

# INENS | Insights

Issue 1 2012

Training <sup>and</sup>  
educating  
the next generation of  
**CTBT**  
experts

**CNCP** | **Securing**  
the future  
of nuclear scientists

Progress nuclear  
**security** <sup>beyond</sup>  
Seoul

nuclear **Testing**  
in the **US** <sup>and</sup>  
North  
Korea

nuclear  
security | **Assurance**  
Accountability  
<sup>and</sup>  
**Action**

African  
**NWFZ**  
Treaty

Implementing  
The Treaty of  
**Pelindaba**

The Multilateral  
**Nuclear**  
Regime

Economics  
behind a  
**nuclear**  
Arab Spring

Trust between  
**nuclear**  
rivals

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## Note from Communications Director

### Dear Readers

We are delighted to launch INENS Insights, our official magazine. Our intention and hope with this new publication is to provide a forum for emerging nuclear specialists to publish their work and exchange ideas.

The majority of our articles are drawn from our INENS membership - consisting of those who have between one and ten years' experience in the nuclear field - and will reflect the great diversity of their nuclear specialisms and regions of focus. In this issue, we have also invited our collaborative partners, the Fissile Material Working Group, and the Institute for Security Studies to contribute to the publication.

We aim to feature articles from a range of nuclear institutions, including international organisations, government, industry, think tanks, NGOs, and academia. Each issue of Insights will present its articles on a

thematic basis. This first edition focuses on three broad areas: the Comprehensive Test Ban Treaty, Nuclear Security, and Regional Issues.

We hope you will find these contributions interesting and informative. We would greatly appreciate your comments and thoughts on INENS Insights - write to us with your ideas at [publications@inens.org](mailto:publications@inens.org). For more information on INENS and how you could get involved, please consult the "About INENS" section of this edition, or visit our website at [www.inens.org](http://www.inens.org).

Finally, our sincere thanks and gratitude go to the Carnegie Corporation of New York for their support in this endeavour.

**Sonia Drobysz**  
INENS Communications Director

# The NTI Nuclear Materials Security Index

## Building a Framework for **Assurance, Accountability, and Action**

The Nuclear Threat Initiative

The prospect is almost unthinkable: one of the world's great cities devastated at the hands of terrorists armed with a crude nuclear weapon built from materials stolen or bought on the black market. Yet there is an ample supply of weapons-usable nuclear materials stored at hundreds of sites in more than 30 countries worldwide – some of it poorly secured.

To get the materials needed to build a bomb, we know that terrorists will not necessarily go where there is the most material; they will go where the material is most vulnerable, making global nuclear security only as strong as the weakest link in the chain.

That's why all countries with weapons-usable nuclear materials – the highly enriched uranium (HEU) or plutonium needed to build a bomb – have a responsibility to account for the materials, to take steps to secure them and to provide continued assurances to the rest of the world that those materials are not at risk for theft or divergence.

Recognizing that this global security challenge requires the commitment and vigilance of all states, the Nuclear Threat Initiative (NTI) has developed the NTI Nuclear Materials Security Index, a first-of-its-kind baseline assessment of weapons-usable nuclear materials security in 176 countries around the world. Working with the Economist Intelligence Unit (EIU), NTI assessed security conditions in 32 countries with 1 kilogram or more of HEU, plutonium or mixed oxide fuel, and 144 countries that have less than 1 kilogram of these materials or none but are responsible for ensuring that their territories are not used as a safe haven, staging ground or transit point for illicit nuclear activities.

NTI is heartened that the Index is already being used as intended: to spark a discussion about priorities required to strengthen security, and to encourage governments to take actions to reduce risks.

The discussion about security priorities continued recently at the 2012 Nuclear Security Summit in Seoul, where world leaders made important new commitments to reduce or eliminate stocks of excess weapons-usable nuclear materials, minimize the use of HEU in the civil sector, open new centers of excellence and ratify important international agreements, among other commitments.

Steps that individual countries have taken or agreed to take as a part of the Nuclear Security Summit process are good news for global security. Looking ahead, however, governments must continue to move the discussion forward. As NTI co-chairman and CEO Sam Nunn said on the heels of the 2012 Summit, “We are in a race between cooperation and catastrophe, and to win this race, we must build a global consensus among partners from government, the nuclear industry, experts, NGOs and the public.”

### A Baseline Assessment

Released in January 2012, the NTI Index scores and ranks countries according to a set of 5 categories and 18 indicators. It is not a facility-by-facility review of “guns, guards and gates” or an on-the-ground review of materials control and accounting practices. Information about the security measures in place at specific facilities is understandably sensitive and should remain secret.

Instead, the Index assesses security based on five factors:

- › Quantities and Sites: How much material does the country have and at what locations?
- › Security and Control Measures: What kind of requirements for protection are in place?
- › Global Norms: What international commitments related to materials security has the country made?
- › Domestic Commitments and Capacity: What is the domestic capacity of the country to fulfill those international commitments?
- › Societal Factors: Could a given country's societal factors – such as corruption or government instability – undermine its security commitments and practices?

To develop the Index, NTI and the EIU worked with an international panel of experts and other technical advisors. The international panel assigned weights to the categories and indicators to reflect their relative importance. The 32 countries with 1 kilogram or more of weapons-usable nuclear materials were evaluated across the five categories; the 144 countries with less than 1 kilogram of materials or with no weapons-usable materials at all were assessed only across the last three categories.

During the process, NTI offered briefings to all 32 countries with weapons-usable nuclear materials (as well as South Korea, host of the 2012 Nuclear Security Summit) and asked them to review and, if necessary, correct data drawn mostly from public and open-source information. More than half the countries participated by reviewing and validating the data in the Index.





Since the September 11, 2011 attacks, security at nuclear facilities have been stepped up

The NTI Index, available at [www.ntiindex.org](http://www.ntiindex.org), includes high-level results in an easily accessible format, including country summaries and interactive tools that allow visitors to determine their own priorities and weighting of categories and indicators. The report, *The NTI Nuclear Materials Security Index: Building a Framework for Assurance, Accountability, and Action*, is also available on the website and includes NTI's full findings and recommendations, as well as a complete discussion of the EIU's methodology. For the most interactive and in-depth experience, visitors can download the full NTI Index in Excel format.

NTI undertook the year-long process of developing the Index because we believe such a tool is needed to measure risk, track progress and hold states accountable. Doing so is critical for building international confidence in the security of the world's most dangerous materials. Although the Index scores and ranks countries, it is not about congratulating some and chastising others. Instead, we believe it provides an important foundation for the urgent and ongoing work of strengthening security and offers a path forward through recommendations for states to undertake individually and together to keep these nuclear materials out of dangerous hands.

## Good News and Bad News

Thankfully, governments are becoming more aware of the threat of vulnerable nuclear materials, and many have taken important steps to improve security. The first Nuclear Security Summit convened by President Obama in 2010 and the 2012 Summit in Seoul have built important political momentum, but there is much work yet to be done. Today, there is still no global consensus about what steps matter most to secure weapons-usable nuclear materials. There is also no international system for tracking, managing and securing these deadly materials, and there is also no institution or authority with the mandate and the resources to help create and monitor a comprehensive security system.

Even more problematic, a deliberate lack of transparency makes it impossible to hold states accountable. And without baseline standards to measure states' actions to ensure that the appropriate security and control procedures are in place, global confidence is lacking.

Additionally, stocks of weapons-usable materials continue to increase in a few countries, making global materials security a difficult and moving target. Some states lag on joining international agreements aimed at tighter security, and some fail to follow up on their commitments when they do join.

## Taking Action

Despite these challenges – and they are very big challenges – ensuring the security of weapons-usable nuclear materials worldwide is not impossible. Because no single country can address the threat alone, all countries have a responsibility to work collectively and individually to reduce the threat.

The next Nuclear Security Summit will be held in the Netherlands in 2014. Between now and then, governments must engage in an international dialogue about what matters most for nuclear materials security. While countries may have their own priorities, a dialogue about what is effective, what is important and what makes a difference for global nuclear materials security is essential, particularly for states with limited capacity and resources.

With priorities set, an international system for tracking, protecting and managing nuclear materials is critical to building international confidence in each state's capacity to fulfill its security obligations. To develop such a system, it will be necessary to establish an international entity or significantly strengthen an existing entity, such as the International Atomic Energy Agency (IAEA), to have the mandate and resources necessary to implement this system.

As states develop a comprehensive and coordinated approach to securing vulnerable nuclear materials, the international community must also benchmark progress and hold states accountable. Governments should provide official and accurate declarations of their weapons-usable nuclear materials, as well as the current status of their nuclear materials security conditions.

And because a failure to secure materials in one state could have profound consequences in another, states must build appropriate transparency to increase international confidence. Governments should publish more information about their nuclear security regulations, declare inventory quantities for both HEU and plutonium, and make regular peer reviews the norm for sites holding these materials. Some states already follow these recommendations, providing an example that these steps enhance transparency without compromising national security interests.

Individual states must also take steps to become better stewards of global nuclear materials security in this crucial interim period. For instance, a large number of states have only small amounts of materials at one or two sites, making them prime candidates to join the 19 countries, plus Taiwan, that have already completely eliminated their stocks of material through reactor conversion or removal.

The NTI Index can be used as a resource and a tool as states make security improvements. The Index provides country summaries that show where all 176 countries excel and where there is room for improvement. It can also be used to target effective technical and financial assistance to countries with significant security challenges.



NTI co-chairman Sam Nunn

## The Road to 2014

NTI is pleased that many governments have already put the Index to use since it was released earlier this year. We plan to publish an updated version of the Index prior to the 2014 Summit. If countries follow through on the commitments made at the 2010 and 2012 Summits, their progress would be reflected in the next version.

As it stands now, Ukraine and Mexico will be removed from the list of countries with weapons-usable nuclear materials entirely on the next version of the NTI Index. And based on recent commitments, Vietnam, Sweden, Italy, Hungary, Czech Republic and Poland also have the potential to move off the list of countries with weapons-usable materials in the next few years. These would be significant successes.

The Nuclear Security Summit process has proven to be extremely valuable and may be the best forum through which to build a system of global governance, thanks in part to the high-level attention afforded to such a large gathering of world leaders. Collectively, the international community must ask how, with Dutch leadership, the 2014 Nuclear Security Summit can leave in place the global architecture to achieve proper security of these dangerous materials.

We have no illusions about the challenge: as long as weapons-usable nuclear materials exist on this planet, securing them will require constant vigilance. At the same time, all countries have a responsibility to do more to protect, secure and eliminate these materials. As NTI co-chairman Sam Nunn often says, "If we had a catastrophic nuclear terrorist attack on Moscow or New York, Tokyo or Tel Aviv, or any other city in the world, what steps would we wish we had taken to prevent it?" The Summit process can help ensure that we take the right steps today.

# Groundbreaking. Interactive. Comprehensive.

## NTI's Nuclear Materials Security Index

The screenshot shows the website's main navigation and results section. At the top, there are links for 'ABOUT', 'CONTACT US', and 'LEGAL'. The main heading is 'NTI Nuclear Materials SECURITY INDEX', with a sub-header 'A PROJECT OF THE NUCLEAR THREAT INITIATIVE'. Below this is a navigation bar with tabs: 'EXPLORE', 'RESULTS' (highlighted), 'CATEGORIES & INDICATORS', 'COUNTRY SUMMARIES', 'RECOMMENDATIONS', and 'YOUR PRIORITIES'. The 'Results' section includes a 'Download NTI Index' button and a description: 'Browse overall country scores or explore the data by category and indicator on the map below. Click between the two tabs to see the performance of countries with materials and countries without.' Below the text is a world map with a legend for 'Country Score' (80-100, 60-79, 40-59) and two tabs: 'Countries with Nuclear Materials' and 'Countries without Nuclear Materials'. A sidebar on the left allows users to 'Browse the Data' by selecting a category (Overall Score) and an indicator (None).

[www.ntiindex.org](http://www.ntiindex.org)

The report cover features the NTI logo and the title 'NTI Nuclear Materials SECURITY INDEX'. The subtitle reads 'Building a Framework for Assurance, Accountability, and Action'. The cover includes a collage of images related to nuclear security, such as a laboratory, a control room, and a UN flag. At the bottom, it states 'Index developed with Economist Intelligence Unit'.

Visit [www.ntiindex.org](http://www.ntiindex.org) and discover a first-of-its-kind public benchmarking project, prepared with the Economist Intelligence Unit, which evaluates nuclear materials security conditions across 176 countries. The NTI Index is sparking an international discussion about priorities required to strengthen security and encouraging governments to take actions to reduce risks.