Experts, policymakers, and politicians across regional and ideological divides agree that nuclear terrorism is one of the greatest risks facing the global community. However, efforts to secure vulnerable nuclear materials have not been commensurate with the threat. The Nuclear Security Summits (NSS) in 2010 and 2012 helped overcome international inertia in securing materials that could be used in a nuclear attack.

Much more remains to be done before there is a global system that prevents, rather than responds to, a nuclear terrorist attack. The upcoming summit in The Hague in March 2014 has the potential to advance the goal of reducing and ultimately eliminating weak links in current approaches to nuclear security. It also should set the stage for an enduring legacy of nuclear security improvement, robustness, and adaptability after the NSS process ends.
KEY POINTS

• LEGACY
  World leaders must seize the 2014 summit as an opportunity to create an enduring legacy of nuclear security improvement.

• SUCCESSES
  The NSS process has produced important steps forward, including expediting the removal of dangerous nuclear materials and drawing global attention to nuclear security challenges.

• ACTION
  Bolder action is needed to eliminate weak links in nuclear security, create an effective global security system, and prevent terrorists from acquiring nuclear materials.
WORLD LEADERS CALL FOR ACTION

“In short, it is increasingly clear that the danger of nuclear terrorism is one of the greatest threats to global security - to our collective security.”

– Barack Obama, President of the United States (2010)

“In this age there is no place that can be free from nuclear terrorism. I believe that it is our joint responsibility to work towards making a community of peace where humankind live peacefully together by contributing to world nuclear security.”

– Lee Myung-bak, former President of the Republic of Korea (2012)

“There is a considerable amount of nuclear material present in the world. If that ends up in the wrong hands, the consequences would be incalculable.”

– Mark Rutte, Prime Minister of the Netherlands (2013)
THE THREAT

Nuclear terrorism is a severe and ongoing threat
• Experts, policymakers, and politicians around the world agree that nuclear terrorism poses a grave threat that must be prevented, not responded to.
• Terrorist groups, including al-Qaeda, have demonstrated a serious interest in acquiring weapons of mass destruction (WMD) and WMD-expertise.
• Terrorists could replicate a gun-type bomb design like the one that destroyed Hiroshima if they had weapons-grade uranium.

Significant and dangerous amounts of nuclear materials exist
• The global stockpile of nuclear materials is large enough to build more than 20,000 new weapons like the one that leveled Hiroshima and almost 80,000 like the one that destroyed Nagasaki. This includes civilian and military stockpiles.
• A grapefruit-sized amount of plutonium or enough weapons-grade uranium to fit into a 5 pound bag of sugar can be fashioned into a nuclear weapon, which could instantly kill and injure hundreds of thousands of people.
• Weapons-usable materials continue to accumulate, including in regions of the world where terrorists are most active.
Current stockpiles are vulnerable
- The current global system for securing materials, while improved, is still a patchwork of agreements and voluntary commitments.
- Because terrorists or criminals will go where material is the most vulnerable, nuclear security is only as strong as its weakest link.
- More than a hundred thefts and other incidents involving nuclear and radioactive material are reported to International Atomic Energy Agency (IAEA) every year in regions ranging from Latin America and Europe, to Central Asia and Africa.

Nuclear terrorism is a shared global risk
- Virtually every nation possesses nuclear or radiological materials that could be used in a nuclear terrorist attack or a dirty bomb.
- No single country can address the threat on its own, and it is not just a problem for nuclear weapons states.
- A nuclear terrorist attack anywhere in the world would have devastating economic, societal, and security impacts far beyond the immediate tragedy.
- Kofi Annan, former Secretary-General of the United Nations, warned that: “Were a nuclear terrorist attack to occur, it would cause not only widespread death and destruction, but would stagger the world economy and thrust tens of millions of people into dire poverty… [creating] a second death toll throughout the developing world.”
1. How much damage could these materials cause?
   - The global stockpile of nuclear materials is large enough to build more than 20,000 new weapons like the one that leveled Hiroshima and almost 80,000 more like the one that destroyed Nagasaki. These figures include both military and civilian stockpiles.
   - A nuclear terrorist attack in a major global city would immediately kill tens of thousands of people and sicken a much larger number, many of whom would ultimately die.
   - Such an incident would make a significant geographic area unusable for potentially decades and cost hundreds of billions of dollars to repair.
   - The costs to the global economy would be extremely high. There would be incalculable stress on national and global political and security systems, which would most likely lead to international transportation and security issues receiving priority over economic, development, and other issues.

2. How easy would it be for terrorists to carry out a nuclear attack?
   - No part of planning or carrying out a nuclear terrorist attack would be easy, but by far the hardest part is acquiring nuclear material.
   - There are still vulnerable nuclear materials in hundreds of sites across 25 countries to which terrorists and other non-state actors could potentially gain access.
3. If these materials are so vulnerable, why hasn’t there been an attack?
   • We have been lucky.
   • Terrorist organizations have proven to be patient and methodical. The 9/11 Commission reported that preparation for the attacks in 2001 began more than a decade earlier.
   • There have been two attacks on a nuclear facility in South Africa in 2007 by unknown assailants who penetrated several layers of security, but did not acquire any fissile materials.
   • In 2010, authorities in Georgia reported that they broke up an effort to smuggle highly-enriched uranium (HEU) to an unknown buyer.

4. Is the terrorist threat less now that Osama bin Laden has been killed?
   • Al-Qaeda has established dangerous affiliates such as al-Qaeda in the Arabian Peninsula and al-Qaeda in the Islamic Maghreb. Recent events in Iraq demonstrate that the threat posed by al-Qaeda has not been eliminated.
   • The threat is dynamic and involves groups other than al-Qaeda.
   • For instance, a January 2014 story in the Times of India reported that a mujahideen leader in India admitted to actively seeking a Pakistani nuclear weapon.

5. Where are materials most vulnerable?
   • Ungoverned or poorly governed areas around the world pose an increased risk of nuclear theft, or could be used to transit materials to another country.
   • Many countries with stockpiles do not yet have adequate security to combat smuggling and protect their stockpiles, while many states without nuclear material have limited ability to prevent illicit movement of nuclear material across their borders.
6. Do current policies adequately address the threat of nuclear terrorism?
   • There is no effective global system for securing all nuclear materials.
   • The current regime is a patchwork of agreements and voluntary commitments.
   • Since 1993, there have been at least 2,331 confirmed cases of illicit or unauthorized trafficking of nuclear and radioactive material logged by the IAEA—160 of these occurred in 2012. Many more may be unconfirmed or completely undetected by the international community.

7. What will constitute success from the NSS process?
   • All states should adhere to internationally recognized standards and best practices for securing dangerous nuclear material.
   • Institutions like the IAEA and new nuclear security training centers should contribute to strong and continuously improving nuclear security practices.
   • The risks of all dangerous materials must be addressed, including: civilian and military HEU, separated plutonium, and radiological materials.
   • States should build confidence in the effectiveness of their national nuclear security practices.
   • Ultimately, a legally-binding international framework convention on nuclear security is crucial to strengthening the nuclear security regime.

8. What are specific examples of necessary policy improvements?
   • Convert reactors to use low-enriched uranium (LEU), which cannot be fashioned into a nuclear weapon. More than one hundred civilian nuclear reactors around the world still run on HEU.
   • Countries should stop stockpiling materials in excess of what they need to run existing civilian nuclear power plants.
• Nations should minimize the number of storage sites for their materials.
• The IAEA should be empowered to assess how states are securing nuclear materials and assist those states that need help in meeting international standards.

9. What are some nuclear security success stories from the NSS process?
• HEU has been cleaned out of 12 countries since 2009, including 7 since January 2012.
• More than 10 nuclear security training centers, known as “centers of excellence,” have been established.
• Dozens of countries have updated their national nuclear security laws and regulations.
• New counter smuggling activities and alliances have been initiated.
• More countries are taking steps to ratify treaties and support international initiatives to secure materials.

10. Will the 2014 summit get in the way of plans to develop nuclear power?
• No, it will help protect the continued use of nuclear power by demonstrating that nuclear security is taken seriously.
• Industry representatives are organizing a Nuclear Industry Summit in the Netherlands only days before the NSS, as they did in 2010 and 2012.

11. How large are the global stockpiles of nuclear materials?
• Roughly 1,390 metric tons of HEU and 490 metric tons of separated plutonium exist for both civilian and military applications, according to the International Panel on Fissile Materials. This includes civilian and military stockpiles.
• It only takes 50 kg of HEU to make the simplest gun-type bomb.
• There is no baseline inventory and no shared global accounting system for nuclear materials.
12. What’s the difference between a nuclear weapon and a dirty bomb?
• A nuclear weapon is a device that creates a fission reaction, which produces a significant explosion and causes a mushroom cloud. A dirty bomb can be as simple as combining dynamite and any material that gives off radiation, many of which are used for industrial or medical purposes.
• Nuclear weapons are far more destructive, but both spread dangerous levels of radiation.

13. What is the difference between nuclear safety and nuclear security?
• Nuclear safety measures protect against accidental releases of radiation while nuclear security measures defend against intentional misuse or sabotage of a nuclear facility.
• The disaster at Fukushima Daiichi in Japan was a nuclear safety accident, but similar damage could result from sabotage.

14. How are arms control and nonproliferation different from nuclear security?
• Arms control involves reducing existing stockpiles of nuclear arms through agreements such as the US-Russia New START deal.
• Nonproliferation efforts focus on stemming the spread of nuclear weapons to additional countries. The Nuclear Nonproliferation Treaty is the major instrument here.
• Nuclear security seeks to prevent the deliberate and malicious misuse of all existing dangerous nuclear material.

15. Why aren’t North Korea and Iran involved?
• Iran and North Korea are both under sanctions because of their nuclear activities and engaged through separate tracks.
16. What is US President Barack Obama’s role?
- President Obama initiated the NSS process, hosting the first summit in Washington, DC, in 2010. He has announced that the United States will hold the fourth and likely final summit in 2016.
- The United States has historically played a leading role in funding and implementing efforts to lock down dangerous nuclear materials.

17. What else should President Obama be doing?
- The Obama administration can do more to press the Senate to complete ratification of international agreements, such as the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material and the International Convention for the Suppression of Acts of Nuclear Terrorism.
- The United States still accounts for the vast majority of global nuclear security financing and must continue to prioritize these programs in future budget requests.

18. What is the most important take-away for the 2014 summit?
- World leaders must seize the opportunity to create a legacy of nuclear security improvement that will protect the citizens of the world and the global economy not only today, but for the future.
ABOUT FMWG

The Fissile Materials Working Group (FMWG) is a non-governmental coalition of more than 70 US and international organizations working to provide action-oriented policy solutions to keep the world safe from nuclear terrorism.

While originally focused on supporting President Barack Obama’s four-year goal of securing all vulnerable nuclear material worldwide, the FMWG expanded its scope to include defining a cohesive and effective future nuclear material security architecture and generating the expert and political support for implementation.

The FMWG is a forceful presence in support of improved fissile material security globally. Effective nuclear material security is a lifetime concern.

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This document does not reflect the views of all FMWG organizations.

Cover photos:
President Barack Obama in Prague, Czech Republic, 2009. (White House Photo/Pete Souza)
HE Mr Lee Myung-bak, then President of the Republic of Korea and IAEA Director General Yukiya Amano at the 2012 Nuclear Security Summit in Seoul. (IAEA/Dean Calma)
Dutch Prime Minister Mark Rutte with reporters. (Minister-president Rutte Flickr)
President Barack Obama and then President Lee Myung-bak of the Republic of Korea at the 2012 Nuclear Security Summit in Seoul. (White House Photo/Pete Souza)
President Barack Obama speaks with world leaders during the 2010 Nuclear Security Summit. (White House Photo/Pete Souza)
Dutch Prime Minister Mark Rutte at a preconference for the 2014 Nuclear Security Summit. (Minister-president Rutte Flickr)