

COUNTERING WMD PROLIFERATION: THE NEXT GENERATION'S IDEAS

Results of the UN Security Council Resolution 1540 (2004)
International Student Essay Competition



STIMSON
SEPTEMBER 2016

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Preface

Dear Reader,

I am pleased to present to you the winning entries of the 2016 international student essay contest on UN Security Council Resolution 1540 (2004) and a brief overview of themes and ideas contained in some of the contest entries. Stimson received 150 student entries from 44 countries, and the contest website attracted more than 16,000 viewers from 165 countries. The essays express students' areas of concern and proffer some novel national approaches to preventing the spread of weapons of mass destruction.

Since 2006, the Stimson Center has collaborated closely with the UN Security Council on the global implementation of Resolution 1540. Along with our partners in government, industry, and civil society, Stimson has proudly helped to lead the development of innovative approaches to implementing the resolution in key regions from the Caribbean and Latin America to Africa and Southeast Asia. Significantly, our work has also helped to redefine how wealthy governments can more pragmatically assist others in building and sustaining nonproliferation programming. And our effort with this competition now invites the next generation into this essential global security conversation.

We are grateful to our funders whose support has made possible this competition and its significant outreach to the next generation of leaders — the Ministry of Foreign Affairs of the Government of Finland and the United States Department of State. We are also grateful to the UN Office for Disarmament Affairs for its collaboration on this project. I am particularly proud of the work of my colleagues, Debra Decker and Rose Morrissy, and have been gratified to hear from UN officials as well as national political leaders that their efforts have gone far to effectively bring Resolution 1540 to a new and essential audience of supporters.

Sincerely,

Brian Finlay
President and CEO
Stimson Center

Introduction from the Chair of the 1540 Committee

Twelve years after its adoption, United Nations Security Council Resolution 1540 (2004) has become one of the key components of the international regime to prevent the spread of weapons of mass destruction (WMD) and their means of delivery. It is intended to prevent non-State actors, in particular for terrorist purposes, from taking any step that could be a prelude to their use. Resolution 1540 (2004) is unique in that it covers nuclear, chemical and biological weapons and their means of delivery and not just one of them. It is also unique in that it requires States to implement a wide range of appropriate and effective measures aimed at ensuring proper control of materials related to WMD. These steps include, for example, effective measures to account for, secure, and protect them and to control their export.

Everyone has a role if we are to attain world-wide, effective implementation of resolution 1540 (2004): States' legislatures, government ministries and agencies, international and regional organizations, industry, and civil society. In this context, I am pleased that the Stimson Center, with the support of the governments of Finland and the United States, has conducted the 1540 international essay competition, which has captured the attention of a world-wide audience of students.

Several features of the essay competition are worth noting: it has raised awareness around the world of the importance of resolution 1540 (2004); it has engaged academe to which we look for new and innovative ideas and proposals to improve its implementation; and it has provided those of us engaged in implementing resolution 1540 with food for thought. Perhaps of more significance, it has engaged the "next generation" of scholars.

I congratulate, the winners of the competition as well as those whose essays warranted honourable mention, but I also offer my sincere thanks to all students who submitted essays.

HE Mr. Román Oyarzun Marchesi
Chair of the Committee established pursuant to
United Nations Security Council resolution 1540 (2004) and
Ambassador Extraordinary and Plenipotentiary
Permanent Representative of Spain to the United Nations, New York

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This contest would not have been possible without support from the following institutions, for which we are grateful:

- The Asan Institute for Policy Studies
- Bulletin of the Atomic Scientists
- Belfer Center for Science and International Affairs
- Finland Ministry for Foreign Affairs
- Institute for Security Studies
- The International Institute for Strategic Studies
- Stimson Center
- United Nations Office for Disarmament Affairs (UNODA)
- United States Department of State
- Washington Foreign Law Society

We are also grateful to the expert judges who gave so generously of their time:

Olivia Bosch, Ph.D. Director of International Security and Communications Ltd. (London, United Kingdom). Former 1540 Committee Expert.

Isabella Interlandi. Senior Legal Advisor, Italian Customs Agency. Former 1540 Committee Expert.

Nicolas Kasprzyk. Consultant at the Institute for Security Studies (Pretoria, South Africa). Former 1540 Committee Expert.

Roque Monteleone-Neto, M.D., Ph.D. Associate Professor at Paulista School of Medicine, Federal University of São Paulo. Former 1540 Committee Expert and Coordinator of the Group of Experts.

Senan Muhi, Ph.D. Expert in the field of bio-weapons. Former 1540 Committee Expert.

Patrice Palanque. Adviser to the Chief Executive Officer of an enterprise providing training on protection against Chemical, Biological, Radiologic and Nuclear (CBRN) threats. Former 1540 Committee Expert.

Dana Perkins, Ph.D. Senior Science Advisor at the US Department of Health and Human Services. Former 1540 Committee Expert.

Ionut Suseanu, Ph.D. Senior Legal Officer in the International Atomic Energy Agency's Office of Legal Affairs. Former 1540 Committee Expert.

Will Tobey. Senior Fellow at Harvard University's Belfer Center for Science and International Affairs. While on the US National Security Council staff in 2003, he authored an early draft of the 1540 resolution.

Jung-Yeop Woo, Ph.D. Research Fellow at the the Asan Institute for Policy Studies in Seoul, Korea.

The Background of this Project

Why a Student Essay Contest? The world is moving at breakneck speed and so are the challenges. The traditional approach of addressing security risks through governmental or intergovernmental solutions is no longer sufficient as sovereign states are unable to effectively control increased levels of fast-moving goods, people, and information. We need a broader community engaged in thinking about the challenges of international security and in helping to solve some of the world's most complicated problems. One of those communities—students—is known for its innovative thinking and creative problem-solving, and is underutilized. That was the impetus for getting students involved in thinking about one of the gravest threats the world faces—the proliferation of weapons of mass destruction (WMDs). And what better time to do this than in 2016, when the United Nations Security Council resolution related to WMDs—Resolution 1540 (2004)—is undergoing a comprehensive review.

The Essay Question: Your government (pick a particular country) is developing a five-year action plan for the implementation of UN Security Council Resolution 1540. Your government may be in a position to help other states implement this resolution or may need to request help in implementing this resolution. You are advising your government on what it needs to do, why, and by when in order to implement this resolution and decrease WMD risks. In no more than 2,500 words, develop a five-year action plan that includes priorities and timelines. Make sure to include ways to measure success.

The Judging Process: The Stimson Center distributed sets of submitted essays to an international panel of 10 expert judges based on their region or other areas of expertise. These judges performed a blind review of the submissions, considering clarity, feasibility/ease of implementation, and potential for WMD risk reduction. The Stimson Center then reviewed the judges' submissions and forwarded the top qualifying essays, which numbered 18, to another panel of judges directly involved in the work of the UN Security Council 1540 Committee for the final selection of first- and second-place winners and three entries worthy of honorable mention.

Students' Ideas: Included in this publication are the five winning essays as well as the names and university affiliations of the other top 13 finalists. The abstracts of all 18 finalists' essays can be found on our website at: www.stimson.org/1540contest. Many of the 150 essay submissions we received expressed some common themes, notably that:

- Countries need assistance in risk assessment so that their efforts can be more targeted.
- Public engagement and a larger development/cooperative approach are important for successful nonproliferation efforts.
- Technology needs to be understood as both a risk (e.g., information theft) and an opportunity (e.g., to promote good trade practices).
- Tensions exist and need to be managed between the realities of the world the way it is, with porous borders and corruption, and the way many would like it to be, without nuclear dangers or any potential WMDs.

These and other student ideas are presented in a detailed report on the contest webpage, which also includes information from the awards event at Harvard University on September 30, 2016.

The proliferation of WMDs is a challenge future generations will have to face. It is heartening that so many students from nearly every part of the world were attracted to the website to read information on WMD risks, and that many more students than expected actually took the time to think in depth about those risks and address them in an essay. Submissions came from students attending schools in more than 40 countries and studying many different disciplines—from law and medicine to engineering and international relations. We are grateful to have had the opportunity to support the UNSCR 1540 Committee and its Group of Experts in their important work and to share with them so many thoughtful essays. We are also grateful to our partnering institutions and the judges for helping to make this contest such a success. We would also like to thank our Stimson Center intern Victoria McDonald for her assistance and Sharon Wilke, Martin Malin and Casey Campbell at the Belfer Center for Science and International Affairs of Harvard University's Kennedy School of Government for their support.

Respectfully,

Debra Decker, Senior Advisor, and Rose Morrissy, Research Assistant
Managing Across Boundaries Initiative
Stimson Center

First Place: Tunisia National Action Plan for Implementation of Resolution 1540 (2004)

Student: Enrique de Vega González

*University: Gutierrez Mellado Institute,
Universidad Nacional de Educación a Distancia, Madrid, Spain*

Sponsoring Professor: Vicente Garrido Rebolledo

Abstract: This National Implementation Action Plan aims to update and complement the 2004 Implementing Report in light of the country's current strategic paradigm. The plan establishes five objectives for the full implementation of UN Security Council Resolution 1540 (2004). It calls for the update of key legislation as part of the process of completing the democratic transition of the country. At the international level, given that Tunisia is already party to the relevant treaties, the plan aims to develop leadership in different initiatives. Also, it establishes a comprehensive approach to strengthen the physical security of all chemical, biological, radiological, nuclear (CBRN) and related material through the creation of a control and accountability matrix of critical infrastructure to reinforce physical protection, with this matrix fully accessible to the 1540 Committee online. The action plan also focuses on the challenge of border control. Last but not least, and perhaps going beyond the scope of Resolution 1540, the action plan aims to enhance response capabilities for CBRN incidents.

The implementation of these objectives will be coordinated by the National Security Council (NSC), given its cross-cutting nature. A WMD Study Committee, subordinate to the NSC, will be created to provide technical assistance to the NSC as well as continuous monitoring. Tunisia may seek assistance for the full implementation of this plan as part of a cooperative security approach. However, given its advantageous position within its region, it is also ready to assist its neighbors.

An Action Plan that Strengthens the Safety of Tunisians for a More Secure World

In November 2004, following the UN Security Council's adoption of Resolution 1540 (2004), Tunisia presented its implementation report as requested in the resolution's operative paragraph 4.¹ The profound transformations both Tunisia and the world have experienced in the last 12 years now make it necessary to present a national implementation action plan—in accordance with operative paragraph 8 of UN Security Council Resolution 1977 (2011)—which both updates and complements the initial implementing report.

Tunisia's implementation of Resolution 1540 has been good, and the country has fulfilled its international obligations. However, there is always room for improvement. Moreover, implementation has taken place in an operating environment that has had lower risks than the present one, reinforcing the need for a new action plan.

Internal and external factors have completely changed the strategic paradigm of Tunisia in the last decade. On the one hand, Tunisia is now in the midst of completing its transition into a democratic state, following the democratic wave that arose in Tunisia and spread to the whole Arab world. This has put Tunisia in the spotlight among its neighbors, so that, while Tunisia does not possess any type of weapons of mass destruction (WMDs), this action plan may serve as a reminder and example for the country's neighbors concerning one of the most hazardous threats to international peace and security, and also may encourage a form of cooperative security. Also, the democratic nature of Tunisia's government offers new opportunities for economic and technological development, as well as public debate and accountability.

On the other hand, Tunisia lives under the constant threat of the most brutal form of terrorism seen to date. In 2015, its tourist sector and security services were targeted, resulting in the deaths of 74 people. Moreover, the country's eastern border has become increasingly insecure. It must be highlighted that Tunisia's porosity represents a risk for the proliferation of chemical weapons in the country by terrorist groups.²

Meanwhile, these transformations need to be understood as part of larger global trends of accelerated change in all domains, which require increased preparedness and prevention, flexibility, and resilience.³

To meet these challenges, as Tunisia develops a comprehensive national security strategy, it has established a new set of principles for its foreign policy.⁴ Of relevance for this plan are the first two principles:

- Developing and diversifying relations and enhancing cooperation in various fields to which Tunisia belongs on the basis of closely knit partnerships and interdependence of interests.
- Reducing elements of tension and crises in international relations and fostering a favorable climate for the promotion of peace, security, and stability in the world. Within the second principle, two specific objectives must be highlighted:
 - Cooperating in the fight against international extremism and terrorism on the basis of a global and comprehensive approach while taking into consideration different political, economic, social, and cultural causes and doing so within a framework of transparency and consensus.
 - Containing the proliferation of weapons of mass destruction.

Therefore, Tunisia has defined a measurable and attainable set of ends, ways, and means for the full implementation of UN Security Council Resolution 1540 (2004) and its subsequent resolutions. This set updates and complements Tunisia's 2004 implementing report, and takes into account the opportunities and threats of the country's current strategic paradigm.

Objectives of the National Implementation Action Plan

In order to implement Resolution 1540 in its entirety, six main objectives have been defined for the next five years, in accordance with the principles and objectives of Tunisian foreign policy. To achieve these ends, a series of actions have been detailed; these will also serve as indicators upon which to measure the effectiveness of the policies derived from this action plan.

1. Strengthen chemical, biological, radiological, and nuclear (CBRN)-related legislation. While Tunisia already has a regulatory framework to avoid the proliferation of WMDs, a strengthened and updated framework shall be adopted that accounts for the latest technological developments and new realities con-

cerning non-state actors. At the international level, Tunisia aims to be a more active player in this field.

a. National legislation: The two main pieces of national legislation on this issue, Act No. 75-2003 of 10 December 2003 (concerning the crime of terrorism), and Act No. 2007-22 of 24 April 2007 (prohibiting the development, manufacture, stockpiling, and use of chemical weapons), shall be reviewed within the present legislative term (2014-2019) and developed into a more comprehensive piece of legislation that also incorporates second-tier WMD-related acts. Furthermore, a parliamentary report is to be mandated to study whether international treaties that are currently incorporated directly into the national *acquis* through parliamentary ratification in accordance with Article 20 of the Constitution require specific implementing legislation at the national level for the full implementation of Resolution 1540.

b. International treaties and initiatives: Tunisia is already party to the relevant covenants within the scope of Resolution 1540. Therefore, it aims to develop its leadership on the issue through more active participation in international fora. Tunisia is committed to participate fully in the next Nuclear Security Summit in its future format, should one be held. At such an occasion, Tunisia would announce its joining of the Global Initiative to Combat Nuclear Terrorism (GICNT).

It must be highlighted that Tunisia's porosity represents a risk for the proliferation of chemical weapons in the country by terrorist groups.

2. Establish a control and accountability matrix of critical infrastructure. A new digital matrix shall be created in the following year that accounts for all existing and planned infrastructure, and which will handle CBRN-related material, including dual-use facilities, such as, inter alia:

- Medical centers
- Chemical and biological products factories
- Universities
- Research centers

Each facility shall be analyzed in relation to the level of physical protection against external breaches and the internal accountability systems needed in order to avoid the removal of sensitive material. This matrix shall serve as the basis for a review of the physical control systems for such infrastructure. Also, the matrix shall be uploaded to an online server accessible by the 1540 Committee, so that it can be conveniently updated to allow the committee real-time images of the situation with full transparency.

3. Reinforce physical protection of critical infrastructure. Once a clear picture of all the critical infrastructure has been established, physical protection plans shall be established or updated as necessary to account for current risk levels for each facility, within a period of two years once the matrix is released. New measures may include, inter alia:

- Layered access systems with biometric controls.
- Closed-circuit television cameras and movement sensors.
- Scanning systems.
- Reinforced walls and entrances against explosions and infiltrations, including through the use of vehicles.
- Increased deployment of security guards or police officers, as necessary.
- Risk assessment mechanisms for the tightening of security through the deployment of National Guard or military assets for increased protection in case of imminent threat.

4. Reinforce off-site security for transport, border control, and exports. Acknowledging that CBRN-related materials often need to be transported, including through the borders of Tunisia, increased focus shall be put on controlling and securing materials themselves, wherever they are, in parallel to the physical protection of facilities. Measures in this category include, inter alia:

a. Transport

- i. Control of the whole logistical chain, so as to detect possible diversions of material.
- ii. Requirements for special procedures, licenses, and equipment for the transportation of CBRN-related material, including tracking equipment.
- iii. Provision of the necessary assistance from security forces for the transport of CBRN-related materials.

b. Border control

- i. Increased awareness of border guards of procedures to detect and control CBRN-related material.
- ii. Introduction of modern detection systems at all border posts.
- iii. Dramatically increased border controls so as to deter and detect illegal crossings through unauthorized points.

Specific priorities, plans, and timelines shall be drawn by each relevant department for the implementation of such measures. However, the whole-of-government priority shall be on the control of the national borders, as its porosity remains the main threat for the proliferation of WMDs in the country.

5. Enhance export control and regulation. Tunisia is aware that, in a globalized world, it must not only prevent WMD proliferation within its borders but also abroad, through its exports. Therefore, in the light of its commitment to cooperative security, it shall, inter alia:

- Introduce a new online database for the application and processing of export licenses, to allow better accountability and easier data-sharing with international organizations.
- Establish control systems for the transfer of intangible technology transfers, such as scientific know-how.

- Strengthen cooperation between licensing authorities and border guards to verify the accuracy of provided data.
- Strengthen cooperation between licensing authorities and the General Directorate of International Organizations and Conferences at the Ministry of Foreign Affairs, in order to ensure full compliance with UN-mandated sanction regimes.

6. Strengthen response capabilities for CBRN incidents. Specialized teams to handle CBRN/WMD incidents need to be created or reinforced within the security services. This requires technical training for their members, the procurement of special equipment (such as protection suits, measurement devices, or robots), as well as constant training under realistic scenarios. Acknowledging the long learning process required for effective CBRN response, this objective should be developed across the whole five-year period. Nevertheless, specific planning and timelines for capability development should be drawn by the Ministry of Interior.

Interagency Implementation and Coordination Structures

For the implementation of such a broad package of measures, the interagency architecture for its implementation and coordination is in need of review. As the full implementation of Resolution 1540 requires a cross-cutting approach, the main body responsible for implementing, coordinating, and reviewing this action plan shall be the National Security Council. In doing so, the National Security Council shall assign competencies for the development of specific planning and execution of each line of effort to a particular governmental department.

A new Study Committee devoted to WMD-proliferation/CBRN shall be created within the framework of the National Security Council in the next six months, with the following tasks:

1. Review each specific implementation plan.
2. Ensure operational coordination.
3. Provide the necessary technical assistance to the National Security Council in the fields of risk assessment, implementation evaluation, and proposals for the review of this action plan.
4. Maintain an active “Observe, Orient, Decide, and Act (OODA) time cycle”⁵ that ensures the continuous adaptability of government structures and plans to the nature of the threat and its associated risk.
5. Report possible violations to the 1540 Committee and other relevant actors.
6. Develop an outreach team within the Study Committee to be responsible for coordinating and raising awareness with the private sector.

International Cooperation

As previously stated, Tunisia acknowledges that its security is dependent on that of its neighbors and partners, and thus attaches fully to the principle of cooperative security. On the one hand, Tunisia recognizes that it may require assistance for the full implementation of this action plan and is thus eager to work as soon as possible with its international partners, especially the European Union, the Inter-

national Atomic Energy Agency, and the Organisation for the Prohibition of Chemical Weapons, to develop possible avenues for cooperation. Moreover, Tunisia stands ready to invite the 1540 Committee Group of Experts for a working visit together within the framework of the regional approach, in order to strengthen Tunisian ties through transparency and engagement.⁶

On the other hand, Tunisia is well aware of its advantageous position within its region in terms of implementation and is ready, as it develops its own plans and capabilities, to work with its neighbors to explore possible means of cooperation, either bilaterally or within a multilateral framework.

Review Process

This action plan shall be the object of a constant review and evaluation process. Although the plan is designed for a five-year period, it shall be discarded or amended should the necessity arise.

Nevertheless, at the beginning of the fifth year of this action plan, a formal review process shall be launched that: measures the level of success of this plan for the full implementation of Resolution 1540 and its subsequent resolutions, draws lessons learned from the process of implementation of this action plan, performs an evaluation of the remaining implementation gaps, and prepares the next national implementation action plan.

Endnotes

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Second Place: The United States of America National Action Plan for Implementation of Resolution 1540 (2004)

Student: Kyle Pilutti

*University: Middlebury Institute of International Studies
at Monterey, California, United States of America*

Abstract: In order to continue to implement UN Security Council Resolution 1540 (2004) and decrease the risk of WMDs, the United States needs to place a high priority on international assistance and dialogue. Through a series of workshops, tabletop exercises, and Track II dialogues over the next five years, greater efforts can be placed on filling in the remaining holes in the nonproliferation regime. Non-state actor acquisition of WMDs poses a severe risk, regardless of the location of origin, and thus demands international cooperation to prevent it. The workshops and discussions will focus on working through the remaining issues related to nuclear material, chemical and biological weapons, export controls, and proliferation financing. The goal of each dialogue or exercise is to assist other countries in their implementations of Resolution 1540 as well as to create stronger international networks surrounding this issue.

Background

The United Nations (UN) Security Council adopted Resolution 1540 on April 28, 2004. The resolution, under Chapter VII of the UN Charter, affirms that the proliferation of nuclear, chemical, and biological weapons and their means of delivery constitute a threat to international peace and security. It calls upon all UN member states to adhere to a number of outlined parameters and conditions for the purpose of preventing the proliferation of such weapons and devices to non-state actors.¹ The resolution provides two critically important concepts to the international security regime. It brings all of the nonproliferation initiatives and treaties under the same mandate, thus consolidating and focusing their efforts. Additionally, it highlights the risk posed specifically by terrorist groups and non-state actors. Resolution 1540 binds all UN member states under one of the broadest pieces of nonproliferation legislation to date.

While the binding nature of the resolution under the charter has never been enforced, the resolution has served as a multilateral forum for the prevention of the proliferation of weapons of mass destruction (WMDs). The resolution calls on all member states to submit a report on their national status of implementation no later than six months from the resolution's adoption. Although many did not submit a report within the six-month period, to date, more than 90 percent of the UN member states have reported on measures taken to implement the resolution.²

Setbacks in Implementation

Most states recognize that the spread of WMDs poses an incalculable and severe risk to the global community. Despite this, some states continue to place a lower priority on domestic measures to prevent the illicit trafficking and proliferation of WMDs in comparison to other national concerns. This is most common in states that are dealing with civil unrest, famine, epidemic disease, or regional conflict, and are unable or unwilling to devote the required time and resources required to enact the legislative changes called for by the resolution. However, it is not politically viable to single out any particular state for lack of action because Resolution 1540 lacks clarity with regard to how a state is found to be in compliance or noncompliance.

Whereas the resolution is technically equally binding in all of its requirements, some measures hold greater weight than others in nonproliferation efforts. For example, the lack of a nuclear material control agency is not inherently detrimental to the nonproliferation regime in countries that have less than a significant quantity of nuclear material. Conversely, the failure to implement adequate export controls in a country with advanced missile technology would pose a significant proliferation risk.

In many cases, the lack of political will to implement legislative or security changes outlined in the resolution stems from an incredulosity that such changes would result in any noticeable impact on a country's national interests.

In addition, a number of the mechanisms outlined in Resolution 1540 require certain technical and legal expertise in order to be appropriately established, implemented, and enforced. Many countries are not always able to indigenously cultivate these kinds of skills and tacit knowledge, and require outside guidance or assistance.

National legislation, adherence to international treaties, and export controls set a good foundation for preventing non-state actors from acquiring, transporting, and developing biological, chemical, and nuclear weapons. However, less conventional steps need to be taken as well. A key priority of the resolution is to create universal criminalization of WMDs, but this is contingent upon universal implementation of the provisions in Resolution 1540. Unfortunately, twelve years into its implementation, it has become increasingly evident that universality is unlikely to be realized any time in the near future. This is particularly evident when remembering that the Democratic People's Republic of Korea is one such state yet to adhere to resolution provisions. To address the gaps that remain, due to some states' failure to implement resolution obligations, additional measures need to be taken to complete the comprehensive WMD nonproliferation blanket.

Future of US Role in Implementation

The United States submits one of the most thorough and complete implementation reports for Resolution 1540. As such, there are few remaining steps for the country to take in its national adherence to the resolution. While it is important that the United States continues to improve national efforts in resolution compliance, the priority needs to be placed now on international efforts. The next step is to assist with the resolution's implementation in other countries, in both reporting and realization.

The primary focus of Resolution 1540 is to prevent the acquisition of WMDs by non-state actors. As a result, it is necessary to analyze the threat without a state-centric bias and address it with the understanding that it is borderless and transnational. The formation of the Non-Proliferation Treaty was centered on the prevention of proliferation to non-nuclear-weapon states, and assessed the threat under the common characteristics of state actions. A non-state actor does not function in the same way as a state and is not restricted to the same kinds of acquisition paths.

The funding, acquisition, development, transit, storage, and deployment of WMDs could all take place in different countries and regions when done by a non-state actor. The transient capability of non-state actors further necessitates international cooperation and attention.

A high priority should be placed on implementation development in transit states. Transit states refer to states that possess points used to transport the overwhelming majority of the world's goods, or the states that have been most commonly used in the transport and sale of illicit goods.³

In order to address the apparent lack of political will in the implementation of many of the resolution's criteria, assistance and motivation to develop these preventive procedures need to be approached from a different angle. International dialogue and instruction have been used widely in the field of nuclear nonproliferation through a variety of means. Workshops and tabletop exercises have been orchestrated under the auspices of Non-Proliferation Treaty review conferences, open-ended working groups, and national laboratory outreach. The United States has taken an active role to assist nuclear nonproliferation efforts in the past through a variety of initiatives.

One such multilateral initiative was the US-led Galaxy Serpent exercises. Over the past few years, the United States' national laboratories have worked with other countries on developing different aspects of their national nuclear forensics libraries through a series of tabletop exercises. Countries were given scenarios in which a piece of nuclear material was found outside of regulatory control. Through analysis of the sample features, participants had to work to identify the source of the material. During the exercise, each team needed to work through the creation of a national forensics library, from scratch, in order to discover the source location. One of the main benefits of these exercises was that they assisted countries that either had limited or no national forensics libraries, cultivating the required expertise to build their own.⁴

Utilizing similar formats of these past initiatives, the US should aim to conduct a series of 1540-related workshops, exercises, and Track II dialogues. This will both assist other states in their implementation of national objectives related to Resolution 1540, and also help to create an international network in the hopes of compensating for remaining gaps in the WMD nonproliferation regime.

Each exercise or workshop should be organized in partnership with the 1540 Committee and other respective international nonproliferation bodies. For example, for a chemical weapons scenario

The lack of political will to implement legislative or security changes outlined in the resolution stems from an incredulousness that such changes would result in any noticeable impact on a country's national interests.

workshop, both the 1540 Committee and the Organisation for the Prohibition of Chemical Weapons (OPCW) would be elemental in organization and promotion. Such partnerships have the ability both to circumvent certain political stigmas that might arise from a solely US-led initiative, as well as take advantage of agencies' global experience in WMD nonproliferation.

Five-Year Plan

Year 1	Nuclear Accountancy
Year 2	Biological and Chemical Monitoring
Year 3	Proliferation Finance
Year 4	Export Controls Evaluation
Year 5	Global 1540 Implementation Analysis

Nuclear Accountancy

Objective: In comparison to chemical and biological materials, the nonproliferation regime for nuclear material is rather robust. However, one of the outlying areas of nuclear material security is international scrutiny of material accountancy and illicit trafficking of nuclear material. Very few countries submit regular reports to the International Atomic Energy Agency's Incident and Trafficking Database,⁵ and only a handful of countries publicize their national reports on nuclear and radiological material loss incidents.

International outreach on the topic of nuclear material accountancy can take a number of forms. Some of the potentially advantageous topics include, but are not limited to, national accountancy organization building, national nuclear forensics databases, and nuclear detonation response scenarios.

Example:

Premise	Countries participate in a fictional simulation in which they are provided with the details of a seizure of a smuggling ring found to possess nuclear material. The team of scientists and security officials attempt to determine the origin of the materials and the intended buyer.
Objective	The simulation is intended to provide the opportunity to evaluate the states' ability to access necessary resources and expertise to deal with a nuclear material smuggling incident in enough time to find the source and prevent further proliferation.
Agencies Involved	National laboratories, the International Atomic Energy Agency, and the 1540 Committee.
Nonproliferation Advantages	The simulation will ideally highlight the advantages of having a robust national nuclear forensics library. It will forge pathways of communication and cooperation among domestic and international partners.

Biological and Chemical Monitoring

Objective: Unlike nuclear weapons, chemical and biological weapons can be developed with relative ease thanks to the multitude of dual-use technologies that are readily available. However, despite their relative ease in acquisition, there are very few cases of biological and chemical weapons being used by non-state actors. As a result of the paucity of actual occurrences and subsequent lessons learned, many governments are ill-prepared to deal with such an attack.

International outreach on the topic of biological and chemical monitoring can take a number of forms. Some of the potential topics include, but are not limited to, biological or chemical attack scenarios, dual-use item databases, internal proliferation scenarios, and epidemic response scenarios.

Example:

Premise	Countries would participate in a simulation of a chemical or biological attack on a fictional city. Each country team would be provided with the national response capacity of the fictional nation and a detailed account of the attack and immediate aftermath.
Objective	Each country team would gain experience in responding to a biological or chemical attack as well as interfacing with the associated international bodies.
Agencies Involved	The OPCW, the World Health Organization, the Centers for Disease Control and Prevention, and other national health organizations.
Nonproliferation Benefits	Ideally the simulation would provide beneficial experience in identifying and responding to a WMD-style attack. Additionally the simulation would exploit (and thus draw attention to) a common weakness in an aspect of WMD security, by making use of common dual-use items that are not typically red-flagged in most countries and by exploiting common weaknesses in export controls.
Key Aspects	It is important that no aspect of the simulation appears to point to one country in particular.

Proliferation Finance

Objective: The means through which the illicit financing of terrorist organizations and potential non-state WMD proliferation occurs is rapidly evolving. As a result, the international community is often left ill-prepared to address and combat illicit financing. Cyber evolution in monetary transactions has made it exceedingly easy for governments and non-state actors to finance terrorist groups. It is important to address this in connection with efforts to identify and stop terrorist groups from acquiring WMDs.

International outreach on the topic of proliferation and terrorism financing can take a number of forms. Some of the potentially beneficial topics include, but are not limited to, illicit financing warning systems, proliferation financing scenarios, cyber security workshops, and databases of known terrorism financiers.

Example:

Premise	A Track II dialogue in which financial crimes experts will outline some of the typical methods used to covertly funnel funds to terrorist groups and non-state proliferation efforts.
Objective	To spread awareness on common financial methods used to fund illicit proliferation, as well as to facilitate international dialogue and cooperation in combatting these sources of funding.
Agencies Involved	The 1540 Committee, Interpol, the Federal Bureau of Investigation, and other national financial crimes organizations.
Nonproliferation Benefits	It will encourage multilateral initiatives to address the financial backing of terrorist groups.
Potential products	Dialogue could lead to a composition of proliferation financing red flags to aid countries in identifying potential illicit transactions.

Export Controls Evaluation

Objective: Between online purchasing and increased international trade, goods that can be used in the development of WMDs are readily available. Adequate export controls can play a major role in decreasing the ability of non-state actors to acquire the resources needed to proliferate.

International outreach on the topic of export controls can take a number of forms. Some of the potentially advantageous topics include, but are not limited to, proliferation/acquisition scenarios and Track II dialogues on best practices.

Example:

Premise	Countries will be invited to take part in an export control simulation. One team will be tasked with creating an export control regime for a fictional country. The other team will have the goal of acquiring enough material and technology to create a WMD capability.
Objective	The participants will be able to work through the common difficulties in export control regimes from an unconventional perspective.
Agencies Involved	The 1540 Committee, the US State Department, and other national export control agencies.
Nonproliferation Benefits	Ideally the participants will be able to come up with new and novel ideas for how to better implement their own export controls as well as develop a better understanding of the risks of vulnerable export control regimes.

Global 1540 Implementation Analysis

The fifth year should be spent in evaluation of the global strength of the WMD nonproliferation regime. This would involve looking beyond the surface value of the national declarations and focusing more on the effectiveness of individual and global efforts.

What Remains

While it is recommended that the United States take an active role in fostering international cooperation in nonproliferation efforts, the forms of such endeavors remain undetermined. The suggestions listed for workshops and tabletop exercises are to be used to springboard the organization of these events, and will require the input of both national and international bodies before any proposal should be presented to the other UN member states.

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Honorable Mention: Russian Federation National Action Plan for Implementation of Resolution 1540 (2004)

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Abstract: This action plan will focus—at the national level—on reinsuring, creating, and optimizing organizational standard operating procedures and on developing an oversight system within the Russian Federation. Special attention will be paid to chemical, biological, radiological, and nuclear safety and awareness in civilian infrastructures (hospitals, private laboratories, universities, and research centers). The Russian Federation will offer implementation assistance on nuclear and chemical safety to key allies and partners on a global scale that includes the Commonwealth of Independent States (CIS) and the Eurasian Economic Union (EEU). The capacity of multilateral initiatives with Russian participation will be strengthened (e.g., the International Atomic Energy Agency, the Global Initiative to Combat Nuclear Terrorism, the Organisation for the Prohibition of Chemical Weapons, and the Biological and Toxin Weapons Convention).

The proposal is divided into three sections. First, a strategic option memo summarizes the Russian Federation's challenges related to United Nations Security Council Resolution 1540 (2004) and recommends the most effective strategic option for an action plan during the period from 2017 through 2021. Second, the proposal focuses on the national implementation supporting Resolution 1540. Within the scope of political and financial feasibility, new actions will address current legal and organizational gaps in order to reduce nuclear, chemical, and biological risks. Third, the action plan for 2017-2021 underlines the competencies that can be offered by the Russian Federation to other states. The Russian Federation will pursue international assistance in three innovative components: 1) nuclear and chemical assistance in CIS space, 2) common security and export controls in the EEU, and 3) other bilateral and multilateral assistance schemes. Compliance with proposed actions will help to measure success of the action plan for the period up to 2021.

Strategic Options Memo for the Action Plan 2017-2021

Issue: The acquisition of weapons of mass destruction (WMDs) and their means of delivery by non-state actors (i.e., extremist and terrorist groups) is a major threat to national security as well as to international peace and stability. In 2004, the UN Security Council adopted Resolution 1540, and the Russian Federation committed to adopt legislation and to establish domestic controls against the proliferation of WMDs to non-state actors. A five-year action plan is needed for the continuing fulfillment of these binding obligations and for the reassessment of the Russian international assistance scheme.

National Interests: *Vital*—1) Preclude attacks with WMDs from non-state actors in Russian Federation territory or critical infrastructure; and 2) prevent the proliferation of WMDs and their means of delivery in Eurasia. *Very important*—1) Enlarge international cooperation to rule out terrorism with WMDs; 2) prevent the proliferation of WMDs to non-state actors in the world; and 3) weaken the capabilities of non-state actors targeting the Russian Federation.

Analysis: The action plan is a cornerstone in the multilateral and national efforts against the acquisition of WMDs by non-state actors. The Russian Federation plays a central role in this worldwide challenge, taking into consideration its current/past arsenals, infrastructures, and scientific capabilities related to WMDs. Since 2004, legislation and standard operating procedures (SOPs) have been created to enhance the readiness of Russian organizations. In addition, the Global Initiative to Combat Nuclear Terrorism (GICNT), as well as other means to provide assistance and cooperation to international organizations, allies, and partners, has been an important commitment of the Russian Federation.

Strategic Options

1. Foster international cooperation. Comply with Resolution 1540's obligations without making changes to the Russian position on the prohibition of activities related to nuclear weapons. Strengthen the multilateral and bilateral assistance at a global/regional scale and with key allies.

Pro: International coordination is one of the most effective policies to counter non-state actors with WMD projects.

Con: Time needed to create international consensus and actions can be overrun by the activity of non-state actors.

2. Pivot on nuclear weapons. Fully embrace multilateral measures to prevent non-state actors from acquiring WMDs, including limited legal restrictions on the manufacture, acquisition, possession, stockpiling, development, and transport of nuclear weapons.

Pro: National legislation on nuclear weapons can represent a first step for a renewed international control and disarmament of WMDs.

Con: Prohibitions on the nuclear weapons industry's activities may bring strategic disadvantages.

3. A regional action plan. Implement Resolution 1540 nationally but focus most of the assistance within the Eurasian Economic Union (EEU). Build major collective capabilities within the EEU.

Pros: Consensus and interoperability in the EEU is a more limited but feasible objective; the Russian Federation will play a leading role.

Con: Implementation and effectiveness problems due to limited expertise and budget.

Recommendations and Implementation

National security risks come from non-state actors with WMDs anywhere in a world with advanced information technology and means of communication. This action plan will focus—at the national level with tailored foreign assistance—on reaffirming, creating, and optimizing organizational SOPs and in developing an oversight system. Private-public partnerships will be developed. The Russian Federa-

tion will offer implementation assistance on nuclear and chemical safety to key allies and partners on a global scale including the Commonwealth of Independent States (CIS) and the EEU. The capacity of multilateral initiatives with Russian participation will be strengthened (e.g., the International Atomic Energy Agency, the GICNT, the Organisation for the Prohibition of Chemical Weapons, and the Biological and Toxin Weapons Convention). Of special attention will be chemical, biological, radiological, and nuclear (CBRN) safety and awareness in civilian infrastructures. The monitoring and scrutiny of the action plan will be accomplished by an authorized federal body or a working body formed by the Russian government.

Russian Federation National Implementation in Support of Resolution 1540

A. Modifications to the Articles Penalizing Violations of International Obligations in the Field of Nonproliferation of WMDs (Federal Act of the Russian Federation No. 63-FZ of June 1996)

Increase targeted jail sentences. Article 189 (1 and 2) relates to the illegal export or transfer of raw materials, materiel, equipment, technology, scientific and technical information, and the illegal performance of work (rendering of services) which may be used in the production of WMDs. Illegal export and transfer is punishable by the deprivation of liberty for a term between three and seven years. Repeat offenses cause increased sentences.

Increasing jail time in the use (Article 356) and development, production, stockpiling, acquisition, or sale of WMDs (Article 355) should not be a priority, taking into consideration that this measure will not further deter non-state actors. Individuals determined to obtain or use WMDs will not change their preferences if jail time is doubled. However, increasing the sentences in Article 189 may “keep out of the business” key individuals who would otherwise participate in the procurement of WMDs for non-state actors (i.e., key individuals with personal contacts in sensitive industries, with scientific and technical information, and/or with classified information on the security and SOPs of targeted infrastructures).

B. Biological Weapons Implementation

Enhance biosafety and biosecurity systems. Measures to increase material accountability, transportation safety, and oversight must be enforced, especially relating to private laboratories and organizations created in the post-Soviet era. A reassessment of most-urgent threats on bioterrorism must be done by mid-2017, when indicators and milestones will be developed for assessing the quality and state of the biosecurity culture. Further international cooperation and assistance under Article X of the Biological and Toxin Weapons Convention (BTWC) may help to counter high safety costs (transport, storage, incineration). Of special interest will be the Russian Federation's creation of an ethical code on biosecurity by internationally agreed-upon standards.

C. Nuclear and Chemical Safety in Highly Sensitive Infrastructures

Reaffirm and optimize SOPs. The Russian government should reaffirm and optimize current security procedures, inspection processes, and incident reporting. An annual expert review must be implemented to assess effectiveness and to find leaks within highly sensitive infrastructures (i.e., nuclear

plants, chemical disposal facilities, fissile material storage facilities). Further cooperation in the area of regulation, certification, and foreign financial and technological assistance should be promoted bilaterally and inter-institutionally with target partners. Increased disposal capacity for nuclear and radiological materials will be needed in the next decade, while new infrastructure will have to comply with international safety measures and SOPs.

Competitiveness in compliance and security. In order to facilitate compliance by nuclear and chemical industries, regulations and control lists should be designed with an enterprise-friendly spirit. Clarifications help to avoid misinterpretation and further penalties. Exchange forums/seminars between industry and government in a Wiesbaden-process format should be created. The desirability of translating core documents into Arabic must be assessed..

D. Enhancing Security Levels and Raising Awareness in Institutions Handling Radioactive Source Materials or Realizing Sensitive Chemical and Biological Activities

Enhance security levels. Hospitals, research centers, universities, and private organizations must develop stronger security infrastructure. Lost or stolen material risks must be minimized. The licensing process for organizations using radioactive isotopes must require an updated security strategy.

All organizations must develop—with the supervision of Rostekhnadzor, Federal Medical-Biological Agency (FMBA), Ministry of Emergency Situations (MChS), and pertinent agencies—security culture SOPs, including: 1) the creation of online training courses with a final exam (and passing grade of 15/20); 2) one-on-one induction, which would show procedures and places, and the handling of contaminated waste, radioactive waste, and biohazard and chemical waste; and 3) the creation of a federal health and safety management database, with mandatory risk-level and safety-level assessments.

Of special concern is the diminution of nuclear-material incidents within the Russian territory (i.e., involving cesium-137, plutonium-239, uranium, orphan sources and containers, radioactive waste, and radioisotope thermoelectric generators). International protocols must be fully used when radioactive source materials are lost or stolen. Registration and accounting systems to track all radiation sources must be created, updated, or modernized.

Enhance organizational security culture. State organizations with potential involvement in handling CBRN materials during an emergency must enhance their security culture. Cross-domain and cross-interinstitutional cooperation should be encouraged between ministries and security agencies.

Improve organizational coordination. Under the Security Council of the Russian Federation, a new agency or formalized working group should centralize information and intelligence from all state apparatuses on non-state actors' activities related to WMDs and their means of delivery. Targeted issues must be diagnosed and major organizational coordination must be built up, avoiding the duplication of assistance and of issuing guidelines. Presidential support should back continued cooperation activities at the national, regional (EEU, CIS), and global (joint working groups) levels.

Competencies Offered by the Russian Federation with Regard to Assistance for the Implementation of Resolution 1540

A. Nuclear, Chemical, and Radiological International Assistance in the CIS Space

Raise security levels. The Russian Federation may provide assistance through multilateral agreements to solve core vulnerabilities in the CIS space, such as not specific or not sufficient technical assistance requests to the 1540 Committee; technical weaknesses and a lack of harmonization in security systems; gaps in cyber security; insufficient training of personnel; and deficiencies in export control lists and emergency response procedures. A special CIS program to recover lost radiation/orphaned sources for military, industrial, medical, and research purposes must be funded (particularly for cesium-137, strontium-90, cobalt-60, plutonium-238, and iridium-192). Russian international assistance should be coordinated with Resolution 1540 experts; the UN Office of Disarmament Affairs, the International Atomic Energy Agency (IAEA), and the Organisation for the Prohibition of Chemical Weapons cooperation programs (capacity building, IAEA Incident and Trafficking Database, and technical cooperation) and with CIS Inter-Parliamentary Assembly work related to Resolution 1540.

A multilayer education initiative in the CIS space should be advanced by the Russian Federation. This initiative will include interstate sharing of best practices and the inter-institutional cooperation of civilian organizations (hospitals, private laboratories, universities, and research centers). Common safety culture in the CIS space will be developed by the type of organization, through transnational expert seminars, university courses, certifications, and online graded courses (open and restricted access in collaboration with EdX, UNITAR, and major research/university centers). Textbooks and codes of conduct for researchers must include safety and security measures related to the implementation of Resolution 1540.

A Moscow and/or Novosibirsk-based CIS research, training, and risk assessment center for the accounting, control, and physical protection of CBRN materials will deliver regular seminars, workshops, national roundtables, and reports tailored for security personnel, national points of contact, government officials, researchers, and students. Bilateral and international collaboration will be advisable (i.e., through the European Nuclear Safety Training and Tutoring Institute).

B. Common Security and Export Controls in the Eurasian Economic Union (EEU)

A common and harmonized border control in the EEU must be supported by the Russian Federation. Technical/financial assistance and legislative/enforcement measures in the EEU must be a top priority in the international assistance agenda of the Russian Federation. Major interagency cooperation should be developed in order to preclude illicit trafficking related to WMDs and their means of delivery, as well as to ensure law enforcement in the EEU space. Progress on efforts to effectively implement legal frameworks relevant to Resolution 1540, a single export control system with automation, and a common physical border must be delivered in an annual report to the Supreme Eurasian Economic Council.

Second line of defense. In export control and border security issues, an assessment on the financial and practical feasibility of a second line of defense in the EEU must be conducted by the Russian Federation. The assessment should include prospective coordination with the Collective Security Treaty Organization program of joint actions to create a system of information security.

Rehabilitation and physical protection of highly sensitive infrastructure in the EEU space must be a top priority in Russian Federation financial assistance (i.e., uranium mining/milling, nuclear research reactors with highly enriched uranium, test sites, closed cities, long-term waste storage sites, and disused chemical and biological laboratories). Russian technical assistance will be coordinated with the IAEA technical cooperation program, the BTWC Implementation Support Unit and the OPCW assistance and protection program. Relevant regulatory and technical documents to achieve the physical protection, safety, and security of CBRN materials can be provided by the Russian Federation to other EEU members. The Russian Federation will propose to the Supreme Eurasian Economic Council the creation of a common fund for IAEA extra budgetary activities.

Regionally implement relevant 2012 recommendations of the Financial Action Task Force. Within the Eurasian economic integration process, the Russian Federation should seek to solve delays in international cooperation against terrorist financing. Russia should provide assistance to EEU members in implementing Anti-Money Laundering/Combating the Financing of Terrorism policies and coordination through interagency cooperation with Rosfinmonitoring.

Biological safety initiative and capacity building. The Russian Federation should invite other EEU members to focus on the national implementation of the BTWC provisions and requirements. Russian assistance must be carried out in coordination with the BTWC's Implementation Support Unit for enacting EEU legislation on the accountability, security, and physical protection of materials related to biological weapons (capacity building). In addition, by Russian initiative, EEU members should create a verification mechanism to ensure compliance with the BTWC, and should consider nominating an agency to join the International Federation of Biosafety Associations as observers or member organizations.

Technical/financial assistance and legislative/enforcement measures in the EEU must be a top priority in the international assistance agenda of the Russian Federation.

C. Other International Assistance Schemes

Country/ Organization	Detailed Information	Main Responsive Organizations	Total Cost Of The Project And Timetable
IAEA	Financial and expert support to IAEA—extra budgetary fund for physical protection of CBRN materials in EEU	Ministry of Foreign Affairs (MID), MinFin, Rostekhnadzor, Rosatom, FMBA	Up to 150 million rubles for each major project. Maximum budget: 1,000 million rubles (~14.4 million Euros). Implementing arrangements: 2017 Physical protection: 2018-2021
OPCW	Russian contribution to the legislation database at OPCW website	MID	Russian version of legislation: 2017 Arabic/Spanish version: 2018-2018
China, Egypt, Hungary, India, Indonesia, Iran, Nigeria, Turkey, Vietnam	Induction to nuclear safety on new Russian technologies for key partners with major Rosatom activities	MID, Rosatom, MinFin, Rostekhnadzor, VO Safety, FMBA	~2000 Euros/course week covered bilaterally: 2017-2021
Germany	1) Financial and technical assistance in implementing export control obligations pursuant to BTWC 2) Physical protection of CBRN material in EEU	MID, MinDef, Ministry of Internal Affairs, Border Service of the FSB, Rostekhnadzor, FMBA	300 million Euros EEU arrangements: 2017-2018 Phase I: 2019-2021 Phase II: 2022-2024
France (Multilateral Support Fund of the Northern Dimension Environmental Partnership)	Financial and technical assistance for dismantling decommissioned nuclear service ships in the Barents sea region (Lotta, Volodarskiy)	Rosatom, Murmansk Shipping Co., MinTrans, MChS, Rostekhnadzor, Rosmorrechflot, SevRAO, Murmansk regional administration (Mayak, ChMZ, JSC NIITFA)	~50 million Euros for each service ship Implementing arrangements: 2020-2021 (1 ship) Phase I: 2022 - 2024 Phase II and III: subject to technical conditions
USA/Norway/Finland/Sweden/Canada	Speed up disassembling and disposal of radioisotope thermoelectric generators (RTGs)	MinDef, Minstroy, MChS, Rosatom, Russian Navy Rostekhnadzor, Rosgidromet, Kurchatov Institute, regional administrations (Rosmorrechflot, Mayak, ChMZ, JSC NIITFA)	From 261 to 297 thousand of US dollars per one RTG (total cost of decommissioning)
USA	Consultations on public-private schemes and Second Line of Defense program on an EEU scale	MID, MinFin, MinTrans, MinPromTorg, Border Service of the FSB, Federal Customs Service	TBA Covered bilaterally: 2017-2021
Japan/Norway/Canada—“Arctic Star of Hope II” new program	Resource assistance for faster dismantling of recently decommissioned Soviet nuclear submarines (1 Typhoon-class, 1 Delta III, 1 Akula-class) Russian participation in the Asian Export Control Seminar	MID, MinFin, MChS, Rosatom, Russian Navy, DalRAO, Zvezda Shipyard and North Eastern Repair Center	~ 35 million Euros (4 billion yen) Implementing arrangements: 2017 Dismantling: 2018-2021

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Honorable Mention: Qatar National Action Plan for Implementation of Resolution 1540 (2004)

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Abstract : Qatar has always expressed extremely strong support for compliance with UN Security Council Resolution 1540 (Qatar-United Nations 2011). In past national reports and UN matrices, Qatar has progressed continually since the resolution was introduced in 2004. While many countries in the Gulf have established national visions like Qatar's to create sustainable economies and improve the quality of life of their citizens, the imminent FIFA World Cup that will be hosted by Qatar in 2022 presents a catalyst for change, if not at least a medium-term deadline with high stakes for the country's national reputation. This primary incentive to build capacity presents many opportunities to increase compliance with Resolution 1540 at no additional cost.

Infrastructure Development

More than \$273 billion is expected to be spent on the 2022 FIFA World Cup in Qatar, even as Qatar estimates that over the next three years the country will run at a budget deficit due to falling oil prices.¹ It is expected that \$35 billion will be outsourced to foreign companies in construction, security, information and technology, business consultancy, logistical services, distribution, sports science, life sciences, and other industries. The national vision dovetails with these goals by proposing the construction of a new port, airport, and international railway system with the hope of rendering Qatar the "Passage to the Gulf."² Qatar is attempting to diversify its economy with cutting-edge infrastructure innovation that requires access to dual-use goods and industries. Dual-use refers to materials or services that can be utilized for both civil and military purposes but are not designed specifically for military use. Indeed, they enable high-value professions and enterprises in the economy. However, without explicit regulation in its customs law, Qatar has to circumvent more barriers to trade with a major source of dual-use goods—the European Union (EU). As it stands, the EU represents around 40 percent of the imports into Qatar, and easing commerce would empower Qatar's plans to become a logistics hub in the Gulf.³

However, as clearly outlined in EU Council Regulation (EC) No. 428/2009, without a global license issued by the EU, a country's dual-use goods cannot be exported, except to seven "like-minded" countries outside the EU.⁴ These seven countries receive preferential, transparent, and free trade of dual-use items because they have community general export authorization. Most trade between the EU and Qatar operates on a standard individual export license, which has tighter controls and less flexibility on re-export.⁵ If Qatar complies with dual-use regulation, businesses would become eligible to apply for global transfer licenses, freeing up trade with the rest of the world.

Considering its new transportation links, Qatar hardly remains the final destination for a substantial portion of the goods imported into the country. The lack of dual-use regulation renders it liable, thus discouraging other countries from trading with Qatar. Indeed, the construction of new entry points into the country by sea, air, and land under the Qatar National Vision 2030 would require the country to regulate the influx and use of dual-use goods to ensure that they do not fall into the hands of non-state actors or are used for non-civil purposes. Qatar already has strong state control of customs and immigration, but both trade and security benefits can result from explicit ratification of dual-use regulation into its customs law. In fact, without it, Qatar leaves itself vulnerable to national security risks in the next five years. Adopting these measures would enable Qatar to retain an Arab identity while maintaining bilateral trade, all without sacrificing national sovereignty. For that reason, Qatar's national action plan includes the following infrastructure developments.

Table 1: Infrastructure Development

Task	Action	Responsible Institution	Time Frame	Key Performance Indicators
Build capacity to adopt dual-use regulation fully	Develop electronic monitoring of dual-use traded goods in Port of Qatar, Hamad International Airport, and in Long-Distance International Passenger and Freight Rail	Ministry of Municipality and Environment: Radiation and Chemicals Protection Service for chemicals and radioactive material	By 2019	Increase World Bank ranking of Logistic Performance Index ranking for Qatar from 33rd to at least 25th.
	Expand monitoring to other international transportation links in Qatar			

Public Health

Qatar has a large migrant population of more than 1.5 million inhabitants, making it vulnerable to communicable diseases.⁶ The country has every incentive to ensure that its public health surveillance systems are up to the task of informing the Supreme Council of Health within 24 hours in the event of an outbreak of a highly infectious and dangerous disease. Moreover, with millions of people arriving from all over the world to attend the World Cup, disease outbreak during the event is a significant threat. The Qatar National Vision 2030 presents a commitment to the health of the people of Qatar, and improving public health monitoring systems falls squarely within that remit.

Monitoring disease outbreak patterns is crucial to protecting and containing threats that may have resulted from bioterrorism, as well as informing subsequent mitigation in the event of a biological weapon attack.

However, a 2014 evaluation with data collected since 2012 found that the Cuban Hospital in Qatar was not up to the task, with delays of up to 1.2 days in informing the Supreme Council of Health of sincere public health threats.⁷ Indeed, it was during 2012-2014 that the Middle East Respiratory Syndrome became preminent in the region. Had it begun to emerge in that particular hospital, the state response would have been delayed. This issue becomes even more pressing when we realize that the case study of the Cuban Hospital is a new facility and is the only national institution that has a medical epidemi-

ologist with an infection control program. The delay can be compressed significantly if infection control programs are moved from paper-based patient notification forms in the hospital's epidemiology department to a data-based system to track disease outbreaks geographically using a patient's previous whereabouts, address, and travel history. The study also noticed that such essential information was sometimes left out of patient notification forms. Improvement on such public health capacities would be instrumental for the World Cup in 2022 and the Qatar National Vision 2030, with the added effect of helping Qatar with compliance of UN Security Council Resolution 1540.⁸ For that reason, Qatar's national action plan includes the following measures related to public health.

Table 2: Public Health

Task	Action	Responsible Institution	Time Frame	Key Performance Indicators
Establish a responsive system for monitoring disease outbreak patterns	Ensure that essential patient information is noted by administrative staff in health care facilities	Ministry of Health: I. Department of eHealth and IT II. Department of Intelligence and Health Information	By the end of 2017	100% essential patient information recorded, including contact number, address, place of work, and date of symptom onset.
	Move paper-based system to a digital platform to automatically notify the Supreme Council of Health		By the end of 2020	Disease outbreaks reported at least within national standards of 24 hrs of patient visit to physician
Monitor pathways for disease proliferation	Regularly test water systems for water-borne diseases or toxic chemicals	Ministry of Municipality and Environment and Qatar Electricity and Water Co.	By 2018	Importing nearly all its food and having scarce water resources, the Qatar state is highly incentivized to ensure that it remains secure from tampering.
	Regularly test imported food for known diseases	Ministry of Health, Department of Preventative Health, Food Control Section	By 2018	Tests should be conducted at least monthly

Task	Action	Responsible Institution	Time Frame	Key Performance Indicators
Establish network of laboratories that can test for chemical and biological weapons in a highly reliable, standardized manner if such an event is suspected.	Train representatives from various laboratories from different institutions around Qatar to respond to emergencies where chemical or biological weapon use is suspected.	Qatar University National Committee on Prohibition of Weapons	By the end of 2019	Network of at least six laboratories established around Doha

Security Culture

With the upcoming World Cup, it is paramount that the security in Qatar be seen as impeccable. Developing a security culture is part of an effort to ensure that visitors feel safe and that Qataris do not take chances with security. A security culture is a set of behaviors that complements existing security measures, from cyber security to handling nuclear weapons.

Employees at every level of an organization have a role to play, yet security is often seen as cumbersome or unnecessary. Indeed, workshops and self-assessments that imbue professionals in various industries with a security culture have proven to be highly cost-effective, requiring little resources except several hours of employees' time.⁹ However, many ambitious businesses would still balk at losing employee hours. For that reason, we recommend cost-reducing measures on behalf of the National Committee for the Prohibition of Weapons (NCPW), and incentivizing various measures for businesses. We recommend that the NCPW capitalize upon its memorandum of understanding with Qatar University and other educational institutions to generate a strong, permanent youth arm. Interns and young professionals can be cost-effective and enthusiastic in their work, and if the NCPW presents the possibility of a graduate fellowship, it would be beneficial for both sides. Indeed, young professionals can work with industry specialists to tailor workshops to different industries while ensuring that events are engaging and relevant. This would allow Qatar to provide skilled, professional jobs to its youth bulge, when young people are finding it difficult to secure jobs quickly after graduation. We also recommend that Qatar incentivizes companies to put their staff through these workshops by: reimbursing them for employee hours if they permit these sessions to be carried out on-site, and providing complimentary World Cup tickets to participating businesses. These would provide all the ingredients to give an educational workforce access to industry specialists including scientists, construction managers, and information technology experts.

Nonetheless, Qatar will still request assistance for training the “regulatory and enforcement officials on the use of equipment and commodity identification.”¹⁰ Expertise on security culture is a human resource Qatar lacks as of today. The World Cup in 2022 presents innumerable opportunities to foster the country's progress, but it also presents a risk for Qatar's national reputation and the participants in such a large-scale event. One attack using nuclear, chemical, or biological weapons is too many, let alone at an event which brings together masses of people. Furthermore, Qatar is incentivized to ensure that its investment in increased security and export/import regulation will pay off, without being blindsided by human negligence. The following recommendations would help develop its security culture.

Table 3: Security Culture

Task	Action	Responsible Institution	Time Frame	Key Performance Indicators
Establish a youth arm of the National Committee on Prohibition of Weapons	<p>Incentivize youths through graduate mentorship schemes that empower their professional development</p> <p>Designate funds for recruitment schemes from universities in the region</p> <p>Request assistance from the UN 1540 Committee for expertise on the best practices to establish a security culture across industries that handle dual-use goods and services</p>	National Committee for the Prohibition of Weapons	By 2020	<p>Attaining a group of at least 40 young professionals from around the region dedicated to educating for a security culture.</p> <p>Degree of satisfaction indicated on surveys from employees whose companies requested the workshop as well as results of self-assessments conducted by companies.</p>
Establish a fund for education to support the development of a security culture	<p>Reimburse companies for their participation in security culture workshops</p> <p>Generate publicity to the target audience of these workshops</p>	Qatar Foundation	By 2020	At least 16 workshops conducted a year by the National Committee for the Prohibition of Weapons

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Honorable Mention: Turkmenistan National Action Plan for Implementation of Resolution 1540 (2004)

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Abstract: During year one, Turkmenistan should adopt the European Union Dual Use Export Trade Control regime. Also during year one, Turkmenistan should request assistance to buy the necessary surveillance equipment to secure its borders, hire more border patrol guards, and send senior and promising border patrol guards to the Organization for Security and Cooperation in Europe (OSCE) Border Management Staff College in Tajikistan. By year three, Turkmenistan should centralize export control responsibility to one ministry. By year five, Turkmenistan should ensure that at least one additional group of border patrol guards have attended training at the OSCE Border Management Staff College and that internal training has been developed to ensure that effective practices learned in Tajikistan are not lost if funding is jeopardized in the future. A push toward transparency must accompany all efforts to better comply with UN Security Council Resolution 1540 (2004).

Modest and Meaningful Steps to Secure Turkmenistan through UN Security Council Resolution 1540 (2004)

The Turkmen constitution states that the country is permanently neutral. Many have interpreted this stance of neutrality as an absolute refusal to participate in international coalitions and treaties. Nevertheless, while Turkmenistan may participate in international coalitions less often than its Central Asian neighbors, the increasing instability of the region—exacerbated by the withdrawal of NATO troops from the Afghanistan-Turkmenistan border—guarantees Turkmen interest in increasing the country's security. This essay argues that the drive toward security will increase Turkmenistan's active participation in international coalitions and upholding treaties. The country's willingness to participate in international treaties is evidenced by the Turkmenistan National Implementation Plan of UN Security Council Resolution 1540 that was submitted before the 2004 deadline, as well as its sustained involvement with the Organization for Security and Co-operation in Europe (OSCE). This paper examines measures that Turkmenistan could and should implement over the next five years to promote security within Turkmenistan and central Asia by strengthening Turkmenistan's commitment to Resolution 1540.

While Turkmenistan does not provide reliable public data about gross domestic product growth or decline, the Turkmen economic reality is undeniably grim. Turkmenistan's economy relies heavily on exports to Russia and China. The severe economic crises in those countries have limited Turkmenistan's export market. In addition to the shrinking export market in Russia and China, Turkmenistan's primary export, gas, has been drastically devalued in the past year. Low economic prospects increase

the likelihood that Turkmenistan will participate more actively in bilateral and multilateral agreements when these agreements are associated with economic incentives.

The attack at the Istanbul Ataturk airport reminded the world that Central Asia plays an important role in the terrorist group ISIS. Central Asian leaders, however, have been acutely aware of the risk. As ISIS loses ground in Syria, many ISIS militants have fled the battleground to return to their home countries. While no accurate numbers exist on the number of ISIS fighters from Russia and central Asia, the number appears to be significant. Russian President Vladimir Putin estimated in 2015 that between 5,000 and 7,000 people have left Russia and the Commonwealth of Independent States to fight in Syria.¹ This situation is concerning and reminiscent of the Yeltsin era after Chechen soldiers, trained in Afghanistan during the Soviet-Afghan war, returned home to Chechnya. After the Soviet Union denied Chechnya independence (before the collapse of the Soviet Union), violence erupted in Chechnya; Chechen terrorist attacks plagued Russia for two decades.

The attack at the Istanbul Ataturk airport reminded the world that Central Asia plays an important role in the terrorist group ISIS. Central Asian leaders, however, have been acutely aware of the risk.

Russia is not the only country in the region to experience homegrown terrorism. More recently, in 2016 a group of at least sixteen people organized an attack in Aktobe, Kazakhstan. The attack was linked with a plot to overthrow the Kazakh government. Kazakh President Nazarbayev described the attack as a “color revolution,” linking terrorist acts and regime change firmly in the minds of leaders in Central Asia.² Central Asian leaders are acutely aware of the risk terrorism plays in their country, as well as the risk to the stability of their own regimes. The Syrian civil war combined with weak borders in Central Asia creates the possibility for untold horrors. With the major exception of the Aum Shinrikyo terrorist group in Japan, terrorists have almost exclusively utilized conventional arms to commit attacks. Despite the previous reliance on conventional arms, terrorist groups such as ISIS have sought weapons of mass destruction in the past and will continue to seek weapons to commit attacks. Successful implementation of Resolution 1540 will mitigate such risks.

The 462-mile Turkmen border with Afghanistan is porous and unstable, and the recent withdrawal of NATO and US troops has only exacerbated the situation.³ Weak border security presents a serious risk to Turkmenistan as traffickers and proliferators alike can exploit the porous border. The risk is truly grave, and the international community should pivot engagement with Resolution 1540 to activities that strengthen border security. This engagement should also be focused on developing export controls that not only limit the supply chain network, but also inspire confidence in Turkmenistan as a trading partner. Strengthening border patrol and the export control regime in Turkmenistan is vital to ensure that proliferators cannot use Turkmenistan as a safe haven.

Not only is bettering border security timely, but it is also a proven way to engage with Turkmenistan. The OSCE’s center in Ashgabat “regularly organizes specialized training courses for navy and border security officers, customs personnel, and aviation and airport security staff on topics that range from patrolling procedures and surveillance techniques to maritime security protocols and airport safe-

ty management. The Centre also trains Turkmen law enforcement officials on techniques to counter drug trafficking and strengthen travel document security.²⁴ Few organizations are allowed to operate in Turkmenistan, and the OSCE's presence indicates a willingness on behalf of the Turkmen government to participate in activities that strengthen border security.

The Turkmenistan embassy reported that the Turkmen Ministry of Trade and Foreign Economic Relations, the State Customs Service, and the Ministry of Foreign Affairs all manage Turkmen export controls.⁵ That Turkmenistan has some form of export controls in place is a positive indication that the country is willing to engage with its responsibilities related to Resolution 1540. The embassy also reports that Turkmenistan works with multilateral organizations in addition to working with the United States to strengthen border controls.⁶ Turkmenistan should prioritize implementing EU dual-use export trade controls as one of the first steps to better implement Resolution 1540. The EU trade controls are an effective practice because they have been successfully implemented in many different states—meaning that they are unlikely to limit trade, something that should be emphasized when negotiating with Turkmenistan. Additionally, implementing the EU dual-use export control regime will encourage confidence in Turkmenistan as a trading partner. This could mitigate loss from trade that Turkmenistan might experience after implementing the EU trade controls. Because government controls industry, the Turkmen government will determine the ease of implementation. Outreach to the Turkmen government through existing channels, such as the OSCE, is essential. The Turkmen government should implement the EU dual-use export regime by Year 1.

After implementing the EU dual-use export control regime, it is necessary for the Turkmenistan government to create one agency that is responsible for enforcing export controls. As of 2016, three separate ministries (the Ministry of Trade and Foreign Economic Relations, the State Customs Service, and the Ministry of Foreign Affairs) are responsible for enforcing export controls.⁷ Centralizing export controls into one ministry will eliminate gaps and inefficiencies in the export control regime. Creating one ministry to oversee the enforcement of an export control regime will not be easy to implement as it represents countless hours of training. The OSCE should assist in training Turkmen government officials, though we should expect a new streamlined ministry only after several years of successful implementation of the new EU export control regime. Optimistically, if the EU dual-use export regime is adopted in Year 1, the new export control ministry should exist by Year 3.

The government of Turkmenistan must be transparent in its efforts to update its export controls as part of its commitment to Resolution 1540 efforts. Transparency is important in export controls because it acts as a confidence-building measure for trading partners. Furthermore, transparency on resolution measures is important as a public commitment, and Turkmenistan's public commitment will increase the likelihood that the country will continue to participate in other activities to strengthen Resolution 1540 in the future. However, as transparency is not common in Turkmenistan, a push for transparency will be difficult and will take time. Each measure toward strengthening Resolution 1540 in Turkmenistan should be covered by state-run news agencies as the advancement of a modern state. Related measures should be framed as a path to modernity and as an achievement for the country.

Turkmenistan's border patrol is ineffective and must undergo significant change to combat proliferation risks. The Stockholm International Peace Research Institute reports that: "The primary task of Turkmenistan's 12,000-strong border guard is to counter the flow of illegal drugs into the country. The force is considered highly corrupt and ineffective, with a high likelihood that both its leaders and personnel are themselves involved in cross-border smuggling operations. In addition to corruption

problems, the border guard does not have the manpower and surveillance equipment to effectively observe and patrol the entire border.”⁸

Turkmenistan should request financial assistance to purchase the surveillance equipment it is lacking. Additionally, Turkmenistan should request funds to retrain and hire new border guards. Because of Turkmenistan’s neutrality, the country may find that multiple donors wish to assist in hopes of winning favor with the small petrostate. Notably, the Austrian Federal Ministry of the Interior and the EU have funded border control efforts in Central Asia as recently as 2013 and may be willing to assist Turkmenistan again.⁹ Turkmenistan should also submit a request for financial assistance to send border patrol to the Border Management Staff College managed by the OSCE in Tajikistan. The training should take place over the next five years, and should better train border guards to identify and respond not only to conventional arms, but also to materials that could be used to construct a weapon of mass destruction. During Year 1, Turkmenistan should send senior and promising border guards to the Border Management Staff College. By Year 2, Turkmenistan should hire more border guards to man the understaffed border. During Years 3-5, Turkmenistan should send a contingent of senior and promising guards back to the Border Management Staff College and develop internal training to ensure that effective practices learned in Tajikistan will not be lost if funding is jeopardized in the future.

A better-trained border patrol would be beneficial to Turkmenistan as a measure that would reduce the flow of conventional weapons into the country. Enhancing border security in Turkmenistan, as discussed earlier, is timely and essential to reducing the proliferation of materials that could create a weapon of mass destruction.

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