily on export and border control as well as for training and equipment. In the case of Latin America most of the requests included training and legislative assistance. Regarding the requests by African States, most of them were of a more general nature, covering all aspects of the resolution. In general terms, the requests were not focused on a specific type of weapon of mass destruction.

The number of available recorded official positive responses for the period was 45, i.e. on average each assistance request received more than 3 responses. This is a significant increase in comparison with previous years, but still modest.

However, the 1540 Committee Experts, in their interaction with States, as well as in the framework of outreach events, have been made aware of several ongoing assistance programmes, including in those States that have requested assistance to the 1540 Committee. Nevertheless, in most instances the existence of these programmes has not been officially communicated to the 1540 Committee.

In recent years, the Committee's cooperation with regional organisations has been significantly strengthened. For instance, the African Union (AU) held specific meetings to address 1540 issues. Also, the Organisation of American States and the Organisation for Security and Cooperation in Europe (OSCE) have worked together with the Committee and other international partners in the development of voluntary National Implementation Action Plans in their regions. In 2015, the 14th Programme of Work of the 1540 Committee called for the consideration of regional approaches to meeting assistance needs.

In this regard, the first regional assistance conference, organised in collaboration with the African Union (AU), took place from 6 to 7 April 2016, in Addis Ababa, Ethiopia. It was the first time that States that requested assistance were brought together with potential providers, providing a genuine match-making platform. Twelve of the 16 African States that have requested assistance participated in the AU Conference; all States were offered the opportunity to have bilateral meetings with assistance providers.

Matching requests for assistance with offers has been one of the most challenging functions of the Committee.

According to available data, responses received have been mainly from international organisations, eight of the 16 international organisations registered as assistance providers have officially responded to the specific requests. However, cooperation with all of them has been constant regardless of specific responses. Only nine of the 47 States that are registered as assistance providers have responded to assistance requests. Two States have responded positively to assistance requests by regional organisations. In most of the cases the responses received have been modest, noting either already ongoing assistance projects or making projects subject to certain conditions, mainly of financial nature. There are very few examples of responses that have addressed the specific aspects of the

request and in which the assistance has actually been provided.

Also noteworthy is that assistance programmes that the Committee Experts are aware of are concentrated in a limited number of States and a significant number of developing States have received limited support.

Due to its limited mandate in matchmaking, the Committee and its Experts are not in a position to deliver assistance directly. However, it is worth noting that the Committee has responded directly to assistance requests related to the drafting of national reports or the development of voluntary National Implementation Action Plans.

Resources in the United Nations Trust Fund for Global and Regional Disarmament Activities, managed by the Office for Disarmament Affairs, have mainly been used to finance outreach activities, including those activities related to the direct assistance by the Committee to States (visits to States and national roundtables) but have not been used to finance more specific technical projects.

Additionally, through interaction with assistance providers, it has become evident that there are also challenges derived from the fact that a significant number of requests are not specific enough or technically sound to be adequately considered. In 2007, the Committee developed an assistance template to support States to present their assistance request, which is published on the Committee's website. However, this template has not been widely used.

The matchmaking mechanism has shown clear limitations in responding in a timely manner to assistance requests.

If the Committee wants to enhance the 1540 assistance mechanism an option could be the establishment of a dedicated allocation of funds that would allow the financing of selected programmes by relevant international organisations. Also the Committee could develop jointly with international organisations assistance projects to support States to fulfill their 1540 obligations promptly. This would fill a gap in assistance for those States that are committed to fulfilling their obligations but that might not constitute a priority for donor States.

The Committee has an awareness of ongoing assistance programmes by States and international organisations, however there is no systematic way to receive and compile this information. The Committee might wish to consider inviting States and relevant international organisations to provide information on a regular basis of their existing assistance programmes.

The regional approach, through the holding of regional assistance conferences that provide a real platform for match-making, as demonstrated by the African Union conference referred to earlier, seems to be a practice that should continue.

INTERNATIONAL COOPERATION

Since the adoption of resolution 1540 (2004), the Committee recognised the need to enhance coordination of efforts on national, sub-regional, regional and international levels in order to strengthen a global response to this serious challenge and threat to international security. During the years, through continuous and intensified dialogue, the Committee enhanced its interaction and cooperation with relevant international, regional and sub-regional organisations (IROs) and other intergovernmental institutions and arrangements, in particular those possessing non-proliferation expertise. The interaction contributes to strengthening cooperation through the exchange of information, the sharing of implementation experiences and lessons learned and achieving closer coordination in outreach to States, and facilitating assistance to Member States, regional and sub-regional organisations.

The Committee has further enhanced its ongoing cooperation with the Security Council Committee pursuant to resolutions 1267 (1999), 1989 (2011) and 2253 (2015) concerning Islamic State in Iraq and the Levant (Da'esh), Al-Qaida and associated individuals, groups, undertakings and entities and the Security Council Committee established pursuant to resolution 1373 (2001) concerning counter-terrorism. The work has brought about benefits in enhancing the effectiveness of outreach to States, including in efforts to promote the effectiveness of implementation.

The Committee has engaged relevant IROs and other intergovernmental arrangements by establishing and maintaining interaction. Formal

and informal cooperative arrangements have been established with some IROs to promote the sharing of experiences, lessons learned and effective practices, in the areas covered by resolution 1540 (2004). Some IROs and other arrangements (BWC ISU, EU, FATF, HCOC, IAEA, MTCR, NATO, NSG, OPCW, WCO) have briefed the Committee on their work relevant to resolution 1540 (2004) and some IROs (OSCE, UNICRI and UNODC) have briefed the Working Groups of the Committee. Visits and consultations have been undertaken between the Chair of the Committee and the head of the IROs and other arrangements to enhance dialogue and information exchange (AU, IAEA, INTERPOL, NSG, OPCW, UNODC, and WCO).

Strong political will to support the implementation of resolution 1540 (2004) by its members was reinforced by some IROs in the form of press releases, statements or resolutions to reiterate the commitment to work together with the Committee towards the effective implementation of the resolution by Member States. Two regional organisation (OAS and OSCE), together with the Committee and other partners, are assisting States with the development and implementation of voluntary National Implementation Action Plans and strategies. With the support of these organisations, more than half of the national implementation action plans (13 out of 24) were submitted.

During the period from 2011 through until 25 April 2016, the Committee and its Group of Experts participated in 343 outreach events. About 49% of these events (168 out of 343) were organised, co-organised by or involved these IROs.

The nomination of points of contact or coordinators, as called for in resolution 1977 (2011), as well as constant updates by international, regional and sub-regional organisations, have facilitated cooperative efforts, exchange of information on actions taken to foster implementation of resolution 1540 (2004), and have allowed better use of resources offered by those organisations. The Committee received designation and notifications from thirteen IROs on their Points of Contacts and established a network of Points of Contact with almost all the relevant IROs and other intergovernmental institutions and arrangements, in particular those possessing non-proliferation expertise. The collaboration with the key international organisations was enhanced by their provision of instructors to assist with the Committee's pilot training course for the 1540 Points of Contact in the Asia and Pacific Region. Previously, three regional and sub-regional organisations had regional coordinators for implementing resolution 1540 (2004). Currently, only one organisation (CARICOM) has a dedicated regional coordinator. Some regional organisations, such as the OAS, OSCE and AU, take a different approach and have designated responsibility for 1540 implementation to a unit in their organisation rather than a specific person appointed as a full time 1540 coordinator.

Encouraged by resolution 1977 (2011), four international, regional and sub-regional organisations shared with the Committee their experience, lessons learned and effective practices, in the areas covered by resolution 1540 (2004). The submissions provided examples of successful assistance and the availability of programmes which might facilitate the implementation of resolution 1540 (2004).

To cooperate and coordinate with IROs' on technical assistance programmes is one of the priorities of the Committee's work. So far, 16 international, regional and sub-regional organisations (IRO) and other arrangements have offered to provide 1540 related assistance.

Some IROs have informed the Committee of the areas in which they can offer assistance and some also responded to specific requests. In 2015, the Committee received more responses from registered assistance providers, in particular the IAEA and UNODC, to assistance requests than in 2014. This aided the efforts to improve the assistance mechanism and should provide dividends in terms of consultation for the 2016 Comprehensive Review.

The Committee cooperated with UN Counter Terrorism bodies (the Group of Experts is one of the Counter Terrorism Implementation Task Force (CTITF) entities), and jointly briefed the Security Council with the Counter-Terrorism Committee and the Al-Qaida and Taliban Sanctions Committee on the joint cooperation twice a year, but with exceptions. The three Committees gave separate briefings to the Security Council in 2015. The Experts of the three Committees continued to share relevant

information and to meet, when appropriate, in order to discuss issues of common concern, coordinate actions and exchange information.

Another step in the collaboration between the three UN Security Council Committees was the designation of a shared focal point for the Caribbean region. That position is hosted by CARICOM and funded initially by the Government of Australia and now by Canada. The Committee has continued to benefit from participation in joint visits to States with the Counter-Terrorism Committee (CTC). These visits included the visits to Guyana and Suriname in 2013, Malta and Mongolia in 2014, Italy and Uzbekistan in 2015 and Kazakhstan in 2016. These visits enhanced the Committee's opportunities for direct engagement with States.

TRANSPARENCY AND OUTREACH

Transparency and outreach makes an important contribution to enhancing confidence, fostering greater cooperation and raising the awareness of States, relevant international, regional and sub-regional organizations, civil society and the private sector regarding issues relevant to resolution 1540 (2004). Public awareness of the role and obligations of resolution 1540 (2004) contributes to achieving best outcomes, and academia, civil society, and industry must be directly engaged in implementation of the resolution for it to be fully effective.

Transparency and outreach activities include those aimed at reaching a wide audience, including:

- The Committee's website, which is a vital and unique tool to raise public awareness regarding issues relevant to resolution 1540 (2004). (Web-site access has grown steadily, and its on-going redesign should enhance that trend.);
- Quarterly messages from the Chair;
- Video messages;
- Press releases; and
- Invitations to other organizations to speak to the Committee to exchange views on their respective roles.

These need to continue, and, as appropriate, be added to or be enhanced with the goal of expanding their reach.

The Committee and its Experts also participate in events where the audiences are more focused. These result from invitations to events that are planned and organized by others, including Member States, international organisations, regional and sub-regional organisations and civil society, including industry, academia, and NGOs. These events contribute to transparency and outreach but their primary purpose is generally to permit the Committee and its Experts to make substantive contributions to topics relevant to implementation of resolution 1540 (2004).

During the period from 25 April 2011 to 24 April 2016, the Committee and its Experts participated in almost 343 events. About 40% of these were dedicated specifically to the implementation of the resolution, including national visits and other events with direct interactions with Governments, conferences[3], seminars[4], and training courses[5]. The themes of the other 60% of events encompass the obligations of resolution 1540 (2004) but were not specifically directed toward them, for example meetings focusing on trade controls; illicit trafficking, non-proliferation and disarmament; international counter-terrorism instruments, and meetings of international organizations and professional associations.

Important contributions to the work of the Committee were made by civil society. Of note were several meetings convened by universities, one, for example, to address the complex issue of intangible technology transfers, by NGOs operating at both the regional and international level; by industry; and by briefings to the Committee.

Of the 343 events related to resolution 1540 (2004) during the review period, sixty-four involved direct invitations to the Committee and its Experts. Experience shows that such events have special value because they engage government officials from a wide range of ministries, including, for example, foreign affairs and defence ministries and health, police, and customs officials. Such wide participation helps to facilitate the development of internal coordinating mechanisms. The Committee and its Experts benefit from the exposure to the varied and diverse issues that confront Member States in the implementation of resolution 1540 (2004).

The 2015 Annual Review noted the value of direct interaction with States by the Committee and its Experts and the fact that they spurred the submission of seven additional voluntary National Implementation

Action Plans in 2015, observing that "those States that choose to develop such plans have to engage all the government departments and agencies that are involved by resolution 1540 (2004) implementation [which] is very likely ... to contribute to more effective implementation." They also resulted in: submission of a first report; designation of Points of Contact; creation of national coordinating frameworks; and requests for assistance.

An innovative event was the hosting by China in 2015 of the first training course for national 1540 Points of Contact. A second training course hosted by the Russian Federation will take place in Kaliningrad at the end of June 2016 and further courses as are planned in Africa, China (for the Asia-Pacific region) and Latin America.

Over the period under review 97% of States attended 1540 events. The majority of States participated in up to ten events. The data show that those States with the highest levels of implementation participated in the highest number of events and of the 27 States that participated in more than 20 1540 events, 22 have notified the Committee of their willingness to provide assistance to others. Further, the implementation data indicate that there is a positive correlation between States' participation in 1540 events and their implementation of resolution 1540(2004). This may reflect the intrinsic interest of participants in fulfilling 1540 obligations. But it may also arise from experiences at 1540 events, for example, those at which effective practices are shared. The wide range of 1540 events engages participants from numerous perspectives and attracts officials from a wide range of institutions, including, for example, foreign affairs and defence ministries and health, police, and customs officials. This engagement no doubt facilitates intra-governmental coordination.

Experience has demonstrated that civil society has an important role to play, both in facilitating implementation of the resolution and in helping to identify means to enhance the ability of others to implement the resolution. The pool of expertise within, for example, industry, professionals, universities, and NGOs, is wide and deep. The engagement of industry, led by Germany, through a series of four annual conferences during the period under review has demonstrated the value of such engagement that looks set to continue on a regional and global basis in future. Industry is an indispensable partner to governments in the implementation of resolution 1540 (2004).

EPILOGUE

In conclusion, it is important to recall that resolution 1540 (2004) is a non-proliferation instrument that has secured its place in the weapons of mass destruction non-proliferation architecture. With its focus on non-State actors it has an important role in closing gaps in the array of relevant treaties and legal instruments. Its success depends on States implementing the obligations effectively and, importantly, collaboration between Member States, as well as the support of relevant international, regional and sub-regional organisations.

The breadth of the 1540 obligations requires the engagement of all stakeholders nationally and internationally. The resolution is designed to prevent the catastrophic outcome of the use of weapons of mass destruction by non-State actors, in particular for terrorism purposes. The investment of political will and the necessary resources is well worthwhile if it contributes to preventing a much more costly disaster in humanitarian and economic terms later. Through this consultation, the Committee seeks practical ideas that will promote the effective implementation of resolution 1540 (2004) by Member States.

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1 Published on the 1540 Committee's website at http://www.un.org/en/sc/1540/comprehensivereview/pdf/2016%20CR%20Modalities%20Paper.pdf

2 The approved matrices can be viewed at http://www.un.org/en/sc/1540/national-implementation/1540-matrix/committee-approved-matrices.shtml

3 Examples include: 2012 Conference of International, Regional, and Sub-Regional Industry Associations on UN Security Council Resolution 1540 (2004) in Germany; 2013 Conference on UNSCR 1540: Fostering Regional Momentum in the United States

4 Seminar on voluntary national implementation action plans for UN Security Council Resolution 1540 (2004) in Croatia

5 2015 Training Course for the 1540 Points of Contact in the Asia and Pacific Region in China

15th Anniversary for the United Nations-Republic of Korea Joint Disarmament Conference

Aleksander Micic

The 15th United Nations-Republic of Korea Joint Conference on Disarmament and Non-proliferation Issues was held from 17-18 November 2016, on the Island of Jeju, Republic of Korea. As in each of the previous 14 years, this joint event was organized by the United Nations Office for Disarmament Affairs, through its Regional Centre for Peace and Disarmament in Asia and the Pacific, in cooperation with the Ministry of Foreign Affairs of the Republic of Korea.

The Conference was opened by Mr. Kim Won-soo, United Nations Under-Secretary-General and High Representative for Disarmament Affairs, with Ambassador Choi Jong-moon, Deputy Minister for Multilateral and Global Affairs of the Republic of Korea, providing welcoming remarks.

Almost 40 experts and representatives from governments, intergovernmental organizations, policy institutes and academia participated. The Conference addressed the nuclear issue relating to the Democratic People's Republic of Korea (DPRK), the implementation of related UN Security Council (UNSC) resolutions, the nexus between the security of chemical, biological, radiological and nuclear (CBRN) materials and cyber security, and the issue of export control.

On the DPRK nuclear issue and the implementation of UNSC resolution 2270 (2016), the Conference benefited from robust discussions on the impact and effectiveness of UNSC sanctions and on how to move forward. One group of panelists noted that DPRK's nuclear tests and missile launches had reached an unprecedented level of intensity, and that this required a firm response, particularly through a further tightening and expansion of the sanctions regime. To ensure the implementation of the sanctions, several participants underscored the relevance of awareness raising, international information sharing, sanctions on third-state individuals and entities violating the UNSC sanctions, and pressure on States assisting the DPRK in the commission of illicit acts. One participant suggested that a key to success was to identify sanctions with a direct financial impact on the DPRK's leadership.

Other panelists expressed the view that the DPRK had proven both able and willing to make significant advances in its nuclear weapons programme despite fierce international opposition, and that further sanctions, or other outside pressure, was unlikely to work. They suggested that focus should be on engaging the DPRK, including through unconditional talks with little press attention and in parallel to a reopening of the six-party talks. One panelist proposed a UN-administered coal-for-food programme, which would manage the DPRK's coal exports and the distribution of food to the DPRK's population.

As regards the nexus between CBRN security and cyber security, panelists agreed that cyber threats to CBRN facilities presented an emerging, significant and underestimated danger. Potential cyber attacks on CBRN sites, including industrial sites (nuclear power plants especially), were elaborated, as were possible cyber attacks in the realm of outer space, particularly on satellites. Among the challenges pointed out were cultural aspects, e.g. differences in the understanding of risks, and in the approaches and priorities between, inter alia, a nuclear plant's operational technology personnel and its information technology personnel, or between its safety and its security personnel. Outdated industrial control systems, many designed in the 1960s, posed technical challenges. The need for a comprehensive and holistic approach was emphasized. In that regard, the pursuit of a holistic approach to WMD/nuclear governance

was elaborated, as it could integrate nuclear disarmament, non-proliferation, security, safety, and peaceful use of energy into one framework. Likewise, the relevance of including cyber, and even space, into CBRN security efforts was highlighted, as was the possibility of using UNSC resolution 1540 (2004) as the legal platform for this integrated approach. The key importance of security culture was thoroughly explained. Its relevance was further augmented by the high proportion of cyber crimes committed by insiders, and the notion that the "weakest link" in cyber security may be the human factor. One panelist recommended strengthening security governance on CBRN and cyber, e.g. through an international nuclear security convention containing security standards and review mechanisms. The potential consequences of bio-terrorism were also highlighted and, in that regard, the need for an adequate response system in case of such an attack, and a verification organization in relation to biological weapons.

On the issue of export control, the nature, workings, and challenges of four of the key export control regimes were presented and discussed: Nuclear Suppliers Group (NSG), Australia Group (AG), Wassenaar Arrangement (WA), and Missile Technology Control Regime (MTCR). As regards the NSG, suggestions were made that it further customize its outreach efforts and provide the technical assistance that members needed most, as well as consider the participation of States not party to the Non-Proliferation Treaty. Regarding the MTCR, the challenges discussed were dealing with intangible transfer of technology, as well as engaging industry, academia, and non-partner governments. The MTCR planned to conduct outreach activities in nine selected States, particularly in Southeast Asia. The WA planned, inter alia, to continue to explore emerging technologies. In relation to the Arms Trade Treaty (ATT), WA's members were ready to share their experiences and expertise, and its secretariat would monitor how the WA may contribute to the international ATT cooperation. With regard to the AG, panelists pointed to the challenges of new technological developments, internet trade, intangible transfers of technology, the possibility of terrorism, and the recent use of chemical weapons in Iraq and Syria.

A discussion evolved on the possibility of enhancing coordination and cooperation among the export control regimes, particularly in relation to transit, transhipment, brokering and intangible transfer of technology, as well as on developing a common forum for sharing best practices, preparing consolidated control lists etc. While viewed as desirable, references were made to the challenge that each regime is governed by its own guidelines (incl. on confidentiality), has its own particular composition of State parties, and applies consensus rule. As an alternative, participants considered the possibilities of informal meetings between the regimes and informal contacts between their chairs.

Hosted by the Republic of Korea since 2002, the Conference series has become an important forum characterized by a candid and constructive exchange of views among Government officials, independent experts, scholars and civil society representatives on the challenges and solutions to key disarmament, proliferation, arms control and security issues, both international and in the Asia-Pacific region. Taking place for the 15th year, this joint endeavour is now one of the longest continuing disarmament conference series. The Conference is financed through voluntary contributions from the Government of the Republic of Korea.

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