

**James Martin Center for Nonproliferation Studies Online Course:  
“Global Trade and Weapons of Mass Destruction”**

Instructors:

Stephanie Lieggi, Senior Research Associate  
Robert Shaw, Director, Export Control Nonproliferation Program

“Global Trade and Weapons of Mass Destruction” is a six-week course intended to enable participants to better understand the process by which sensitive nuclear materials are transferred among states and the various means that states and companies can use to ensure that dual-use technologies and materials are not used in the production of weapons of mass destruction.

Each week will include two video case studies, two video lectures, four quizzes, and one short essay assignment on subjects covered that week. On average, it will take 4-5 hours to work through each week’s materials. Participants will be given two weeks to finish the Week 6 assignment.

---

**Week 1: The Overlap of Global Trade and Weapons of Mass Destruction**

Case Study 1: Asher Karni and Humayun Khan – A Classic Network

- Work of Middlemen
- Dual-use materials
- Controls on sensitive materials & enforcement activities
- Industry’s role in combating illicit trade

*Quiz #1:* The Karni and Khan Network

Lecture 1: Understanding the Dual-Use Challenge

- What do we mean by WMD?
- Challenge of balancing trade and security
- What are Strategic Trade Controls and why are they important?
- WMD production and its overlap with civilian efforts

*Quiz #2:* Dual-Use Goods

Case Study 2: Role of Trade Controls Historically: A Look at the Toshiba Case

- Toshiba Machine’s illegal export of milling machines to the Soviet Union.
- Ramifications on global security of export control violations
- The historical role of COCOM

*Quiz #3:* The Toshiba Case

## Lecture 2: Impact of Toshiba case on three levels

- Review of the impact of Toshiba case on Japan's trade control system
- Ramification of case on Toshiba's activities
- Internal compliance programs in industry

### Quiz #4: Implications of the Toshiba case

#### Additional Materials:

- 1) Basic overviews on threats of weapons of mass destruction provided on the NTI website <http://www.nti.org/threats/> (particularly review the top pages for nuclear, biological, chemical, and delivery systems.)
- 2) NTI Glossary of Terms, <http://www.nti.org/glossary/>
- 3) Full version of Mark Shapiro's "The Nuclear Underground" which details the Karni case is at:
  - <http://youtu.be/wFVAkA3rQ6g> (part 1)
  - <http://youtu.be/39z3BPssYo0> (part 2)
  - <http://youtu.be/I9UalJDaVBE> (part 3)

### Week 1 Assignment: Why is this item controlled?

## Week 2: Stopping Proliferation: Suppliers Working Together

### Case Study 1: The Emergence of Nuclear Trade Controls

- Importance of Foreign Assistance in WMD Programs
- India's nuclear program and the Nuclear Suppliers Group
- Iraq's nuclear ambitions and Challenges to the NSG

### Quiz #1: Nuclear Trade Controls

## Lecture 1: The How and Why of Multilateral Export Control Regimes (MECRs)

- International control regimes (MECRs)
- Trigger events
- MECR overview
- Rise and importance of catch-all controls
- Opposition to MECRs

### Quiz #2: MECRs

## Case Study 2: Chemical Weapons Controls: What Happens When too Little is Done?

- History of CW use and early elimination efforts
- Iraqi CW program
  - Iran-Iraq War and use by Iraqi forces
  - Establishment of Australia Group and CWC
- Syria's CW program
  - Foreign assistance
- Unique challenges to controlling CW related items

### *Quiz #3: CW History*

## Lecture 2: Controlling Chemical Weapons, Biological Weapons, and Missile Technology

- Controlling CBW Related Materials
- The Missile Technology Control Regime (MCTR)
- Challenges facing the control of missiles
  - Secondary suppliers
  - The peaceful use dilemma
  - Continued concern about cruise missiles

### *Quiz #4: CBW and Missile Controls*

#### Additional Materials:

- 1) Inventory of International Nonproliferation Organizations & regimes —  
<http://cns.miis.edu/inventory/organizations.htm> – Review the entries under Nonproliferation Export Control Regimes
- 2) Dennis Gormley, “Winning on Ballistic Missile but Losing on Cruise,” *Arms Control Today*, vol. 39, no. 10 (December 2009): 22-29
- 3) Panel Presentation on the Future of the Nuclear Supplier Group,  
<http://carnegieendowment.org/2011/03/29/future-of-nuclear-suppliers-group/308i>

*Week 2 Assignment: So you want to join a supplier regime?*

## **Week 3: Looking at Modern Trafficking Networks**

### Case Study 1: Understanding AQ Khan and his Network

- How the AQ Khan network was discovered
- Khan's background and work in Europe
- Moving from importer to exporter
- The middlemen and outsourcing of production
- Response from the nonproliferation community

### *Quiz #1: The AQ Khan Network*

#### Lecture 1: Understanding Illicit Trafficking in the Aftermath of AQ Khan

- Khan's methodologies
- The unique case of Khan
- Khan network members
- Effective use of shell companies
- Implications on International regimes and legal structures

### *Quiz #2: Illicit Trafficking After AQ Khan*

#### Case Study 2: Beyond Khan: A look at Iranian Procurement Efforts

- Iranian network and how it developed
- Working with Khan and establishment of own networks
- Working with middlemen
- Case of Majid Kakavand and the role of shell companies and transshipment points
- Difficulties for companies trying to avoid these actors

### *Quiz #3: Iranian Procurement*

#### Lecture 2: Learning from North Korean Trafficking Cases

- General characteristics of North Korean illicit procurement
- Toko Boeki Case Study
- Implications for DPRK networks

### *Quiz #4: North Korean Trafficking Cases*

#### *Additional Materials*

1) Mark Schapiro and Michael Montgomery, "Business of the Bomb: The Modern Nuclear Marketplace," American Radioworks audio documentary, available via

<http://americanradioworks.publicradio.org/features/nukes/>.

2) 60 Minute's report "How Iran Obtains U.S. Technology," available via

[http://www.cbsnews.com/8301-18560\\_162-6198599.html](http://www.cbsnews.com/8301-18560_162-6198599.html)

3) Andrea Stricker, Case Study – United States Busts Likely North Korean Transshipment Scheme, <http://isis-online.org/isis-reports/detail/case-study-united-states-busts-likely-north-korean-transshipment-scheme/>

#### *Week 3 Assignment: Understanding Trafficking Networks*

## **Week 4: New Approaches to Controlling WMD Proliferation**

### Case Study 1: Creating International Legal Obligations to Control Illicit Trafficking

- Gaps in international law concerning WMD and terrorism after 9/11
- Creation of UN Security Council Resolution 1540
- Increased focus on domestic controls of sensitive materials
- Effect of 1540 on international trade

#### *Quiz #1: Legal Means to Control Illicit Trafficking*

### Lecture 1: Understanding the Effects of UN Security Council Resolution 1540

- Characteristics of UNSCR 1540
- “Domestic controls” as key elements of national strategic trade control systems
- Efforts of the 1540 Committee

#### *Quiz #2: UNSCR 1540*

### Case Study 2: Getting Proactive: Novel Nonproliferation Initiatives

- Creation of the Proliferation Security Initiative
- Legal and practical questions of interdiction
- Impact on global trade
- Financial approaches—Going after the money

#### *Quiz #3: Novel Nonproliferation Initiatives*

### Lecture 2: Making the Most of Novel Approaches

- PSI as an activity, not an organization
- Ship boarding agreements
- Does PSI contradict international maritime and aviation law?
- Evolution of maritime security issues
- Impact on Industry

#### *Quiz #4: Novel Approaches*

#### *Additional Materials*

1) UNSCR 1540: Toward a Safe, Secure World, produced by the Stanley Foundation and the Stimson Center, (<http://youtu.be/WBAZ7N3olXY>)

2) Short Video Report on OSCE Workshop on U.N. Security Council Resolution 1540

<http://www.youtube.com/watch?v=oQ7kJOL1bpQ&feature=share&list=PLB123BD1F62E03743>

3) See the PSI website at <http://www.psi-online.info/>

4) Ian Williams, Proliferation Security Initiative: Ten Years On,  
<http://armscontrolnow.org/2013/05/28/proliferation-security-initiative-ten-years-on/>

*Week 4 Assignment: Will Novel Approaches Work?*

## **Week 5: Multiple Lines of Defense – The Role of Industry And Government Implementation**

Case Study 1: An Inside Job? A Case Study of Diversion

- Concerns about Iran’s nuclear program and procurement
- How did US-made pressure transducers end up in an Iranian nuclear facility?
- Use of Front Companies and False End-Users
- The Insider Problems

*Quiz #1: Diversion Case Studies*

Lecture 1: The Insider Problem

- Key Challenges global companies face
- Internal Compliance Programs

*Quiz #2: Insiders and Internal Compliance Programs*

Case Study 2: What happens when a system fails? The Mitutoyo Case

- Mitutoyo Case and Japan’s Export Controls
- Japanese export control reform
- Importance of government-industry interactions

*Quiz #3: The Mitutoyo Case*

Lecture 2: Challenges in Domestic Trade & Export Control Systems

- Japan’s Trade Controls
- Importance of strong legislation, well-trained staff, and sufficient resources
- Industry Awareness
- Post-Mitutoyo reforms
- US Export Control reform and its implications

*Quiz #4: Challenges to Export Control Systems*

### *Additional Materials*

- 1) Daniel Salisbury, How the Private Sector Can Do More to Prevent Illicit Trade, [http://www.armscontrol.org/act/2013\\_0708/How-the-Private-Sector-Can-Do-More-to-Prevent-Illicit-Trade](http://www.armscontrol.org/act/2013_0708/How-the-Private-Sector-Can-Do-More-to-Prevent-Illicit-Trade)
- 2) Stephanie Lieggi and Masako Toki, The Mitutoyo Case: Will Japan Learn from Its Mistakes or Repeat Them?, <http://www.nti.org/analysis/articles/will-japan-learn-its-mistakes/>
- 3) Doreen M. Edelman, Export Control Reform is Here – What Now? How Do I Classify My Product?, <http://www.corporatecomplianceinsights.com/export-control-reform-is-here-what-now-how-do-i-classify-my-product/>
- 4) Understanding US Export Controls, <http://youtu.be/n3wSeWQPKf4>

*Week 5 Assignment: What to do when the system breaks?*

## **Week 6: The Future of Strategic Trade Controls**

### Case Study 1: Growing Economies of Today and How They Control Materials

- Recent ring magnets case
- Historical perspective of strategic trade controls for new suppliers
- Current status and major challenges

*Quiz #1: Controls in Growing Economies*

### Lecture 1: New Suppliers and New Challenges

- Emerging suppliers
- Strategic trade controls as a domestic imperative
- Malaysia as a case study

*Quiz #2: The Challenges of New Suppliers*

### Case Study 2: Controlling the Flow of Technology in an Ever-Developing World

- Concerns of the future already here today
- 3-D printing case and Expanding ITT issues
- Cloud computing concerns

*Quiz #3: Controls on New Technologies*

### Lecture 2: Innovation, Technology, and the Future of Strategic Trade Controls

- Key Shifts – The Flow of New Technologies
- Evolution of traditional export control tools

- Proliferation of national strategic trade control programs
- “Compliance Convergence”

*Quiz #4: The Future of Strategic Trade Controls*

*Additional Materials*

1) David Albright, Ring Magnets for IR-1 Centrifuges, [http://isis-online.org/uploads/isis-reports/documents/iran\\_ring\\_magnet\\_13Feb2013.pdf](http://isis-online.org/uploads/isis-reports/documents/iran_ring_magnet_13Feb2013.pdf)

2) Melissa Hanham, North Korea’s Procurement Network Strikes Again: Examining How Chinese Missile Hardware Ended Up in Pyongyang, <http://www.nti.org/analysis/articles/north-koreas-procurement-network-strikes-again-examining-how-chinese-missile-hardware-ended-pyongyang/>

*Week 6 Assignment: Take a Walk on the Dark Side.*