

2018 Nuclear Security Index News & Media Roundup

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Experts Warn of Global Shortfalls in Nuclear Security

Congressional Quarterly/Roll Call

By John M. Donnelly

September 5, 2018

The world's governments have made progress safeguarding dangerous nuclear materials, but the risk of terrorists obtaining them remains too high, a think tank reported Wednesday.

The finding is from the **Nuclear Threat Initiative's** fourth biannual report on the threat.

The new report's release comes after Congress and the Obama and Trump administrations alike have overseen in recent years a steep drop in U.S. spending to protect nuclear materials in this country and abroad. Going forward, the Trump administration plans flat future budgets for such efforts.

"If we have a catastrophic terrorist attack on Moscow or New York, on Tokyo or Tel Aviv, on Jakarta, Cape Town or Brussels, or on any other city in the world, what steps would we wish we had taken to prevent it?" asked former **Sen. Sam Nunn**, a Georgia Democrat, in prepared remarks at a press conference Wednesday.

Nunn and **Ted Turner**, the broadcast executive, in 2001 launched the Nuclear Threat Initiative, which focuses primarily on security against so-called loose nukes.

Cyber Worries

Of particular concern, according to the report, is "dangerously insufficient" cybersecurity at nuclear facilities around the globe. Of 47 countries with either nuclear weapons materials or civilian nuclear facilities, fully one-third lack laws and regulations that mandate the incorporation of cybersecurity into overall nuclear security, the study found.

Without proper safeguards against cyber threats, a number of threat scenarios could unfold, the report said. For instance, attackers could crack a nuclear plant's access controls, rig its accounting systems to hide a theft of nuclear material, or disable a cooling system at a nuclear reactor and thus potentially unleash a disaster.

"Cyberattacks can facilitate the theft of nuclear materials or an act of sabotage that could result in catastrophic health consequences for the public," said **Ernest Moniz**, the former Energy secretary who is now co-chair and CEO of the think tank, alongside Nunn.

Islamic State Ambition

The threat of nuclear terrorism was dramatized in 2016 after a group linked to the Islamic State detonated a suicide bomb in Brussels that killed 35 people and injured more than 300 others. Someone with ties to that group had taken surveillance videos of the home of a researcher who worked at a Belgium facility that handles radiological materials. Belgian police suspected the terrorist group may have considered kidnapping the researcher or members of his family in a plot to access the nuclear materials.

That kind of scenario could unfold at thousands of locations around the world if security is not adequate, experts have warned for some time.

Terrorists could obtain the materials to build a nuclear bomb, but they are more likely to garner radiological materials such as Cobalt 60, used in irradiation equipment to fight cancer, and explode them in a so-called dirty bomb to contaminate large sections of a city for years.

Good News and Bad News

Despite these risks, the new report found that in one quarter of the 45 countries that have civilian nuclear facilities, the risks of sabotage or theft have grown because of factors such as weakening political stability or the growth of terrorist or criminal activity in those countries.

The potential for theft or sabotage at nuclear power plants could grow further, the report suggested, simply because numerous countries are planning to start their first atomic energy facilities in coming years.

The new members of that club will soon include Egypt, Saudi Arabia, the United Arab Emirates, Jordan, Turkey, Belarus, Poland and Bangladesh.

The report did contain some good news. In the past six years, for example, the number of countries that possess weapons-usable nuclear materials such as highly enriched uranium or plutonium declined from 32 to 22.

What's more, of the 45 countries with nonmilitary nuclear facilities, even though a quarter of them saw internal risks of instability rise, 78 percent improved their nuclear facility safeguards. But the progress has not been sufficient, the report's authors determined.

"The preventive measures that countries have worked so hard to put in place over time are now potentially at risk," said **Erin Dumbacher**, one of the project's leaders, in an interview.

Page Stoutland, the other project leader, said: "We've got to be better, if not perfect, and we've got to be that way for a long time."

Fading Focus on Threat

The continued risk of nuclear theft or sabotage comes at a time when the focus of the world's governments on the problem has begun to wane, particularly since the 2016 termination of a series of four nuclear security summits.

In the United States, funding for core nuclear nonproliferation programs at the Energy Department has plummeted. If the president's fiscal 2019 budget request is enacted as is, spending on such efforts will have fallen 18 percent below the level of eight years ago, even before accounting for inflation's shrinking effect on purchasing power, according to the Arms Control Association.

The House and Senate hope to vote this month on a package of bills that includes the fiscal 2019 Energy-Water measure. The House's version (HR 5895) would ratify the president's proposed

\$1.25 billion for DOE nuclear nonproliferation, while the Senate’s companion measure (S 2975) would bump it up to \$1.35 billion.

Moreover, Trump’s five-year Energy Department budget plan for fiscal 2019 through fiscal 2023 would increase spending on nuclear security programs at an average of less than 1.5 percent a year – probably not enough to keep pace even with inflation.

“It’s never a good sign when funding gets cut,” said Stoutland, adding that the new report “shows there is still a need.”

[Nuclear security threats on the rise under Trump, policy group says](#)

The Center for Public Integrity

By Patrick Malone

September 5, 2018

The risk of nuclear sabotage or theft of America's nuclear weapons material is rising due to declining political stability and increased partisan rancor under the Trump administration, according to a new report by a respected scientific policy and advocacy group.

The report from the nonprofit **Nuclear Threat Initiative** in Washington specifically cites the administration's failure to appoint experts to key national security jobs as a factor in the rising level of risk. The report says the risk level in the United States has increased on a par with that of Belgium, Poland, and Taiwan.

Political stability and effective governance have suffered in the U.S. since 2016 because of "heightened social unrest, resignations and vacancies from key government departments and the increasingly deep polarization of political party politics," said the report by NTI, which is headed by former Obama administration energy secretary **Ernest Moniz**. The group has been systematically assessing the security of nuclear materials around the globe for the past six years, and issued its new assessment on Sept. 5.

"There are some unfortunate and alarming undercurrents," Moniz warned in the report's opening letter.

Many key diplomatic posts at the State Department remain vacant, an issue that complicated preparations for the face-to-face meeting in June between President Donald Trump and North Korean leader Kim Jong-Un, where nuclear weapons issues were discussed. Partisan divides can interrupt hard-fought progress toward better nuclear security, and civil unrest can sow the type of hostile dissent that could inspire sabotage at a nuclear site, according to the report.

The Energy Department, which coordinates U.S. nuclear policy, did not respond to a request for comment.

The NTI report drew on analysis by the Economist Intelligence Unit, a private-sector research team that designed an objective, scientific system for ranking nuclear nations' progress toward improved protection of nuclear materials and facilities. Nuclear security experts from more than a dozen countries and two international nuclear security oversight bodies advised the unit on which indicators to measure and their significance.

The U.S.'s downgraded score for political stability reflects "large-scale demonstrations that we have seen over the past couple of years, and anticipate we will continue to see," Hilary Steiner of the Economist Intelligence Unit said, "Charlottesville being one example of that." Unflinching partisan divisions in government undermine policy compromises that can benefit nuclear security, and therefore the U.S.'s effective governance score slipped since 2016, she said.

The study evaluates the protection of nuclear material among the 22 nations that possess at least 1 kilogram of materials essential to making nuclear weapons, and 44 countries plus Taiwan that have nuclear reactors capable of releasing dangerous levels of radiation.

Nuclear security experts who conducted the study judged each country's defenses against a range of threats, including sabotage, theft and cyber-incursion at nuclear power plants, research centers and during transportation of fissile materials. The experts also analyzed what might be impeding progress toward improved security.

The backslide in nuclear security isn't unique to the United States, according to the new report. In all, 54 countries were deemed to be at higher risk of theft or sabotage now than they were in 2016, according to the Nuclear Threat Index.

"Such deterioration has occurred at a time when well-organized, well-financed and increasingly capable terrorist organizations are actively seeking the materials necessary to build weapons of mass destruction," the report said.

The report noted an uptick in political unrest in Turkey, where a new nuclear power plant is under construction and expected to open in 2023, and where dozens of warheads built and controlled by the U.S. are stored in fortified bunkers. Turkey's nuclear security rating dropped from 39 in 2016 to 24 now, out of a possible score of 100, the report said.

"The risk of social unrest is rated as high, risks to orderly transfer of power have increased, and a moderate risk of armed conflict within the next two years exists" in Turkey, according to the index. Its downgraded rating in nuclear security also is attributable in part to the Turkish government's struggles to carry out policies, "and the pervasiveness of corruption among public officials is high," the report said.

Among countries with weapons-useable nuclear materials, Australia and Switzerland got the best ratings for guarding against theft. The U.S. tied with the United Kingdom for 12th, and North Korea was rated worst in the world at protecting nuclear material against theft, according to the report. Finland is at the least risk of sabotage. The U.S. ranks 11th in that category. North Korea, once again, is the world's worst.

The Nuclear Threat Initiative issued its first index in 2012, in tandem with the second of four Nuclear Security Summits convened by the Obama administration. The aim of the reports was to encourage countries to adopt security practices that will make nuclear materials more difficult to steal. "Although the summit process is now over, the work it catalyzed has never been more important," Moniz wrote in his introductory letter to the report.

Not all the news was bad: The number of countries that possess 1 kilogram of nuclear material suitable to make a nuclear bomb has declined by nearly one-third since 2012, when 32 nations were on the list. Argentina and Poland shed their stocks completely and "addressed the threat in the best way possible," Moniz wrote, "by removing or disposing of all their weapons-useable nuclear material."

Collectively those nations that did improve security since 2016 are progressing faster than countries historically have, according to the report. Japan, for instance, made notable strides by implementing stricter vetting practices for personnel working at nuclear facilities and requiring cyber-incident response plans. Similarly, India, though still hampered by rampant corruption and a worrisome terrorist presence, fortified its political stability and adopted United Nations norms for protecting nuclear materials since 2016.

Moniz singled out Japan for praise during his speech unveiling the report. A planned plutonium-fueled nuclear plant in Japan has put nuclear security experts on edge that fresh stocks of bomb-useable materials will attract terrorists. In India, careless handling of dangerous nuclear waste stoked public outcry for limits on its nuclear program, and India's porous defense of nuclear material raised concerns internationally as recently as 2015 that the U.S., a major supplier of India's nuclear technology, hadn't put sufficient pressure on India to adopt adequate protections.

Several steps can be taken to better protect nuclear materials and swing the pendulum of security back in the direction of improvement for nations such as the U.S. that backslid, according to the report. Its authors recommended countries improve their basic security measures: Adopting vigorous vetting of personnel working in the nuclear industry, hardening on-site physical security at nuclear installations and better training personnel to recognize security weaknesses. Those developing nuclear power plants, for instance, can adopt robust regulatory standards and emulate what's worked in countries that have more experience protecting nuclear plants. The report also recommends reducing political risk through effective governance and cracking down on illicit activity, such as government corruption and terrorism.

India ranks 19 in 'Theft Ranking' for countries with weapons usable nuclear materials

Press Trust of India/Business Standard

September 5, 2018

India has improved its ranking by one spot from 2016 and now stands 19th in the 'Theft Ranking' for countries with weapons usable nuclear materials, according to the **Nuclear Security Index** released Wednesday.

The index was released by the US-based **Nuclear Threat Initiative (NTI)**, which is co-chaired by **Sam Nunn** and **Ernest Moniz**.

The biennial NTI index finds that despite these growing risks, progress to secure, minimise and eliminate the world's deadliest materials as well as to ensure the security of nuclear facilities has accelerated since 2016.

According to the report, India's nuclear security conditions could be improved by strengthening on-site physical protection, control and accounting, insider threat prevention, security during transport and cybersecurity by hosting an international security review and by establishing an independent regulatory agency.

"India's nuclear security conditions are adversely affected by the continued increase of weapons-usable nuclear materials, the large number of sites where those materials are located, corruption challenges, and the judgment that groups interested in and capable of illicitly acquiring nuclear materials are present in the country," the report said.

Neighboring Pakistan ranks 20th in the Theft Ranking for countries with weapons usable nuclear materials.

Since 2016, Pakistan improved its nuclear security conditions by defining nuclear security responsibilities and by enhancing insider threat prevention, it said.

"Pakistan could improve by enhancing personnel vetting; by strengthening control and accounting, cybersecurity, and security during transport; and by hosting an international security review," the report said.

Pakistan's nuclear security conditions are adversely affected by continued increases of weapons-usable nuclear materials, by political stability and corruption challenges, and by the judgment that groups interested in and capable of illicitly acquiring nuclear materials are present," it said.

For advancing the global nuclear security agenda, the report recommends building an effective global nuclear security system, defending against the growing risk of cyberattack, and improving state stewardship of nuclear materials and facilities.

As of now, 22 countries have weapons-usable nuclear materials, compared with 32 when the first NTI Index was released in 2012, the report said.

In the past two years, Argentina and Poland have joined the list of countries that have removed or disposed of all highly enriched uranium within their territories, it said.

Australia, which was at the top in 2012, 2014, and 2016 among the 22 countries with weapons-usable nuclear materials, this time shares the top spot with Switzerland.

Japan improved its score more than any other country since 2012 by decreasing its quantities of nuclear materials and improving insider threat-prevention measures, as well as physical and cybersecurity regulations.

China, Belgium, and Germany made notable improvements to their scores by taking important steps in areas such as insider threat prevention, cybersecurity and physical security during transport and at facilities, the report said.

Finland, New Zealand, and Sweden tied for the top ranking among countries with less than one kilogram of or no weapons-usable nuclear materials, it said.

What Is The Theft Ranking?

Nuclear materials are comprised of isotopes of Uranium, thorium, and Plutonium that are capable of sustaining a chain reaction in a process that releases energy called nuclear fission.

The theft ranking assesses the security conditions of nuclear materials in two kinds of countries. First, 22 countries with one kilogram or more of weapons-usable nuclear materials and secondly, 154 countries with less than one kilogram of or no weapons-usable nuclear materials all. Weapons-usable nuclear material refers to enriched uranium and separated plutonium that can be used to make possible nuclear weapons.

Countries without weapons-usable material are also included to make sure they don't act as safe havens or transit routes for illicit nuclear activities. This year, sabotage rankings have also been made a part of the index. Sabotage rankings assesses the nuclear security conditions of 44 countries and Taiwan with nuclear facilities that can result in the release of dangerous radiations. These radiations could have serious health consequences hence, they have also been made a part of the index.

The report noted that except in North Korea, all the other countries had shown improvement in minimizing and eliminating the world's deadliest materials. The report suggested that India's nuclear security conditions could be improved by strengthening on-site physical protection, control, and accounting, insider threat prevention, security during transport, cybersecurity by hosting an international security review and by establishing an independent regulatory agency.

While India holds a score of 46 out of 100, it is followed by Pakistan on the 20th position with 44 points. "Pakistan could improve by enhancing personnel vetting; by strengthening control and accounting, cybersecurity, and security during transport; and by hosting an international security review," the report said.

The report highlighted that India along with North Korea, Pakistan and the United Kingdom had increased their quantities of weapon-usable nuclear materials. Belgium, Egypt, India, Pakistan, and Russia all face a heightened risk that a capable terrorist group could commit acts of nuclear terrorism, the report further stated.

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India Ranks 19th in ‘Theft Rankings’ Regarding Nuclear Materials Security

India Times

September 06, 2018

India has been ranked at the 19th position, one position above since the last rankings by the **Nuclear Threat Initiative (NTI) Nuclear Security Index** that published a report on theft rankings of ‘weapon-usable’ nuclear materials on September 05.

The report lists Australia and Switzerland on the first position with a score of 94 each, followed by Canada with 89, Germany and Japan with 88 out of a total of 100.

The NTI index is basically used to assess the state of nuclear security in countries that possess nuclear materials. In order to ensure utmost transparency and accuracy, the NTI works closely with an International Panel of experts to identify the various indicators that will characterize a country’s nuclear security conditions.

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The Economist

Nuclear security is improving almost everywhere September 6, 2018

Unbroken arrows

Nuclear Security Index, change in theft score, 2012-18, out of 100

● 2012 ● 2018



Source: NTI Nuclear Security Index

*Excludes Belarus and Italy

The Economist

When the **Nuclear Threat Initiative (NTI)** began tracking nuclear security conditions worldwide in 2012, there were 32 countries with one kilogram or more of weapons-usable nuclear materials, down from more than 50 in the 1990s. The 2018 edition of the **NTI index**, released today, features just 22 such countries, and although four of them - India, North Korea, Pakistan and Britain - have increased their quantities of weapons-usable nuclear materials since 2016, six have taken steps to reduce them.

The ranking, developed by the NTI and the Economist Intelligence Unit in conjunction with international nuclear security experts, also assesses the risk of theft of such materials (21 of the 22 countries have seen an improvement), and of sabotage in 45 countries with nuclear facilities. Of these, it finds that 78% have improved their sabotage ranking scores in the past six years.

However, one area where the NTI finds more room for improvement is cyber-security. Like all critical infrastructure, nuclear facilities are not immune to cyber-attack, and the twin risks of sabotage and theft as a consequence of a breach leave the sector especially exposed. The pace of cyber-attacks, including those involving nuclear facilities, has accelerated in recent years. In 2016, three publicly known cyber-attacks or attempts on information systems at nuclear facilities occurred at the University of Toyama's Hydrogen Isotope Research Centre in Japan; the Gundremmingen Nuclear Power Plant in Germany; and one incident that affected both the Nuclear Regulatory Commission and the Department of Energy, which oversees America's nuclear weapons programme, in the United States. And in 2017, the Wolf Creek Nuclear Station in Kansas had its business systems compromised in a series of attacks targeting the energy sector.

According to the NTI, government authorities and facility operators are struggling to keep pace with this new threat, and national and international guidance is still evolving. It recommends a combination of technology and expertise to mitigate these risks, and the sharing of threat information among governments.

Cyber risks threaten nuclear security gains: study

Networks Asia

September 9, 2018

Global efforts to strengthen nuclear security have accelerated but cyber-, terrorist and political threats are rising, according to the fourth edition of the **Nuclear Threat Initiative's Nuclear Security Index (NTI Index)**.

Developed by NTI with analytical support from The Economist Intelligence Unit (The EIU), the NTI Nuclear Security Index is the foremost tool for assessing nuclear security globally.

Deteriorating political stability (including worsening corruption and flagging government efficiency) can hinder the implementation of nuclear regulations, and, in extreme instances, enable groups seeking to acquire nuclear materials or access to nuclear facilities—concerns that are only heightened in light of the fast-evolving cyber threat.

The cyber-threat is evolving rapidly, but progress in countering the threat is in many cases halting and uneven. To more fully capture cyber-security conditions, a new indicator was incorporated into this year's index focused on cyber-incident response plans. However, just 15 countries (out of 47) scored positively on this metric.

Having stalled in 2015-16, progress towards increasing nuclear security has accelerated over the past two years, in large part owing to notable improvements in security and control measures.

For the fourth time Australia earns the highest score in the “theft ranking” for countries with weapons-usable nuclear materials, but Switzerland is now tied for first place having reduced its stocks of nuclear materials. Overall, six countries took steps to reduce their quantities and sites of fissile materials, but four countries increased their quantities.

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Among those countries with nuclear facilities that witnessed a deterioration in their risk environment, Belgium, Poland and the US saw the biggest score change. In the case of Belgium this reflected an emerging terrorist threat to the country's nuclear plants, while in Poland and the US their fractious political scenes—and ensuing uptick in social protests (Poland) and decline in government effectiveness (US)—were the primary culprit.

Nearly 2,000 metric tonnes of nuclear materials and hundreds of facilities are distributed around the world, with no effective, established, universal system for securing them. The threat of nuclear terrorism will only continue to escalate. What can countries do? Recommendations for improving global nuclear security, and a detailed discussion of the NTI Index, are included in a new NTI report, “Building a Framework for Assurance, Accountability, and Action [Fourth edition].”

Russia in Review, Aug. 31-Sept. 7, 2018

Russia Matters

Published by the Belfer Center at Harvard

U.S. and Russian priorities for the bilateral agenda Nuclear security and safety:

- After years of progress on nuclear security, the fourth edition of the **NTI Nuclear Security Index** finds that the steps countries have taken to reduce the threat of catastrophic nuclear terrorism are jeopardized by a deterioration of political stability and governance, an increase in corruption and the expanding presence of terrorist groups around the world. Russia ranked 17th on theft-ranking out of 22 countries with weapons-useable materials and 24th on sabotage ranking out of 45 countries ranked on that score. (NTI, 09.05.18, *Russia Matters*, 09.05.18)



Sec. Ernest Moniz, NTI Co-Chair and CEO

Re: 2018 NTI Index
September 10, 2018

MR. DAVID WESTIN: So often in life and in news, let's be frank, the urgent drives out the important. And when it comes to important, there is nothing more important than the question of the threat of nuclear weapons worldwide.

The **Nuclear Threat Initiative** just issued its **most recent biennial report** and it's a mixed bag. On one end, worldwide efforts to secure and eliminate deadly nuclear materials have made real progress - reducing the number of countries with dangerous materials from 32 to 22. On the other hand, most progress is at some risk because of instability around the world, including some potential instability right here in the United States.

Here to take us through the report is the CEO of the Nuclear Threat Initiative, **Ernest Moniz**. Dr. Moniz served as Energy Secretary under President Obama. He is a professor of physics at MIT. He comes to us today from Cambridge, Massachusetts. So Mr. Secretary, thank you very much for being with us.

SEC. MONIZ: Thank you, David.

WESTIN: Give us the report card basically.

MONIZ: Well, you've said it well. First of all, two more countries eliminated all of their nuclear weapons usable material to bring this down to 22 from 32. That's real progress. And we've had countries from Japan to China that have substantially improved their security in materials, keep them out of the hands of terrorists. And we've also had -- and I should say that we had more than three-quarters of all countries with nuclear facilities improve their resistance to sabotage.

The bad news, however, as you also said, is that there are deteriorations in terms of the political environment in many countries and that can influence, elevate risk and also there are new threats like cyber security where we still have roughly a third of all the countries with nuclear facilities that have no basic cyber security protections at all. So cyber, we point out in this report, is certainly one of the areas where we will be looking for tremendous progress in the next couple of years.

WESTIN: So Mr. Secretary, you know, we Americans tend to be competitive and my eye was drawn to where we rank among the 22, and we just put up our slides, one of which indicates where we rank with respect of the amount of material -- and that is number 12 out of 22. And

with respect to sabotage threats, it's 11 out of 22. We're in the middle of the pack. Why aren't we doing better?

MONIZ: I think we need to keep a focus, which frankly I think the Obama Administration had, in terms of elevating these issues as primary issues. Secondly, as the Economist Intelligence Unit, which did the research for us, points out, there are frankly some governance questions, among them are things like so many of our senior positions in the government going unfilled for so long in this new administration.

Don't get me wrong, it's not like we're at the bottom of the pack, but as you said, we're in the middle, we should be doing better and certainly consolidation of materials, elimination of weapons materials is a place where we need to have more focus.

WESTIN: Let's talk specifically about the things that most of us think about and those are Iran and North Korea. What is the level of risk with respect to, for example, first Iran? Is that getting safer or more dangerous for the world?

MONIZ: Well, a big issue is what happens particularly in November when the president, the administration have promised to put draconian sanctions on Iran, including on their oil exports. And the question ultimately is, "Will Iran continue to comply with the agreement that we negotiated in 2015?" The reason that's so important in this context is that the agreement has an unprecedented and unique set of requirements on Iran in terms of providing visibility into their nuclear program. That, therefore, gives them also a certain protection against sabotage, against theft. So frankly if the deal is no longer followed, the loss of what are called safeguards will certainly enhance the possibility of theft or sabotage in Iran of nuclear materials, of nuclear facilities.

WESTIN: What about North Korea? The president clearly thinks he's making progress there. I mentioned the tweet that he tweeted out earlier about why they're not putting ICBMs in their parades anymore, they're talking about development. Is that getting to be a safer situation in your estimation or in the estimation of the NTI?

MONIZ: Well, I would say not yet. In fact, looking at those rankings that you said, North Korea is at the bottom of the heap, and a big reason for that is that there is no transparency into what is going on in North Korea. We really don't know. Now, if there is progress and negotiation, which I think will have to be a very long step-by-step approach with North Korea, and that leads to international inspectors being allowed back into North Korea, etc., well, clearly just as with Iran in the current situation, North Korea will move to a situation where we would know a lot more about where materials are. And that itself would be a real help against diversion of those materials, so we would enhance the security environment. But those are all big ifs, because the reality is we haven't seen a lot of progress in the negotiations since the summit between President Trump and Kim Jong-un.

WESTIN: Moving beyond the specifics of nuclear threat, let's talk about cyber security a bit more. You mentioned it in connection with nuclear materials; let's talk about it in terms of our

energy grid, energy security right here in the United States. What is your assessment of where we stand right now protecting our energy grid?

MONIZ: Well, you know, so far we have not had a major incident in the United States as has happened in some other countries. But the reality is we're not where we need to be. We are always scrambling to keep up the level of cyber security among our energy deliverers, especially electricity. It's very uneven. Now here I think when we were at the Department of Energy and in the current administration, the Department of Energy I think is doing a very good job in working with utilities to make sure that there is better information sharing, including intelligence sharing because we have given a number of the critical CEOs security clearances to be able to understand the threats.

And the thing is now for those utilities to keep moving. You cannot just have a standard and stand still because obviously the cyber attackers are always finding new entry points. The attacks on our system are legion, they are many, whether it's the electricity system, the natural gas system and others. And so I think we are succeeding in elevating the understanding of the level of threat, but it's really hard frankly to just keep up and to have all of our different energy deliverers who vary in such great scale for example, to have a uniform approach, because the weak point will be the entry point for cyber attack.

WESTIN: And briefly, in conclusion, let's move beyond manmade threats into mother nature, maybe with a little encouragement from humans. Where are we in the threats posed to the United States and to the world economy for that matter from climate change?

MONIZ: Well, the climate risks are...extremely real. And certainly this summer we have seen all of the predicted signatures of that from coastal surges and storms to droughts and wildfires and the like here in the United States. That's only going to get worse. And so we must address this. The good news or the semi-good news I suppose is that over the last decade we have made progress in eliminating our carbon emissions.

Hopefully, we will be able, despite the president's announcement of last year with regard to withdrawing from the Paris agreement, hopefully we will still through governors, through business leaders, be able to meet our Paris targets.

But I have to say if we are going to really minimize the threats to our economy, to our health, to our security from climate change, we are going to have to pick up the pace dramatically and by mid-century we are going to have to have essentially a very, very low carbon energy economy. A lot of work to do.

The good news is that energy technology innovation continues to go great guns historically and what we need is that innovation to be supportive, to be continued and to be synergistic with new policies that allow those technologies to deploy rapidly in our energy marketplace.

WESTIN: Professor Ernest Moniz of the Nuclear Threat Initiative, thank you very much for being with us today.

The Washington Post

[Lock It Up: The latest Nuclear Security Index Shows Some Real Progress](#)

By Editorial Board
September 22, 2018

WHILE MUCH of the world is justifiably anxious about North Korea's rise as a nuclear weapons power, and the doomsday talk can be jarring, there is a glimmer of good news in the [latest biennial index of nuclear security prepared by the Nuclear Threat Initiative](#), published Sept. 5.

The [report](#) shows that, though the last nuclear security summit was two years ago, nations are continuing to work toward properly securing fissile material and vulnerable nuclear sites.

The best way to avoid nuclear materials falling into the wrong hands is for nations to not keep them around. The most promising finding in the [study](#) is that the number of countries with more than one kilogram of highly enriched uranium, the fuel for a nuclear bomb, has dropped from 32 to 22 in six years, with Argentina and Poland removing or disposing of those materials most recently. The others that have given it up are Austria, the Czech Republic, Hungary, Mexico, Sweden, Ukraine, Uzbekistan and Vietnam. That's down from more than 50 countries in the early 1990s.

Among the 22 with more than a kilogram of highly enriched uranium, 21 have improved their defenses against theft of nuclear materials over the past two years; only North Korea received a worsening score, the study said. Also, the [report](#) says, of the 45 nations that have nuclear facilities, there was broad improvement in security and control measures, such as on-site physical protection, measures to avert insider threats and physical security during transit. Much of this work is in the thankless category of tweaking procedures and methods, but it suggests a seriousness of purpose long after the speeches at the summits are over.

Unfortunately, the world at large does not show as much promise. The index tracks the "risk environment" for countries and found it was declining in some that possess nuclear materials. The authors of the [study](#) say this criteria measures "political stability, effective governance, the pervasiveness of corruption, and whether there are groups in the country interested in and capable of illicitly acquiring nuclear materials." The United States was cited for deterioration in political stability and effective governance. It is not difficult to see why amid the tumult of the Trump presidency. The report cites "heightened social unrest, resignations and vacancies from key government departments, and the increasingly deep polarization of political party politics (which contributes to a country's ability to establish and sustain policies to secure nuclear materials)."

The study found that Belgium, Egypt, India, Pakistan and Russia “all face a heightened risk that a capable terrorist group could commit acts of nuclear terrorism.” Many countries are also “poorly prepared” for a cyberattack on nuclear facilities.

No one should harbor any illusions that the problem known as “loose nukes” has gone away. A catastrophe always is possible. But hard work might avert disaster, and it appears many governments are taking the threat seriously.

Dr. Page Stoutland on BBC World News Service (Radio), September 6, 2018

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Dr. Page Stoutland on Radio Free Asia, September 24, 2018

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Nuclear theft and sabotage threats remain high, report warns

Physics Today

By David Kramer

September 14, 2018

Nations must drastically improve cybersecurity protection to guard against thefts of nuclear materials or acts of nuclear sabotage, according to an exhaustive global analysis released 5 September by the nonprofit **Nuclear Threat Initiative (NTI)**. One-third of the 44 countries and Taiwan that possess weapons-usable nuclear materials or have reactors, reprocessing plants, and other nuclear facilities lack even the most basic cyberprotections, the NTI reports in its **Nuclear Security Index**. And although the US received a high grade for its cyberdefenses, it still needs to improve its overall level of protection.

The pace of cyberattacks on nuclear facilities has accelerated in recent years, according to the report. The authors cite multiple incidents that were publicly reported in 2016, including viruses discovered in computer systems at the Gundremmingen Nuclear Power Plant in Germany and the theft of tritium research from the University of Toyama's Hydrogen Isotope Research Center in Japan. In addition, a former US Department of Energy and Nuclear Regulatory Commission employee pleaded guilty to charges stemming from an attempt via spear-phishing emails to fraudulently gain confidential information from dozens of DOE employee accounts.

Taiwan and 12 countries, including the US, received the highest grade from the NTI for their defenses against cyberthreats. But many other countries have not upgraded their cyberdefenses since 2016, the last time the NTI conducted its review. The report notes that nations with the largest number of sites are more likely to have cyber-nuclear regulations in place. The NTI recommends that those nations share their expertise and information on threats and vulnerabilities with less advanced countries. It also calls for countries to impose cybersecurity requirements at their nuclear facilities and to increase the number and quality of cyber-nuclear experts at sites.

Among the 22 nations that possess at least 1 kilogram of separated plutonium or highly enriched uranium, the US and Russia came in 12th and 17th, respectively, for their overall level of protections from thefts. The two nations hold the vast majority of weapons-usable materials. Factors considered in the report card besides cyberdefenses include quantities of materials and the number of sites where they are located, security and control measures, and adherence to international norms and agreements.

The US is down one place on the list from 2016 due to "heightened social unrest, resignations and vacancies from key government departments, and the increasingly deep polarization of political party politics." Changes in regulatory policies require effective governance and bipartisan support, explains Hilary Steiner, a report coauthor from the consulting firm Economist Intelligence Unit. She cites large-scale demonstrations over the past two years, including the violent 2017 rally in Charlottesville, Virginia, as examples of social unrest that could adversely affect US nuclear regulatory policy.

Still, the US remains far more stable than some of the other states possessing nuclear weapons materials. “Things might have gone in the wrong direction [in the US], but they’re still in the positive category,” says Page Stoutland, NTI vice president for scientific and technical affairs.

Since 2016, increased political instability, ineffective governance, pervasive corruption, and the presence of terrorist groups have elevated threats in almost the same number of countries as those that have lowered their risks, the report says. “We are racing the clock to prevent an attack with catastrophic consequences,” NTI CEO Ernest Moniz says in the foreword of the report. He brings up the aftermath of the 2016 suicide bombings of the Brussels airport and subway, when authorities uncovered evidence of a well-organized effort by terrorist groups to obtain nuclear and radiological materials.

Nonetheless, important security gains have been made. Ten of the 32 countries that possessed weapons-usable materials in 2012 have since disposed of them. Poland and Argentina were the latest to eliminate their highly enriched uranium, joining Austria, the Czech Republic, Hungary, Mexico, Sweden, Ukraine, Uzbekistan, and Vietnam. In the early 1990s, more than 50 nations possessed such materials.

Australia tied with Switzerland for first place in overall protections against nuclear theft. Both nations are believed to possess just 1–3 kilograms of fissile material, quantities that are insufficient to fashion a nuclear device, says Frank von Hippel, former cochair of the International Panel on Fissile Materials.

Besides the US and Russia, the declared nuclear weapons states ranked 11th (France), 12th (the UK, tied with the US), and 14th (China). Undeclared weapons states Israel, India, and Pakistan were near the bottom of the list, at 18th, 19th, and 20th, respectively. The states judged to be most vulnerable to nuclear theft were Iran and North Korea.

Of the 44 nations and Taiwan with nuclear facilities, Finland topped the rankings in protections from sabotage, followed by Australia, Canada, Japan, and the UK. The US tied for 11th place.