NTI
BUILDING A SAFER WORLD

SEPTEMBER 2018

NTI Nuclear Security Index
THEFT | SABOTAGE

Building a Framework for Assurance, Accountability, and Action

FOURTH EDITION

Index developed with
The Economist INTELLIGENCE UNIT

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We also appreciate the many officials and experts from around the world who participated in briefings and who provided their critical insights to this fourth edition of the NTI Index. They include government officials who took the time to review and comment on the data gathered by the EIU, thereby helping to ensure that the NTI Index is as accurate and up to date as possible.

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FOREWORD

The news out of Belgium was chilling: within days of deadly terrorist bombings at the Brussels airport and subway, authorities dramatically increased security around the country's nuclear complexes, thus stripping workers of their security badges and sending most employees home. It was not a typical post-attack security crackdown. Authorities had reason to believe that an "insider" in Belgium might be helping Islamic State terrorists gain access to the country's nuclear and radiological materials.

Even before those 2016 suicide bombings in Brussels killed 35 and injured more than 300 others, concern had been growing across Europe and beyond as authorities uncovered evidence that well-organized, well-funded, increasingly capable terrorist organizations were seeking weapons of mass destruction. The evidence reinforces that we are racing the clock to prevent an attack with catastrophic consequences.

It has been clear for some time that governments struggle to stay ahead of—even to keep pace with—those evolving, escalating threats. That recognition—along with the understanding that the only way to address the greatest security threats facing the world is for governments to work together—was the impetus for four global Nuclear Security Summits.

NTI's Nuclear Security Index, a biennial ranking of nuclear security conditions worldwide, was borne of the need to determine the steps that countries and the global community should take to strengthen security around nuclear materials and facilities and to evaluate progress against those steps.

The NTI Index has tracked that progress since 2012 (in tandem with the summits). Although the summit process is now over, the work it catalyzed has never been more important. This fourth edition of the NTI Index reflects the work that remains to be accomplished.

There are reasons for optimism. The 2018 NTI Index assesses nuclear security conditions in the 22 countries that have one kilogram or more of weapons-usable nuclear materials. Six years ago, 32 countries had such quantities, and we commend those countries (now including Argentina and Poland) that have addressed the threat in the best way possible: by removing or disposing of all their weapons-usable nuclear materials.

Foreword

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REPORT

The Islamic State's Plot to Build a Radioactive 'Dirty Bomb'

The jihadist group appears to have been looking for nuclear materials in Belgium.

In 2015, Belgian authorities arrested a man with ties to a terrorist group who tracked a senior researcher at a Belgian nuclear center that produced materials that could be used for a radiological "dirty bomb."

The 2018 NTI Index also finds that, since the 2016 report, countries have accelerated their work to mitigate the threat of theft or sabotage by improving physical protection at nuclear facilities, security during transport of materials, response capabilities, on-site cybersecurity, and more. Specific improvements are detailed in this report, including NTI's Theft Ranking (first released in 2012) and NTI's Sabotage Ranking (added in 2016), the latter of which tracks nuclear facilities' vulnerability to potential acts of sabotage.

At the same time, there are some unfortunate and alarming undercurrents. In the eight years since the first Nuclear Security Summit elevated the issue of nuclear security to the head-of-state level and promoted global cooperation on an issue that still too often is regarded as a sovereign matter, important progress made in the nuclear security realm is now in jeopardy.

Around the world, the overall risk environment is deteriorating, which makes progress challenging and potentially engenders backsliding. The Index's "Risk Environment" indicators identify a global increase in political instability, ineffective governance, pervasiveness of corruption, and the presence and capabilities of terrorist groups. And this news comes at a time when a growing list of countries—including in the Middle East, North Africa, and Central Europe—are developing ambitious new plans for nuclear power.

Countries made modest improvements in cybersecurity, but—overall—defenses remain dangerously insufficient to meet the expanding and rapidly evolving cyber threat. Governments and facility operators must step up their game to tackle the threats that exist on this front.

The results of this Index do not bode well for governments' ability to keep their attention focused on what always should be job one: protecting citizens from harm. Instead, the results serve to reinforce the need for countries to band together to develop an effective global nuclear security system with the following: a common set of international standards and best practices, a mechanism for holding countries accountable for appropriate and effective security measures, and a robust legal foundation for securing nuclear materials.

That approach has been NTI's top-level recommendation from the start, and it remains so today. In the face of emerging and escalating global threats, we believe leaders have an obligation to recommit to the security agenda laid out at the Nuclear Security Summits and to take tangible, measurable steps to protect against terrorist attacks that could have almost unfathomable consequences.

Ernest J. Moniz
Co-Chair and Chief Executive Officer
Nuclear Threat Initiative

EXECUTIVE SUMMARY

Progress in Nuclear Security Jeopardized by Deteriorating Risk Environments

After years of progress on nuclear security and continued improvements following the last of four global Nuclear Security Summits, the preventive measures countries have taken to secure nuclear materials against theft by terrorist organizations are at risk. The 2018 NTI Nuclear Security Index finds that, since 2016, risk environment factors (including political instability, ineffective governance, pervasiveness of corruption, and presence of groups interested in illicitly acquiring nuclear materials or in committing acts of nuclear terrorism) have deteriorated in 54 countries. 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; additionally, cyber threats to nuclear facilities are rapidly expanding and evolving.

Today, 22 countries around the globe have weapons-usable nuclear materials, and 44 countries and Taiwan have nuclear facilities for which an act of sabotage could result in a dangerous release of radiation. Among those countries that the 2018 NTI Index identifies as having deteriorating risk environments, seven are estimated to have nearly 1,000 metric tons of weapons-usable nuclear materials combined,[1] and 12 countries with deteriorating risk environments have a total of more than 120 nuclear sites.[2]

From 2010 to 2016, the global Nuclear Security Summits, where heads of state came together biennially to address nuclear security, elevated the importance of the issue, sharpened understanding of the steps needed to prevent catastrophic terrorism, and prompted countries to make commitments both big and small to improve the security of potentially vulnerable nuclear materials and

[1] Belgium, Germany, Italy, Pakistan, South Africa, the United Kingdom, and the United States.

[2] Belgium, Brazil, Germany, Mexico, Pakistan, Peru, Poland, Slovenia, South Africa, Spain, the United Kingdom, and the United States.

KEY TRENDS FROM THE 2018 NTI INDEX

- Countries have accelerated nuclear security improvements.
- Deteriorating risk environments jeopardize progress.
- Defenses against the cyber threat remain insufficient.
- States without nuclear materials actively support global nuclear security norms.

facilities. Those summits ended in 2016, however, and no comparable cooperative global effort has emerged to replace them. Meanwhile, both the terrorist threat and new concerns, including the risk of cyberattacks on nuclear facilities, are mounting. This fourth edition of the NTI Index provides a benchmark that leaders can use to judge progress, and it contains recommendations for enhancing the security of nuclear materials and facilities around the world in an ever-more perilous context.

ABOUT THE NTI NUCLEAR SECURITY INDEX

The 2018 NTI Nuclear Security Index assesses the security around of some of the world's deadliest materials (highly enriched uranium and plutonium that can be used to build nuclear weapons), as well as the security of nuclear facilities, which, if sabotaged, could lead to dangerous releases of radiation. Developed in 2012 with the Economist Intelligence Unit (EIU) and guided by an international panel of respected nuclear security experts, the NTI Index tracks country-level progress on nuclear security and encourages governments to take actions to protect and build confidence in the security of their materials and facilities.

The 2018 NTI Index ranks nuclear security conditions in 22 countries that possess one kilogram or more of weapons-usable nuclear materials, 154 countries with less than one kilogram of or no weapons-usable nuclear materials,[3] and 44 countries and Taiwan where an act of sabotage against a nuclear facility could lead to a dangerous radiation release.[4]

KEY TRENDS FROM THE 2018 NTI INDEX

Countries have accelerated improvements to secure, minimize, and eliminate weapons-usable nuclear materials, as well as to secure nuclear facilities that could be sabotaged. However, challenging risk environments may jeopardize those improvements.

- **Countries Have Accelerated Nuclear Security Improvements.** Since 2012, 10 countries have eliminated their stocks of nuclear materials. In addition, since 2016, countries with weapons-usable nuclear materials have taken 82 specific actions to improve nuclear security conditions.[5] Of the 44 countries and Taiwan with nuclear facilities, 78 percent improved their NTI Index Sabotage Ranking scores, which is attributable in part to notable improvements in security and control measures, including on-site physical protection of nuclear sites, enhanced insider threat prevention measures, and improved response capabilities.
- **Deteriorating Risk Environments Jeopardize Progress.** The EIU's Risk Environment ratings for nuclear security in the 2018 NTI Index offer cause for concern. Political instability, ineffective governance, pervasiveness of corruption, and the presence and

[3] Countries without weapons-usable nuclear materials are assessed across a subset of the framework that considers their contribution to global nuclear security. For information on Taiwan's status and its treatment in the NTI Index, see the full EIU Methodology at www.ntiindex.org.

[4] Countries measured in the Sabotage Ranking have nuclear facilities subject to sabotage, including nuclear reactors for power generation, research, or both.

[5] NTI's analysis of actions that countries have taken to improve their nuclear security conditions measures score improvements at the subindicator level, counting a country's positive score change on an Index subindicator as a single improvement. The total number of actions does not describe the magnitude of those actions, nor does it describe those actions' impact on the overall country score or ranking.

capabilities of terrorist groups resulted in declining Risk Environment scores. At the same time, scores declined for almost as many countries as improved between 2016 and 2018, including 7 of the 22 countries with weapons-usable nuclear materials and 12 of the 44 countries and Taiwan with nuclear facilities.[6] Risk environment factors have the potential to adversely affect other measures that are designed to ensure that a country's nuclear materials and nuclear facilities are secure.

- **Defenses against the Cyber Threat Remain Insufficient.** Although countries have made modest improvements, many remain poorly prepared to defend against cyberattacks. Among the countries and Taiwan that have weapons-usable nuclear materials or nuclear facilities, one-third lack all of the basic cybersecurity regulations measured. Since 2016, only 12 countries have improved their cybersecurity regulations, and only 12 countries and Taiwan that have weapons-usable nuclear materials or nuclear facilities were given full credit, confirming that the country has put in place the basic cybersecurity regulations measured by the NTI Index.[7]

- **States without Nuclear Materials Actively Support Global Nuclear Security Norms.** To prevent the transit of illicit nuclear materials through their territories and to prevent their domains from being used as staging grounds for malicious activity, countries without weapons-usable nuclear materials continue to support global nuclear security norms. Since 2016, 22 additional countries have ratified the 2005 Amendment to the Convention on the Physical Protection of Nuclear Materials (CPP), reinforcing the international legal foundation for nuclear materials security.[8]

IMPERATIVES FOR IMPROVING NUCLEAR SECURITY CONDITIONS

An effective global nuclear security system that ensures the protection of vulnerable nuclear materials and facilities remains elusive. In the absence of such an agreed upon and comprehensive system, the notable progress that countries have made in reducing the risk of nuclear terrorism is in jeopardy. Meanwhile, demand for nuclear energy is growing around the world, leading new countries to consider taking on the associated risks and responsibilities.

In the absence of the Nuclear Security Summits, government leaders must stay focused on ensuring the security of some of the world's most dangerous materials and nuclear facilities. Government officials, as well as those in charge of nuclear facilities, also must address expanding and evolving risks (such as those posed by the cyber threat) and must work to enhance the resiliency and security of nuclear facilities. This is particularly important at a time of heightened political instability and terrorist risks. To prevent the theft of weapons-usable nuclear materials or catastrophic attacks on nuclear facilities, national leaders should:

- **Build an Effective Global Nuclear Security System.** Common international standards, a mechanism for holding states accountable, and a comprehensive international legal foundation are required. Countries should:
  - → Bolster the international legal foundation for nuclear security, and take advantage of the 2021 review conference of the Convention on the Physical Protection of Nuclear Materials and Nuclear Facilities, which will provide a forum for ongoing global engagement to address critical gaps.
  - → Strengthen and build confidence in the security of all materials, both civilian and military. Countries should commit to securing nuclear materials used

[6] Notably, between 2016 and 2018, risk environments declined more in countries with weapons-usable nuclear materials than they did in the period of 2014–2016.

[7] Countries and Taiwan receiving full credit include Australia, Belarus, Canada, Finland, France, Germany, Hungary, the Netherlands, Romania, South Korea, Taiwan, the United Kingdom, and the United States.

[8] The official name of the amended Convention on the Physical Protection of Nuclear Materials (CPPNM), now entered into force, is the Convention on the Physical Protection of Nuclear Materials and Nuclear Facilities. This report refers to the amended Convention, which incorporates the 2005 Amendment, as the "CPP." The NTI Index subindicators assess whether countries have signed or ratified those legal instruments.

for military purposes to the same or higher standards as those used for peaceful activities.

- ➔ Build international confidence in the effectiveness of nuclear security and strengthen the International Atomic Energy Agency's (IAEA) role and capacity. Countries should demonstrate their commitment to boosting confidence in nuclear security by participating in international peer reviews, declaring overall quantities of nuclear materials, making voluntary commitments to share best practices, and supporting an enhanced role for the IAEA in promoting nuclear security.

› **Defend against the Growing Risk of Cyberattack.** Cyberattacks could facilitate the theft of nuclear materials or an act of sabotage, potentially resulting in catastrophic health consequences to the public. Effective cybersecurity measures must be incorporated into government regulations and facility operations. Countries and facilities should:

- ➔ Promote and invest in continuous improvement of cybersecurity protections. While nuclear operators struggle to prioritize cybersecurity efforts, today's cyber threat continues to evolve, outpacing defenses and regulations in many states. Dedicated efforts are needed to embed cybersecurity best practices into the culture of nuclear facilities.
- ➔ Build mutual assistance mechanisms and shared resources for responding to cyberattacks. A cyberattack could be launched against a facility anywhere in the world, with lasting global consequences for the nuclear industry. Working collaboratively to ensure a rapid and effective response to a serious cyberattack on a global level allows countries—whether those with mature nuclear programs or emerging ones—to minimize the potential consequences.
- ➔ Increase the quality and number of cyber-nuclear experts. The global competition for cybersecurity talent is fierce, and developing, maintaining, and retaining the necessary capacity in every country with nuclear facilities will be difficult. States and nuclear facility leaders should consider developing alternative means of filling talent gaps, such as mutual support agreements and investing in the skill development of current workers.

› **Improve State Stewardship of Nuclear Materials and Facilities.** The four Nuclear Security Summits held between 2010 and 2016 assembled world leaders to focus global attention on the critical importance of securing nuclear materials and facilities. Through national commitments, countries took actions to reduce the chance that nuclear materials could be stolen or facilities sabotaged. However, the job of securing all weapons-usable nuclear materials is far from finished. Countries should:

- ➔ Commit to further decreasing stocks and applications that require use of weapons-usable nuclear materials. The more material and sites, the greater the exposure to risk of theft. All countries should work to minimize their use of weapons-usable nuclear materials, and they should reduce or eliminate stockpiles of those materials where possible.
- ➔ Improve core security and control measures. Despite progress, critical gaps remain in the protection of nuclear materials and facilities. Countries should prioritize the strengthening of security cultures and should work continually to enhance security measures at nuclear facilities.
- ➔ Reduce political risks that can undermine nuclear security. Countries should not overlook other risk factors that exacerbate the threats to nuclear materials and facilities. Countries with risk factors such as high levels of corruption or weak governance practices should intensify their efforts to ensure that their materials and facilities are highly secured.

This report outlines the key trends, country highlights, recommendations, rankings, and country-level data of the NTI Nuclear Security Index, Fourth Edition. More information, including opportunities to explore the data and recommendations for action, is available at www.ntiindex.org.

OBSERVATIONS

The 2018 NTI Nuclear Security Index finds that progress to secure, minimize, and eliminate weapons-usable nuclear materials (as well as to ensure the security of nuclear facilities) has accelerated since 2016. Since 2012, when NTI began tracking countries' nuclear security conditions and released the first biennial NTI Index, 10 countries have eliminated their stocks of materials, and more countries have taken deliberate, national actions to improve the security of their nuclear facilities.

At the same time, such progress may be jeopardized amid the deterioration of political stability and effective governance, an increase in corruption, and the expanding presence and capabilities of terrorist groups around the world. Even in countries with long-standing nuclear programs, the risk environment for nuclear security is causing new alarm: terrorist activity in Europe and the Middle East, social unrest in developed democracies, and international disputes all raise the prospect for theft of weapons-usable nuclear materials or sabotage of nuclear facilities.

Not only do the data gathered for this fourth edition of the NTI Index show how countries have steadily improved their nuclear security conditions, they also illustrate the need for renewed attention and commitment to risk reduction.

The following observations include key trends and select country-level highlights.

KEY TRENDS

Countries Have Accelerated Nuclear Security Improvements

In many countries, national commitments have been made to support broad-based improvements to nuclear security conditions. Among other improvements, two fewer countries hold nuclear weapons-usable materials than did in the 2016 NTI Index, and 13 countries have made important improvements to the ways in which they secure materials stocks.

- Since the 2016 NTI Index, two additional countries, Argentina and Poland, removed or disposed of all highly enriched uranium within their territories. They join Austria, the Czech Republic, Hungary, Mexico, Sweden, Ukraine, Uzbekistan, and Vietnam—all of which similarly cleaned out their materials stockpiles between 2012

THEFT RANKING

Countries with Weapons-Usable Nuclear Materials

Rank / 22		Score / 100	Change since 2016	Change since 2012
=1	Australia	94	+2	+5
=1	Switzerland	94	+4	+7
3	Canada	89	+2	+10
=4	Germany	88	+5	+11
=4	Japan	88	+10	+22
6	Norway	85	+2	+7
=7	Belarus	84	+1	+10
=7	Netherlands	84	+5	+5
=9	Belgium	81	-2	+11
=9	Italy	81	+6	+9
11	France	80	0	+3
=12	United Kingdom	79	0	+2
=12	United States	79	-1	+1
=14	China	71	+11	+14
=14	Kazakhstan	71	+5	+5
16	South Africa	70	-1	+2
17	Russia	67	+3	+5
18	Israel	58	+3	+4
19	India	46	+1	+4
20	Pakistan	44	+4	+8
21	Iran	37	+2	+2
22	North Korea	24	0	-4

= denotes tie in rank.

and 2016. The total number of countries with weapons-usable materials is now 22, down from more than 50 in the early 1990s and more than 40 in the early 2000s. The elimination of those materials reduces opportunities for interested terrorists and criminals to obtain weapons-usable nuclear materials.

› Between 2016 and 2018, as measured by the NTI Index, countries with weapons-usable nuclear materials took a total of 82 actions[9] to improve nuclear security conditions, compared with 43 that were taken during the prior two-year period. Those actions include improvements to the core protection and control measures assessed in the NTI Index, such as (a) on-site physical protection, (b) control and accounting procedures, (c) mitigation of threats from within nuclear facilities (i.e., the risk that personnel with authorized access to materials could steal weapons-usable nuclear materials and/or potentially aid the terrorists or criminals who wish to obtain them), (d) physical security during transport, (e) response capabilities, and (f) cybersecurity of nuclear facilities.

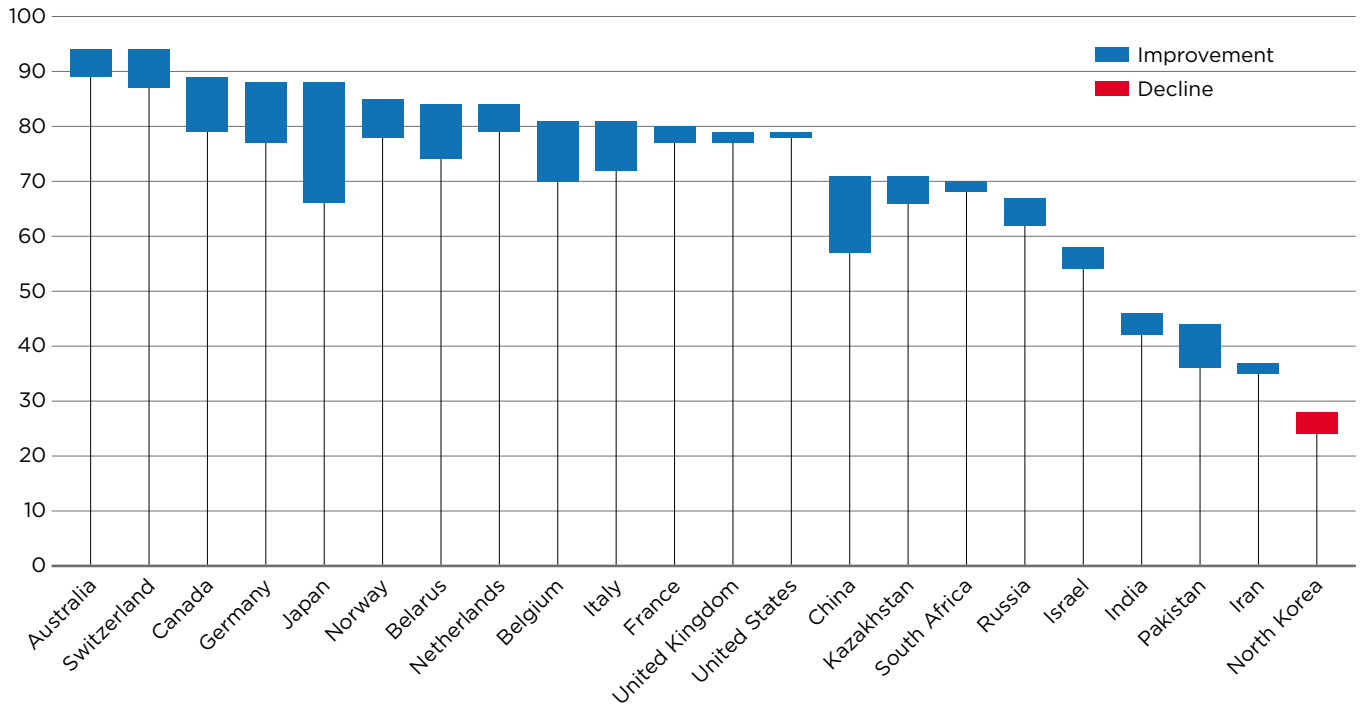
› Countries that still maintain stocks of weapons-usable nuclear materials—highly enriched uranium, separated plutonium, or fresh mixed-oxide fuel—accelerated the pace of their security improvements since 2016. Of the core protection areas measured in the NTI Index, countries made 30 tangible improvements since 2016, the majority of which were improvements to basic protection and security regulations such as insider threat prevention measures and physical security of materials during transport.[10] This progress compares to the 21 improvements countries made during the prior two-year period, 20 of which were improvements to

[9] NTI's analysis of the actions that countries took to improve nuclear security conditions measures score improvements at the subindicator level and counts a country's positive score change on an Index subindicator as a single improvement. The total number of actions does not describe the magnitude of those actions, nor does it describe their effect on a country's overall score or ranking.

[10] "Core protection area" indicators refer to the NTI Index's second category of indicators for countries with weapons-usable materials or nuclear facilities. The category evaluates on-site physical protection, control and accounting procedures, insider threat prevention, physical security during transport, response capabilities, and cybersecurity.

THEFT RANKING SCORE CHANGES, 2012–2018

Countries with Weapons-Usable Nuclear Materials



Of countries with weapons-usable nuclear materials, only North Korea declined in its Theft Ranking score. The height of each bar indicates the total score change between 2012 and 2018.

cybersecurity measures.[11] In fact, of the 22 countries with weapons-usable nuclear materials, 16 improved their overall Theft Ranking score between 2016 and 2018. Those improvements include:

- Reducing opportunities for theft. Since 2016, six countries took steps to reduce their quantities and sites of fissile materials.[12] Four countries, however, increased their quantities of weapons-usable nuclear materials.[13] The more materials and sites a country has, the greater its exposure to risk of theft.
- Strengthening physical protection measures. Three countries took actions to improve physical security[14] and five countries passed new laws or regulations to mitigate the insider threat.[15] Such steps reduce the risk that personnel with authorized access could steal nuclear materials and/or potentially aid terrorists or criminals.
- Improving the physical security of materials during transport. Five countries improved regulations dealing with the protection of nuclear materials when

[11] The 2016 figures may differ from those published in the 2016 NTI Nuclear Security Index report as a result of backscoring or government data clarification. See full details about the methodology at www.ntiindex.org.

[12] Listed in order of improvement from greatest to least: Japan, the Netherlands, Switzerland, Kazakhstan, Belgium, and Germany.

[13] India, North Korea, Pakistan, and the United Kingdom.

[14] Australia, Kazakhstan, and Pakistan.

[15] Canada, China, Germany, Japan, and Pakistan.

they are being moved and are most vulnerable to theft.[16]

- Improving response capabilities. Three countries took steps to improve response capabilities which are part of a layered security system that can help authorities recover materials should they be stolen from a site.[17]
- Making international legal commitments to nuclear materials security. Two countries signed on to either the 2005 Amendment to the International Convention on the Physical Protection of Nuclear Materials (CPP) or the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT).[18]
- Making commitments to nuclear materials security. Three countries made new voluntary commitments in the form of bilateral or multilateral assistance, contributions to the International Atomic Energy Agency's (IAEA) Nuclear Security Fund, or creation of new Centers of Excellence.[19]
- Building international confidence in security arrangements. Three countries hosted international security peer reviews.[20] Peer review is a powerful tool for improving security performance and for building others' confidence in a state's commitment to continued improvement.

› Of the countries and Taiwan with nuclear facilities that were assessed in the Sabotage Ranking, more than three-fourths improved their scores since 2016 (the inaugural year of the ranking). Particularly notable improvements were made in the category of Security and Control Measures.

- Three countries improved their on-site physical protection of nuclear sites.[21]
- Four countries improved their control and accounting procedures by passing new laws or regulations requiring that potential levels of radiation released as a result of sabotage help determine how to physically protect nuclear materials,[22] equipment, systems, and devices,[23] or by requiring identity verification and recordkeeping of those entering restricted areas in nuclear facilities.[24]
- Eight countries improved insider threat prevention measures, including by enhancing the guidelines for the qualification and fitness of personnel with access to protected areas,[25] by improving the frequency of personnel vetting,[26] by requiring personnel to report suspicious behavior,[27] and by performing constant surveillance to detect unauthorized actions.[28]
- Four countries enhanced their response capabilities by requiring on-site armed guards,[29] by training law enforcement officers to respond to security incidents at nuclear facilities,[30] and by requiring plans for protection of nuclear infrastructure in the event of a natural disaster.[31]

More than half of all countries in the Sabotage Ranking, however, still have total scores below 80 out of a possible 100, indicating substantial opportunities for improvement.

[16] China, Japan, Kazakhstan, the Netherlands, and Russia.

[17] Belgium, Italy, and Norway.

[18] Italy and Pakistan.

[19] China, Israel, and Switzerland.

[20] China, Germany, and Italy.

[21] Australia, Kazakhstan, and Pakistan.

[22] Armenia and Pakistan.

[23] Armenia, Bulgaria, and Kazakhstan.

[24] Armenia.

[25] Canada, China, Germany, and Japan.

[26] Finland.

[27] Spain.

[28] Bulgaria, Germany, and Pakistan.

[29] Although the regulatory change is forthcoming, Belgium has already stationed armed guards at nuclear facilities in response to recent threats.

[30] Algeria and Norway.

[31] Finland.

SABOTAGE RANKING

Rank / 45		Score / 100	Change since 2016
1	Finland	97	+2
=2	Australia	93	+3
=2	Canada	93	+4
=4	Japan	91	+3
=4	United Kingdom	91	+1
=6	Hungary	90	+2
=6	Switzerland	90	+3
=8	Czech Republic	89	+5
=8	Germany	89	+7
10	Romania	88	0
=11	France	87	+1
=11	Netherlands	87	+1
=11	United States	87	-1
=14	Norway	86	+3
=14	Sweden	86	0
16	Slovenia	85	+2
=17	Bulgaria	84	+3
=17	South Korea	84	0
19	Poland	82	-1
20	Belgium	79	-3
21	Armenia	78	+8
22	Slovakia	77	0
23	Spain	75	+6
=24	Russia	74	+3
=24	South Africa	74	+3
26	China	73	+11
=27	Argentina	72	+3
=27	Indonesia	72	+5
=27	Kazakhstan	72	+5
=30	Brazil	70	0
=30	Ukraine	70	+5
=32	Chile	68	+2
=32	Taiwan	68	-1
=34	Peru	63	+1
=34	Uzbekistan	63	+7
36	Israel	61	+6
=37	Morocco	58	+8
=37	Pakistan	58	+6
39	India	56	+2
40	Mexico	55	+2
41	Bangladesh	54	+5
42	Algeria	52	+6
43	Egypt	43	+7
44	Iran	27	+3
45	North Korea	24	0

= denotes tie in rank.

Deteriorating Risk Environments Jeopardize Progress

Increases in political instability, ineffective governance, pervasiveness of corruption, and presence and capabilities of terrorist groups led to declining Risk Environment scores in almost as many countries as had improved between 2016 and 2018. Those results indicate cause for concern about the future of nuclear security in virtually every region of the world.

- In 7 of the 22 countries with weapons-usable nuclear materials, Risk Environment scores declined since 2016. Slight improvements to political stability and governance in 11 countries with weapons-usable materials[32] were matched or exceeded by declines in 7 other countries where social unrest, ineffective governance, pervasiveness of corruption, and terrorist risks increased.[33]
- In one-fourth of the countries where an attack on a nuclear facility could cause a dangerous release of radiation, Risk Environment scores declined since 2016. In 12 of the 44 countries and Taiwan with nuclear facilities at risk of sabotage, risk environment factors declined. Among countries with nuclear facilities, Risk Environment scores deteriorated most significantly in Belgium, Poland, and the United States.
  - In Belgium, news reports revealed that terrorist groups targeted nuclear facilities in the country precisely at a time when growing labor tensions and strikes had exacerbated government coordination problems.[34]

[32] Australia, Belarus, Canada, China, France, India, Iran, Israel, Kazakhstan, North Korea, and Russia.

[33] Belgium, Germany, Italy, Pakistan, South Africa, the United Kingdom, and the United States.

[34] De Clercq, Geert, and Christoph Steitz. 2016. "Militant Interest in Attacking Nuclear Sites Stirs Concern in Europe," *Reuters*, October 16. www.reuters.com/article/us-belgium-blast-nuclear/militant-interest-in-attacking-nuclear-sites-stirs-concern-in-europe-idUSKCN12A1PF.

WHAT IS THE "RISK ENVIRONMENT" FOR NUCLEAR SECURITY?

The NTI Index takes a holistic view of nuclear security, including a Risk Environment category that measures indicators of 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. Such factors have the potential to affect measures designed to ensure that a country's nuclear materials and facilities are secure.

Political stability and effective governance underpin the management, security, and control of nuclear materials and facilities. High levels of corruption can lead to the compromise of security measures.

The presence of a terrorist or criminal group in a country and its interest in illicitly acquiring weapons-usable nuclear materials or in committing acts of nuclear terrorism affect a country's risk context for nuclear security. Although publicly available information in this area is limited, the EIU reviews various secondary sources and applies a gradient scale to rate the relative capabilities and intent of known groups in each country.

To develop country scores in the Risk Environment category, the EIU also relies on proprietary information contained in its Risk Briefing and Business Environment Ranking reports. Those reports are updated quarterly and take into account both present conditions and future expectations. Information on the presence of relevant terrorist groups is developed by EIU analysts, who build on information provided by the National Consortium for the Study of Terrorism and Responses to Terrorism at the University of Maryland. Additional information is available in the NTI Index Methodology Appendix.

- In Poland, Risk Environment scores were adversely affected by social unrest in response to the governing party's reform agenda and social divisions within the country. Increased political control over the selection of judges sparked protests and led to increased tensions with the European Union. Significant social unrest can affect a government's ability to secure nuclear materials and can provide opportunities for groups seeking to acquire nuclear materials or access to nuclear facilities.
- In the United States, Risk Environment scores declined on two indicators: political stability and effective governance. The EIU judged those indicators to be deteriorating as a result of 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).

› Political instability is a heightened risk factor for countries in the Sabotage Ranking. The potential for social unrest has increased in seven countries.[35] Instability and conflict associated with a change of power have increased in two countries and may provide opportunities for groups seeking to commit acts of

[35] Chile, Japan, Poland, South Africa, Switzerland, Ukraine, and the United States.

sabotage against nuclear facilities.[36] International tensions and disputes are expected to have destabilizing implications for nuclear security in four countries and Taiwan.[37] The potential for violent labor or civil demonstrations that could undermine government control has increased in two countries since 2016 as a result of protests against institutional reforms, security, or energy policies.[38]

- In the Sabotage Ranking, the EIU estimates that the effectiveness of eight countries' political systems has deteriorated since 2016.[39] In addition, ratings for effective governance (an important measure of a country's ability to establish and sustain effective policies) have declined in eight countries in the Sabotage Ranking since 2016.[40] Although the ability of a government bureaucracy to establish and sustain policies to secure nuclear facilities improved in seven countries,[41] it declined in four.[42]
- Although the pervasiveness of corruption declined in Argentina, China, and Egypt, it increased in Germany and Pakistan.
- Belgium, Egypt, India, Pakistan, and Russia all face a heightened risk that a capable terrorist group could commit acts of nuclear terrorism.

Defenses against the Cyber Threat Remain Insufficient

The results of the 2018 NTI Index indicate that nuclear facilities' defenses against cybersecurity threats remain insufficient. The NTI Index asks whether domestic laws, regulations, or licensing rules require nuclear facilities to have protections in place, protect critical digital assets, include cyber threats in the Design Basis Threat,[43] conduct cybersecurity assessments, and ensure an incident-response plan is in place. Although some countries have made modest improvements, many remain poorly prepared for a cyber threat.

- One-third of countries with weapons-usable nuclear materials or nuclear facilities lack all of the basic cybersecurity regulations measured by the NTI Index. Since 2016, only 12 countries improved their cybersecurity regulations.[44]
- Only 12 countries and Taiwan with weapons-usable nuclear materials or nuclear facilities received full credit—a score of five—confirming that those countries have enacted the regulations measured in the Index.[45]
- Two-thirds of countries and Taiwan (68 percent) assessed in the NTI Index do not yet have a cyber-incident response plan, a factor measured for the first time this year. Given that cybersecurity measures never will be perfectly effective, an incident response plan and response capabilities are essential.
- Countries with large numbers of sites are more likely to have cyber-nuclear regulations in place. For example, the United States receives full credit (five points), and the Russian Federation receives four out of five points on the cybersecurity indicators. Countries with few nuclear sites (such as Algeria, Argentina, and Bangladesh) are among those that have not yet enacted cyber-nuclear regulations and consequently have scored zero out of five points on the cybersecurity indicators.

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[36] Brazil and Iran.

[37] Indonesia, Mexico, Poland, and Switzerland. For information on Taiwan's status and its treatment in the NTI Index, see the full EIU Methodology at www.ntiindex.org.

[38] Japan and Poland.

[39] Belgium, Brazil, Peru, Poland, Slovenia, Spain, the United Kingdom, and the United States.

[40] Belgium, Brazil, Peru, Poland, Slovenia, Spain, the United Kingdom, and the United States.

[41] Algeria, Australia, China, Egypt, Kazakhstan, Slovakia, and Switzerland.

[42] Belgium, Poland, Slovenia, and Spain.

[43] According to the IAEA's Recommendations for Physical Protection of Nuclear Materials and Nuclear Facilities (INFCIRC/225/Revision5), a design basis threat is "attributes and characteristics of potential insider and/or external adversaries who might attempt unauthorized removal of nuclear material or sabotage against which a physical protection system is designed and evaluated."

[44] Armenia, Australia, Canada, the Czech Republic, Germany, Italy, Japan, Kazakhstan, Norway, Slovenia, Spain, and the United Kingdom.

[45] Australia, Belarus, Canada, Finland, France, Germany, Hungary, the Netherlands, Romania, South Korea, the United Kingdom, and the United States.

THE CYBER THREAT TO NUCLEAR FACILITIES

The cyber threat has expanded exponentially in recent years. A series of damaging, high-profile attacks has made headlines around the world, and recent attacks against banking and commerce systems, private companies, and governments highlight the growing gap between the threat and the ability to respond to or manage it.

Like all critical infrastructure, nuclear facilities are not immune to cyberattack. That reality is particularly worrisome, however, given the potentially catastrophic consequences of a cyberattack on a nuclear facility. Such an attack could facilitate the theft of nuclear materials or an act of sabotage. For example, facilities' access control systems could be compromised, allowing the unauthorized entry of persons seeking to obtain nuclear materials or to damage the facility. Accounting systems could be manipulated so that the theft of materials goes unnoticed. Reactor cooling systems could be deliberately disabled, potentially resulting in a Fukushima-like disaster.

The pace of cyberattacks, including those involving nuclear facilities, has accelerated in recent years. For example, in 2016, three publicly known cyberattacks or attempts on information systems at nuclear facilities occurred at the University of Toyama's Hydrogen Isotope Research Center in Japan; the Gundremmingen Nuclear Power Plant in Germany; and one incident that affected both the Nuclear Regulatory Commission and the Department of Energy in the United States. In 2017, the Wolf Creek Nuclear Station in Kansas had its business systems compromised in a series of attacks targeting the energy sector.

Government authorities and facility operators are struggling to keep pace with this new threat, and national and international guidance is still evolving. As this edition of the NTI Index highlights, some countries are making progress while many others are not. Furthermore, countries with new nuclear programs face additional challenges. Not only do those countries need to establish appropriate regulatory systems, they also must attract or train cyber-nuclear experts, who are in short supply globally.

Looking forward, cyber risks to critical infrastructure (including nuclear facilities) will continue to grow, and much more work is needed to address the threat. Nuclear facilities must be protected from dangerous attacks through a combination of technology and expertise, and governments must provide assistance by sharing threat information and surge capacity provided by skilled computer emergency response teams who specialize in responding to computer security incidents.

CYBERSECURITY MEASURES IN THE NTI INDEX

Nuclear facilities are vulnerable to cyberattacks as well as physical attacks. Therefore, cybersecurity is a critical component to protecting against theft and sabotage. In the NTI Index, the following aspects of the cybersecurity challenge are measured:

- **Mandatory cybersecurity:** Do domestic laws, regulations, or licensing rules require nuclear facilities to have protection from a cyberattack?
- **Critical digital asset protection:** Do domestic laws, regulations, or licensing rules require nuclear facilities to protect critical digital assets from a cyberattack?

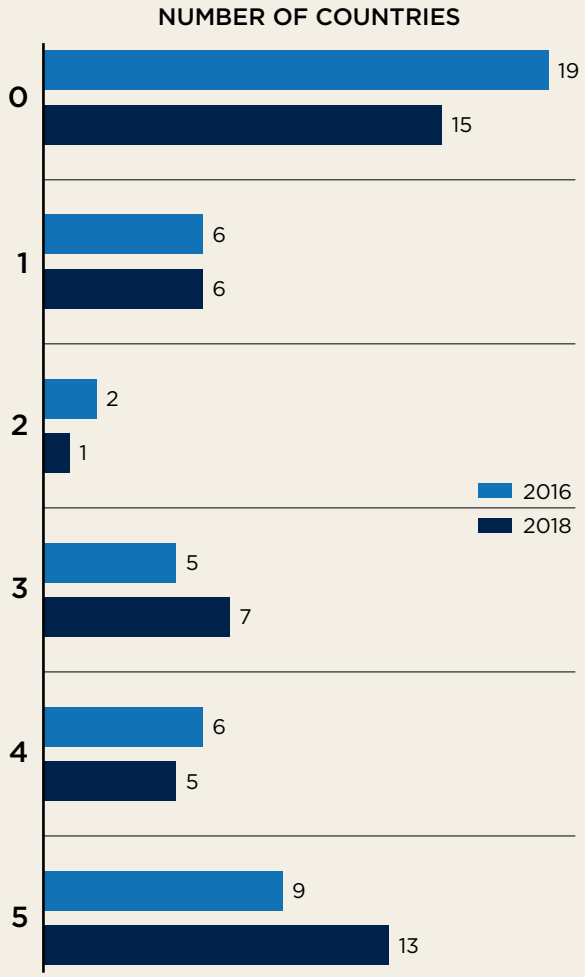
  Critical digital assets include the following systems and networks:

  - Safety-related functions
  - Security functions
  - Emergency preparedness functions
  - Support systems and equipment related to the above functions.
- **Cybersecurity DBT:** Does the state consider cyber threats in its threat assessment or Design Basis Threat (DBT) for nuclear facilities?
- **Cybersecurity assessments:** Does the regulator require a performance-based program, which includes tests and assessments of cybersecurity at nuclear facilities?
- **Cyber incident response plan:** Do domestic laws, regulations, or licensing requirements require a cyber-incident response plan for nuclear facilities?

CYBERSECURITY INDICATOR SCORES

Countries with Weapons-Usable Nuclear Materials or Facilities

Scored 0–5, where 5 = most favorable nuclear security conditions



Among countries with weapons-usable nuclear materials in the Theft Ranking and countries with facilities in the Sabotage Ranking, performance on cyber indicators showed modest improvement, but many remain poorly prepared.

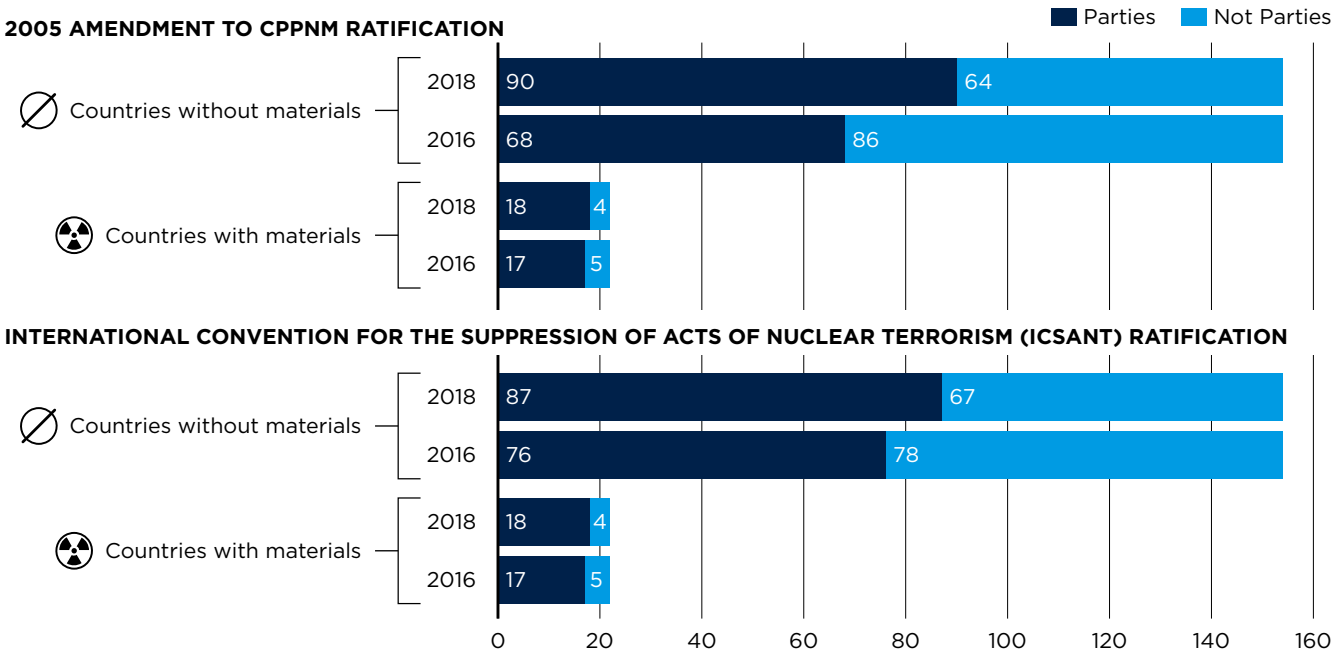
For more information about NTI's cyber-nuclear security program, see www.nti.org/cyber.

States without Nuclear Materials Actively Support Global Nuclear Security Norms

Countries without weapons-usable nuclear materials continue to actively support global nuclear security norms that address the risk that their territories could be used by terrorist or other organizations as transit points for illicit materials or as staging grounds for malicious activity. Yet many of those countries face heightened risk environments that undermine their ability to effectively counter potential terrorist activity within their borders.

- Since 2016, 31 additional countries reinforced the international legal foundation for nuclear security by ratifying either the 2005 amendment to the CPPNM or the ICSANT.
- One-third of all countries without weapons-usable nuclear materials receive full credit in the NTI Index for United Nations Security Council Resolution (UNSCR) 1540 implementation. At the same time, there is room for improvement. Although all countries without weapons-usable nuclear materials meet the nuclear security reporting requirements of UNSCR 1540, two-thirds have yet to implement the provisions of the resolution.
- Unfortunately, the improvements to nuclear security conditions are slowed and potentially jeopardized by increasingly fragile political environments in a number of countries and regions. Among countries without weapons-usable nuclear materials, the Risk Environment scores of nearly as many countries declined as improved.[46] Risk environment factors have the potential to adversely affect countries' ability to limit terrorist activity with effective governance and political stability measures, to reduce the pervasiveness of corruption, and to restrict the capabilities of criminal groups interested in acquiring nuclear materials.

SIGNATORIES TO INTERNATIONAL TREATIES SUPPORTING NUCLEAR SECURITY



The 2005 Amendment to the CPPNM is the only international legal agreement that requires countries to protect their materials. ICSANT commits states to criminalize acts of nuclear terrorism and cooperate in bringing those who commit such crimes to justice. Those treaties are important building blocks for the foundation of global nuclear security and would be more valuable if universally implemented.

[46] Among countries without weapons-usable nuclear materials, Risk Environment scores declined in 47 and improved in 56.

UNSCR 1540 IMPLEMENTATION

With the goal of preventing non-state actors from developing or acquiring weapons of mass destruction, United Nations Security Council Resolution (UNSCR) 1540, enacted in 2004, requires countries to maintain "appropriate effective measures" to account for, secure, and provide physical protection for nuclear weapons and materials—even if a country has not declared nuclear materials within its borders. National efforts to implement the resolution are tracked through reporting to the United Nations' 1540 committee. The results were first published in 2009 and again in 2016.

Since the 2016 NTI Index, national reporting indicates that a number of countries have improved the extent of their UNSCR 1540 implementation, resulting in score increases in the NTI Index.[1] Ten countries with weapons-usable materials improved their scores.[2] Among countries ranked in the 2018 NTI Index's Sabotage Ranking, 29 improved their scores.[3] Overall, 79 countries improved their enforcement agencies and authorities in an effort to control border crossings and the export and import of nuclear weapons-related materials. A full 76 countries improved their controls of importation of nuclear weapons-related materials. This uptick in UNSCR 1540 reporting highlights national-level commitments to nuclear security.

[1] The United Nations 1540 Committee approves matrices submitted by national governments to affirm enactment of legal regimes and enforcement of the 1540 Resolution. The Committee approved a host of matrices shortly after research was completed for the NTI Index that was published in 2016, thus contributing to the high number of score increases between the 2016 and 2018 NTI Indices. More information on the methodology of this analysis can be found in the EIU Methodology, posted at www.ntiindex.org.

[2] Belarus, Canada, China, Israel, Japan, Kazakhstan, the Netherlands, Norway, Pakistan, and Russia. Among the 22 countries with nuclear weapons-usable materials, only four do not score "very good" according to the EIU's categorization of the extent of the country's UNSCR 1540 implementation: Iran, Israel, Kazakhstan, and North Korea.

[3] According to the 2018 NTI Index's Sabotage Ranking, the following countries received improved scores for the extent of their UNSCR 1540 implementation: Algeria, Argentina, Armenia, Bangladesh, Brazil, Bulgaria, Canada, Chile, China, Egypt, Hungary, India, Indonesia, Iran, Israel, Kazakhstan, Mexico, Morocco, the Netherlands, Norway, Peru, Poland, Russia, South Korea, Spain, Sweden, Switzerland, Ukraine, and Uzbekistan. All countries received a rating of "very good" except Bangladesh (which the EIU rates as "good") and Iran (which the EIU rates as "moderate").

SELECT COUNTRY HIGHLIGHTS

More than three-fourths of all countries and Taiwan in the Theft and Sabotage rankings have improved their scores since the third edition of the NTI Index, which was published in 2016. This is an encouraging development following the fourth and final Nuclear Security Summit. However, in several regions around the world, escalating international tensions and continued poor nuclear security conditions warrant concern and renewed attention to nuclear security.

Although progress on nuclear security for countries with weapons-usable nuclear materials had slowed between 2014 and 2016 (the average country score increase was only 1.2 points), scores improved by an average of 2.8 points between 2016 and 2018. Overall, the average score increase between 2012 and 2018 was 6.5 points; only North Korea's score declined over that six-year span.

Of countries with weapons-usable nuclear materials, those showing the most notable progress since the first NTI Index was published in 2012 are China, Japan, Germany, and Belgium.

- In the Theft Ranking, Australia and Switzerland are tied at the top of the list for their nuclear security conditions. Australia has ranked first in each of the previous rankings of countries with weapons-usable nuclear materials, dating to 2012.
  - Australia's few sites and limited quantities of nuclear materials, combined with its extensive security and control measures and its commitments to global norms drive the country's consistently top scores. Australia's regulations now mandate updates to the Design Basis Threat, boosting the country's score since 2016.
  - Switzerland, which has ranked second since 2012, now joins Australia at the top of the Theft Ranking because of its recent reductions in quantities of nuclear materials to less than 5 kilograms and because of its revised policy to transport nuclear materials for removal only. Switzerland also provided financial or in-kind contributions to the IAEA's Nuclear Security Fund in recent years.

Observations

- In the Sabotage Ranking, Finland ranks first for the second time. In addition to fulfilling all global norms, domestic commitments, and capacity measures, Finland improved its scores on insider threat prevention and response capabilities since 2016, scoring 98 out of a possible 100 points in the security and control measures category.
- Of countries with weapons-usable nuclear materials, Japan has improved its Theft Ranking score more than any other since 2012—by 22 points. Since 2016, Japan has decreased its quantities of nuclear materials and has improved its insider threat-prevention measures, physical security regulations of materials during transport, and cybersecurity regulations. Ranked 14th in the year following the 2011 Fukushima–Daiichi disaster, Japan now ranks 4th among countries with weapons-usable nuclear materials.
- China's scores increased by 14 points, while Germany and Belgium's scores improved by 11 points, between 2012 and 2018 in the Theft Ranking for countries with weapons-usable nuclear materials. By making notable improvements to insider threat prevention and physical security during transport, China now scores 75 out of a possible 100 points for its security and control measures. China's scores on the voluntary commitments indicator improved as a result of its new Center of Excellence and its hosting of an IAEA International Physical Protection Advisory Service (IPPAS) mission in 2017, which built international confidence in the country's nuclear security conditions.
- Germany's overall score in the Theft Ranking improved as a result of enhanced insider threat prevention and cybersecurity measures. Although a corruption scandal decreased the country's previously strong Risk Environment marks, Germany ranks 4th overall in the Theft Ranking.
- Although Belgium's Risk Environment score declined since 2016 because of the threat of nuclear terrorism and a decrease in the quality of the country's bureaucracy, Belgium's security and control measures improved. In particular, Belgium has deployed armed response teams to be onsite at nuclear power facilities.[47] The total stock of nuclear materials in Belgium also is decreasing, leading to a 5-point score increase in the Quantities and Sites category since 2016.

THE VALUE OF PUBLISHING NUCLEAR SECURITY REGULATIONS

A country that publishes its laws, license requirements, and regulations supports confidence in its nuclear security. Countries can make regulations and nuclear security practices public without revealing sensitive information.

The 2018 NTI Index finds that a number of countries could do more to build confidence in their security through greater transparency. Notably, scores for Iran, Israel, Pakistan, and North Korea are adversely affected by their relatively few publicly available nuclear security regulations. The absence of publicly available regulations negatively affects a country's score, even if that country has robust regulations in place. For example, North Korea's nuclear program continues to operate outside international legal and voluntary frameworks for nuclear security, and there is virtually no transparency into the country's nuclear program or security measures. The NTI Index reflects this lack by awarding North Korea a score of zero out of a potential 100 points in the category that measures adherence to global norms for nuclear materials security.

[47] Although the regulatory change is forthcoming, Belgium has stationed armed guards at nuclear facilities in response to recent threats.

RECOMMENDATIONS

An effective global nuclear security system to protect vulnerable nuclear materials and facilities remains elusive. In the absence of such an agreed upon, comprehensive system, the notable progress that countries have made to reduce the risks of theft and sabotage is in jeopardy. Demand for nuclear energy is growing around the world, leading more than 10 new countries to consider taking on the risks and responsibilities of ensuring nuclear security.[48] National leadership and stewardship on nuclear security is particularly critical in this time of heightened political and terrorist risks.

Following are recommendations for advancing the global nuclear security agenda by (a) building an effective global nuclear security system, (b) defending against the growing risk of cyberattack, and (c) improving state stewardship of nuclear materials and facilities.

BUILD AN EFFECTIVE GLOBAL NUCLEAR SECURITY SYSTEM

With the end of the Nuclear Security Summit process in 2016, it is more important than ever to intensify and broaden international efforts to build an effective global nuclear security system. Among the ongoing challenges is the lack of a common set of international standards and best practices, the absence of a mechanism for holding states accountable for appropriate and effective security measures, and an incomplete legal foundation for securing materials that is neither universal nor fully implemented.

The international community has taken several steps in the right direction, including the formation of the Nuclear Security Contact Group[49] at the 2016 Nuclear Security Summit, entry into force of the 2005 Amendment to the CPPNM, and the continued elimination of stocks of weapons-usable nuclear materials. Yet the current patchwork of international initiatives for securing nuclear materials and facilities still has major gaps that prevent the system from being truly comprehensive and effective.

[48] World Nuclear Association. April 2018. "Emerging Nuclear Energy Countries," www.world-nuclear.org/information-library/country-profiles/others/emerging-nuclear-energy-countries.aspx.

[49] The Nuclear Security Contact Group was established to facilitate cooperation and sustain nuclear security progress.

Recommendations

IAEA Director General Yukiya Amano receives countries' ratifications of the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material.

The United Arab Emirates (UAE) inaugurates its first dosimetry laboratory, as the country builds a nuclear power program. The UAE has worked with the IAEA to build capacity through a series of national technical cooperation projects.

Among the most significant gaps: the majority of all highly enriched uranium and nearly half of all plutonium stocks are in non-civilian programs and thus remain outside international legal instruments on nuclear security.[50] Participation in international peer review—a tool for improving performance and building confidence about the effectiveness of a country's security—or other measures to build confidence in the security of nuclear materials remains limited. Three countries with more than one kilogram of nuclear materials have not hosted an international peer review within the past five years; four have never hosted an IAEA IPPAS or Integrated Regulatory Review Service mission.[51]

To build a system that addresses such critical gaps, countries should:

- **Bolster the international legal foundation for nuclear security and take advantage of the 2021 review conference of the CPP.** By adhering to and participating in international treaties and guidelines related to nuclear security, countries can reinforce the existing legal framework as part of a comprehensive global nuclear security system. The 2016 entry into force of the 2005 Amendment to the CPPNM was a positive step. Moving forward, countries should sign and ratify key treaties, voluntarily implement treaty requirements before ratification, and implement IAEA nuclear security guidance.

  The CPP provides a mechanism for regular review conferences to be held at intervals of at least five years, but apart from the mandatory review conference that was held five years after entry into force in 1987, the review conference mechanism has never been exercised. Now, with the 2005 Amendment to the CPPNM in force, a review conference has been scheduled for 2021, providing an important opportunity for dialogue, coordination, and progress on nuclear

[50] The total quantities of military materials are difficult to estimate. According to the figures collected for the NTI Index, approximately 90 percent of all highly enriched uranium globally and 40 percent of plutonium is outside of civilian control.

[51] The three countries that have not hosted a review of their security arrangements in the past five years are Iran, Kazakhstan, and the Netherlands. India, Israel, North Korea, and Pakistan have never hosted a review. International peer review is a powerful tool for improving security performance and for building others' confidence in a state's commitment to continued improvement. States can further build other governments' and stakeholders' confidence in their nuclear security practices by publishing the results of the review while redacting sensitive information. Regular participation in peer reviews will require international investment in the IAEA, which plans to expand its advisory capabilities.

security.[52] The CPP review conference provision provides the flexibility necessary to address a broad range of nuclear security topics, and it brings a broader group of countries to the conversation than just those that participated in the Nuclear Security Summits. As depositary for the CPP, the IAEA will play an important role by serving as the designated convener of review conferences and should move quickly to name a review conference president and design a robust preparatory process.

The review conference mechanism will be used to good effect only if leaders opt to take full advantage of the opportunity. States should agree to hold regular review conferences every five years as a standing arrangement and should build robust, substantive review conference agendas and intersessional processes.

- **Strengthen and build confidence in the security of *all* materials.** The CPP, which is the primary nuclear security treaty, directly applies only to civilian nuclear materials. Countries with military nuclear materials should commit to securing them while meeting the same or higher standards as those used for peaceful activities. Those countries also should take steps to reassure others that they are securing the materials consistent at least with relevant IAEA guidelines.

- **Build international confidence in the effectiveness of nuclear security, and strengthen the IAEA's role and capacity.** Words alone are not enough to give states confidence in each other's security practices. Countries should demonstrate their commitment to enhancing and building confidence in nuclear security by conducting international peer reviews, and nuclear suppliers should make export agreements conditional on the completion of the peer reviews and the resolution of any shortcomings identified therein.[53]

  Countries should declare overall quantities of materials to allow governmental and non-governmental assessments and tracking of inventories. Such declarations reassure others that materials are properly accounted for without compromising national security interests. Public release of official documents increases confidence that the basic legal and regulatory framework for nuclear security is in place. Such information can be published while protecting sensitive information and without revealing details about site-specific security measures. For example, some countries voluntarily include declarations of highly enriched uranium quantities alongside figures of civilian plutonium in their annual reports.[54]

The IAEA plays a key role and must be strengthened to enhance its resources for nuclear security risk management. A number of resources are available to countries, such as the Nuclear Security Series recommendations and guidance; IAEA review missions, training programs, and workshops; and the Nuclear Security Conferences (held every three years). Countries should support the IAEA by providing human and financial resources, as well as providing necessary political support for the IAEA to intensify its work with member states to strengthen nuclear security.

Countries also should make voluntary commitments, such as contributing to the IAEA's Nuclear Security Fund and the World Institute for Nuclear Security or participating in the Global Initiative to Combat Nuclear Terrorism or the Global Partnership against the Spread of Weapons and Materials of Mass Destruction. Participating in training and workshops to share best practices, hosting a Center of Excellence or Nuclear Security Training and Support Center for nuclear security training, or providing and accepting bilateral or multilateral assistance further demonstrate a commitment to improving security and participating in a strengthened global system. By taking voluntary measures and publishing information about those activities, countries can build confidence in the effectiveness of their security.

[52] For further details on the CPP review conference's mechanism for providing a path forward since the end of the summit process, see Jonathan Herbach and Samantha Pitts-Kiefer, October 2015, "More Work to Do: A Pathway for Future Progress on Strengthening Nuclear Security," *Arms Control Today*, p. 8.

[53] Some states already have shared the full or partial results of peer reviews with suppliers as a confidence-building effort.

[54] Pursuant to the Guidelines for the Management of Plutonium, IAEA INFCIRC 549.

DEFEND AGAINST THE GROWING RISK OF CYBERATTACK

Like all critical infrastructure, nuclear facilities are not immune to cyberattacks; such attacks could facilitate the theft of nuclear materials or an act of sabotage, potentially resulting in catastrophic public health and economic consequences. Government and facilities' responses to the risk of cyberattacks too often are inadequate. Effective cybersecurity measures—from incorporating cyber threats into threat assessments to mandating that nuclear facility licensees have cyber-incident response plans—must be incorporated into government regulations and facility operations.

The challenge, however, is not just for governments and regulators. Leaders, technical specialists, and operators at nuclear facilities must develop and implement plans that keep pace with the threat and reduce vulnerabilities at nuclear facilities. Governments should require—and facility operators should implement—information and operational technology systems that are resilient in the face of the cyber threat. Cooperation—in the form of internal continuous improvement efforts, mutual assistance mechanisms, and increased collaboration between physical and cybersecurity professionals within and outside of a nuclear facility—can boost defenses against this evolving threat. Given the potential consequences, all countries must work aggressively to ensure that their nuclear facilities are well protected from cyberattacks.

To defend nuclear facilities from cyber-mediated attacks, countries and facility operators should:

- **Promote and invest in continuous improvement of cybersecurity measures at all nuclear facilities.** Although nuclear operators struggle to prioritize cybersecurity efforts, today's cyber threat continues to evolve, outpacing defenses and regulations in many countries. Like any new threat, restructuring or energizing teams to build systems and processes that are resilient to cyberattack requires consistent improvement and leadership. Dedicated efforts are needed to embed cybersecurity best practices into the culture of nuclear facilities.

  All countries should mandate that nuclear facilities be protected from cyberattack; sensitive digital assets must be protected in such a way that an attacker cannot compromise physical protection, control, accounting, or safety systems. The facility threat assessment should take into account the potential for cyberattacks, as well as for combined cyber-physical attacks. Ongoing tests and assessments should characterize the effectiveness, as well as the weaknesses, of cybersecurity measures. Each nuclear facility should have a cyber-incident response plan to limit damage and reduce recovery times in the event that a facility is successfully attacked.

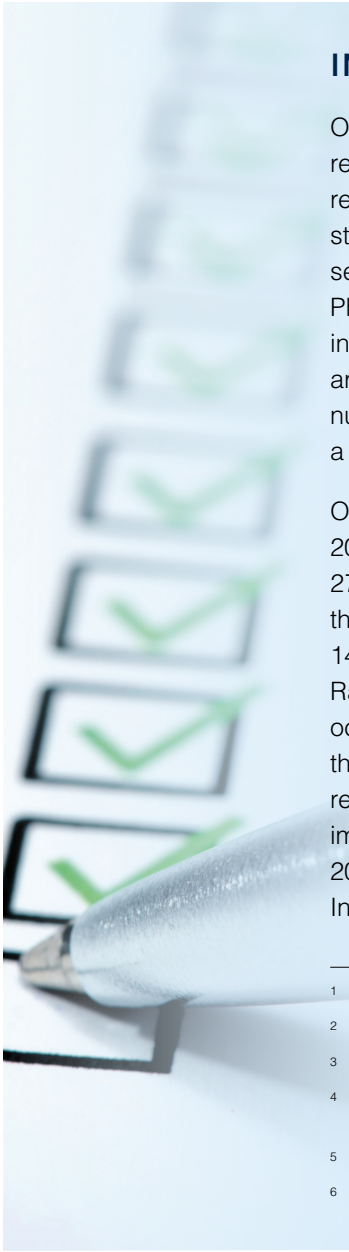
  Regulators and nuclear facility leaders must invest in ongoing efforts to improve both regulatory frameworks and facilities' cybersecurity protections. Physical and cybersecurity programs should be integrated and dynamic, incorporating threat intelligence from government entities and working to isolate and defend critical digital and operational assets.

- **Build mutual assistance mechanisms and shared resources for responding to cyberattacks.** A cyberattack could affect a facility anywhere in the world, with lasting global consequences for the nuclear industry. Working collaboratively to ensure a rapid and effective response to a serious cyberattack on a global level allows countries—whether those with mature nuclear programs or emerging ones—to minimize the potential consequences.

  Mutual assistance efforts should take both formal and informal forms. Countries with technical capacity and experience could continue to extend support through existing bilateral or multilateral mechanisms. Sharing of threat information and vulnerabilities can provide additional benefits.

- **Increase the quality and quantity of cyber-nuclear experts.** The global competition for cybersecurity talent is fierce, and developing, maintaining, and retaining the necessary capacity in every country with nuclear facilities will be difficult. States and facility leaders should consider developing alternative means of filling talent gaps, such as mutual support agreements and investments in the skill development of current workers.

  Too often, conversations about nuclear facilities' cybersecurity and physical security take place in silos. Bringing together experts in both areas to discuss concerns, trends, and strategies would bridge gaps and generate new ideas to enhance security.



IMPORTANCE OF PEER REVIEWS

One of the most valuable steps toward improving a country's nuclear security is a peer review by another country or by an international organization such as the IAEA. Such peer reviews often identify weaknesses in security and highlight practices that can be used to strengthen security at nuclear facilities and build international confidence in a country's security practices. The International Atomic Energy Agency's (IAEA's) International Physical Protection Advisory Service (IPPAS) provides peer advice about implementing international agreements and IAEA guidance for nuclear security. Those reviews currently are conducted on a voluntary, "as requested" basis.[1] To build confidence in global nuclear security, all countries with relevant nuclear facilities should invite such reviews on a recurring basis (ideally, every five years or sooner).

Only four countries in the NTI Index rankings hosted security reviews between 2016 and 2018.[2] Among countries with nuclear facilities or with weapons-usable nuclear materials, 27 countries hosted such a review within the past five years, which is four more countries than the NTI Index observed in 2016. Six countries[3] have never hosted such a review, and 14 have not been reviewed within the past five years.[4] Among countries in the Sabotage Ranking, three hosted reviews between 2016 and 2018.[5] However, four countries' reviews occurred more than five years ago (the timeframe measured in the NTI Index),[6] and their scores declined as a result: Argentina, Kazakhstan, and the Netherlands were last reviewed in 2012, and Spain was last reviewed in 2011. Conversely, four countries' scores improved as a result of new reviews: China and Germany hosted an IPPAS mission in 2017, Uzbekistan hosted a U.S. Department of Energy review in 2016, and Italy hosted an Integrated Regulatory Review Service evaluation in 2016.

1 States must request or offer to host an IPPAS or other IAEA peer review mission.

2 China, Germany, Italy, and Uzbekistan.

3 Algeria, India, Israel, Morocco, North Korea, and Pakistan.

4 Argentina, Bangladesh, the Czech Republic, Egypt, Iran, Kazakhstan, Mexico, the Netherlands, Peru, Slovakia, Slovenia, Spain, Taiwan, and Ukraine.

5 China, Germany, and Uzbekistan.

6 Argentina, Kazakhstan, the Netherlands, and Spain.

The IAEA continues its important work of developing cybersecurity resources for its member states, providing training, and conducting reviews of national and facility plans. States should contribute financial and human resources to the IAEA, including to the Nuclear Security Fund. They should contribute to scientific and technical cooperation to provide sustained support to defend against cyberattacks. Likewise, states should take advantage of IAEA, World Institute for Nuclear Security (WINS), and other opportunities to strengthen capacity, boost awareness, and improve responses to cyberattacks.

Finally, countries should engage one another in additional discussions of norms, rules of the road, and cooperative opportunities to reduce the cyber threat to nuclear facilities, building on the United Nations Group of Government Experts' discussions that developed an international consensus that states should not intentionally damage others' critical infrastructure, such as nuclear facilities.

SECURITY IN EMERGING NUCLEAR ENERGY COUNTRIES

The future for civilian nuclear power is promising but comes with potential security risks. Data collected for the NTI Index provide insight into security measures in countries seeking or expanding nuclear energy programs and show that, despite needed attention to and improvements in security, important gaps remain.

In the Middle East and North Africa, where countries are preparing to enter a new era of nuclear energy expansion:

- The United Arab Emirates, which is expected to commission its first nuclear power plant in 2019, has crafted a series of domestic regulations and made contributions to the International Atomic Energy Agency's (IAEA) Nuclear Security Fund and the World Institute of Nuclear Security (WINS) since 2016.
- Two countries considering nuclear power, Saudi Arabia and Jordan, have increased their voluntary contributions to international nuclear security efforts since 2012. Jordan also became a member of the Global Partnership against the Spread of Weapons and Materials of Mass Destruction.
- Although Egypt currently has a nuclear research reactor and is planning four new nuclear power reactors,[1] it ranks 43rd out of 44 countries and Taiwan in the Sabotage Ranking. It lags in several areas, including on-site physical protection, insider threat prevention, response capabilities, and cybersecurity for nuclear facilities.

In Central Europe, where ambitious plans for nuclear power are underway:

- Belarus is building its first nuclear power plant, with plans to begin operation in 2019. As a steward of weapons-usable nuclear materials, it ranks 7th among 22 in the Theft Ranking. Belarus scores above average on a number of physical security and cybersecurity measures assessed, and it receives full credit for having hosted an international security review within the past five years. However, Belarus has not ratified the 2005 Amendment to the Convention on the Physical Protection of Nuclear Materials, nor has it ratified the IAEA's Model Additional Protocol, which provides for enhanced IAEA safeguards.
- Poland expects to construct its first nuclear power plant by 2025.[2] The country currently maintains a research reactor at one site and is 19th in the Sabotage Ranking, down from 15th in 2016. Poland receives credit for having hosted a review of its security arrangements within the past five years.
- Although Belarus' risk environment for nuclear security has improved slightly since 2016, Poland's has declined because of an increased risk of significant violent social unrest (both civil and labor) and a decline in the ability of the country's bureaucracy to carry out government policy.

[1] World Nuclear Association. December 2017. "Nuclear Power in Egypt." http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/egypt.aspx.

[2] World Nuclear Association. May 2018. "Nuclear Power in Poland," www.world-nuclear.org/information-library/country-profiles/countries-o-s/poland.aspx.

Turkey and Bangladesh are constructing new power plants, with plans to begin operation in 2023:[3]

- In the Theft Ranking of countries without weapons-usable nuclear materials, Turkey receives full credit for its implementation of United Nations Security Council Resolution 1540, its domestic nuclear materials security legislation, and its safeguards adherence and compliance. However, Turkey's Risk Environment scores have deteriorated. The EIU's rating of Turkey's risk conditions for nuclear security dropped 15 points between 2016 and 2018 to 24 points out of a possible 100. 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. The ability of the country's bureaucracy to carry out government policy is rated as low in the EIU Risk Briefing, and the pervasiveness of corruption among public officials is rated as high. Finally, terrorist groups that have the capabilities to illicitly acquire nuclear materials are believed to be active in the country.
- In the Index's Sabotage Ranking, Bangladesh ranks 41st out of 44 countries and Taiwan with nuclear facilities at risk of sabotage. Its security and control measures, response capabilities, and control and accounting procedures need improvement. Bangladesh receives no credit for its insider threat prevention or cybersecurity regulations. Although improving, Bangladesh's risk environment for nuclear security remains low (the EIU awards a score of 35 points out of a possible 100). The EIU assesses the risk of violent demonstrations or civil unrest within the next two years and the pervasiveness of corruption among public officials as "very high."

[3] World Nuclear Association. May 2018. "Nuclear Power in Turkey," www.world-nuclear.org/information-library/country-profiles/countries-t-z/turkey.aspx. World Nuclear Association. April 2018. "Nuclear Power in Bangladesh," www.world-nuclear.org/information-library/country-profiles/countries-a-f/bangladesh.aspx.

IMPROVE STATE STEWARDSHIP OF NUCLEAR MATERIALS AND FACILITIES

The four Nuclear Security Summits held between 2010 and 2016 assembled world leaders to focus global attention on the critical importance of securing nuclear materials and facilities. Through national commitments, countries took actions to reduce the chance that nuclear materials could be stolen or facilities sabotaged. In the combined 2014 and 2016 NTI Indexes, 19 improvements were directly attributable to previous summit commitments. This year, 18 improvements were directly traceable to the summit process.[55]

The job of securing all weapons-usable nuclear materials and of building an effective global nuclear security system is far from finished, however. At the 2016 Nuclear Security Summit, leaders agreed to five "action plans" that describe how the IAEA, Interpol, the United Nations, the Global Initiative to Combat Nuclear Terrorism, and the Global Partnership against the Spread of Weapons and Materials of Mass Destruction would continue the important work begun through the summits. Much of the work committed to in those plans, however, remains unfinished. Leaders must be held responsible not only for meeting the 2016 commitments but also for moving beyond them to close the remaining gaps in the international nuclear security system. Countries should actively participate in IAEA ministerial meetings and CPP review conferences, and they should raise pragmatic and progressive nuclear security initiatives at G7 summits and the like.

Particularly as the use of nuclear power spreads globally, it is essential to maintain safety, security, safeguards, and confidence in the exclusively peaceful use of nuclear energy. Security should be embedded into developing fuel cycles internationally, while countries—including those with established nuclear programs—should maintain a

[55] This analysis mirrors that of prior NTI Index reports. It considers whether improvements in the NTI Index are directly related to a national commitment made during a Nuclear Security Summit in the form of either a national statement or participation in a joint statement or "gift basket." The NTI's methodology for considering whether a commitment has been "fulfilled" includes national mention of the improvement in nuclear security conditions within a Nuclear Security Summit Progress Report. In the 2016 NTI Index, NTI observed only six improvements directly related to Nuclear Security Summit commitments; in the 2014 NTI Index, NTI observed 13 improvements directly related to Nuclear Security Summit commitments.

focus on the conditions that underpin nuclear security. As risks increase alongside the growing quantities of nuclear materials, no new facilities capable of producing weapons-usable nuclear materials should be constructed unless there is unmet commercial demand.

To provide for nuclear security, countries should:

- **Commit to further decreases in stocks and applications that require use of weapons-usable nuclear materials.** The more nuclear materials and sites, the greater the exposure to risk of theft. All countries should work to minimize their use of weapons-usable nuclear materials, and they should reduce or eliminate stockpiles of those materials where possible. To do that, countries should end their use of highly enriched uranium (HEU) for civilian purposes wherever possible.

  HEU is a central component of a nuclear bomb; low-enriched uranium (LEU) is not. Although most HEU is designated for nuclear weapons purposes, significant amounts remain in civilian programs and non-weapons applications. Given that nearly all civilian and naval applications of HEU fuel have established LEU alternatives, the international community must take steps now to accelerate efforts to minimize—and ultimately eliminate—HEU in the civilian and naval spheres. This goal could include the creation of regional HEU-free zones that underpin the global norm against civilian HEU use.

  Plutonium also contains significant security risks, particularly separated plutonium. To minimize its associated risks, countries must reduce plutonium stocks to minimum levels and must adhere to fuel cycle policies that keep new plutonium and fresh mixed oxide production in balance with consumption.

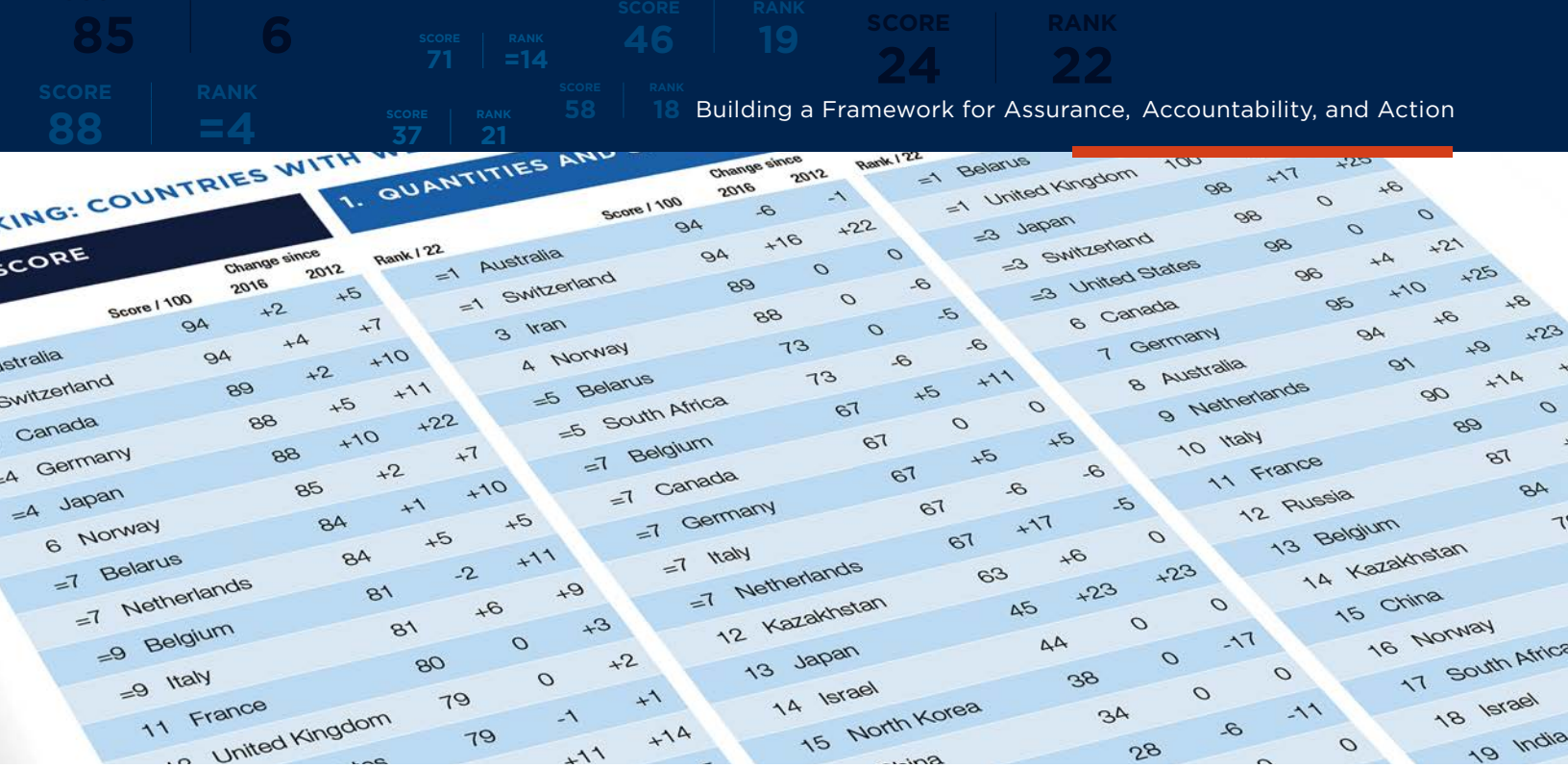
  Finally, as countries move toward the development and deployment of advanced nuclear reactors, they must consider the security implications of their new designs. The reactors and their associated fuel cycle facilities are still in the design phase, so developers should consider how to build in security features now that will limit opportunities for theft or diversion of attractive material in the future. That effort will make implementing IAEA nuclear security guidelines easier for operators.[56]

- **Improve core security and control measures.** Although improvements in the protection of nuclear facilities have been made, critical gaps remain. More than half of the countries in the Sabotage Ranking still have room to improve their on-site physical protection regulations or material control and accounting procedures. Only three countries with nuclear facilities at risk of sabotage have the most favorable nuclear security conditions to protect against insider threats.[57] Countries should prioritize improving the strength of the security culture at all types of nuclear sites. In particular, those countries that are developing new nuclear power reactors should upgrade regulatory frameworks commensurate with the threat and should incorporate lessons from countries with long-standing nuclear power programs. Countries also should enhance their participation in organizations like WINS to train and support their nuclear workforce, host international security reviews, and gain lessons from peer reviews and IAEA advisory services.

- **Reduce political risks that can undermine nuclear security.** In addition to improving the security and control measures of nuclear materials and facilities and to bolstering global norms for secure nuclear use, countries should not overlook the political and economic factors that exacerbate terrorist threats to nuclear materials and facilities. Governments should intensify efforts to maintain political stability and effective governance while reducing illicit activity, including corruption, criminal activity, and terrorism. Countries with political risk factors should redouble their efforts on nuclear security to ensure that their materials and facilities are well secured.

[56] Some of the advanced reactors use fuels based on plutonium or high-assay low-enriched uranium (such as 19 percent) that are different from current light-water reactor fuel cycles. Those reactors could lead to the need to process, transport, and dispose of nuclear materials that are more attractive for theft or diversion. In some cases, new fuel production facilities will be required. Some advanced reactors are designed to be built on ships or trucks, which could create different kinds of security risks compared to the large, visible footprints of current nuclear power plants.

[57] The Czech Republic, Japan, and the United Kingdom.



RESULTS TABLES

The tables on the following pages provide high-level results for the NTI Index Theft Ranking for countries with weapons-usable nuclear materials, the Theft Ranking for countries without materials, and the Sabotage Ranking for countries with nuclear facilities the sabotage of which could lead to a dangerous release of radiation. The tables provide country rankings and scores, overall and by each category. The Theft Ranking tables also include changes from 2016 and cumulative changes from 2012, when the first NTI Index was released. The Sabotage Ranking tables include changes from 2016, the first year of its tracking in the NTI Index.

Due to an addition to the frameworks, comparisons between the 2018 edition and previous published editions are not possible. To allow for accurate year-on-year comparisons, the EIU re-scored the previous editions using the new framework. The EIU also reviewed newly available information and made updates or corrections to past data, where necessary. The scores and changes in scores included in this report reflect these updates.

Overall scores are calculated using a weighted sum of category and indicator scores. A full discussion of categories, indicators, and their weighting is included in the EIU Methodology at www.ntiindex.org.

Country rankings preceded by an equal sign (=) indicate a tie with other countries.

Overall and category scores range from 0–100, where 100 equals the most favorable nuclear security conditions. In the NTI Index, scores of 0 and 100 represent the lowest or highest possible score, respectively, as measured by the NTI Index criteria.

For information on Taiwan's status and its treatment in the NTI Index, see the full EIU Methodology at www.ntiindex.org.

THEFT RANKING: COUNTRIES WITH WEAPONS-USABLE NUCLEAR MATERIALS

OVERALL SCORE

Rank / 22		Score / 100	Change since 2016	Change since 2012
=1	Australia	94	+2	+5
=1	Switzerland	94	+4	+7
3	Canada	89	+2	+10
=4	Germany	88	+5	+11
=4	Japan	88	+10	+22
6	Norway	85	+2	+7
=7	Belarus	84	+1	+10
=7	Netherlands	84	+5	+5
=9	Belgium	81	-2	+11
=9	Italy	81	+6	+9
11	France	80	0	+3
=12	United Kingdom	79	0	+2
=12	United States	79	-1	+1
=14	China	71	+11	+14
=14	Kazakhstan	71	+5	+5
16	South Africa	70	-1	+2
17	Russia	67	+3	+5
18	Israel	58	+3	+4
19	India	46	+1	+4
20	Pakistan	44	+4	+8
21	Iran	37	+2	+2
22	North Korea	24	0	-4

1. QUANTITIES AND SITES

Rank / 22		Score / 100	Change since 2016	Change since 2012
=1	Australia	94	-6	-1
=1	Switzerland	94	+16	+22
3	Iran	89	0	0
4	Norway	88	0	-6
=5	Belarus	73	0	-5
=5	South Africa	73	-6	-6
=7	Belgium	67	+5	+11
=7	Canada	67	0	0
=7	Germany	67	+5	+5
=7	Italy	67	-6	-6
=7	Netherlands	67	+17	-5
12	Kazakhstan	63	+6	0
13	Japan	45	+23	+23
14	Israel	44	0	0
15	North Korea	38	0	-17
16	China	34	0	0
17	France	28	-6	-11
18	United States	23	0	0
=19	India	22	0	0
=19	Pakistan	22	0	0
21	Russia	17	-6	-6
22	United Kingdom	11	0	0

2. SECURITY AND CONTROL MEASURES

Rank / 22		Score / 100	Change since 2016	Change since 2012
=1	Belarus	100	0	+24
=1	United Kingdom	100	+2	+4
=3	Japan	98	+17	+25
=3	Switzerland	98	0	+6
=3	United States	98	0	0
6	Canada	96	+4	+21
7	Germany	95	+10	+25
8	Australia	94	+6	+8
9	Netherlands	91	+9	+23
10	Italy	90	+14	+14
11	France	89	0	+4
12	Russia	87	+9	+17
13	Belgium	84	+3	+33
14	Kazakhstan	76	+15	+15
15	China	75	+13	+13
16	Norway	65	+5	+9
17	South Africa	57	0	+6
18	Israel	55	0	0
19	India	44	0	0
20	North Korea	38	0	0
21	Pakistan	37	+8	+18
22	Iran	36	0	0

Overall and category scores and ranks for 2018 are shown.
All countries are scored 0–100, where 100 = most favorable nuclear materials security conditions.
= denotes tie in rank.

COUNTRIES WITH WEAPONS-USABLE NUCLEAR MATERIALS *(cont'd)*

3. GLOBAL NORMS

Rank / 22		Score / 100	Change since 2016	Change since 2012
=1	Australia	100	0	+8
=1	Belgium	100	0	+21
=1	France	100	0	+17
=1	Japan	100	0	+27
=1	Russia	100	0	0
=1	United Kingdom	100	0	0
=1	United States	100	0	+17
=8	Canada	94	0	+17
=8	China	94	+18	+23
=8	Germany	94	+13	+13
=8	Switzerland	94	+6	+6
=12	Italy	88	+21	+30
=12	Norway	88	0	+15
=14	India	81	0	+16
=14	Kazakhstan	81	-7	-1
=14	Netherlands	81	-7	-7
17	Belarus	80	0	+12
18	South Africa	69	0	+7
19	Israel	61	+6	+14
20	Pakistan	59	+8	+8
21	Iran	12	0	0
22	North Korea	0	0	0

4. DOMESTIC COMMITMENTS AND CAPACITY

Rank / 22		Score / 100	Change since 2016	Change since 2012
=1	Australia	100	0	0
=1	Belgium	100	0	0
=1	Canada	100	+4	+4
=1	Germany	100	0	0
=1	Italy	100	0	0
=1	Japan	100	+4	+31
=1	Netherlands	100	+4	+4
=1	Norway	100	+4	+4
=1	South Africa	100	0	0
=1	Switzerland	100	0	0
=11	Belarus	96	+4	+4
=11	France	96	0	0
=11	Kazakhstan	96	+4	+4
=14	China	93	+12	+12
=14	Russia	93	+4	+4
=14	United Kingdom	93	0	0
=14	United States	93	0	-3
18	Pakistan	89	+4	+4
19	Israel	70	+4	+4
20	India	50	0	+3
21	Iran	22	+7	+7
22	North Korea	4	0	0

5. RISK ENVIRONMENT

Rank / 22		Score / 100	Change since 2016	Change since 2012
1	Norway	97	0	+14
2	Japan	83	0	-1
3	Canada	81	+2	+2
=4	Australia	79	+3	+3
=4	Switzerland	79	0	+1
6	Netherlands	75	0	0
7	Germany	74	-5	+1
8	France	73	+2	0
9	United Kingdom	71	-1	+3
10	United States	65	-6	-6
11	Israel	58	+6	+6
12	Belarus	57	+2	+8
13	South Africa	54	-1	-3
=14	Belgium	52	-19	-19
=14	Italy	52	-1	+3
16	China	50	+10	+17
17	North Korea	35	+1	-7
18	Kazakhstan	34	+3	0
19	Iran	33	+1	+2
20	India	32	+3	+3
21	Russia	18	+4	0
22	Pakistan	11	-5	+1

Overall and category scores and ranks for 2018 are shown.
All countries are scored 0–100, where 100 = most favorable nuclear materials security conditions.
= denotes tie in rank.

Results Tables

THEFT RANKING: COUNTRIES WITHOUT WEAPONS-USABLE NUCLEAR MATERIALS

OVERALL SCORE

Rank / 154		Score / 100	Change since 2016	Change since 2012
=1	Finland	98	+1	+2
=1	New Zealand	98	+8	+10
=1	Sweden	98	0	+6
4	Singapore	93	+2	+29
5	Chile	92	+8	+10
6	Malta	91	+7	+15
=7	Czech Republic	90	0	+1
=7	Denmark	90	-7	-9
=7	Hungary	90	0	+5
=7	Lithuania	90	0	+2
=7	Slovenia	90	-1	-1
=7	South Korea	90	0	+8
=7	United Arab Emirates	90	+9	+9
=14	Poland	89	+2	+5
=14	Portugal	89	+1	+12
=14	Slovakia	89	0	+3
=17	Estonia	87	0	+4
=17	Romania	87	+1	+4
=17	Spain	87	-1	-3
=20	Argentina	86	+10	+13
=20	Austria	86	-1	-2
=22	Croatia	85	+8	+11
=22	Iceland	85	+1	+3
=22	Latvia	85	-2	-3
=22	Luxembourg	85	0	+4
=26	Jordan	84	+12	+15
=26	Mexico	84	+2	+8
28	Armenia	82	+3	+7
=29	Bulgaria	81	+1	0
=29	Ghana	81	+11	+17
=29	Macedonia	81	+5	+12
=29	Serbia	81	+5	+7
33	Ukraine	80	+3	+1
34	Uruguay	79	+11	+11
=35	Albania	78	+5	+9
=35	Cyprus	78	-4	0
=35	Georgia	78	+3	+13
38	Peru	77	+2	+9
=39	Bosnia and Herzegovina	76	+6	+6

3. GLOBAL NORMS

Rank / 154		Score / 100	Change since 2016	Change since 2012
=1	Chile	100	+7	+15
=1	Czech Republic	100	0	+7
=1	Finland	100	0	0
=1	Georgia	100	+7	+20
=1	Hungary	100	0	+15
=1	Jordan	100	+20	+13
=1	Lithuania	100	0	+7
=1	Morocco	100	+13	+20
=1	New Zealand	100	+25	+25
=1	Poland	100	0	+7
=1	Romania	100	0	+7
=1	Saudi Arabia	100	0	+15
=1	South Korea	100	0	+25
=1	Spain	100	0	0
=1	Sweden	100	0	+25
=1	Ukraine	100	0	0
=1	United Arab Emirates	100	+7	0
=18	Algeria	93	+8	+22
=18	Argentina	93	+13	+18
=18	Armenia	93	0	+13
=18	Azerbaijan	93	+13	+20
=18	Bahrain	93	+8	+8
=18	Bosnia and Herzegovina	93	+13	+20
=18	Croatia	93	0	+8
=18	Denmark	93	-7	-7
=18	Kyrgyz Republic	93	+13	+38
=18	Latvia	93	0	0
=18	Libya	93	0	+8
=18	Macedonia	93	0	+20
=18	Malta	93	0	+26
=18	Mexico	93	0	+20
=18	Moldova	93	0	+8
=18	Nigeria	93	+15	+48
=18	Paraguay	93	+28	+28
=18	Portugal	93	0	+13
=18	Slovakia	93	0	+13
=18	Slovenia	93	0	0
=18	Turkmenistan	93	+8	+8
=18	Uzbekistan	93	0	+20

Overall and category scores and ranks for 2018 are shown.
All countries are scored 0–100, where 100 = most favorable nuclear materials security conditions.
= denotes tie in rank.

COUNTRIES WITHOUT WEAPONS-USABLE NUCLEAR MATERIALS *(cont'd)*

4. DOMESTIC COMMITMENTS AND CAPACITY

Rank / 154		Score / 100	Change since 2016	Change since 2012
=1	Albania	100	0	0
=1	Armenia	100	+7	+7
=1	Austria	100	0	0
=1	Azerbaijan	100	+27	+31
=1	Bosnia and Herzegovina	100	+7	+11
=1	Bulgaria	100	0	0
=1	Croatia	100	+24	+24
=1	Czech Republic	100	0	0
=1	Denmark	100	0	0
=1	Estonia	100	0	0
=1	Finland	100	0	0
=1	Ghana	100	+26	+26
=1	Hungary	100	0	+4
=1	Jordan	100	+13	+22
=1	Latvia	100	0	0
=1	Lithuania	100	0	0
=1	Malta	100	+20	+20
=1	Mexico	100	+7	+7
=1	Poland	100	+11	+11
=1	Portugal	100	0	+21
=1	Romania	100	0	0
=1	Slovakia	100	0	0
=1	Slovenia	100	0	0
=1	South Korea	100	0	0
=1	Spain	100	0	0
=1	Sweden	100	0	0
=1	Taiwan	100	+7	+13
=1	Tajikistan	100	+17	+17
=1	Turkey	100	+7	+7
=1	Ukraine	100	+7	+7
=1	United Arab Emirates	100	+15	+15
=1	Uzbekistan	100	+24	+24
=33	Argentina	96	+11	+11
=33	Brazil	96	0	0
=33	Iceland	96	0	0
=33	Macedonia	96	+13	+13
=33	Moldova	96	+20	+41
=33	New Zealand	96	0	+5
=33	Serbia	96	0	0

5. RISK ENVIRONMENT

Rank / 154		Score / 100	Change since 2016	Change since 2012
1	New Zealand	99	0	+3
2	Singapore	98	+2	0
3	Sweden	94	0	-5
4	Finland	93	+2	+5
5	Luxembourg	91	0	-2
6	Barbados	87	+2	+2
7	Iceland	85	+4	-2
8	Bhutan	84	0	+13
9	Chile	81	0	0
=10	Malta	79	-2	-1
=10	Taiwan	79	+2	+3
12	Botswana	77	0	0
=13	Bahamas	76	-1	-1
=13	Denmark	76	-15	-20
=13	Seychelles	76	-1	+5
=13	Uruguay	76	+1	+1
=17	Brunei	75	0	0
=17	Cape Verde	75	0	0
=17	Slovenia	75	-3	-3
20	Slovakia	72	0	-2
=21	Estonia	71	0	+5
=21	Portugal	71	+4	0
=23	Austria	70	-4	-4
=23	Mauritius	70	0	0
=25	Cyprus	69	-6	-12
=25	Czech Republic	69	0	-2
=25	Hungary	69	0	-3
=25	Namibia	69	0	+2
=25	South Korea	69	+1	+1
30	Costa Rica	68	-3	-9
=31	Lithuania	67	0	0
=31	Samoa	67	0	0
=33	Argentina	66	+3	+10
=33	Ireland	66	+2	-7
=33	United Arab Emirates	66	0	+8
=36	Cuba	65	0	-5
=36	Ghana	65	+3	+2
=38	Greece	64	+2	+9
=38	Poland	64	-9	-6

Overall and category scores and ranks for 2018 are shown.
All countries are scored 0–100, where 100 = most favorable nuclear materials security conditions.
= denotes tie in rank.

THEFT RANKING: COUNTRIES WITHOUT WEAPONS-USABLE NUCLEAR MATERIALS *(cont'd)*

OVERALL SCORE

Rank / 154		Score / 100	Change since 2016	Change since 2012
=39	Brazil	76	-2	+3
=41	Azerbaijan	75	+15	+19
=41	Cuba	75	+3	+5
=41	Greece	75	+1	+4
=41	Ireland	75	-2	-1
=41	Taiwan	75	+3	+10
=41	Uzbekistan	75	+11	+17
47	Morocco	74	+11	+14
=48	Botswana	73	+7	+11
=48	Indonesia	73	+5	+18
=48	Mongolia	73	+3	+4
=51	Algeria	72	+5	+10
=51	Turkey	72	-5	+5
=53	Jamaica	70	+5	+15
=53	Moldova	70	+8	+18
=53	Paraguay	70	+15	+15
=56	Costa Rica	69	+8	+10
=56	Tajikistan	69	+6	+12
=58	Namibia	68	+15	+17
=58	Nicaragua	68	+7	+7
=58	Nigeria	68	+9	+16
=58	Qatar	68	+1	+4
62	Vietnam	67	+15	+30
=63	Bangladesh	65	+3	+11
=63	Montenegro	65	+4	+6
=63	Seychelles	65	0	+2
=66	Côte d'Ivoire	64	+11	+36
=66	Saudi Arabia	64	+4	+19
=68	Bahrain	62	+5	+4
=68	Ecuador	62	+11	+14
=68	Guatemala	62	0	0
=68	Kuwait	62	+3	+21
=72	Colombia	61	+7	+11
=72	Dominican Republic	61	+5	+14
=72	Gabon	61	+4	+6
=72	Panama	61	+3	+5
=72	Rwanda	61	+2	+4
=77	Philippines	60	+5	+7
=77	Senegal	60	+10	+13

3. GLOBAL NORMS

Rank / 154		Score / 100	Change since 2016	Change since 2012
=18	Vietnam	93	+26	+71
=41	Albania	87	+14	+27
=41	Estonia	87	0	+7
=43	Austria	85	0	0
=43	Cyprus	85	-8	+12
=43	Dominican Republic	85	0	+20
=43	Indonesia	85	+7	+40
=43	Kuwait	85	+12	+32
=43	Luxembourg	85	0	+12
=43	Madagascar	85	+32	+32
=43	Qatar	85	+7	+32
=43	Serbia	85	+12	+12
=43	Singapore	85	+5	+43
=43	Tunisia	85	0	+7
=43	Turkey	85	-8	+25
=55	Afghanistan	80	0	+20
=55	Bulgaria	80	0	0
=55	Greece	80	0	+5
=55	Iraq	80	0	+65
=55	Ireland	80	-7	+5
=55	Montenegro	80	+13	+20
=55	Panama	80	0	0
=55	Tajikistan	80	0	+20
=63	Bangladesh	78	+13	+13
=63	Côte d'Ivoire	78	+13	+63
=63	Cuba	78	+7	+20
=63	Djibouti	78	-7	+25
=63	El Salvador	78	+13	+13
=63	Fiji	78	0	+7
=63	Gabon	78	+7	+7
=63	Kenya	78	0	0
=63	Peru	78	0	+20
72	Philippines	75	0	+8
=73	Brazil	73	0	+15
=73	Colombia	73	0	+13
=73	Ghana	73	0	+20
=73	Iceland	73	0	+13
=73	Mongolia	73	0	0
=78	Costa Rica	71	+13	+26

Overall and category scores and ranks for 2018 are shown.
All countries are scored 0–100, where 100 = most favorable nuclear materials security conditions.
= denotes tie in rank.

COUNTRIES WITHOUT WEAPONS-USABLE NUCLEAR MATERIALS *(cont'd)*

4. DOMESTIC COMMITMENTS AND CAPACITY

Rank / 154		Score / 100	Change since 2016	Change since 2012
=33	Singapore	96	0	+41
=41	Chile	93	+13	+13
=41	Nigeria	93	+19	+19
=41	Peru	93	+6	+6
=44	Guatemala	89	0	0
=44	Nicaragua	89	+6	+6
=44	Uganda	89	+20	+20
=47	Botswana	87	+13	+13
=47	Indonesia	87	+7	+7
=47	Uruguay	87	+7	+7
50	Mongolia	85	+7	+7
=51	Algeria	83	+7	+7
=51	Tanzania	83	+7	+7
=53	Bangladesh	80	-7	+14
=53	Morocco	80	+6	+6
=55	Cuba	79	0	0
=55	Cyprus	79	0	0
=55	Georgia	79	+13	+13
=55	Greece	79	0	0
=55	Ireland	79	0	0
=55	Jamaica	79	+19	+19
=55	Luxembourg	79	0	0
=55	Philippines	79	+19	+19
63	Congo (Democratic Republic of)	73	0	0
64	Rwanda	72	0	0
=65	Burkina Faso	69	+14	+14
=65	Costa Rica	69	+14	+14
=65	Ecuador	69	+14	+14
=65	Mali	69	+14	+14
=65	Mauritania	69	+27	+31
70	Qatar	67	0	0
=71	Côte d'Ivoire	66	+17	+38
=71	Niger	66	+6	+6
=73	Montenegro	64	0	0
=73	Namibia	64	+6	+11
=73	Paraguay	64	+13	+13
76	Tunisia	62	+7	+7
77	Iraq	59	+20	+24
78	Kenya	58	+7	+7

5. RISK ENVIRONMENT

Rank / 154		Score / 100	Change since 2016	Change since 2012
40	Rwanda	63	+7	+6
41	Senegal	62	0	+12
42	Colombia	60	+15	+15
=43	Croatia	59	-2	-1
=43	Mongolia	59	+1	+6
=45	Bulgaria	58	+2	-1
=45	Jamaica	58	-1	+5
=45	Latvia	58	-7	-9
=45	Malaysia	58	0	+7
=45	Panama	58	0	+7
=45	Romania	58	+3	+5
=45	Serbia	58	+5	+11
=45	Sri Lanka	58	+7	+6
=45	Vietnam	58	+4	+3
=54	Belize	57	0	-2
=54	Oman	57	0	+4
=54	Spain	57	-5	-9
=57	Lesotho	56	-4	-1
=57	São Tomé and Príncipe	56	+3	+12
=57	Trinidad and Tobago	56	+1	+1
=60	Brazil	55	-5	-4
=60	Georgia	55	-12	+5
=60	Mexico	55	-2	-2
=60	Peru	55	-2	+2
=60	Tonga	55	0	-1
=60	Vanuatu	55	0	+2
=66	Swaziland	54	+1	+3
=66	Zambia	54	-2	-2
=68	Dominican Republic	53	0	+10
=68	Guyana	53	+3	+3
=68	Paraguay	53	+3	+3
=68	Suriname	53	0	0
=72	Benin	52	-1	+5
=72	Qatar	52	-4	-19
=74	Ecuador	51	-1	+9
=74	Saudi Arabia	51	+7	+16
=76	Gabon	50	-2	-2
=76	Macedonia	50	0	0
=76	Montenegro	50	-2	-1

Overall and category scores and ranks for 2018 are shown.
All countries are scored 0–100, where 100 = most favorable nuclear materials security conditions.
= denotes tie in rank.

Results Tables

THEFT RANKING: COUNTRIES WITHOUT WEAPONS-USABLE NUCLEAR MATERIALS *(cont'd)*

OVERALL SCORE

Rank / 154		Score / 100	Change since 2016	Change since 2012
=77	Tunisia	60	-2	+3
=77	Turkmenistan	60	+4	+5
81	Mauritania	59	+10	+12
=82	Madagascar	58	+15	+15
=82	Uganda	58	+8	+11
=84	Burkina Faso	57	+1	+6
=84	El Salvador	57	+6	+4
=86	Congo (Democratic Republic of)	56	-2	-2
=86	Kyrgyz Republic	56	+12	+18
=86	Tanzania	56	+5	+5
=89	Djibouti	55	+5	+18
=89	Lesotho	55	+6	+11
=89	Niger	55	-1	-2
=92	Kenya	54	+2	-2
=92	Malawi	54	+14	+21
=92	Malaysia	54	+8	+14
=95	Mali	53	+5	-4
=95	Sri Lanka	53	+7	+7
97	Fiji	51	-2	+1
98	Swaziland	50	+11	+14
=99	Cape Verde	49	+5	+5
=99	Zambia	49	+20	+20
=101	Cambodia	48	+3	+7
=101	Cameroon	48	+8	+9
=101	Iraq	48	+7	+25
=101	Lebanon	48	0	-2
=101	Mauritius	48	+5	+5
=106	Afghanistan	47	+2	+8
=106	Bahamas	47	-1	+2
=106	Honduras	47	+7	+9
=109	Bolivia	46	+8	+9
=109	Mozambique	46	+2	+1
=109	Thailand	46	+5	+7
112	Libya	44	0	-1
=113	Barbados	42	+6	+6
=113	Myanmar	42	+17	+21
=113	Oman	42	+2	+4
=113	Trinidad and Tobago	42	0	+5
=117	Central African Republic	41	+6	+3

3. GLOBAL NORMS

Rank / 154		Score / 100	Change since 2016	Change since 2012
=78	Jamaica	71	-7	+18
=78	Lesotho	71	0	+13
=78	Mali	71	0	0
=78	Mauritania	71	0	0
=78	Namibia	71	+38	+38
=78	Nicaragua	71	+13	+13
=78	Niger	71	0	0
=78	Uruguay	71	+26	+26
87	Cambodia	67	0	0
=88	Congo (Democratic Republic of)	65	0	0
=88	Ecuador	65	+20	+20
=88	Lebanon	65	0	0
=88	Malawi	65	+7	+32
=88	Senegal	65	+20	+20
=88	Seychelles	65	0	0
=88	Yemen	65	-8	+25
=88	Zambia	65	+50	+50
=96	Burkina Faso	58	0	+13
=96	Central African Republic	58	0	0
=96	Swaziland	58	+13	+20
99	Sri Lanka	55	0	0
=100	Bolivia	53	+20	+20
=100	Botswana	53	+8	+20
=100	Cameroon	53	+13	+20
=100	Myanmar	53	+46	+46
=100	Togo	53	+8	+15
=105	Comoros	51	0	0
=105	Guinea-Bissau	51	0	0
107	Malaysia	49	0	+14
=108	Bahamas	47	0	+7
=108	Honduras	47	0	0
=108	Oman	47	0	0
=111	Guatemala	45	0	0
=111	Guyana	45	0	+7
=111	Mozambique	45	0	0
=111	Rwanda	45	0	+7
115	Thailand	42	0	+7
=116	Burundi	40	+7	+7
=116	Laos	40	+7	+15

Overall and category scores and ranks for 2018 are shown.
All countries are scored 0–100, where 100 = most favorable nuclear materials security conditions.
= denotes tie in rank.

COUNTRIES WITHOUT WEAPONS-USABLE NUCLEAR MATERIALS *(cont'd)*

4. DOMESTIC COMMITMENTS AND CAPACITY

Rank / 154		Score / 100	Change since 2016	Change since 2012
=79	Afghanistan	55	+4	+4
=79	Gabon	55	+6	+11
=79	Kuwait	55	+6	+31
=79	Malawi	55	+33	+33
=79	Malaysia	55	+20	+20
=79	Senegal	55	+11	+11
=79	Seychelles	55	0	0
=86	Colombia	52	+6	+6
=86	Turkmenistan	52	+6	+6
=86	Vietnam	52	+13	+17
=89	Bahrain	51	+7	+7
=89	Cameroon	51	+11	+11
=89	Lebanon	51	0	0
92	Kyrgyz Republic	50	+20	+24
=93	Dominican Republic	48	+13	+13
=93	El Salvador	48	+7	+7
=93	Honduras	48	+18	+18
=93	Madagascar	48	+13	+13
=93	Mauritius	48	+13	+13
=93	Panama	48	+7	+7
=93	Sri Lanka	48	+13	+13
=93	Venezuela	48	0	0
101	Saudi Arabia	47	+7	+27
=102	Ethiopia	46	+20	+20
=102	Thailand	46	+11	+11
=104	Djibouti	44	+20	+29
=104	Mozambique	44	+6	+6
=104	Syria	44	+14	+18
107	Cape Verde	42	+13	+13
=108	Cambodia	41	+6	+15
=108	Egypt	41	+6	+6
=108	Lesotho	41	+19	+19
=108	Swaziland	41	+19	+19
=112	Bolivia	39	+6	+6
=112	Libya	39	0	0
=112	Sierra Leone	39	+13	+13
=112	Solomon Islands	39	+13	+13
=116	Central African Republic	37	+13	+13
=116	Tonga	37	+4	+4

5. RISK ENVIRONMENT

Rank / 154		Score / 100	Change since 2016	Change since 2012
=76	Mozambique	50	0	-2
=76	Thailand	50	+2	+2
=81	Bolivia	49	0	+2
=81	Fiji	49	+2	+4
=81	Gambia	49	+5	+4
=81	Solomon Islands	49	0	+7
=85	El Salvador	48	0	-8
=85	Jordan	48	+2	+10
=85	Timor-Leste	48	-2	+9
=88	Armenia	47	0	+1
=88	Côte d'Ivoire	47	0	+4
=88	Djibouti	47	-2	-2
=88	Honduras	47	+2	+10
=92	Kuwait	46	-13	-5
=92	Laos	46	0	0
=94	Guatemala	45	+1	+1
=94	Sierra Leone	45	+1	+9
=96	Angola	44	0	0
=96	Bahrain	44	-1	-2
=96	Ethiopia	44	-4	-3
=96	Madagascar	44	0	-1
=96	Myanmar	44	+2	+14
=96	Nepal	44	+2	+3
=102	Burkina Faso	43	-12	-7
=102	Indonesia	43	-1	+10
104	Liberia	42	+2	-2
=105	Congo (Brazzaville)	41	-3	-6
=105	Malawi	41	-3	-5
=105	Papua New Guinea	41	-1	+1
108	Albania	40	+2	0
=109	Algeria	39	+3	+4
=109	Morocco	39	+12	+15
=109	Nicaragua	39	+2	+3
=112	Cameroon	38	0	-7
=112	Egypt	38	+4	+2
=112	Guinea	38	+2	+8
=112	Tanzania	38	0	0
=112	Togo	38	-2	+1
=112	Venezuela	38	+1	0

Overall and category scores and ranks for 2018 are shown.
All countries are scored 0–100, where 100 = most favorable nuclear materials security conditions.
= denotes tie in rank.

Results Tables

THEFT RANKING: COUNTRIES WITHOUT WEAPONS-USABLE NUCLEAR MATERIALS *(cont'd)*

OVERALL SCORE

Rank / 154		Score / 100	Change since 2016	Change since 2012
=117	Togo	41	+6	+10
=119	Laos	39	+5	+7
=119	Tonga	39	+2	+1
=121	Brunei	38	-2	+3
=121	Comoros	38	+5	+5
=121	Egypt	38	+6	+8
=121	Guyana	38	+1	+3
=121	Solomon Islands	38	+5	+7
126	Sierra Leone	37	+7	+10
=127	Bhutan	36	0	+4
=127	Ethiopia	36	+9	+9
=127	Vanuatu	36	0	+6
=130	Benin	35	+7	+9
=130	Venezuela	35	+3	+3
132	Burundi	34	+7	+5
133	Samoa	33	0	0
=134	Belize	32	0	-1
=134	Guinea	32	+6	+8
136	Guinea-Bissau	31	+2	+2
=137	São Tomé and Príncipe	30	+6	+9
=137	Sudan	30	+6	+7
=137	Timor-Leste	30	+5	+8
=140	Congo (Brazzaville)	29	+7	+9
=140	Haiti	29	+3	+4
=142	Gambia	28	+4	+3
=142	Nepal	28	+3	+3
=142	Yemen	28	-2	+4
=145	Angola	27	0	0
=145	Liberia	27	+3	+2
=145	Papua New Guinea	27	+2	+5
=145	Zimbabwe	27	+4	+6
149	Suriname	26	0	0
150	Equatorial Guinea	25	+3	+3
151	Syria	23	+5	-1
=152	Chad	22	0	+2
=152	Eritrea	22	+7	+3
154	Somalia	7	+4	0

3. GLOBAL NORMS

Rank / 154		Score / 100	Change since 2016	Change since 2012
=116	Sudan	40	+7	+7
=116	Taiwan	40	0	+13
=116	Tanzania	40	+7	+7
=116	Trinidad and Tobago	40	0	+15
=116	Uganda	40	0	+7
123	Guinea	38	0	0
124	Egypt	35	+8	+15
=125	Benin	33	+13	+13
=125	Cape Verde	33	0	0
=127	Liberia	27	0	0
=127	Mauritius	27	0	0
=127	Sierra Leone	27	+7	+7
=130	Equatorial Guinea	25	0	0
=130	Solomon Islands	25	0	0
=130	Tonga	25	0	0
=133	Haiti	20	0	0
=133	Syria	20	0	0
=135	Angola	15	0	0
=135	Belize	15	0	0
=135	Brunei	15	-7	+8
=135	Congo (Brazzaville)	15	+8	+8
=135	Ethiopia	15	+8	+8
=135	Nepal	15	0	0
=135	Papua New Guinea	15	0	+8
=135	Vanuatu	15	0	+8
=135	Venezuela	15	+8	+8
=135	Zimbabwe	15	0	+8
=145	São Tomé and Príncipe	13	0	0
=145	Timor-Leste	13	0	0
=147	Barbados	7	+7	+7
=147	Chad	7	-8	0
=147	Eritrea	7	0	0
=147	Samoa	7	0	0
=151	Bhutan	0	0	0
=151	Gambia	0	0	0
=151	Somalia	0	0	0
=151	Suriname	0	0	0

Overall and category scores and ranks for 2018 are shown.
All countries are scored 0–100, where 100 = most favorable nuclear materials security conditions.
= denotes tie in rank.

COUNTRIES WITHOUT WEAPONS-USABLE NUCLEAR MATERIALS *(cont'd)*

4. DOMESTIC COMMITMENTS AND CAPACITY

Rank / 154		Score / 100	Change since 2016	Change since 2012
=116	Vanuatu	37	0	+9
=119	Gambia	35	+7	+7
=119	Togo	35	+11	+15
=121	Barbados	33	+7	+7
=121	Laos	33	+7	+7
=121	Myanmar	33	+7	+7
=121	Trinidad and Tobago	33	0	0
=121	Zambia	33	+13	+13
=126	Burundi	30	+13	+13
=126	Comoros	30	+13	+13
=126	Congo (Brazzaville)	30	+13	+21
=126	Fiji	30	-7	-7
=126	Haiti	30	+6	+6
=126	Zimbabwe	30	+13	+13
132	Timor-Leste	28	+13	+13
=133	Belize	26	0	0
=133	Bhutan	26	0	0
=133	Brunei	26	0	0
=133	Nepal	26	+6	+6
=133	Oman	26	+6	+6
=133	Papua New Guinea	26	+6	+6
=133	Samoa	26	0	0
=133	Sudan	26	+6	+6
=133	Suriname	26	0	0
=142	Angola	24	0	0
=142	Bahamas	24	0	0
=142	Chad	24	+7	+7
=145	Benin	22	+7	+7
=145	Eritrea	22	+7	+7
=145	Guinea	22	+13	+13
=145	São Tomé and Príncipe	22	+13	+13
=149	Guyana	20	0	0
=149	Yemen	20	0	0
=151	Equatorial Guinea	15	+6	+6
=151	Guinea-Bissau	15	+6	+6
=151	Liberia	15	+6	+6
=151	Somalia	15	+6	+6

5. RISK ENVIRONMENT

Rank / 154		Score / 100	Change since 2016	Change since 2012
=118	Eritrea	37	+13	0
=118	Zimbabwe	37	-1	-3
=120	Cambodia	36	+1	+4
=120	Chad	36	+1	+1
=120	Equatorial Guinea	36	0	0
=120	Mauritania	36	0	0
=120	Turkmenistan	36	-3	-2
=120	Uganda	36	0	+1
=126	Comoros	35	+2	+2
=126	Haiti	35	0	+4
=126	Ukraine	35	+1	-6
129	Bangladesh	33	+6	+5
=130	Burundi	32	-1	-9
=130	Tunisia	32	-14	-6
132	Guinea-Bissau	31	0	0
133	Bosnia and Herzegovina	29	0	-16
134	Kyrgyz Republic	28	+3	-10
=135	Azerbaijan	27	+3	+4
=135	Central African Republic	27	+1	-9
=137	Congo (Democratic Republic of)	26	-5	-6
=137	Kenya	26	0	-13
=139	Lebanon	25	0	-8
=139	Uzbekistan	25	+5	+5
=141	Niger	24	-14	-14
=141	Sudan	24	+2	+6
=141	Turkey	24	-15	-16
=144	Philippines	20	-9	-9
=144	Tajikistan	20	-2	-3
=146	Mali	15	-1	-30
=146	Moldova	15	+2	+1
148	Nigeria	12	-11	-20
=149	Afghanistan	2	0	0
=149	Iraq	2	-4	-15
=149	Somalia	2	+2	-11
152	Libya	1	0	-12
=153	Syria	0	0	-25
=153	Yemen	0	0	-13

Overall and category scores and ranks for 2018 are shown.
All countries are scored 0–100, where 100 = most favorable nuclear materials security conditions.
= denotes tie in rank.

Results Tables

SABOTAGE RANKING

OVERALL SCORE

Rank / 45		Score / 100	Change since 2016
1	Finland	97	+2
=2	Australia	93	+3
=2	Canada	93	+4
=4	Japan	91	+3
=4	United Kingdom	91	+1
=6	Hungary	90	+2
=6	Switzerland	90	+3
=8	Czech Republic	89	+5
=8	Germany	89	+7
10	Romania	88	0
=11	France	87	+1
=11	Netherlands	87	+1
=11	United States	87	-1
=14	Norway	86	+3
=14	Sweden	86	0
16	Slovenia	85	+2
=17	Bulgaria	84	+3
=17	South Korea	84	0
19	Poland	82	-1
20	Belgium	79	-3
21	Armenia	78	+8
22	Slovakia	77	0
23	Spain	75	+6
=24	Russia	74	+3
=24	South Africa	74	+3
26	China	73	+11
=27	Argentina	72	+3
=27	Indonesia	72	+5
=27	Kazakhstan	72	+5
=30	Brazil	70	0
=30	Ukraine	70	+5
=32	Chile	68	+2
=32	Taiwan	68	-1
=34	Peru	63	+1
=34	Uzbekistan	63	+7
36	Israel	61	+6
=37	Morocco	58	+8
=37	Pakistan	58	+6
39	India	56	+2
40	Mexico	55	+2
41	Bangladesh	54	+5
42	Algeria	52	+6
43	Egypt	43	+7
44	Iran	27	+3
45	North Korea	24	0

1. NUMBER OF SITES

Rank / 45		Score / 100	Change since 2016
=1	Algeria	100	0
=1	Armenia	100	0
=1	Australia	100	0
=1	Bangladesh	100	0
=1	Bulgaria	100	0
=1	Chile	100	0
=1	Egypt	100	0
=1	Israel	100	0
=1	Mexico	100	0
=1	Morocco	100	0
=1	Peru	100	0
=1	Poland	100	0
=1	Slovenia	100	0
=1	Uzbekistan	100	0
=15	Argentina	80	0
=15	Brazil	80	0
=15	Czech Republic	80	0
=15	Finland	80	0
=15	Hungary	80	0
=15	Indonesia	80	0
=15	Iran	80	0
=15	Kazakhstan	80	0
=15	Netherlands	80	0
=15	North Korea	80	0
=15	Norway	80	0
=15	Pakistan	80	0
=15	Romania	80	0
=15	Slovakia	80	0
=15	South Africa	80	0
=30	Belgium	60	0
=30	Canada	60	0
=30	India	60	0
=30	South Korea	60	0
=30	Spain	60	0
=30	Sweden	60	0
=30	Switzerland	60	0
=30	Taiwan	60	0
=30	Ukraine	60	0
=39	China	40	0
=39	Germany	40	0
=39	United Kingdom	40	0
=42	France	20	0
=42	Japan	20	0
=42	Russia	20	0
45	United States	0	0

2. SECURITY AND CONTROL MEASURES

Rank / 45		Score / 100	Change since 2016
1	United Kingdom	100	+4
=2	Finland	98	+6
=2	United States	98	0
=4	Czech Republic	96	+12
=4	Japan	96	+11
=6	Canada	95	+6
=6	Germany	95	+15
=6	Hungary	95	0
=6	Romania	95	0
10	Switzerland	94	0
11	Australia	93	+8
12	Bulgaria	91	+4
=13	France	88	0
=13	Netherlands	88	0
15	Russia	84	0
16	Taiwan	83	0
17	Slovenia	81	+8
=18	Armenia	75	+11
=18	South Korea	75	-4
20	Poland	74	0
21	Belgium	73	+3
22	Sweden	70	0
=23	Kazakhstan	67	+11
=23	Norway	67	+7
=25	Indonesia	64	0
=25	South Africa	64	0
27	China	63	+4
=28	Spain	61	+14
=28	Ukraine	61	0
30	Slovakia	60	0
31	India	57	0
32	Peru	56	0
33	Uzbekistan	49	0
=34	Argentina	48	0
=34	Brazil	48	0
=34	Pakistan	48	+9
37	Chile	47	0
38	Israel	43	0
39	Algeria	34	+3
=40	Iran	30	0
=40	North Korea	30	0
42	Morocco	28	0
43	Mexico	26	0
44	Bangladesh	21	0
45	Egypt	19	0

Overall and category scores and ranks for 2018 are shown. All countries are scored 0–100, where 100 = most favorable nuclear security conditions.
= denotes tie in rank.

SABOTAGE RANKING *(cont'd)*

3. GLOBAL NORMS

Rank / 45		Score / 100	Change since 2016
=1	Belgium	100	0
=1	Canada	100	0
=1	Finland	100	0
=1	France	100	0
=1	Japan	100	0
=1	Russia	100	0
=1	South Korea	100	0
=1	United Kingdom	100	0
=1	United States	100	0
=10	Australia	95	-5
=10	Romania	95	0
=10	Sweden	95	-5
=13	China	92	+21
=13	Germany	92	+15
=13	Hungary	92	+5
=13	Norway	92	0
=13	Spain	92	-8
=13	Switzerland	92	+11
=19	Chile	87	+6
=19	Czech Republic	87	+8
=19	Poland	87	0
=22	India	85	0
=22	Kazakhstan	85	-7
=22	Netherlands	85	-7
=22	Ukraine	85	0
26	Brazil	83	0
=27	Argentina	81	-2
=27	Armenia	81	0
=27	Indonesia	81	+5
=27	Slovakia	81	0
=27	Slovenia	81	0
32	Mexico	79	0
33	South Africa	78	0
34	Bulgaria	75	0
35	Uzbekistan	69	+7
=36	Bangladesh	68	+6
=36	Peru	68	0
38	Pakistan	67	+6
=39	Algeria	65	+5
=39	Morocco	65	+6
41	Israel	52	+6
42	Taiwan	44	-8
43	Egypt	36	+5
44	Iran	13	0
45	North Korea	0	0

4. DOMESTIC COMMITMENTS AND CAPACITY

Rank / 45		Score / 100	Change since 2016
=1	Argentina	100	+5
=1	Armenia	100	+18
=1	Australia	100	0
=1	Belgium	100	0
=1	Brazil	100	+5
=1	Bulgaria	100	+5
=1	Canada	100	+5
=1	China	100	+16
=1	Czech Republic	100	0
=1	Finland	100	0
=1	France	100	0
=1	Germany	100	0
=1	Hungary	100	+5
=1	Indonesia	100	+16
=1	Japan	100	0
=1	Kazakhstan	100	+11
=1	Morocco	100	+16
=1	Netherlands	100	+11
=1	Norway	100	+5
=1	Pakistan	100	+13
=1	Poland	100	+5
=1	Romania	100	0
=1	Russia	100	+11
=1	Slovakia	100	0
=1	Slovenia	100	0
=1	South Africa	100	+13
=1	South Korea	100	+5
=1	Spain	100	+18
=1	Sweden	100	+5
=1	Switzerland	100	+5
=1	Ukraine	100	+18
=1	United Kingdom	100	0
=1	United States	100	0
=1	Uzbekistan	100	+16
35	Bangladesh	95	+11
36	Israel	87	+16
37	Egypt	75	+17
=38	Algeria	65	+11
=38	Chile	65	+5
=38	Mexico	65	+11
=38	Peru	65	+5
42	Taiwan	60	0
43	India	52	+5
44	Iran	16	+11
45	North Korea	13	0

5. RISK ENVIRONMENT

Rank / 45		Score / 100	Change since 2016
1	Norway	97	0
2	Sweden	94	0
3	Finland	93	+3
4	Japan	83	0
5	Chile	82	0
6	Canada	81	+2
=7	Australia	79	+3
=7	Switzerland	79	0
=7	Taiwan	79	+2
10	Slovenia	76	-3
11	Netherlands	75	0
12	Germany	74	-5
=13	France	73	+2
=13	Slovakia	73	0
15	United Kingdom	71	-1
=16	Czech Republic	70	0
=16	Hungary	70	0
=16	South Korea	70	+2
19	Argentina	67	+9
=20	Poland	65	-9
=20	United States	65	-6
=22	Bulgaria	60	+1
=22	Romania	60	+3
=24	Israel	58	+6
=24	Spain	58	-5
=26	Brazil	57	-5
=26	Mexico	57	-2
=26	Peru	57	-2
29	South Africa	54	-1
30	Belgium	52	-19
31	China	50	+10
32	Armenia	49	0
33	Indonesia	44	+4
=34	Algeria	40	+3
=34	Morocco	40	+13
=36	Egypt	37	+9
=36	Ukraine	37	+1
=38	Bangladesh	35	+6
=38	North Korea	35	+1
40	Kazakhstan	34	+3
41	Iran	33	+1
42	India	32	+3
43	Uzbekistan	27	+6
44	Russia	18	+4
45	Pakistan	11	-5

Overall and category scores and ranks for 2018 are shown. All countries are scored 0–100, where 100 = most favorable nuclear security conditions.
= denotes tie in rank.

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ABOUT THE INTERNATIONAL PANEL OF EXPERTS

To develop the NTI Index, the Economist Intelligence Unit (EIU) and NTI convened a panel of highly respected nuclear security experts with a broad range of expertise from both nuclear- and non–nuclear weapon states around the world. The panel included experts from Argentina, Australia, China, India, Japan, Kazakhstan, Pakistan, Russia, South Africa, Sweden, the United Kingdom, the United States, and Vietnam. Among those, one panel member is a representative from the World Institute for Nuclear Security, and one is a former International Atomic Energy Agency (IAEA) official.

The panel advised NTI and the EIU on the selection of indicators and their relative importance. Panel members were instrumental in considering options for strengthening the NTI Index (for example, the inclusion of the new cybersecurity subindicator) and for helping develop the framework for the Sabotage Ranking. The panel's input helps ensure that the NTI Index has an international point of view and reflects the ongoing international discussion about nuclear security priorities.

Panel members do not represent their country's interests, nor do they score individual countries. Instead, they play an advisory role in their personal, not professional, capacities. Participation in the International Panel of Experts does not imply endorsement of every aspect of the NTI Index, nor does it imply endorsement of the Index's findings and recommendations. On the contrary, panel meetings demonstrated a range of views and highlighted the need for a continuing dialogue on priorities.

PANEL MEMBERS

Dauren Aben: Senior Research Fellow, Eurasian Research Institute

Irma Arguello: Founder and Chair, NPSGlobal Foundation; Head of Secretariat of the Latin American and Caribbean Leadership Network; Member of the Steering Committee of the Fissile Materials Working Group

John Carlson: Counselor, NTI; former Director General of the Australian Safeguards and Non-Proliferation Office

Anatoly Diakov: Professor, Moscow Institute of Physics and Technology

Anna Ellis: Director, Indigon Nuclear, United Kingdom

Roger Howsley: Executive Director, World Institute for Nuclear Security

Feroz Khan: Research Professor at U.S. Naval Postgraduate School; Brigadier-General (retired), Pakistan

Masahiro Kikuchi: President of the Japan Association of Disarmament Studies

Frans Mashilo: Head of Security, Center for Scientific and Industrial Research, Pretoria, South Africa

Steve Nesbit: Director, Nuclear Policy and Support, Duke Energy

Anita Nilsson: Executive Director, AN & Associates; Advisor, Federation of American Scientists; Senior Fellow of the Center for International Trade and Security, University of Georgia; former director of IAEA Office of Nuclear Security

Scott Sagan: The Caroline S. G. Munro Professor of Political Science; Senior Fellow, Center for International Security and Cooperation, Stanford University

Sheel Kant Sharma: Distinguished Fellow, Centre for Air Power Studies, New Delhi, India

Tuan Ta Minh: Associate Professor, The Diplomatic Academy of Vietnam

Hui Zhang: Senior Research Associate, Project on Managing the Atom, Belfer Center for Science and International Affairs, Harvard University

ABOUT NTI AND THE EIU

NUCLEAR THREAT INITIATIVE
www.nti.org

The Nuclear Threat Initiative works to protect our lives, environment, and quality of life now and for future generations. We work to prevent catastrophic attacks with weapons of mass destruction and disruption (WMDD)—nuclear, biological, radiological, chemical, and cyber. Founded in 2001 by former U.S. Senator Sam Nunn and philanthropist Ted Turner who continue to serve as co-chairs, NTI is guided by a prestigious, international board of directors. Ernest J. Moniz serves as chief executive officer and co-chair; Des Browne is vice chair; and Joan Rohlfing serves as president.

ECONOMIST INTELLIGENCE UNIT
www.eiu.com

The Economist Intelligence Unit (EIU) is the research arm of The Economist Group, publisher of *The Economist*. As the world's leading provider of country intelligence, we help governments, institutions and businesses by providing timely, reliable and impartial analysis of economic and development strategies. Through our public policy practice, we provide evidence-based research for policymakers and stakeholders seeking measurable outcomes, in fields ranging from finance and gender to energy and technology. We conduct research through interviews, regulatory analysis, quantitative modelling and forecasting, and display the results via interactive data visualisation tools. Through a global network of more than 650 analysts and contributors, we continuously assess and forecast political, economic and business conditions in more than 200 countries and territories.

METHODOLOGY FAQ

This appendix summarizes the 2018 NTI Index methodology for the two Theft Rankings (one includes countries with weapons-usable nuclear materials, and the other includes countries without weapons-usable nuclear materials) and the Sabotage Ranking. More detailed information is available in the full methodology appendix prepared by the Economist Intelligence Unit (EIU) and available at www.ntiindex.org.

HOW IS THE INDEX DEVELOPED?

The NTI Index is constructed to assess the state of nuclear security in countries around the world. The NTI Index development process is specifically designed to be rigorous and transparent and to embrace an international perspective. To develop the Index, NTI works closely with an International Panel of Experts to identify a set of indicators and subindicators that characterize a country's nuclear security conditions. A slightly modified set of indicators and subindicators is used to assess countries in the Sabotage Ranking. The categories and indicators are weighted in a way that reflects their relative importance, as determined by NTI in conjunction with the International Panel of Experts.

The EIU leads the research process, taking advantage of its global network of analysts skilled in researching country laws and regulations. EIU analysts rely on public and open-source information, including national laws and regulations, government reports and public statements, and reports from non-governmental organizations and international organizations such as the IAEA. The NTI Index does not provide a facility-by-facility assessment of security practices.

NTI prioritizes openness throughout the Index process. The 22 governments that have weapons-usable nuclear materials and the 25 governments that do not but that are included in the Sabotage Ranking were offered the opportunity to review and comment on preliminary results to ensure that the NTI Index reflects the most accurate and up-to-date information possible. Of the 46 countries and Taiwan, 26 took advantage of this opportunity.[58]

THEFT RANKING

What is the Theft Ranking?

The "Theft Ranking" refers to two rankings that assess nuclear materials security conditions with respect to the risk of theft of weapons-usable nuclear materials for (a) 22 countries with one kilogram or more of weapons-usable nuclear materials and (b)154 countries with less than one kilogram of or no weapons-usable nuclear materials all.[59] Countries without weapons-usable nuclear materials are included because they have a responsibility to ensure that they do not serve as safe havens, staging grounds, or transit routes for illicit nuclear activities. The 2012 and 2014 editions of the NTI Index included only these two Theft Rankings. The Sabotage Ranking was added for the first time in the 2016 NTI Index, alongside the third edition of the Theft Ranking. The 2018 NTI Index continues to include both.

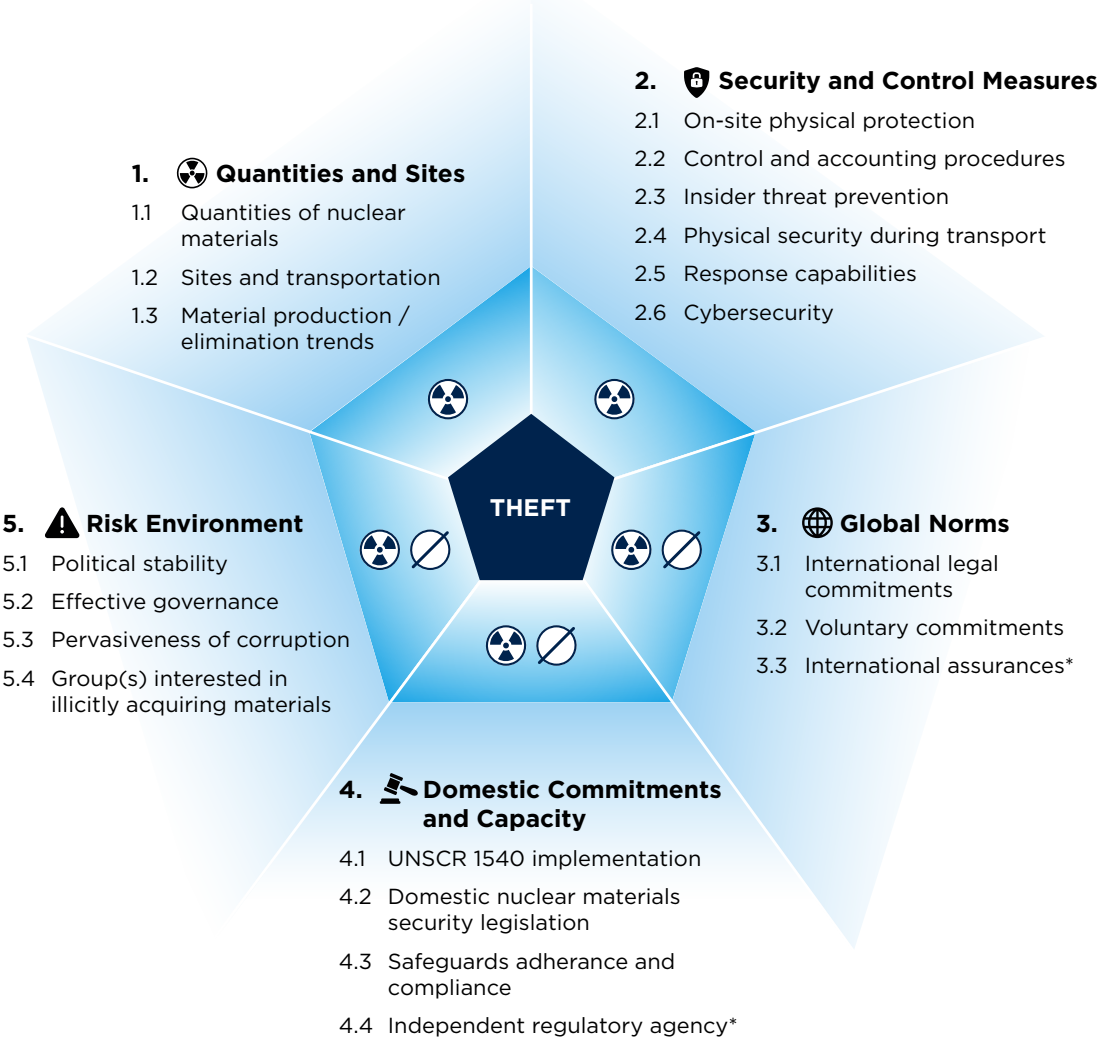
What are weapons-usable nuclear materials?

For purposes of the Theft Ranking, the term "weapons-usable nuclear materials" includes highly enriched uranium (HEU), which is uranium enriched to 20 percent or more in the isotope U-235 (including spent fuel); separated

[58] Argentina, Australia, Belarus, Belgium, Canada, Chile, the Czech Republic, Finland, France, Germany, Hungary, Italy, Japan, Mexico, the Netherlands, Norway, Peru, Romania, Slovenia, South Korea, Sweden, Switzerland, Taiwan, the United Kingdom, Ukraine, and the United States.

[59] The threshold of one kilogram takes into account the International Atomic Energy Agency's INFCIRC/225, Rev. 5, which states that quantities greater than one kilogram of HEU should be afforded higher levels of protection. NTI recognizes that some states may have gram quantities of weapons-usable nuclear materials in multiple locations that, added together, may bring totals to more than one kilogram. For purposes of the Theft Ranking and the need to rely on publicly available information, those states are grouped with states that have no weapons-usable nuclear materials.

HOW THE **THEFT RANKING** MEASURES NUCLEAR SECURITY CONDITIONS



The Theft Ranking assesses countries with weapons-usable nuclear materials based on these five categories. Countries without materials were assessed on three categories.

KEY

Countries with weapons-usable nuclear materials

Countries without weapons-usable nuclear materials

*This indicator does not apply to countries without nuclear materials.

Note: For information about data sources used for scoring, see the full EIU Methodology at www.ntiindex.org.

plutonium, which is plutonium separated from irradiated nuclear fuel by reprocessing; and the plutonium content in fresh mixed oxide fuel, which consists of blended uranium and plutonium that can be used to fuel nuclear power plants.

What does the Theft Ranking assess?

The Theft Ranking assesses nuclear materials security conditions with respect to the theft of weapons-usable nuclear materials that could be used to build a nuclear device. The Theft Ranking does not assess security for low-enriched uranium or for the radiological materials needed to build a "dirty bomb," nor does it assess proliferation risks or disarmament. All of those areas are critical and must also be addressed by governments. The Theft Ranking for countries with weapons-usable nuclear materials assesses countries against a broad framework of five categories with 20 indicators and 61 subindicators. The Theft Ranking for countries without weapons-usable nuclear materials assesses countries against only three categories with 9 indicators and 27 subindicators. Indicators reflect policies, actions, and other conditions that shape a state's overall nuclear materials security.

What changes have been made to the Theft Ranking since the 2016 edition?

Since the 2016 NTI Index, minimal changes have been made to the Theft Ranking. Specifically, a subindicator was added to the Cybersecurity indicator to assess whether countries require nuclear facilities to develop a cyber-incident response plan.

In addition, because Argentina and Poland removed all of their weapons-usable nuclear materials since the previous edition of the NTI Index, both countries moved from the ranking of countries with materials to the ranking of countries without materials. The ranking for countries with materials now has 22 countries, and the ranking for countries without materials now has 154 countries. For more information on those changes, see the full EIU Methodology at www.ntiindex.org.

If the Theft Ranking has changed, how are scores compared across years?

To allow for accurate year-over-year comparisons so that progress may be tracked even when the Index framework has been updated, the EIU rescores countries in prior editions of the NTI Index using the updated framework and the data that would have been available when research for each respective edition was conducted. Additional review and research of scores from prior editions also is conducted on an as-needed basis.

SABOTAGE RANKING

What is the Sabotage Ranking?

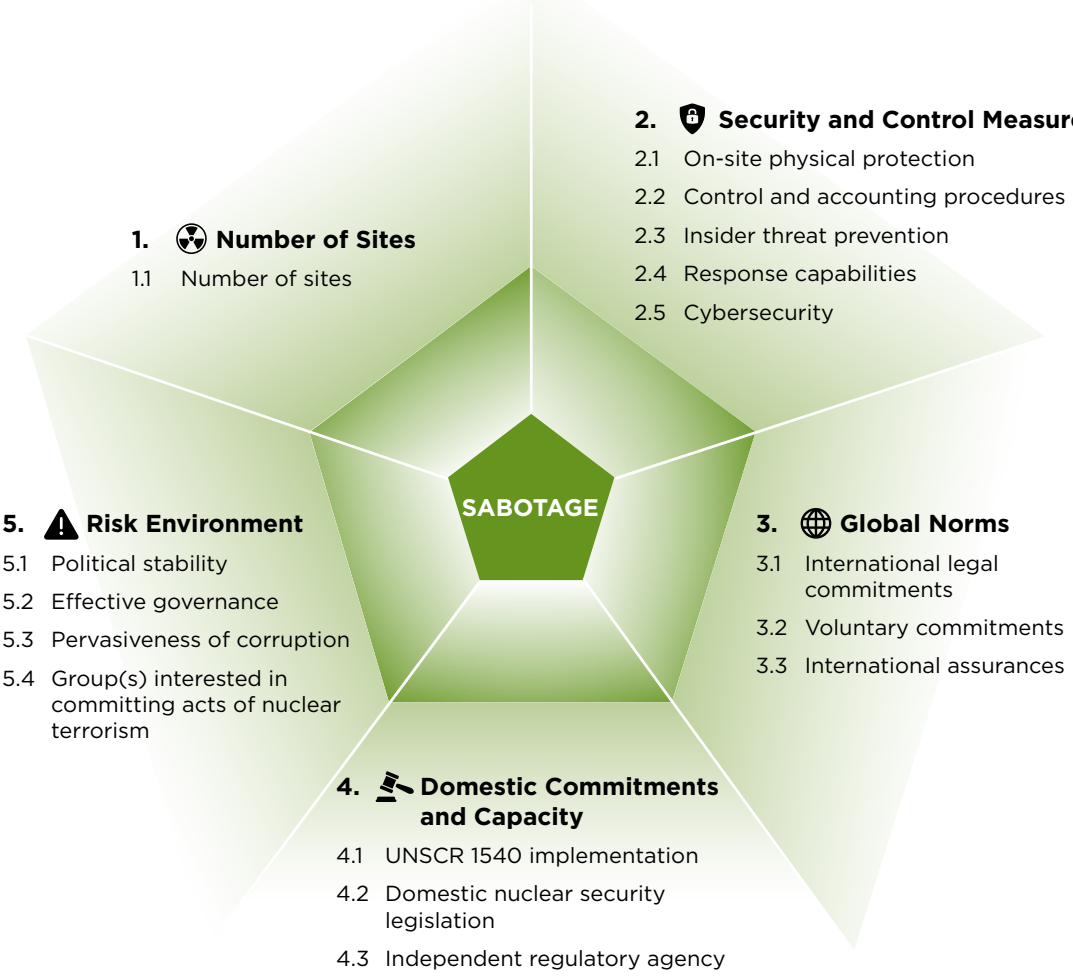
The "Sabotage Ranking" assesses the nuclear security conditions of 44 countries and Taiwan with nuclear facilities, the sabotage of which could result in a dangerous release of radiation that could cause serious health consequences. All 44 countries and Taiwan also are included in one of the two versions of the Theft Ranking—20 have one kilogram or more of weapons-usable nuclear materials, and 24 countries and Taiwan have less than one kilogram of or no weapons-usable nuclear materials.

What does the Sabotage Ranking measure?

The Sabotage Ranking measures nuclear security conditions with respect to the sabotage of nuclear facilities. For purposes of the NTI Index related to sabotage, nuclear facilities are defined as those facilities, the sabotage of which could result in a dangerous release of radiation. They include (a) operating nuclear power reactors or nuclear power reactors that have been shut down within the past five years, (b) research reactors with a capacity of two megawatts or greater, (c) reprocessing facilities, and (d) spent fuel pools only if the fuel has been discharged in the past five years and if not associated with an operating reactor.

The Sabotage Ranking assesses countries against five categories with 16 indicators and 52 subindicators. Indicators reflect policies, actions, and other conditions that shape a country's overall nuclear security.

HOW THE **SABOTAGE RANKING** MEASURES NUCLEAR SECURITY CONDITIONS



The Sabotage Ranking assesses countries with nuclear facilities based on these five categories.

Note: For information about data sources used for scoring, see the full EIU Methodology at www.ntiindex.org.

A more detailed description of scoring criteria and sources is available in the full EIU Methodology at www.ntiindex.org.

What are the differences between the Theft Ranking and the Sabotage Ranking?

Because security measures to protect nuclear facilities and to protect materials against theft and sabotage often are related, NTI and the EIU—with input from the International Panel of Experts and technical advisors—looked at the framework for the Theft Ranking to determine which indicators and subindicators would be relevant to sabotage in their current format, which indicators and subindicators would need to be edited or deleted, and whether the Sabotage Ranking should include any new indicators and subindicators that are relevant to sabotage but not theft.

As a result of that analysis, 14 subindicators from the Theft Ranking were not included, and 5 subindicators were added.

What changes have been made to the Sabotage Ranking since 2016?

Because both the Theft and Sabotage Rankings evaluate cybersecurity, the Sabotage Ranking also is affected by the minor update made to indicator 2.5 Cybersecurity. Specifically, a subindicator was added to measure whether countries require nuclear facilities to develop a cyber-incident response plan.

If the Sabotage Ranking has changed, how are comparisons made across years?

To allow for accurate year-over-year comparisons so that progress may be tracked even when the Index framework has been updated, the EIU rescores countries in prior editions of the NTI Index using the updated framework and the data that would have been available when research for each respective edition was conducted. Additional review and research of scores from prior editions is also conducted on an as-needed basis.

GENERAL METHODOLOGY

How are scores calculated, and what do they mean?

The overall score (0–100) for each country in the NTI Index is a weighted sum of the categories. Each category is scored on a scale of 0–100, where 100 represents the most favorable nuclear security conditions, and 0 represents the least favorable security conditions in the NTI Index. The subindicator scores (ranging from 0 to 8, depending on the question) are summed to determine the indicator score. Each category is normalized on a scale of 0–100 on the basis of the sums of underlying indicator scores, and a weight is then applied. How each category is weighted is based on input from the International Panel of Experts and reflects the relative importance and relevance of each category and indicator. A score of 100 in the NTI Index does not indicate that a country has perfect nuclear security conditions, and a score of 0 does not mean that a country has no security; instead, the scores of 100 and 0 represent the highest and lowest possible scores, respectively, as measured by the NTI Index criteria.

How was the data gathered?

The EIU employed country experts and regional specialists from its global network of more than 350 analysts and contributors around the world. Most of the research was conducted between October 2017 and April 2018, although data were updated as late as June 15, 2018, as new information became available. Therefore, actions taken by countries after June 15, 2018, are not captured in this edition of the NTI Index.[60]

What types of information were used to score countries?

In creating the NTI Index, the EIU relied on publicly available sources, including (a) primary legal texts and legal reports; (b) government publications and reports; (c) academic publications and reports; (d) websites of government authorities, international organizations, and non-governmental organizations; (e) interviews with experts; and (f) local and international news media reports. In addition, the EIU proprietary country rankings and reports (specifically “Risk Briefing” and the “Business Environment Ranking”) were used to score indicators in the Risk Environment category. Governments provided additional information in response to data review and confirmation requests.

The NTI Index does not provide a facility-by-facility assessment of security practices, and neither the EIU nor NTI conducts research at facilities. Although facility-level assessments would provide important “ground truth” information, such information currently is not available because of the sensitive nature of specific security arrangements.

In the cases of Iran, Israel, North Korea, and Pakistan, publicly available information is lacking. However, because those countries rely on military (or, in the case of Israel, civil defense force) protection for nuclear sites, scores were assigned using a proxy indicator: military capability or sophistication. In some cases, scores relied on expert input or other secondary expert sources. For a detailed description of how challenging countries were scored, see the full EIU Methodology at www.ntiindex.org.

[60] One exception is the input from a single country, which submitted information for data confirmation in July 2018.

Does the NTI Index account for recent initiatives such as those involving Iran and North Korea?

The NTI Index's scope is limited to assessing the nuclear security conditions within a country to prevent the theft of weapons-usable nuclear materials, as well as the sabotage of nuclear facilities. It does not consider measures to prevent the proliferation of nuclear materials or technologies. As a result, nuclear non-proliferation initiatives such as the Joint Comprehensive Plan of Action or the recent bilateral engagement between the United States and North Korea do not directly affect countries' scores in the NTI Index.

Were governments consulted during the development of the NTI Index?

All countries in the Theft and Sabotage Rankings were offered briefings on the NTI Index at the beginning of the process. In addition, after researching and gathering data, NTI and the EIU provided the 46 countries and Taiwan with an opportunity to review and comment on the EIU's preliminary results. The purpose of this data review and confirmation process was to ensure the accuracy of the 2018 NTI Index data, given that much of the research involves subjects for which information is not always publicly available. Thirteen countries with one kilogram or more of nuclear materials in the Theft Ranking and 23 countries and Taiwan in the Sabotage Ranking participated in the data confirmation process.[61]

What other experts were consulted during the development of the NTI Index?

NTI and the EIU received input from the International Panel of Experts. A list of panel members and a description of their role is included in the About the International Panel of Experts section on page 43. In addition to the international panel, technical advisors were consulted.

Where can I find all of the scores and data?

All information is available on the NTI Index website, www.ntiindex.org. The scores for indicators and subindicators in both versions of the Theft Ranking and in the Sabotage Ranking are included in three models that are available as Excel workbooks. The models offer a wide range of analytic tools, thereby allowing a deeper investigation of measures of nuclear security globally. Users can filter countries by region, for example, or by membership of international organizations or multilateral initiatives. Users can compare any two countries directly and can examine correlations between indicators. Individual country profiles are also included in the models, thus permitting a deeper dive into the nuclear security conditions in a given country.

The weights assigned to each indicator can be changed to reflect different assumptions about the importance of categories and indicators. A user can also change individual subindicator scores to see how a country's overall scores would have been different if, for example, it had ratified a treaty or taken some other action captured in the NTI Index. Finally, the model allows the final scores to be benchmarked against external factors that may potentially influence nuclear security.

[61] Countries with weapons-usable nuclear materials that participated in the data confirmation process include: Australia, Belarus, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Switzerland, the United Kingdom, and the United States. Countries with nuclear facilities at risk of dangerous radiation releases that participated in the data confirmation process include: Argentina, Australia, Belgium, Canada, Chile, the Czech Republic, Finland, France, Germany, Hungary, Japan, Mexico, the Netherlands, Norway, Peru, Romania, Slovenia, South Korea, Sweden, Switzerland, Ukraine, the United Kingdom, and the United States.

FRAMEWORK FOR THE THEFT RANKING

The following chart provides the framework—categories, indicators, subindicators, and weights—for the Theft Ranking. Weights (as percentages) are shown for the Theft Ranking for countries with weapons-usable nuclear materials. Weights for the countries without materials, as well as a more detailed description of scoring criteria and sources, are available in the EIU Methodology at www.ntiindex.org.

1	**QUANTITIES AND SITES**	**16%**
1.1	**Quantities of Nuclear Materials** ***The larger the quantity of nuclear material held, the greater the materials management requirements and potential risk that materials could be stolen.***	**42%**
1.1.1	Quantities of nuclear materials	
1.2	**Sites and Transportation** ***The greater the number of sites with nuclear materials and the frequency of transport of those materials, the greater the potential risk of security breaches.***	**35%**
1.2.1	Number of sites	
1.2.2	Bulk processing facility	
1.2.3	Frequency of materials transport	
1.3	**Material Production and Elimination Trends** ***Increasing or decreasing the quantities of nuclear materials in a state changes the potential risk of materials being stolen.***	**23%**
1.3.1	Material production/elimination trends	
2	**SECURITY AND CONTROL MEASURES**	**29%**
2.1	**On-Site Physical Protection** ***Essential measures for securing sites and facilities.***	**20%**
2.1.1	Mandatory physical protection	
2.1.2	On-site reviews of security	
2.1.3	Design Basis Threat (DBT)	
2.1.4	Security responsibilities and accountabilities	
2.1.5	Performance-based program	
2.2	**Control and Accounting Procedures** ***Materials control and accounting, which are necessary elements of a comprehensive security system.***	**15%**
2.2.1	Legal and regulatory basis for material control and accounting (MC&A)	

2.2.2	Measurement methods	
2.2.3	Inventory record	
2.2.4	Material Balance Area(s)	
2.2.5	Control measures	
2.3	**Insider Threat Prevention** ***The qualifications of personnel, the strength of the security culture, and the use of certain surveillance measures are critical to how well security procedures are followed and decrease vulnerability to insider threats.***	**19%**
2.3.1	Personnel vetting	
2.3.2	Frequency of personnel vetting	
2.3.3	Reporting	
2.3.4	Surveillance	
2.4	**Physical Security during Transport** ***Materials in transit are particularly vulnerable to theft.***	**18%**
2.4.1	Physical security during transport	
2.5	**Response Capabilities** ***Response capabilities are part of a layered security system and may enable materials to be recovered should they be stolen from a site.***	**18%**
2.5.1	Emergency response capabilities	
2.5.2	Armed response capabilities	
2.5.3	Law enforcement response training	
2.5.4	Nuclear infrastructure protection plan	
2.6	**Cybersecurity** ***Nuclear materials and facilities are vulnerable to cyberattacks as well as physical attacks. Therefore, cybersecurity is a critical component of protecting against theft.***	**10%**
2.6.1	Mandatory cybersecurity	
2.6.2	Critical digital asset protection	
2.6.3	Cybersecurity Design Basis Threat	
2.6.4	Cybersecurity assessments	
2.6.5	Cyber-incident response plan	

3	**GLOBAL NORMS**	**17%**
3.1	**International Legal Commitments*** ***International legal commitments are the basis for domestic legislation, regulations, and security capacity.***	**42%**
3.1.1	Convention on the Physical Protection of Nuclear Material (CPPNM)*	
3.1.2	2005 Amendment to the CPPNM*	
3.1.3	International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT)*	
3.2	**Voluntary Commitments*** ***Voluntary commitments demonstrate a state's support for nuclear materials security as a global agenda.***	**27%**
3.2.1	International Atomic Energy Agency (IAEA) membership*	
3.2.2	Proliferation Security Initiative (PSI) membership*	
3.2.3	Global Initiative to Combat Nuclear Terrorism (GICNT) membership*	
3.2.4	Global Partnership Against the Spread of Weapons and Materials of Mass Destruction membership*	
3.2.5	World Institute for Nuclear Security (WINS) contributions*	
3.2.6	IAEA Nuclear Security Fund contributions*	
3.2.7	Bilateral or multilateral assistance*	
3.2.8	Centers of Excellence*	
3.3	**International Assurances** ***International assurances enhance international confidence in the effectiveness of a country's nuclear security conditions.***	**31%**
3.3.1	Published regulations and reports	
3.3.2	Public declarations and reports about nuclear materials	
3.3.3	Review of security arrangements	
4	**DOMESTIC COMMITMENTS AND CAPACITY**	**20%**
4.1	**United Nations Security Council Resolution (UNSCR) 1540 Implementation*** ***UNSCR 1540 obliges action on nuclear materials security, and its implementation demonstrates a state's commitment level.***	**20%**
4.1.1	UNSCR 1540 reporting*	
4.1.2	Extent of UNSCR 1540 implementation°	

4.2	**Domestic Nuclear Materials Security Legislation*** ***The implementation of security measures is rooted in domestic nuclear materials security legislation.***	**31%**
4.2.1	Convention on the Physical Protection of Nuclear Materials (CPPNM) implementation authority*	
4.2.2	National legal framework for CPPNM*	
4.3	**Safeguards Adherence and Compliance*** ***States compliant with safeguards measures take seriously responsibilities related to their stewardship of nuclear materials.***	**22%**
4.3.1	International Atomic Energy Agency (IAEA) safeguards agreement (excluding Additional Protocol)°	
4.3.2	IAEA Additional Protocol*	
4.3.3	Facility exclusion from safeguards	
4.3.4	Safeguards violations*	
4.4	**Independent Regulatory Agency** ***A robust and independent regulatory structure helps to ensure compliance with nuclear materials–related regulations.***	**27%**
4.4.1	Independent regulatory agency	
5	**RISK ENVIRONMENT**	**18%**
5.1	**Political Stability*** ***A lack of political stability may enable lapses in nuclear materials security.***	**26%**
5.1.1	Social unrest*	
5.1.2	Orderly transfers of power*	
5.1.3	International disputes or tensions*	
5.1.4	Armed conflict*	
5.1.5	Violent demonstrations or violent civil or labor unrest*	
5.2	**Effective Governance*** ***A lack of effective governance can negatively impact a country's ability to put into place and sustain policies to secure nuclear materials.***	**25%**
5.2.1	Effectiveness of the political system*	
5.2.2	Quality of the bureaucracy*	
5.3	**Pervasiveness of Corruption*** ***Corruption affects the potential for theft of nuclear materials and the rigor with which nuclear material security measures are implemented.***	**22%**

5.3.1	Pervasiveness of corruption*	
5.4	**Group(s) Interested in Illicitly Acquiring Materials*** ***The presence and capabilities of terrorist or criminal group(s), particularly those with the goal of illicitly acquiring nuclear materials, raises the risk of theft of nuclear materials.***	**27%**
5.4.1	Group(s) interested in illicitly acquiring materials*	

* Denotes that the indicator or subindicator was scored both for countries and Taiwan with weapons-usable nuclear materials and those without.

° Denotes that the indicator or subindicator was scored both for countries and Taiwan with weapons-usable nuclear materials and those without, but that the scoring scheme for the latter differed.

FRAMEWORK FOR THE SABOTAGE RANKING

The following chart provides the framework—categories, indicators, subindicators, and weights—for the Sabotage Ranking. A more detailed description of scoring criteria and sources is available in the EIU Methodology at www.ntiindex.org.

1	**NUMBER OF SITES†**	**5%**
1.1	**Number of Sites** ***The greater the number of nuclear facilities, the greater the potential risk of acts of sabotage.***	**100%**
1.1.1	Number of sites†	
2	**SECURITY AND CONTROL MEASURES**	**33%**
2.1	**On-Site Physical Protection** ***Essential measures for securing sites and facilities.***	**22%**
2.1.1	Mandatory physical protection	
2.1.2	On-site reviews of security	
2.1.3	Design Basis Threat (DBT)	
2.1.4	Security responsibilities and accountabilities	
2.1.5	Performance-based program	
2.2	**Control and Accounting Procedures** ***Control and accounting is a necessary element of a comprehensive security system.***	**17%**
2.2.1	Legal and regulatory basis for material control and accounting (MC&A)	
2.2.2	Radiological consequences (materials)	
2.2.3	Radiological consequences (equipment, systems, and devices)	
2.2.4	Control measures†	

2.2.5	Access control	
2.3	**Insider Threat Prevention** ***The qualifications of personnel, the strength of the security culture, and the use of certain surveillance measures are critical to how well security procedures are followed and decrease vulnerability to insider threats.***	**21%**
2.3.1	Personnel vetting	
2.3.2	Frequency of personnel vetting	
2.3.3	Reporting	
2.3.4	Surveillance†	
2.4	**Response Capabilities** ***Response capabilities are part of a layered security system to prevent and mitigate acts of sabotage.***	**20%**
2.4.1	Emergency response capabilities	
2.4.2	Armed response capabilities†	
2.4.3	Law enforcement response training	
2.4.4	Nuclear infrastructure protection plan	
2.5	**Cybersecurity** ***Nuclear facilities are vulnerable to cyberattacks as well as physical attacks. Therefore, cybersecurity is a critical component to protecting against acts of sabotage.***	**20%**
2.5.1	Mandatory cybersecurity	
2.5.2	Critical digital asset protection	
2.5.3	Cybersecurity Design Basis Threat	
2.5.4	Cybersecurity assessments	
2.5.5	Cyber-incident response plan	
3	**GLOBAL NORMS**	**19%**
3.1	**International Legal Commitments** ***International legal commitments are the basis for domestic legislation, regulations, and security capacity.***	**42%**
3.1.1	Convention on the Physical Protection of Nuclear Material (CPPNM)	
3.1.2	2005 Amendment to the CPPNM	
3.1.3	International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT)	

3.1.4	Convention on Nuclear Safety	
3.2	**Voluntary Commitments** ***Voluntary commitments demonstrate a state's support for nuclear security as a global agenda.***	**27%**
3.2.1	International Atomic Energy Agency (IAEA) membership	
3.2.2	Global Initiative to Combat Nuclear Terrorism (GICNT) membership	
3.2.3	Global Partnership Against the Spread of Weapons and Materials of Mass Destruction membership	
3.2.4	World Institute for Nuclear Security (WINS) contributions	
3.2.5	IAEA Nuclear Security Fund contributions	
3.2.6	Bilateral or multilateral assistance	
3.2.7	Centers of Excellence	
3.3	**International Assurances** ***International assurances enhance international confidence in the effectiveness of a country's nuclear security conditions.***	**31%**
3.3.1	Published regulations and reports	
3.3.2	Review of security arrangements	
4	**DOMESTIC COMMITMENTS AND CAPACITY**	**23%**
4.1	**United Nations Security Council Resolution (UNSCR) 1540 Implementation** ***UNSCR 1540 obliges action on nuclear security, and its implementation demonstrates a state's commitment level.***	**27%**
4.1.1	UNSCR 1540 reporting	
4.1.2	Extent of UNSCR 1540 implementation†	
4.2	**Domestic Nuclear Security Legislation** ***The implementation of security measures is rooted in domestic nuclear security legislation.***	**38%**
4.2.1	Convention on the Physical Protection of Nuclear Material (CPPNM) implementation authority	
4.2.2	National legal framework for CPPNM	
4.2.3	Convention on Nuclear Safety report	
4.3	**Independent Regulatory Agency** ***A robust and independent regulatory structure helps to ensure compliance with nuclear security-related regulations.***	**35%**
4.3.1	Independent Regulatory Agency	

5	RISK ENVIRONMENT	20%
5.1	**Political Stability** ***A lack of political stability may enable lapses in nuclear security.***	**26%**
5.1.1	Social unrest	
5.1.2	Orderly transfers of power	
5.1.3	International disputes or tensions	
5.1.4	Armed conflict	
5.1.5	Violent demonstrations or violent civil or labor unrest	
5.2	**Effective Governance** ***A lack of effective governance can compromise a country's ability to establish and sustain policies to secure nuclear facilities.***	**25%**
5.2.1	Effectiveness of the political system	
5.2.2	Quality of the bureaucracy	
5.3	**Pervasiveness of Corruption** ***Corruption affects the potential for acts of sabotage and the rigor with which nuclear security measures are implemented.***	**22%**
5.3.1	Pervasiveness of corruption	
5.4	**Group(s) Interested in Committing Acts of Nuclear Terrorism†** ***The presence and capabilities of terrorist or criminal groups, particularly those with the goal of committing acts of nuclear terrorism, raises the risk of sabotage.***	**27%**
5.4.1	Group(s) interested in committing acts of nuclear terrorism†	

† Denotes indicators and subindicators that are also in the theft ranking but have been altered.

SELECTED COUNTRY SUMMARIES

This section includes country summaries for the 22 countries with weapons-usable nuclear materials that are assessed in the Theft Ranking and the 44 countries and Taiwan assessed in the Sabotage Ranking. Twenty countries appear in both the Theft Ranking for countries with nuclear materials and the Sabotage Ranking and therefore have two separate country summaries. All summaries, including those for the 154 countries with less than one kilogram of weapons-usable nuclear materials or none at all, can be accessed easily online at www.ntiindex.org.

Each summary provides a snapshot of that state's scores and rankings overall and in each of the major index categories, as well as changes in scores since the 2016 NTI Index. Rankings preceded by an equals sign (=) indicate a tie with another country. In the NTI Index, scores of 0 and 100 represent the lowest and highest possible scores, respectively, as measured by the NTI Index criteria.

For each country and Taiwan, indicators are placed into one of three categories: green, indicating an above-average score; yellow, indicating an average score; or red, indicating a below-average score. The countries and Taiwan seeking to improve their nuclear security conditions can focus their efforts on those indicators in the yellow and red categories.

THEFT RANKING

The 22 countries with one kilogram or more of weapons-usable nuclear materials in the Theft Ranking are:

Australia
Belarus
Belgium
Canada
China
France
Germany
India
Iran
Israel
Italy
Japan
Kazakhstan
Netherlands
North Korea
Norway
Pakistan
Russia
South Africa
Switzerland
United Kingdom
United States

SABOTAGE RANKING

The 44 countries and Taiwan in the Sabotage Ranking are:

Algeria
Argentina
Armenia
Australia
Bangladesh
Belgium
Brazil
Bulgaria
Canada
Chile
China
Czech Republic
Egypt
Finland
France
Germany
Hungary
India
Indonesia
Iran
Israel
Japan
Kazakhstan
Mexico
Morocco
Netherlands
North Korea
Norway
Pakistan
Peru
Poland
Romania
Russia
Slovakia
Slovenia
South Africa
South Korea
Spain
Sweden
Switzerland
Taiwan*
Ukraine
United Kingdom
United States
Uzbekistan

* For information on Taiwan's status and its treatment in the NTI Index, see the full EIU Methodology at www.ntiindex.org.

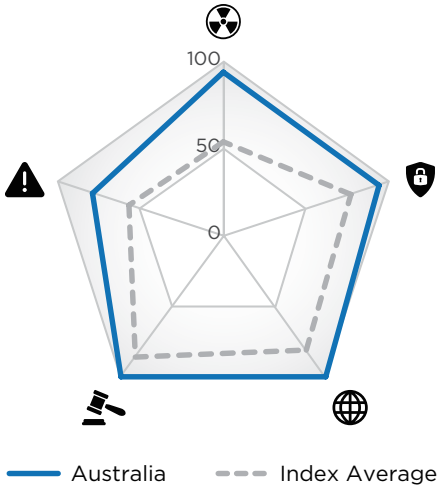
THEFT RANKING: COUNTRY SUMMARIES

AUSTRALIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
94	+2	=1

HIGHLIGHTS

Australia is tied for first in the Theft Ranking for countries with weapons-usable nuclear materials. Since 2016, Australia has improved its nuclear security conditions by adopting regulations that require updating its Design Basis Threat and a cyber-incident response plan at nuclear facilities. Australia could further improve its nuclear security conditions by strengthening insider threat prevention measures.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**94**	**-6**
●	Quantities of Nuclear Materials	100	0
●	Sites and Transportation	100	0
●	Material Production / Elimination Trends	75	-25
	Security and Control Measures	**94**	**+6**
●	On-site Physical Protection	100	+20
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	67	0
●	Physical Security During Transport	100	0
●	Response Capabilities	100	0
●	Cybersecurity	100	+20
	Global Norms	**100**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	100	0
	Domestic Commitments and Capacity	**100**	**0**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	100	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**79**	**+3**
●	Political Stability	85	0
●	Effective Governance	88	+13
●	Pervasiveness of Corruption	100	0
●	Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

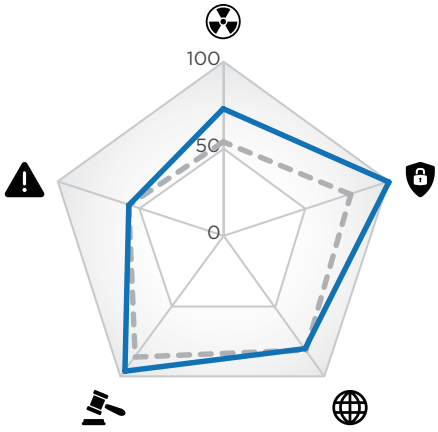
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

BELARUS

2018 SCORE	CHANGE SINCE 2016	2018 RANK
84	+1	=7

HIGHLIGHTS

Belarus is tied for seventh in the Theft Ranking for countries with weapons-usable nuclear materials. Belarus could improve its nuclear security conditions by ratifying the 2005 Amendment to the CPPNM and the IAEA Additional Protocol. Belarus' nuclear security conditions remain adversely affected by its large quantities of weapons-usable nuclear materials, as well as by governance and corruption challenges.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**73**	**0**
●	Quantities of Nuclear Materials	63	0
●	Sites and Transportation	83	0
●	Material Production / Elimination Trends	75	0
	Security and Control Measures	**100**	**0**
●	On-site Physical Protection	100	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	100	0
●	Physical Security During Transport	100	0
●	Response Capabilities	100	0
●	Cybersecurity	100	0
	Global Norms	**80**	**0**
●	International Legal Commitments	80	0
●	Voluntary Commitments	80	0
●	International Assurances	80	0
	Domestic Commitments and Capacity	**96**	**+4**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	83	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**57**	**+2**
●	Political Stability	50	+10
●	Effective Governance	25	0
●	Pervasiveness of Corruption	50	0
●	Group(s) Interested in Illicitly Acquiring Materials	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

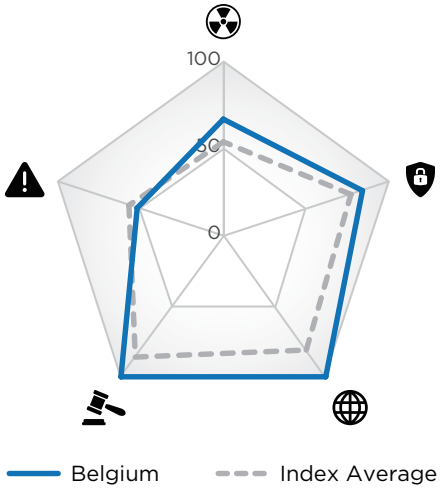
THEFT RANKING: COUNTRY SUMMARIES

BELGIUM

2018 SCORE	CHANGE SINCE 2016	2018 RANK
81	-2	=9

HIGHLIGHTS

Belgium is tied for ninth in the Theft Ranking for countries with weapons-usable nuclear materials. Since 2016, Belgium has improved its nuclear security conditions by posting armed guards at nuclear facilities and by decreasing its stocks of nuclear materials. Belgium could improve its nuclear security conditions by requiring more stringent and frequent personnel vetting and by enhancing its cybersecurity requirements at nuclear facilities. Belgium's nuclear security conditions are adversely affected by governance challenges and by the judgment that groups interested in and capable of illicitly acquiring nuclear materials are present in the country.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**67**	**+5**
●	Quantities of Nuclear Materials	50	0
●	Sites and Transportation	67	0
●	Material Production / Elimination Trends	100	+25
	Security and Control Measures	**84**	**+3**
●	On-site Physical Protection	100	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	67	0
●	Physical Security During Transport	100	0
●	Response Capabilities	100	+14
●	Cybersecurity	0	0
	Global Norms	**100**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	100	0
	Domestic Commitments and Capacity	**100**	**0**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	100	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**52**	**-19**
●	Political Stability	75	0
●	Effective Governance	63	-25
●	Pervasiveness of Corruption	75	0
●	Group(s) Interested in Illicitly Acquiring Materials	0	-50

= denotes tie in rank

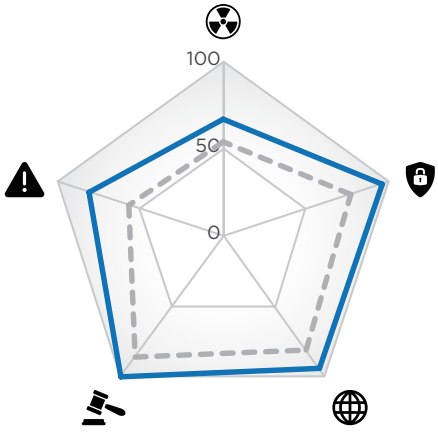
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

CANADA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
89	+2	3

HIGHLIGHTS

Canada ranks third in the Theft Ranking for countries with weapons-usable nuclear materials. Since 2016, Canada has improved its nuclear security conditions by adopting new insider threat–mitigation requirements and by requiring a cyber-incident response plan at nuclear facilities. Canada's nuclear security conditions are adversely affected by large quantities of weapons-usable nuclear materials and by the number of sites where those materials are located.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**67**	**0**
●	Quantities of Nuclear Materials	50	0
●	Sites and Transportation	67	0
●	Material Production / Elimination Trends	100	0
	Security and Control Measures	**96**	**+4**
●	On-site Physical Protection	100	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	78	+11
●	Physical Security During Transport	100	0
●	Response Capabilities	100	0
●	Cybersecurity	100	+20
	Global Norms	**94**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	80	0
	Domestic Commitments and Capacity	**100**	**+4**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	100	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**81**	**+2**
●	Political Stability	90	+5
●	Effective Governance	88	0
●	Pervasiveness of Corruption	100	0
●	Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

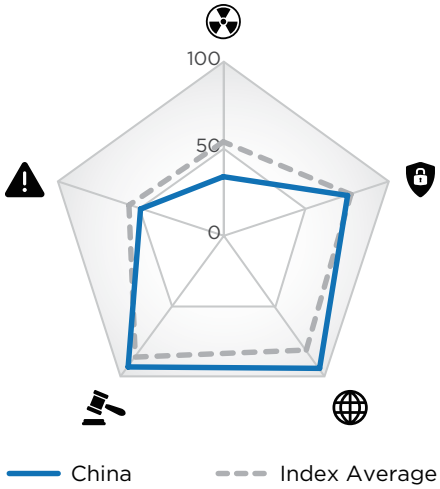
THEFT RANKING: COUNTRY SUMMARIES

CHINA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
71	+11	=14

HIGHLIGHTS

China has increased its score by 11 points since 2016 and is now tied for 14th in the Theft Ranking for countries with weapons-usable nuclear materials. Since 2016, China improved its nuclear security conditions by increasing insider threat prevention measures, establishing a Center of Excellence, improving security during transport, and hosting a new international security review. China could further improve by establishing cybersecurity regulations, requiring more frequent personnel vetting, and mandating the reporting of suspicious behavior at nuclear facilities. China's nuclear security conditions remain adversely affected by large quantities and sites of weapons-usable nuclear materials.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**34**	**0**
●	Quantities of Nuclear Materials	25	0
●	Sites and Transportation	17	0
●	Material Production / Elimination Trends	75	0
	Security and Control Measures	**75**	**+13**
●	On-site Physical Protection	80	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	56	+23
●	Physical Security During Transport	100	+50
●	Response Capabilities	86	0
●	Cybersecurity	0	0
	Global Norms	**94**	**+18**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	+20
●	International Assurances	80	+40
	Domestic Commitments and Capacity	**93**	**+12**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	+60
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	67	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**50**	**+10**
●	Political Stability	50	+5
●	Effective Governance	50	+12
●	Pervasiveness of Corruption	50	+25
●	Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

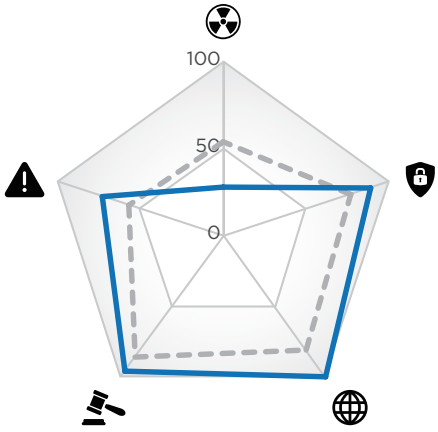
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

FRANCE

2018 SCORE	CHANGE SINCE 2016	2018 RANK
80	0	11

HIGHLIGHTS

France ranks 11th in the Theft Ranking for countries with weapons-usable nuclear materials. France could improve its nuclear security conditions by increasing the frequency of its use of personnel vetting and surveillance measures that mitigate insider threats and by explicitly mentioning the protection of nuclear facilities in its emergency preparedness regulations for natural disasters. France's nuclear security conditions are adversely affected by large quantities of weapons-usable nuclear materials and by the number of sites at which those materials are located.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**28**	**-6**
●	Quantities of Nuclear Materials	13	-12
●	Sites and Transportation	17	0
●	Material Production / Elimination Trends	75	0
	Security and Control Measures	**89**	**0**
●	On-site Physical Protection	100	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	56	0
●	Physical Security During Transport	100	0
●	Response Capabilities	86	0
●	Cybersecurity	100	0
	Global Norms	**100**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	100	0
	Domestic Commitments and Capacity	**96**	**0**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	83	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**73**	**+2**
●	Political Stability	80	+5
●	Effective Governance	88	0
●	Pervasiveness of Corruption	75	0
●	Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

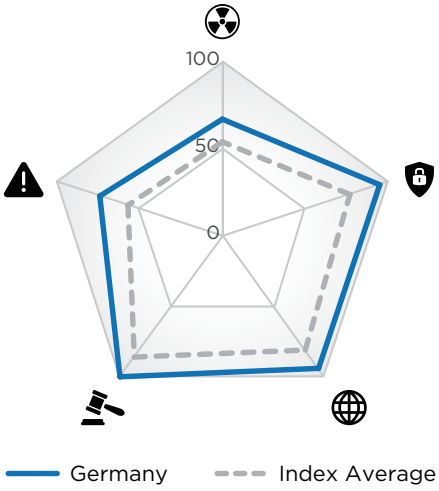
THEFT RANKING: COUNTRY SUMMARIES

GERMANY

2018 SCORE	CHANGE SINCE 2016	2018 RANK
88	+5	=4

HIGHLIGHTS

Germany is tied for fourth in the Theft Ranking for countries with weapons-usable nuclear materials. Since 2016, Germany improved its nuclear security conditions by increasing personnel vetting and surveillance, by requiring cybersecurity assessments and an incident response plan at nuclear facilities, and by hosting an international security review. Germany could further improve its nuclear security conditions by increasing the frequency of personnel vetting and by explicitly mentioning the protection of nuclear facilities in its emergency preparedness regulations for natural disasters. Germany's nuclear security conditions are adversely affected by large quantities of weapons-usable nuclear materials.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**67**	**+5**
●	Quantities of Nuclear Materials	50	+12
●	Sites and Transportation	67	0
●	Material Production / Elimination Trends	100	0
	Security and Control Measures	**95**	**+10**
●	On-site Physical Protection	100	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	89	+33
●	Physical Security During Transport	100	0
●	Response Capabilities	86	0
●	Cybersecurity	100	+40
	Global Norms	**94**	**+13**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	80	+40
	Domestic Commitments and Capacity	**100**	**0**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	100	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**74**	**-5**
●	Political Stability	85	0
●	Effective Governance	88	0
●	Pervasiveness of Corruption	75	-25
●	Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

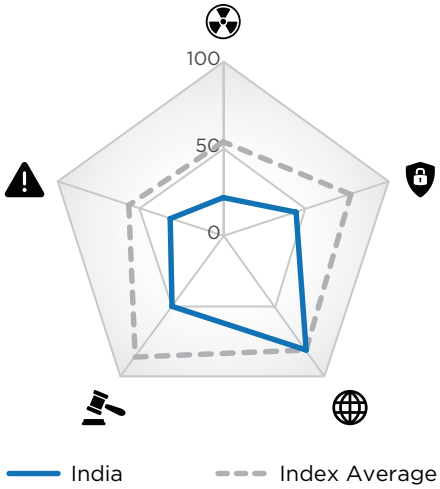
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

INDIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
46	+1	19

HIGHLIGHTS

India ranks 19th in the Theft Ranking for countries with weapons-usable nuclear materials. 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.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**22**	**0**
●	Quantities of Nuclear Materials	38	0
●	Sites and Transportation	17	0
●	Material Production / Elimination Trends	0	0
	Security and Control Measures	**44**	**0**
●	On-site Physical Protection	60	0
●	Control and Accounting Procedures	29	0
●	Insider Threat Prevention	33	0
●	Physical Security During Transport	0	0
●	Response Capabilities	86	0
●	Cybersecurity	60	0
	Global Norms	**81**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	40	0
	Domestic Commitments and Capacity	**50**	**0**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
●	Domestic Nuclear Materials Security Legislation	50	0
●	Safeguards Adherence and Compliance	67	0
●	Independent Regulatory Agency	0	0
	Risk Environment	**32**	**+3**
●	Political Stability	65	+10
●	Effective Governance	38	0
●	Pervasiveness of Corruption	25	0
●	Group(s) Interested in Illicitly Acquiring Materials	0	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

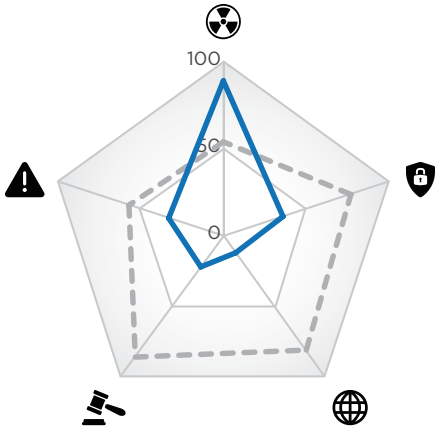
THEFT RANKING: COUNTRY SUMMARIES

IRAN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
37	+2	21

HIGHLIGHTS

Iran ranks 21st in the Theft Ranking for countries with weapons-usable nuclear materials. Iran does not publish its nuclear security laws and regulations, which negatively affects its score. Iran's nuclear security conditions are adversely affected by political stability, governance, and corruption challenges as well as by a very high risk of international disputes and tensions.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**89**	**0**
●	Quantities of Nuclear Materials	88	0
●	Sites and Transportation	100	0
●	Material Production / Elimination Trends	75	0
	Security and Control Measures	**36**	**0**
●	On-site Physical Protection	40	0
●	Control and Accounting Procedures	14	0
●	Insider Threat Prevention	22	0
●	Physical Security During Transport	50	0
●	Response Capabilities	71	0
●	Cybersecurity	0	0
	Global Norms	**12**	**0**
●	International Legal Commitments	0	0
●	Voluntary Commitments	20	0
●	International Assurances	20	0
	Domestic Commitments and Capacity	**22**	**+7**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	20	0
●	Domestic Nuclear Materials Security Legislation	0	0
●	Safeguards Adherence and Compliance	83	+33
●	Independent Regulatory Agency	0	0
	Risk Environment	**33**	**+1**
●	Political Stability	40	+5
●	Effective Governance	38	0
●	Pervasiveness of Corruption	0	0
●	Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

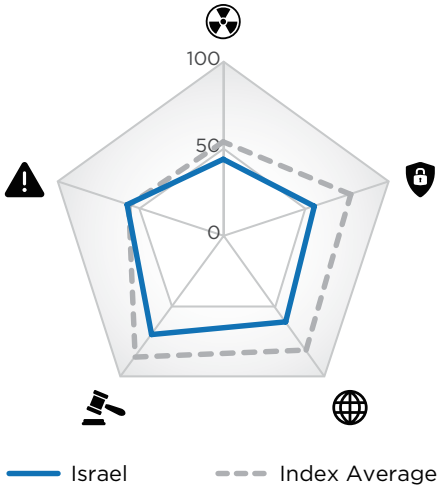
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

ISRAEL

2018 SCORE	CHANGE SINCE 2016	2018 RANK
58	+3	18

HIGHLIGHTS

Israel ranks 18th in the Theft Ranking for countries with weapons-usable nuclear materials. Israel does not publish its nuclear security laws and regulations, which negatively affects Israel's score. Israel's nuclear security conditions are adversely affected by its large quantities and sites with weapons-usable nuclear materials and by a very high risk of international disputes and tensions.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**44**	**0**
●	Quantities of Nuclear Materials	50	0
●	Sites and Transportation	17	0
●	Material Production / Elimination Trends	75	0
	Security and Control Measures	**55**	**0**
●	On-site Physical Protection	80	0
●	Control and Accounting Procedures	0	0
●	Insider Threat Prevention	33	0
●	Physical Security During Transport	100	0
●	Response Capabilities	71	0
●	Cybersecurity	20	0
	Global Norms	**61**	**+6**
●	International Legal Commitments	80	0
●	Voluntary Commitments	100	+20
●	International Assurances	0	0
	Domestic Commitments and Capacity	**70**	**+4**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	80	+20
●	Domestic Nuclear Materials Security Legislation	50	0
●	Safeguards Adherence and Compliance	50	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**58**	**+6**
●	Political Stability	55	+20
●	Effective Governance	75	0
●	Pervasiveness of Corruption	50	0
●	Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

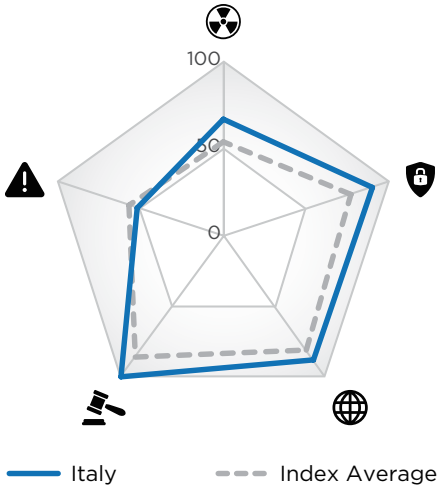
THEFT RANKING: COUNTRY SUMMARIES

ITALY

2018 SCORE	CHANGE SINCE 2016	2018 RANK
81	+6	=9

HIGHLIGHTS

Italy is tied for ninth in the Theft Ranking for countries with weapons-usable nuclear materials. Italy improved its nuclear security conditions since 2016 by increasing response capabilities, strengthening cybersecurity measures, and hosting an international security review. Italy could improve its nuclear security conditions by requiring more stringent and frequent personnel vetting and surveillance, assessments of cybersecurity measures, and a cyber-incident response plan for nuclear facilities. Italy could also improve its nuclear security conditions by making public declarations about its materials quantities. Italy's nuclear security conditions remain adversely affected by governance challenges.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**67**	**-6**
●	Quantities of Nuclear Materials	63	0
●	Sites and Transportation	67	0
●	Material Production / Elimination Trends	75	-25
	Security and Control Measures	**90**	**+14**
●	On-site Physical Protection	100	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	67	0
●	Physical Security During Transport	100	0
●	Response Capabilities	100	+43
●	Cybersecurity	60	+60
	Global Norms	**88**	**+21**
●	International Legal Commitments	100	+20
●	Voluntary Commitments	100	0
●	International Assurances	60	+40
	Domestic Commitments and Capacity	**100**	**0**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	100	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**52**	**-1**
●	Political Stability	70	-5
●	Effective Governance	38	0
●	Pervasiveness of Corruption	50	0
●	Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

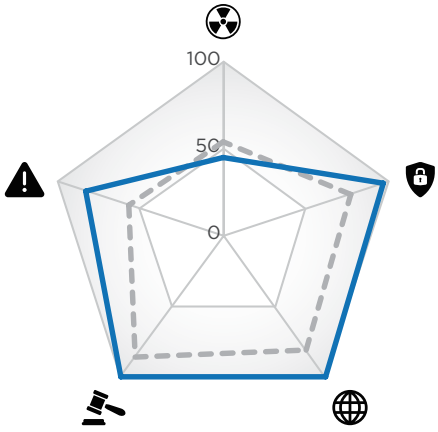
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

JAPAN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
88	+10	=4

HIGHLIGHTS

Japan, one of most improved states, increased its score by 10 points since 2016 and shares the rank of fourth in the Theft Ranking for countries with weapons-usable nuclear materials. Japan improved its nuclear security conditions since 2016 by requiring more stringent personnel vetting and a cyber-incident response plan and by ensuring that its requirements for the security of materials in transport meet IAEA guidelines. Japan's nuclear security conditions are adversely affected by large quantities of weapons-usable nuclear materials and by the number of sites where those materials are located.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**45**	**+23**
●	Quantities of Nuclear Materials	25	0
●	Sites and Transportation	33	0
●	Material Production / Elimination Trends	100	+100
	Security and Control Measures	**98**	**+17**
●	On-site Physical Protection	100	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	100	+33
●	Physical Security During Transport	100	+50
●	Response Capabilities	100	0
●	Cybersecurity	80	+20
	Global Norms	**100**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	100	0
	Domestic Commitments and Capacity	**100**	**+4**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	100	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**83**	**0**
●	Political Stability	80	-10
●	Effective Governance	75	+12
●	Pervasiveness of Corruption	75	0
●	Group(s) Interested in Illicitly Acquiring Materials	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

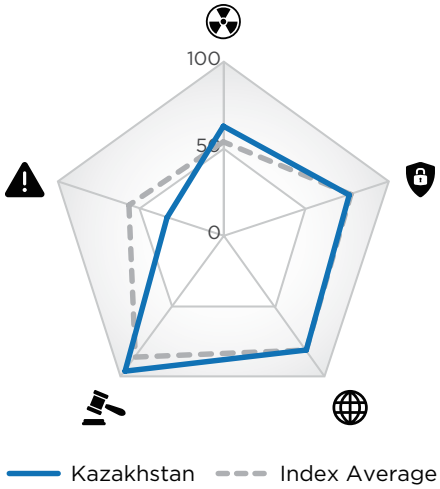
THEFT RANKING: COUNTRY SUMMARIES

KAZAKHSTAN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
71	+5	=14

HIGHLIGHTS

Kazakhstan is tied for 14th in the Theft Ranking for countries with weapons-usable nuclear materials. Since 2016, Kazakhstan improved its nuclear security conditions by enhancing on-site physical protection of nuclear facilities and by ensuring that its requirements for the security of materials in transport meet IAEA guidelines. Kazakhstan could further improve nuclear security conditions by strengthening insider threat prevention measures and by enhancing regulations for cybersecurity at nuclear facilities. Kazakhstan's nuclear security conditions are adversely affected by large quantities of nuclear materials, as well as by governance and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Quantities and Sites	**63**	**+6**
● Quantities of Nuclear Materials	25	0
● Sites and Transportation	83	+16
● Material Production / Elimination Trends	100	0
Security and Control Measures	**76**	**+15**
● On-site Physical Protection	100	+20
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	44	0
● Physical Security During Transport	100	+50
● Response Capabilities	71	0
● Cybersecurity	20	+20
Global Norms	**81**	**-7**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	40	-20
Domestic Commitments and Capacity	**96**	**+4**
● UN Security Council Resolution (UNSCR) 1540 Implementation	80	+20
● Domestic Nuclear Materials Security Legislation	100	0
● Safeguards Adherence and Compliance	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**34**	**+3**
● Political Stability	55	0
● Effective Governance	25	+12
● Pervasiveness of Corruption	0	0
● Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

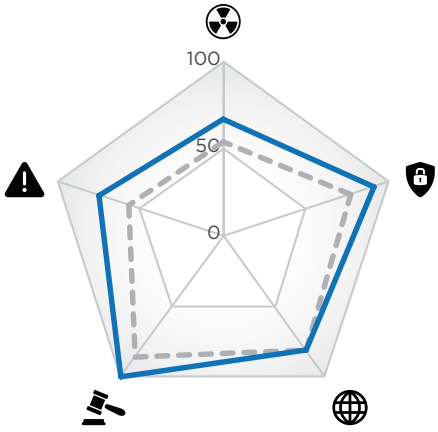
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

NETHERLANDS

2018 SCORE	CHANGE SINCE 2016	2018 RANK
84	+5	=7

HIGHLIGHTS

The Netherlands is tied for seventh in the Theft Ranking for countries with weapons-usable nuclear materials. The Netherlands could improve its nuclear security conditions by requiring more stringent and frequent personnel vetting, additional surveillance measures to mitigate the insider threat, and on-site armed response capabilities at nuclear facilities. It also could improve its nuclear security conditions by hosting a new international security review.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Quantities and Sites	**67**	**+17**
● Quantities of Nuclear Materials	63	0
● Sites and Transportation	67	0
● Material Production / Elimination Trends	75	+75
Security and Control Measures	**91**	**+9**
● On-site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	67	0
● Physical Security During Transport	100	+50
● Response Capabilities	86	0
● Cybersecurity	100	0
Global Norms	**81**	**-7**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	40	-20
Domestic Commitments and Capacity	**100**	**+4**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Materials Security Legislation	100	0
● Safeguards Adherence and Compliance	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**75**	**0**
● Political Stability	80	0
● Effective Governance	75	0
● Pervasiveness of Corruption	100	0
● Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

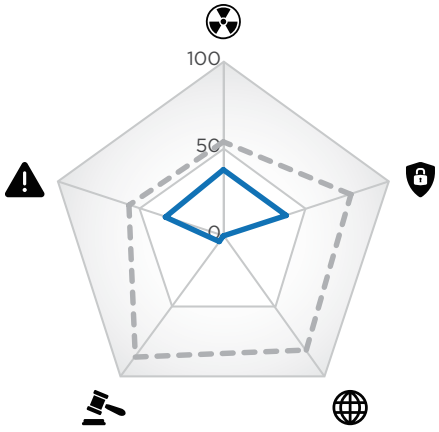
THEFT RANKING: COUNTRY SUMMARIES

NORTH KOREA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
24	0	22

HIGHLIGHTS

North Korea ranks 22nd in the Theft Ranking for countries with weapons-usable nuclear materials. North Korea does not publish its nuclear security laws and regulations, which negatively affects its score. North Korea could improve its nuclear security conditions by signing and ratifying key international agreements. North Korea's nuclear security conditions are adversely affected by political stability, governance, and corruption challenges.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**38**	**0**
●	Quantities of Nuclear Materials	63	0
●	Sites and Transportation	33	0
●	Material Production / Elimination Trends	0	0
	Security and Control Measures	**38**	**0**
●	On-site Physical Protection	40	0
●	Control and Accounting Procedures	29	0
●	Insider Threat Prevention	22	0
●	Physical Security During Transport	50	0
●	Response Capabilities	71	0
●	Cybersecurity	0	0
	Global Norms	**0**	**0**
●	International Legal Commitments	0	0
●	Voluntary Commitments	0	0
●	International Assurances	0	0
	Domestic Commitments and Capacity	**4**	**0**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	0	0
●	Domestic Nuclear Materials Security Legislation	0	0
●	Safeguards Adherence and Compliance	17	0
●	Independent Regulatory Agency	0	0
	Risk Environment	**35**	**+1**
●	Political Stability	30	+5
●	Effective Governance	0	0
●	Pervasiveness of Corruption	0	0
●	Group(s) Interested in Illicitly Acquiring Materials	100	0

= denotes tie in rank

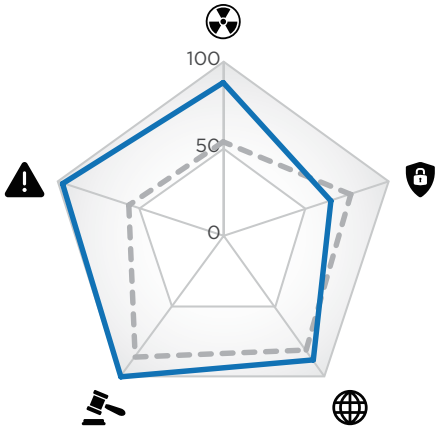
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

NORWAY

2018 SCORE	CHANGE SINCE 2016	2018 RANK
85	+2	6

HIGHLIGHTS

Norway ranks sixth in the Theft Ranking for countries with weapons-usable nuclear materials. Since 2016, Norway improved its nuclear security conditions by training law enforcement to respond to security incidents at nuclear facilities and by enhancing cybersecurity measures for nuclear facilities. Norway could further improve its nuclear security conditions by improving insider threat prevention, requiring assessments of cybersecurity at nuclear facilities, requiring a cyber-incident response plan, and ensuring that its requirements for the security of materials in transport meet IAEA guidelines.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Quantities and Sites	**88**	**0**
● Quantities of Nuclear Materials	100	0
● Sites and Transportation	83	0
● Material Production / Elimination Trends	75	0
Security and Control Measures	**65**	**+5**
● On-site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	22	0
● Physical Security During Transport	50	0
● Response Capabilities	57	+14
● Cybersecurity	60	+20
Global Norms	**88**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	60	0
Domestic Commitments and Capacity	**100**	**+4**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Materials Security Legislation	100	0
● Safeguards Adherence and Compliance	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**97**	**0**
● Political Stability	100	0
● Effective Governance	88	0
● Pervasiveness of Corruption	100	0
● Group(s) Interested in Illicitly Acquiring Materials	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

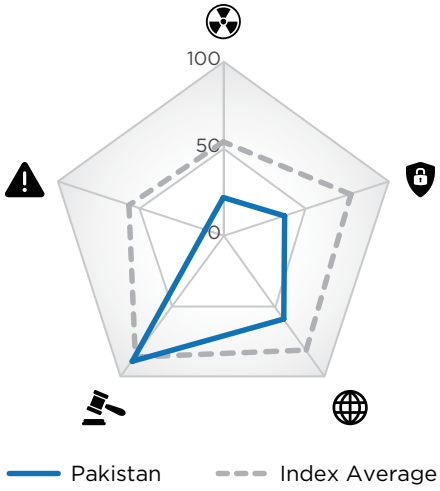
THEFT RANKING: COUNTRY SUMMARIES

PAKISTAN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
44	+4	20

HIGHLIGHTS

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



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Quantities and Sites	**22**	**0**
● Quantities of Nuclear Materials	38	0
● Sites and Transportation	17	0
● Material Production / Elimination Trends	0	0
Security and Control Measures	**37**	**+8**
● On-site Physical Protection	60	+20
● Control and Accounting Procedures	29	+15
● Insider Threat Prevention	33	+11
● Physical Security During Transport	0	0
● Response Capabilities	71	0
● Cybersecurity	20	0
Global Norms	**59**	**+8**
● International Legal Commitments	60	+20
● Voluntary Commitments	80	0
● International Assurances	40	0
Domestic Commitments and Capacity	**89**	**+4**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Materials Security Legislation	100	0
● Safeguards Adherence and Compliance	50	0
● Independent Regulatory Agency	100	0
Risk Environment	**11**	**-5**
● Political Stability	20	+5
● Effective Governance	25	0
● Pervasiveness of Corruption	0	-25
● Group(s) Interested in Illicitly Acquiring Materials	0	0

= denotes tie in rank

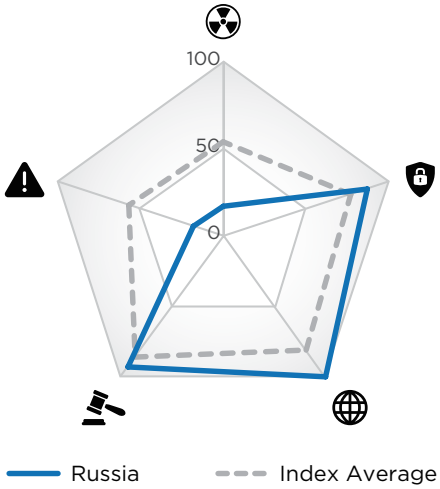
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

RUSSIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
67	+3	17

HIGHLIGHTS

Russia ranks 17th in the Theft Ranking for countries with weapons-usable nuclear materials. Since 2016, Russia has enhanced its nuclear security conditions by improving security during transport. Russia's nuclear security conditions could be improved by requiring more frequent personnel vetting and reporting of suspicious behavior and by requiring a cyber-incident response plan. Russia's nuclear security conditions are adversely affected by large quantities and sites with nuclear materials, by governance and corruption challenges, and by the judgment that groups interested in and capable of illicitly acquiring nuclear materials are present.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**17**	**-6**
●	Quantities of Nuclear Materials	0	0
●	Sites and Transportation	0	0
●	Material Production / Elimination Trends	75	-25
	Security and Control Measures	**87**	**+9**
●	On-site Physical Protection	80	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	78	0
●	Physical Security During Transport	100	+50
●	Response Capabilities	86	0
●	Cybersecurity	80	0
	Global Norms	**100**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	100	0
	Domestic Commitments and Capacity	**93**	**+4**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	67	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**18**	**+4**
●	Political Stability	45	+15
●	Effective Governance	25	0
●	Pervasiveness of Corruption	0	0
●	Group(s) Interested in Illicitly Acquiring Materials	0	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

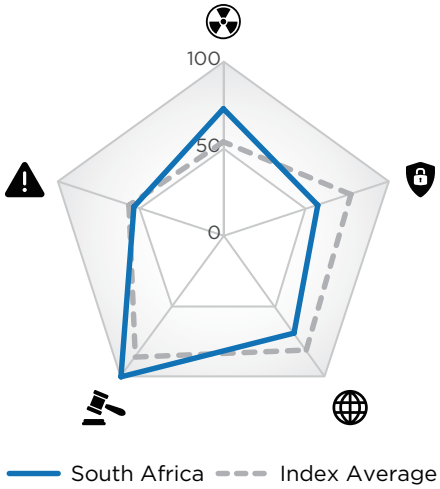
THEFT RANKING: COUNTRY SUMMARIES

SOUTH AFRICA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
70	-1	16

HIGHLIGHTS

South Africa is 16th in the Theft Ranking for countries with weapons-usable nuclear materials. South Africa's nuclear security conditions could be improved by requiring updates to its Design Basis Threat, by defining nuclear security responsibilities in its regulations, and by improving security during transport. South Africa could further strengthen its nuclear security conditions by enhancing personnel vetting, surveillance of protected areas, and cybersecurity at its nuclear facilities. South Africa's nuclear security conditions are adversely affected by governance and corruption challenges and by large quantities of nuclear materials.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**73**	-6
●	Quantities of Nuclear Materials	50	0
●	Sites and Transportation	100	0
●	Material Production / Elimination Trends	75	-25
	Security and Control Measures	**57**	**0**
●	On-site Physical Protection	60	0
●	Control and Accounting Procedures	86	0
●	Insider Threat Prevention	44	0
●	Physical Security During Transport	0	0
●	Response Capabilities	100	0
●	Cybersecurity	60	0
	Global Norms	**69**	**0**
●	International Legal Commitments	80	0
●	Voluntary Commitments	40	0
●	International Assurances	80	0
	Domestic Commitments and Capacity	**100**	**0**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	100	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**54**	**-1**
●	Political Stability	65	-5
●	Effective Governance	50	0
●	Pervasiveness of Corruption	50	0
●	Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

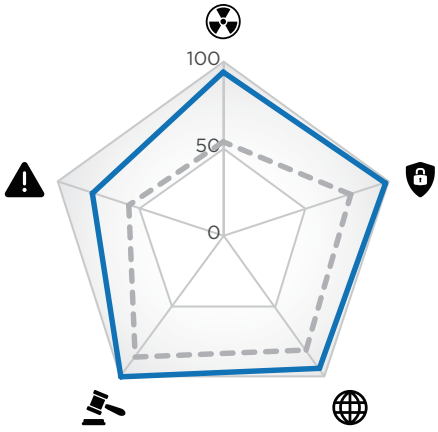
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

SWITZERLAND

2018 SCORE	CHANGE SINCE 2016	2018 RANK
94	+4	=1

HIGHLIGHTS

Switzerland shares the top rank in the Theft Ranking for countries with weapons-usable nuclear materials. Since 2016, Switzerland improved its voluntary commitments and decreased its total stock of nuclear materials. Switzerland could improve its nuclear security conditions by requiring a cyber-incident response plan at nuclear facilities.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Quantities and Sites	**94**	**+16**
● Quantities of Nuclear Materials	100	+25
● Sites and Transportation	83	+16
● Material Production / Elimination Trends	100	0
Security and Control Measures	**98**	**0**
● On-site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	100	0
● Physical Security During Transport	100	0
● Response Capabilities	100	0
● Cybersecurity	80	0
Global Norms	**94**	**+6**
● International Legal Commitments	100	0
● Voluntary Commitments	100	+20
● International Assurances	80	0
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Materials Security Legislation	100	0
● Safeguards Adherence and Compliance	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**79**	**0**
● Political Stability	85	-10
● Effective Governance	88	+13
● Pervasiveness of Corruption	100	0
● Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

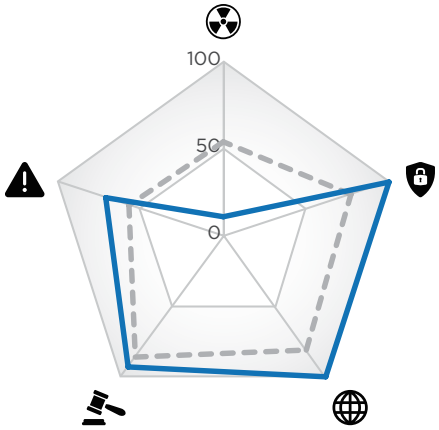
THEFT RANKING: COUNTRY SUMMARIES

UNITED KINGDOM

2018 SCORE	CHANGE SINCE 2016	2018 RANK
79	0	=12

HIGHLIGHTS

The United Kingdom is tied for 12th in the Theft Ranking for countries with weapons-usable nuclear materials. Since 2016, the United Kingdom improved its nuclear security conditions by requiring a cyber-incident response plan at nuclear facilities. The United Kingdom's nuclear security conditions could be improved by reversing its production trend of increasing stocks of nuclear materials. The United Kingdom's nuclear security conditions are adversely affected by its large quantities of nuclear materials and by the number of sites at which those materials are located, as well as by rising governance challenges.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Quantities and Sites	**11**	**0**
●	Quantities of Nuclear Materials	13	0
●	Sites and Transportation	17	0
●	Material Production / Elimination Trends	0	0
	Security and Control Measures	**100**	**+2**
●	On-site Physical Protection	100	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	100	0
●	Physical Security During Transport	100	0
●	Response Capabilities	100	0
●	Cybersecurity	100	+20
	Global Norms	**100**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	100	0
	Domestic Commitments and Capacity	**93**	**0**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
●	Domestic Nuclear Materials Security Legislation	100	0
●	Safeguards Adherence and Compliance	67	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**71**	**-1**
●	Political Stability	75	+5
●	Effective Governance	63	-12
●	Pervasiveness of Corruption	100	0
●	Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

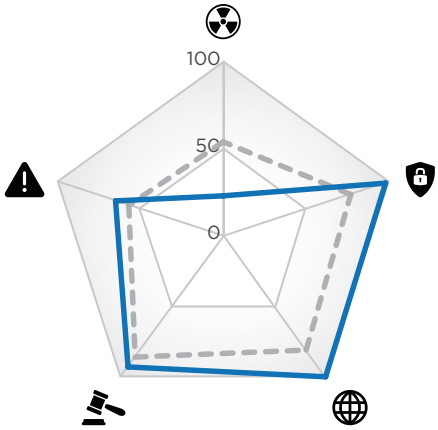
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

UNITED STATES

2018 SCORE	CHANGE SINCE 2016	2018 RANK
79	-1	=12

HIGHLIGHTS

The United States is tied for 12th in the Theft Ranking for countries with weapons-usable nuclear materials. The nuclear security conditions of the United States could be improved by requiring more frequent personnel vetting to prevent insider threats. The United States' nuclear security conditions are adversely affected by large quantities of nuclear materials, by the number of sites at which those materials are located, and by political stability and governance challenges.



United States — Index Average

● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Quantities and Sites	**23**	**0**
● Quantities of Nuclear Materials	0	0
● Sites and Transportation	0	0
● Material Production / Elimination Trends	100	0
Security and Control Measures	**98**	**0**
● On-site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	89	0
● Physical Security During Transport	100	0
● Response Capabilities	100	0
● Cybersecurity	100	0
Global Norms	**100**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	100	0
Domestic Commitments and Capacity	**93**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Materials Security Legislation	100	0
● Safeguards Adherence and Compliance	67	0
● Independent Regulatory Agency	100	0
Risk Environment	**65**	**-6**
● Political Stability	75	-10
● Effective Governance	63	-12
● Pervasiveness of Corruption	75	0
● Group(s) Interested in Illicitly Acquiring Materials	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

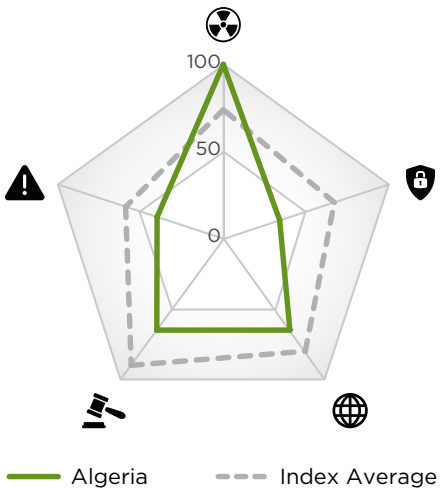
SABOTAGE RANKING: COUNTRY SUMMARIES

ALGERIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
52	+6	42

HIGHLIGHTS

Algeria ranks 42nd in the Sabotage Ranking. Since 2016, Algeria improved its law enforcement response training and established a Center of Excellence. Algeria's nuclear security conditions could be further improved by strengthening regulations to mitigate insider threats and by enhancing response capabilities and cybersecurity requirements for nuclear facilities. Algeria could build confidence in its nuclear security conditions by hosting an international review of its security arrangements, as well as by establishing an independent regulatory agency. Political stability, governance, and corruption challenges continue to adversely affect Algeria's nuclear security conditions.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**34**	**+3**
● On-Site Physical Protection	60	0
● Control and Accounting Procedures	71	0
● Insider Threat Prevention	0	0
● Response Capabilities	43	+14
● Cybersecurity	0	0
Global Norms	**65**	**+5**
● International Legal Commitments	86	0
● Voluntary Commitments	80	+20
● International Assurances	25	0
Domestic Commitments and Capacity	**65**	**+11**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+40
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	0	0
Risk Environment	**40**	**+3**
● Political Stability	45	0
● Effective Governance	38	+13
● Pervasiveness of Corruption	25	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

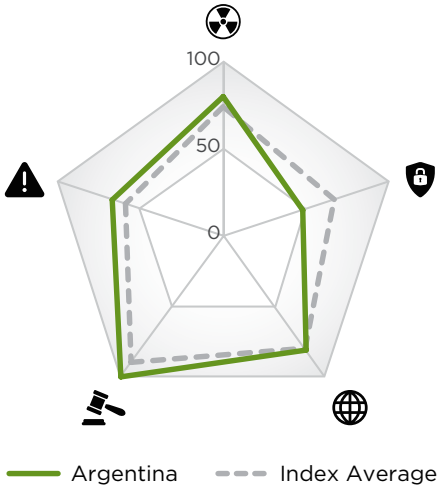
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

ARGENTINA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
72	+3	=27

HIGHLIGHTS

Argentina is tied for 27th in the Sabotage Ranking. Since 2016, Argentina improved its nuclear security conditions by signing and ratifying ICSANT. Argentina's nuclear security conditions could be improved by strengthening laws and regulations to mitigate insider threats and by putting in place cybersecurity regulations for nuclear facilities. Governance and corruption challenges continue to adversely affect Argentina's nuclear security conditions.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**48**	**0**
● On-Site Physical Protection	80	0
● Control and Accounting Procedures	86	0
● Insider Threat Prevention	22	0
● Response Capabilities	57	0
● Cybersecurity	0	0
Global Norms	**81**	**-2**
● International Legal Commitments	100	+14
● Voluntary Commitments	60	0
● International Assurances	75	-25
Domestic Commitments and Capacity	**100**	**+5**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**67**	**+9**
● Political Stability	65	+15
● Effective Governance	50	0
● Pervasiveness of Corruption	50	+25
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

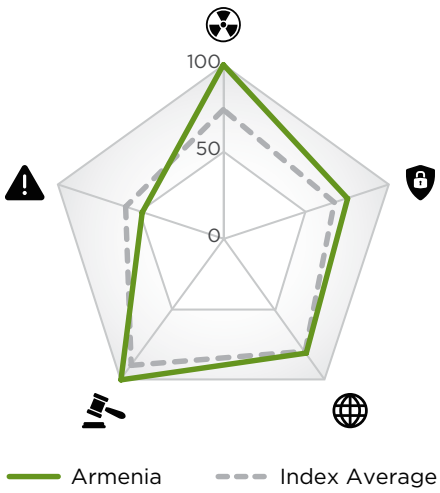
SABOTAGE RANKING: COUNTRY SUMMARIES

ARMENIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
78	+8	21

HIGHLIGHTS

Armenia ranks 21st in the Sabotage Ranking. Since 2016, Armenia improved its nuclear security conditions by strengthening control and accounting procedures and by requiring nuclear facilities to protect critical digital assets from a cyberattack. Its nuclear security conditions could be further improved by requiring reporting of suspicious personnel behavior and by strengthening cybersecurity at nuclear facilities. Armenia's nuclear security conditions remain adversely affected by political stability, governance, and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**75**	**+11**
● On-Site Physical Protection	80	0
● Control and Accounting Procedures	100	+43
● Insider Threat Prevention	78	0
● Response Capabilities	100	0
● Cybersecurity	20	+20
Global Norms	**81**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	60	0
● International Assurances	75	0
Domestic Commitments and Capacity	**100**	**+18**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Security Legislation	100	+33
● Independent Regulatory Agency	100	0
Risk Environment	**49**	**0**
● Political Stability	40	0
● Effective Governance	25	0
● Pervasiveness of Corruption	25	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

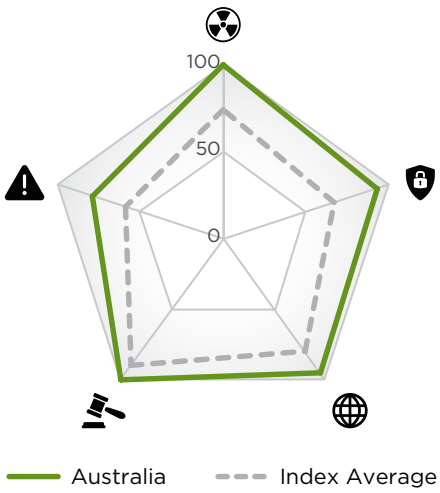
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

AUSTRALIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
93	+3	=2

HIGHLIGHTS

Australia is tied for second in the Sabotage Ranking. Since 2016, Australia improved its nuclear security conditions by implementing regulations that require updating its Design Basis Threat and a cyber-incident response plan at nuclear facilities. Australia's nuclear security conditions could be further improved by strengthening regulations to enhance personnel vetting measures at nuclear facilities.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**93**	**+8**
● On-Site Physical Protection	100	+20
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	67	0
● Response Capabilities	100	0
● Cybersecurity	100	+20
Global Norms	**95**	**-5**
● International Legal Commitments	100	0
● Voluntary Commitments	80	-20
● International Assurances	100	0
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**79**	**+3**
● Political Stability	85	0
● Effective Governance	88	+13
● Pervasiveness of Corruption	100	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

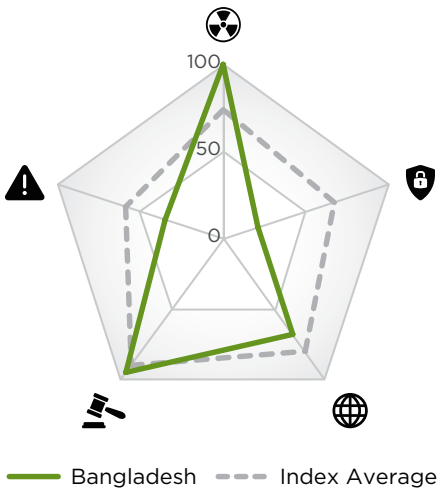
SABOTAGE RANKING: COUNTRY SUMMARIES

BANGLADESH

2018 SCORE	CHANGE SINCE 2016	2018 RANK
54	+5	41

HIGHLIGHTS

Bangladesh ranks 41st in the Sabotage Ranking. Since 2016, Bangladesh has affirmed its commitment to nuclear security by ratifying the 2005 Amendment to the CPPNM. Bangladesh could improve its nuclear security conditions by strengthening laws and regulations for on-site physical protection, control and accounting procedures, response capabilities, insider threat mitigation, and cybersecurity. Bangladesh's nuclear security conditions are adversely affected by governance and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**21**	**0**
● On-Site Physical Protection	60	0
● Control and Accounting Procedures	14	0
● Insider Threat Prevention	0	0
● Response Capabilities	29	0
● Cybersecurity	0	0
Global Norms	**68**	**+6**
● International Legal Commitments	100	+14
● Voluntary Commitments	40	0
● International Assurances	50	0
Domestic Commitments and Capacity	**95**	**+11**
● UN Security Council Resolution (UNSCR) 1540 Implementation	80	+40
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**35**	**+6**
● Political Stability	45	+10
● Effective Governance	38	+13
● Pervasiveness of Corruption	0	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

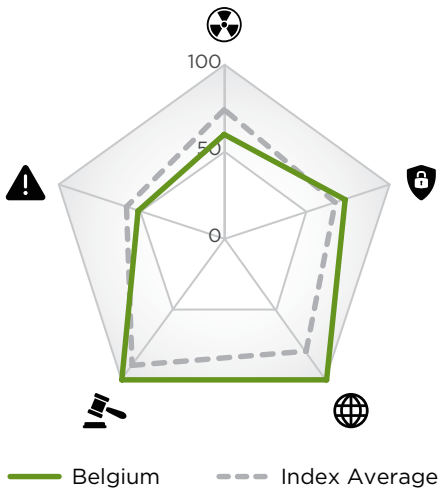
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

BELGIUM

2018 SCORE	CHANGE SINCE 2016	2018 RANK
79	-3	20

HIGHLIGHTS

Belgium ranks 20th in the Sabotage Ranking. Since 2016, Belgium improved its nuclear security conditions by posting on-site armed response capabilities at nuclear facilities. Belgium could further improve its nuclear security conditions by enhancing personnel vetting to mitigate insider threats and by requiring cybersecurity at nuclear facilities. Belgium's nuclear security conditions are adversely affected by a decline in governance effectiveness and by the judgment that groups interested in and capable of committing acts of nuclear terrorism are present in the country.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**60**	**0**
● Number of Sites	60	0
Security and Control Measures	**73**	**+3**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	67	0
● Response Capabilities	100	+14
● Cybersecurity	0	0
Global Norms	**100**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	100	0
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**52**	**-19**
● Political Stability	75	0
● Effective Governance	63	-25
● Pervasiveness of Corruption	75	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	0	-50

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

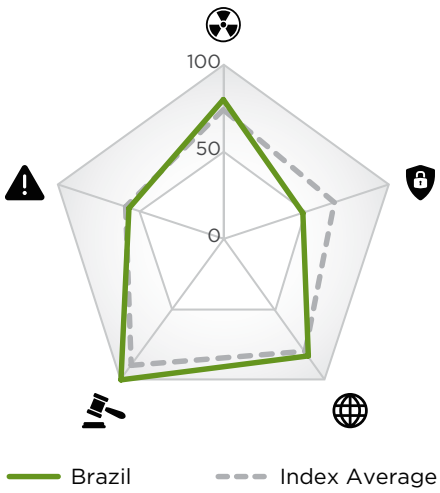
SABOTAGE RANKING: COUNTRY SUMMARIES

BRAZIL

2018 SCORE	CHANGE SINCE 2016	2018 RANK
70	0	=30

HIGHLIGHTS

Brazil is tied for 30th in the Sabotage Ranking. Brazil could improve its nuclear security conditions by strengthening regulations that require updates to its Design Basis Threat, on-site armed response capabilities, and cybersecurity measures at nuclear facilities. Brazil could further improve by strengthening measures to mitigate insider threats and by explicitly mentioning the protection of nuclear facilities in its emergency preparedness regulations for natural disasters. Brazil's nuclear security conditions are adversely affected by political stability, governance, and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
Number of Sites	80	0
Security and Control Measures	**48**	**0**
On-Site Physical Protection	80	0
Control and Accounting Procedures	100	0
Insider Threat Prevention	11	0
Response Capabilities	57	0
Cybersecurity	0	0
Global Norms	**83**	**0**
International Legal Commitments	86	0
Voluntary Commitments	60	0
International Assurances	100	0
Domestic Commitments and Capacity	**100**	**+5**
UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
Domestic Nuclear Security Legislation	100	0
Independent Regulatory Agency	100	0
Risk Environment	**57**	**-5**
Political Stability	60	-5
Effective Governance	38	-12
Pervasiveness of Corruption	25	0
Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

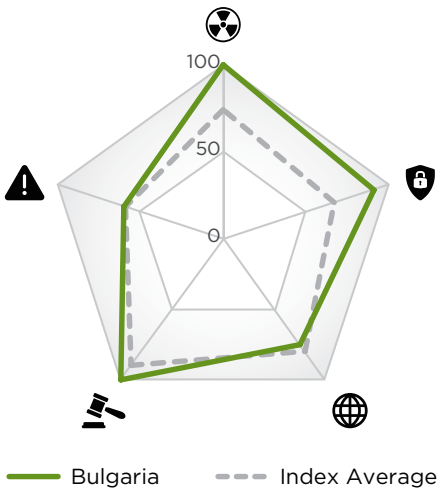
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

BULGARIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
84	+3	=17

HIGHLIGHTS

Bulgaria is tied for 17th in the Sabotage Ranking. Since 2016, Bulgaria improved its nuclear security conditions by taking the radiological consequences of sabotage into account when designing physical protection measures and by requiring both electronic surveillance and a two-person surveillance system in protected areas. Bulgaria could improve its nuclear security conditions by mandating a cyber-incident response plan, improving its insider threat prevention measures, and ratifying ICSANT. Bulgaria's nuclear security conditions are adversely affected by governance and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**91**	**+4**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	+14
● Insider Threat Prevention	78	+11
● Response Capabilities	100	0
● Cybersecurity	80	0
Global Norms	**75**	**0**
● International Legal Commitments	86	0
● Voluntary Commitments	60	0
● International Assurances	75	0
Domestic Commitments and Capacity	**100**	**+5**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**60**	**+1**
● Political Stability	70	+5
● Effective Governance	38	0
● Pervasiveness of Corruption	25	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

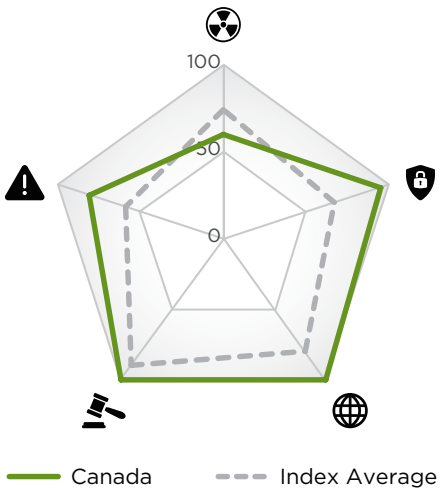
SABOTAGE RANKING: COUNTRY SUMMARIES

CANADA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
93	+4	=2

HIGHLIGHTS

Canada is tied for second in the Sabotage Ranking. Since 2016, Canada improved its nuclear security conditions by requiring a cyber-incident response plan for nuclear facilities and by enhancing its insider threat mitigation regulations to ensure that personnel are subject to multiple vetting checks. Canada's nuclear security conditions could be further improved by increasing the frequency of its personnel vetting checks. Canada's nuclear security conditions are adversely affected by the country's large number of nuclear sites.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**60**	**0**
Number of Sites	60	0
Security and Control Measures	**95**	**+6**
On-Site Physical Protection	100	0
Control and Accounting Procedures	100	0
Insider Threat Prevention	78	+11
Response Capabilities	100	0
Cybersecurity	100	+20
Global Norms	**100**	**0**
International Legal Commitments	100	0
Voluntary Commitments	100	0
International Assurances	100	0
Domestic Commitments and Capacity	**100**	**+5**
UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
Domestic Nuclear Security Legislation	100	0
Independent Regulatory Agency	100	0
Risk Environment	**81**	**+2**
Political Stability	90	+5
Effective Governance	88	0
Pervasiveness of Corruption	100	0
Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

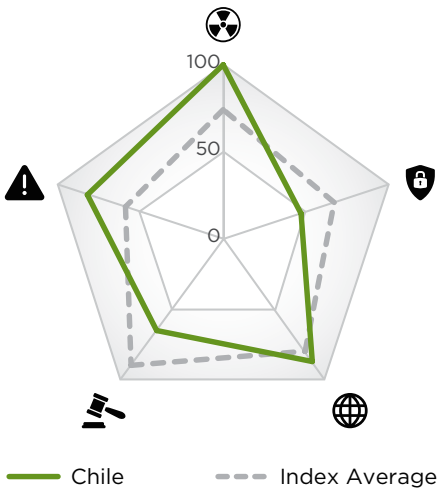
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

CHILE

2018 SCORE	CHANGE SINCE 2016	2018 RANK
68	+2	=32

HIGHLIGHTS

Chile is tied for 32nd in the Sabotage Ranking. Since 2016, Chile improved its score by making additional voluntary commitments. Chile's nuclear security conditions could be improved by requiring cybersecurity measures at nuclear facilities and by establishing an independent regulatory agency to ensure compliance with nuclear security–related regulations. Chile's nuclear security conditions could also be improved by requiring updates to its Design Basis Threat, by requiring more stringent and frequent personnel vetting, and by requiring that suspicious behavior be reported.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**47**	**0**
● On-Site Physical Protection	60	0
● Control and Accounting Procedures	86	0
● Insider Threat Prevention	22	0
● Response Capabilities	71	0
● Cybersecurity	0	0
Global Norms	**87**	**+6**
● International Legal Commitments	100	0
● Voluntary Commitments	80	+20
● International Assurances	75	0
Domestic Commitments and Capacity	**65**	**+5**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	0	0
Risk Environment	**82**	**0**
● Political Stability	75	0
● Effective Governance	75	0
● Pervasiveness of Corruption	75	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

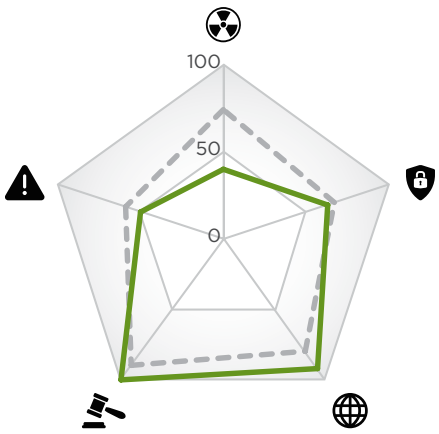
SABOTAGE RANKING: COUNTRY SUMMARIES

CHINA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
73	+11	26

HIGHLIGHTS

Since 2016, China increased its score by 11 points, and it is now 26th in the Sabotage Ranking. China improved its personnel vetting, established a Center of Excellence, and hosted an international security review. China's nuclear security conditions could be further improved by requiring updates to its Design Basis Threat, by putting into place cybersecurity regulations, and by boosting insider threat prevention measures. China's nuclear security conditions are adversely affected by the large number of nuclear facilities and by risk environment factors.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**40**	**0**
● Number of Sites	40	0
Security and Control Measures	**63**	**+4**
● On-Site Physical Protection	80	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	56	+23
● Response Capabilities	86	0
● Cybersecurity	0	0
Global Norms	**92**	**+21**
● International Legal Commitments	100	0
● Voluntary Commitments	100	+20
● International Assurances	75	+50
Domestic Commitments and Capacity	**100**	**+16**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+60
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**50**	**+10**
● Political Stability	50	+5
● Effective Governance	50	+12
● Pervasiveness of Corruption	50	+25
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

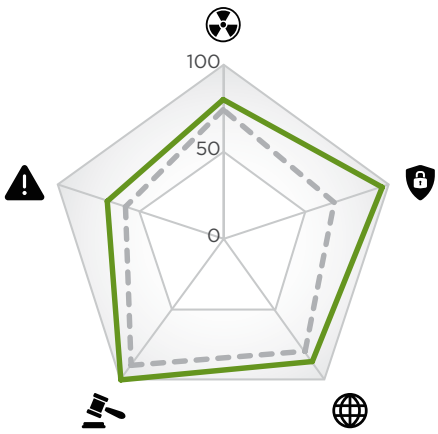
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

CZECH REPUBLIC

2018 SCORE	CHANGE SINCE 2016	2018 RANK
89	+5	=8

HIGHLIGHTS

The Czech Republic is tied for eighth in the Sabotage Ranking. Since 2016, the Czech Republic improved its nuclear security conditions by strengthening cybersecurity measures and by publishing nuclear security regulations and an annual report. The Czech Republic's nuclear security conditions could be improved by requiring a cyber-incident response plan at its nuclear facilities and by making additional voluntary commitments. The Czech Republic's nuclear security conditions are adversely affected by governance and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**96**	**+12**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	100	0
● Response Capabilities	100	0
● Cybersecurity	80	+60
Global Norms	**87**	**+8**
● International Legal Commitments	100	0
● Voluntary Commitments	80	0
● International Assurances	75	+25
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**70**	**0**
● Political Stability	75	0
● Effective Governance	50	0
● Pervasiveness of Corruption	50	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

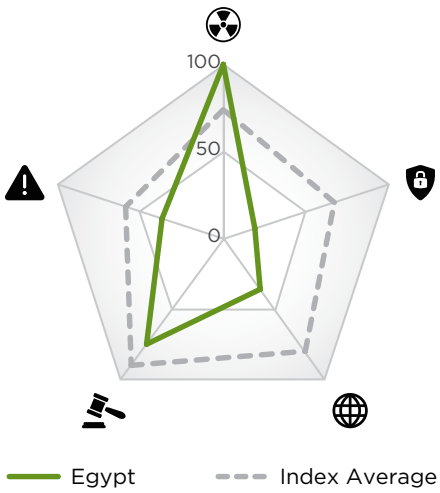
SABOTAGE RANKING: COUNTRY SUMMARIES

EGYPT

2018 SCORE	CHANGE SINCE 2016	2018 RANK
43	+7	43

HIGHLIGHTS

Egypt ranks 43rd in the Sabotage ranking, reflecting an increase of seven points since 2016. Egypt improved its nuclear security conditions since 2016 by establishing a nuclear security Center of Excellence. Egypt's nuclear security conditions could be improved by strengthening on-site physical protection, control and accounting procedures, insider threat prevention, response capabilities, and cybersecurity. Egypt's nuclear security conditions are adversely affected by the judgment that groups interested in and capable of committing acts of nuclear terrorism are present in the country, as well as by political stability, governance, and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
Number of Sites	100	0
Security and Control Measures	**19**	**0**
On-Site Physical Protection	40	0
Control and Accounting Procedures	29	0
Insider Threat Prevention	0	0
Response Capabilities	29	0
Cybersecurity	0	0
Global Norms	**36**	**+5**
International Legal Commitments	29	0
Voluntary Commitments	60	+20
International Assurances	25	0
Domestic Commitments and Capacity	**75**	**+17**
UN Security Council Resolution (UNSCR) 1540 Implementation	100	+60
Domestic Nuclear Security Legislation	33	0
Independent Regulatory Agency	100	0
Risk Environment	**37**	**+9**
Political Stability	50	0
Effective Governance	50	+12
Pervasiveness of Corruption	50	+25
Group(s) Interested in Committing Acts of Nuclear Terrorism	0	0

= denotes tie in rank

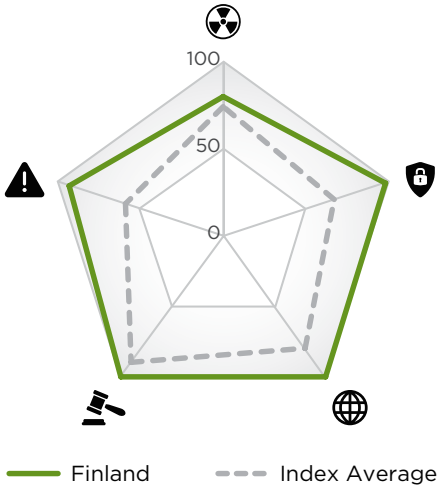
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

FINLAND

2018 SCORE	CHANGE SINCE 2016	2018 RANK
97	+2	1

HIGHLIGHTS

Finland ranks first in the Sabotage Ranking. Since 2016, Finland improved its nuclear security conditions by strengthening personnel vetting measures and by explicitly mentioning the protection of nuclear facilities in its emergency preparedness regulations for natural disasters. Finland's nuclear security conditions could be further improved by requiring more stringent surveillance of protected areas within its nuclear facilities.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**98**	**+6**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	89	+11
● Response Capabilities	100	+14
● Cybersecurity	100	0
Global Norms	**100**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	100	0
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**93**	**+3**
● Political Stability	85	+10
● Effective Governance	88	0
● Pervasiveness of Corruption	100	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

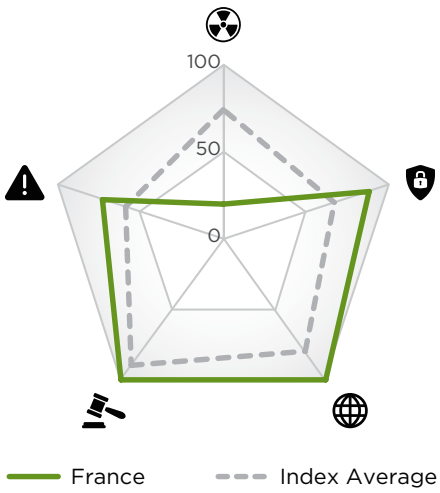
SABOTAGE RANKING: COUNTRY SUMMARIES

FRANCE

2018 SCORE	CHANGE SINCE 2016	2018 RANK
87	+1	=11

HIGHLIGHTS

France is tied for 11th in the Sabotage Ranking. France's nuclear security conditions could be improved by increasing the frequency of personnel vetting, as well as by improving surveillance measures to mitigate insider threats. France's nuclear security conditions are adversely affected by its large number of nuclear sites.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**20**	**0**
● Number of Sites	20	0
Security and Control Measures	**88**	**0**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	56	0
● Response Capabilities	86	0
● Cybersecurity	100	0
Global Norms	**100**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	100	0
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**73**	**+2**
● Political Stability	80	+5
● Effective Governance	88	0
● Pervasiveness of Corruption	75	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

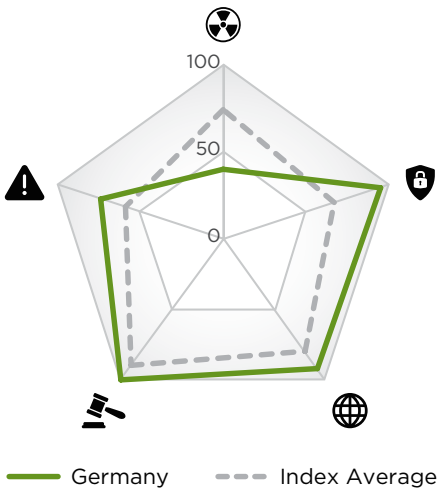
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

GERMANY

2018 SCORE	CHANGE SINCE 2016	2018 RANK
89	+7	=8

HIGHLIGHTS

Germany increased its score by seven points since 2016 and is tied for eighth in the Sabotage Ranking. Since 2016, Germany improved its nuclear security conditions by increasing vetting and surveillance of personnel to mitigate insider threats, by requiring a cyber-incident response plan, and by mandating cybersecurity assessments. Germany's nuclear security conditions could be improved by more frequent personnel vetting and by explicitly mentioning the protection of nuclear facilities in its emergency preparedness regulations for natural disasters. Germany's nuclear security conditions are adversely affected by the large number of nuclear sites in the country.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**40**	**0**
● Number of Sites	40	0
Security and Control Measures	**95**	**+15**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	89	+33
● Response Capabilities	86	0
● Cybersecurity	100	+40
Global Norms	**92**	**+15**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	75	+50
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**74**	**-5**
● Political Stability	85	0
● Effective Governance	88	0
● Pervasiveness of Corruption	75	-25
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

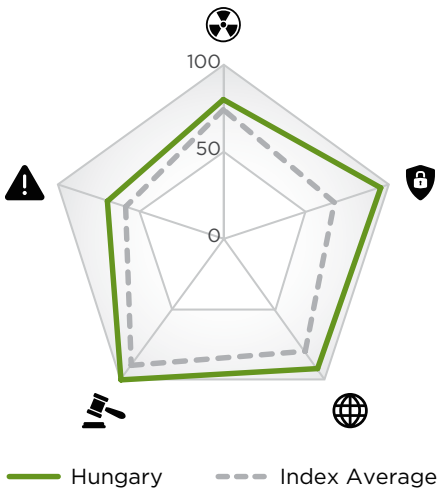
SABOTAGE RANKING: COUNTRY SUMMARIES

HUNGARY

2018 SCORE	CHANGE SINCE 2016	2018 RANK
90	+2	=6

HIGHLIGHTS

Hungary is tied for sixth in the Sabotage Ranking. Hungary enhanced its voluntary commitments since 2016. Hungary's nuclear security conditions could be improved by implementing regulations that enhance personnel vetting and that require the reporting of suspicious behavior. Hungary's nuclear security conditions are adversely affected by governance and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**95**	**0**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	78	0
● Response Capabilities	100	0
● Cybersecurity	100	0
Global Norms	**92**	**+5**
● International Legal Commitments	100	0
● Voluntary Commitments	100	+20
● International Assurances	75	0
Domestic Commitments and Capacity	**100**	**+5**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**70**	**0**
● Political Stability	75	0
● Effective Governance	50	0
● Pervasiveness of Corruption	50	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

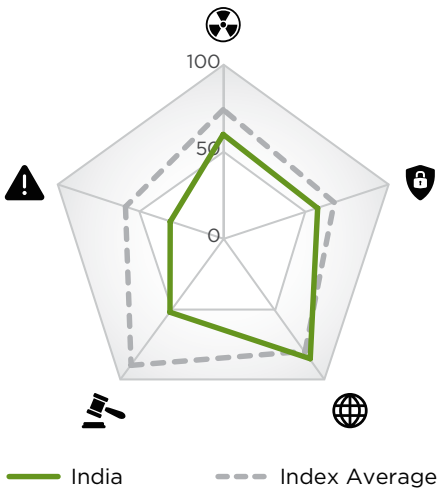
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

INDIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
56	+2	39

HIGHLIGHTS

India ranks 39th in the Sabotage Ranking. India's nuclear security conditions could be improved by strengthening on-site physical protection, control and accounting measures, insider threat prevention, and cybersecurity. India also could establish an independent regulatory agency and host an international review of its security arrangements. India's nuclear security conditions remain adversely affected by corruption challenges and the judgment that groups interested in and capable of committing acts of nuclear terrorism are present.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**60**	**0**
Number of Sites	60	0
Security and Control Measures	**57**	**0**
On-Site Physical Protection	60	0
Control and Accounting Procedures	43	0
Insider Threat Prevention	33	0
Response Capabilities	86	0
Cybersecurity	60	0
Global Norms	**85**	**0**
International Legal Commitments	100	0
Voluntary Commitments	100	0
International Assurances	50	0
Domestic Commitments and Capacity	**52**	**+5**
UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
Domestic Nuclear Security Legislation	67	0
Independent Regulatory Agency	0	0
Risk Environment	**32**	**+3**
Political Stability	65	+10
Effective Governance	38	0
Pervasiveness of Corruption	25	0
Group(s) Interested in Committing Acts of Nuclear Terrorism	0	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

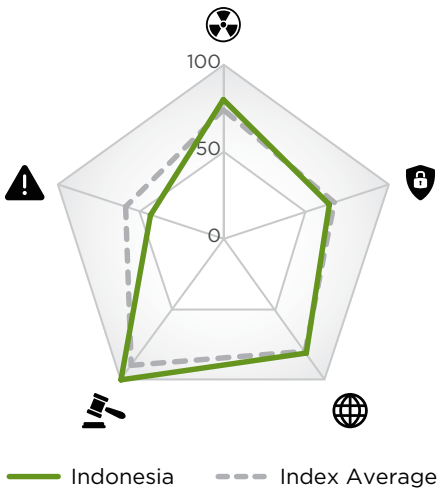
SABOTAGE RANKING: COUNTRY SUMMARIES

INDONESIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
72	+5	=27

HIGHLIGHTS

Indonesia is tied for 27th in the Sabotage Ranking. Since 2016, Indonesia has improved its nuclear security conditions by making voluntary commitments and by establishing a Center of Excellence. Indonesia's nuclear security conditions could be improved by requiring more stringent and frequent personnel vetting and reporting of suspicious behavior to mitigate the insider threat, by explicitly mentioning the protection of nuclear facilities in its emergency preparedness regulations for natural disasters, and by improving cybersecurity at nuclear facilities. Indonesia's nuclear security conditions are adversely affected by corruption and governance challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**64**	**0**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	33	0
● Response Capabilities	71	0
● Cybersecurity	20	0
Global Norms	**81**	**+5**
● International Legal Commitments	100	0
● Voluntary Commitments	60	+20
● International Assurances	75	0
Domestic Commitments and Capacity	**100**	**+16**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+60
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**44**	**+4**
● Political Stability	60	-5
● Effective Governance	38	0
● Pervasiveness of Corruption	25	+25
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

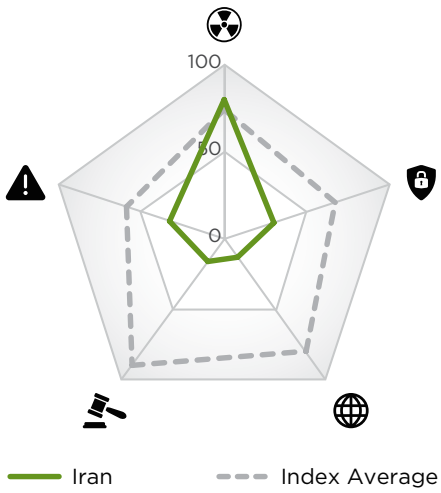
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

IRAN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
27	+3	44

HIGHLIGHTS

Iran ranks 44th in the Sabotage Ranking. Iran does not publish its nuclear security laws and regulations or other information. This lack of available information negatively affected Iran's score. Iran's nuclear security conditions are adversely affected by political stability, corruption, and governance challenges, as well as by a very high risk of international disputes and tensions.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**30**	**0**
● On-Site Physical Protection	40	0
● Control and Accounting Procedures	14	0
● Insider Threat Prevention	22	0
● Response Capabilities	71	0
● Cybersecurity	0	0
Global Norms	**13**	**0**
● International Legal Commitments	0	0
● Voluntary Commitments	20	0
● International Assurances	25	0
Domestic Commitments and Capacity	**16**	**+11**
● UN Security Council Resolution (UNSCR) 1540 Implementation	60	+40
● Domestic Nuclear Security Legislation	0	0
● Independent Regulatory Agency	0	0
Risk Environment	**33**	**+1**
● Political Stability	40	+5
● Effective Governance	38	0
● Pervasiveness of Corruption	0	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

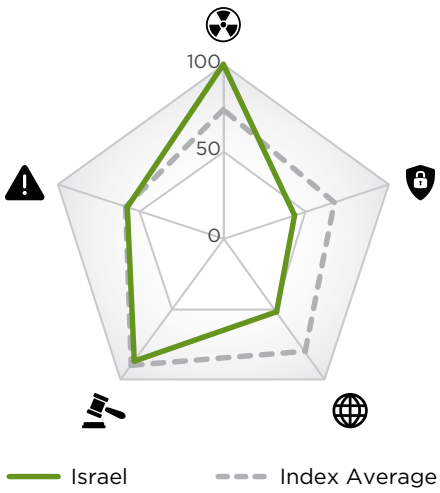
SABOTAGE RANKING: COUNTRY SUMMARIES

ISRAEL

2018 SCORE	CHANGE SINCE 2016	2018 RANK
61	+6	36

HIGHLIGHTS

Israel ranks 36th in the Sabotage Ranking. Additional voluntary commitments have improved Israel's score since 2016. Israel does not publish its nuclear security laws and regulations or other information, and this lack of available information negatively affected its score. Israel's nuclear security conditions are adversely affected by a very high risk of international disputes and tensions.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**43**	**0**
● On-Site Physical Protection	80	0
● Control and Accounting Procedures	0	0
● Insider Threat Prevention	33	0
● Response Capabilities	71	0
● Cybersecurity	20	0
Global Norms	**52**	**+6**
● International Legal Commitments	71	0
● Voluntary Commitments	80	+20
● International Assurances	0	0
Domestic Commitments and Capacity	**87**	**+16**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+60
● Domestic Nuclear Security Legislation	67	0
● Independent Regulatory Agency	100	0
Risk Environment	**58**	**+6**
● Political Stability	55	+20
● Effective Governance	75	0
● Pervasiveness of Corruption	50	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

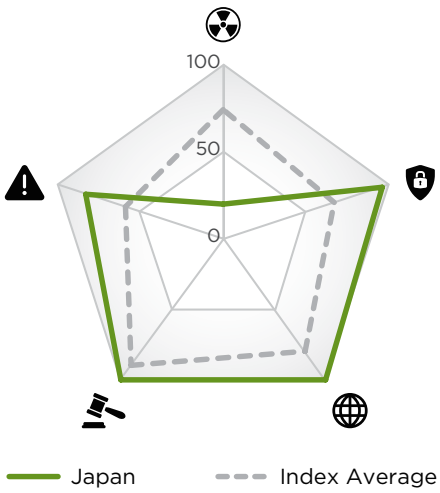
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

JAPAN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
91	+3	=4

HIGHLIGHTS

Japan is tied for fourth in the Sabotage Ranking. Since 2016, Japan improved its nuclear security conditions by increasing vetting requirements for personnel and by requiring a cyber-incident response plan. Japan's nuclear security conditions could be further improved by requiring a performance-based program that assesses cybersecurity at nuclear facilities. Japan's nuclear security conditions are adversely affected by the large number of nuclear sites in the country.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**20**	**0**
● Number of Sites	20	0
Security and Control Measures	**96**	**+11**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	100	+33
● Response Capabilities	100	0
● Cybersecurity	80	+20
Global Norms	**100**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	100	0
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**83**	**0**
● Political Stability	80	-10
● Effective Governance	75	+12
● Pervasiveness of Corruption	75	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

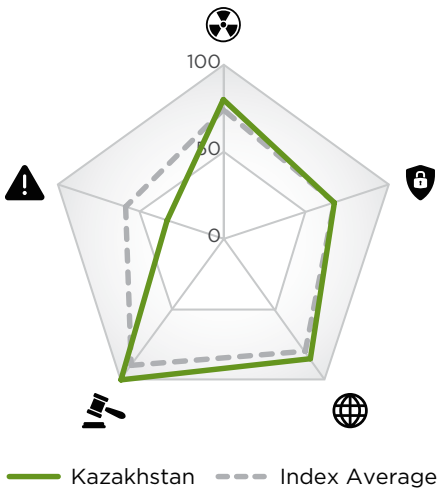
SABOTAGE RANKING: COUNTRY SUMMARIES

KAZAKHSTAN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
72	+5	=27

HIGHLIGHTS

Kazakhstan is tied for 27th in the Sabotage Ranking. Since 2016, Kazakhstan improved its nuclear security conditions by requiring updates to its Design Basis Threat, by strengthening control and accounting measures, and by requiring cybersecurity at nuclear facilities. Kazakhstan's nuclear security conditions could be improved by strengthening laws and regulations to mitigate insider threats and by requiring law enforcement response training and cybersecurity for nuclear facilities. Kazakhstan's nuclear security conditions are adversely affected by governance and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**67**	**+11**
● On-Site Physical Protection	100	+20
● Control and Accounting Procedures	100	+14
● Insider Threat Prevention	44	0
● Response Capabilities	71	0
● Cybersecurity	20	+20
Global Norms	**85**	**-7**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	50	-25
Domestic Commitments and Capacity	**100**	**+11**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+40
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**34**	**+3**
● Political Stability	55	0
● Effective Governance	25	+12
● Pervasiveness of Corruption	0	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

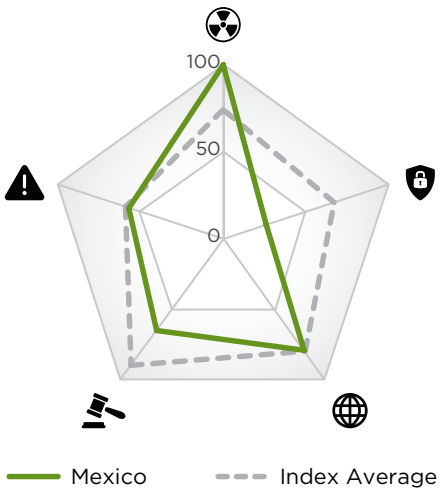
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

MEXICO

2018 SCORE	CHANGE SINCE 2016	2018 RANK
55	+2	40

HIGHLIGHTS

Mexico ranks 40th in the Sabotage Ranking. Mexico's nuclear security conditions could be improved by enhancing on-site physical protection measures, control and accounting procedures, insider threat prevention measures, response capabilities, and cybersecurity requirements for nuclear facilities. Mexico's nuclear security conditions could also be improved by establishing an independent regulatory agency. Mexico's nuclear security conditions remain adversely affected by corruption and social unrest challenges, as well as by a high risk of international disputes.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**26**	**0**
● On-Site Physical Protection	60	0
● Control and Accounting Procedures	29	0
● Insider Threat Prevention	11	0
● Response Capabilities	29	0
● Cybersecurity	0	0
Global Norms	**79**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	80	0
● International Assurances	50	0
Domestic Commitments and Capacity	**65**	**+11**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+40
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	0	0
Risk Environment	**57**	**-2**
● Political Stability	45	-10
● Effective Governance	50	0
● Pervasiveness of Corruption	25	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

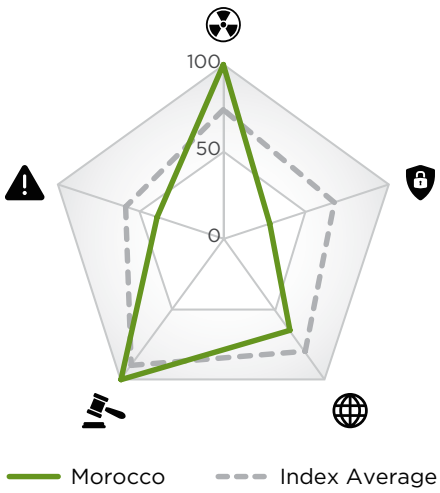
SABOTAGE RANKING: COUNTRY SUMMARIES

MOROCCO

2018 SCORE	CHANGE SINCE 2016	2018 RANK
58	+8	=37

HIGHLIGHTS

Morocco is tied for 37th in the Sabotage Ranking, with a score increase of eight points since 2016. Morocco improved its nuclear security conditions since 2016 by ratifying the 2005 Amendment to the CPPNM. Morocco's nuclear security conditions could be improved by requiring cybersecurity at nuclear facilities, strengthening control and accounting measures, improving response capabilities, and requiring more frequent personnel vetting and constant surveillance of protected areas. Morocco also could host an international security review. Morocco's nuclear security conditions are adversely affected by political stability, governance, and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**28**	**0**
● On-Site Physical Protection	80	0
● Control and Accounting Procedures	29	0
● Insider Threat Prevention	0	0
● Response Capabilities	29	0
● Cybersecurity	0	0
Global Norms	**65**	**+6**
● International Legal Commitments	86	+15
● Voluntary Commitments	80	0
● International Assurances	25	0
Domestic Commitments and Capacity	**100**	**+16**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+60
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**40**	**+13**
● Political Stability	45	0
● Effective Governance	38	0
● Pervasiveness of Corruption	25	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	+50

= denotes tie in rank

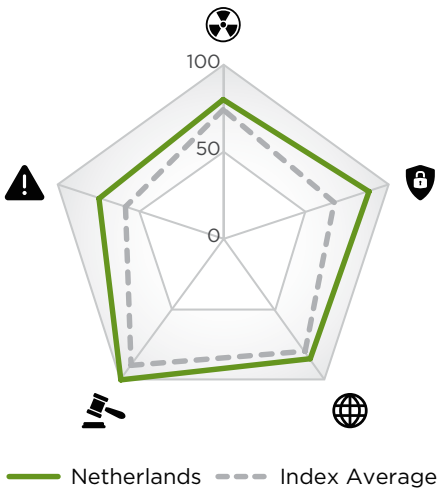
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

NETHERLANDS

2018 SCORE	CHANGE SINCE 2016	2018 RANK
87	+1	=11

HIGHLIGHTS

The Netherlands is tied for 11th in the Sabotage Ranking. The Netherlands' nuclear security conditions could be improved by requiring on-site armed response capabilities, as well as by more stringent and frequent personnel vetting to mitigate insider threats. Nuclear security conditions could also be improved if the country hosted a new international review of its security arrangements.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**88**	**0**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	86	0
● Insider Threat Prevention	67	0
● Response Capabilities	86	0
● Cybersecurity	100	0
Global Norms	**85**	**-7**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	50	-25
Domestic Commitments and Capacity	**100**	**+11**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+40
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**75**	**0**
● Political Stability	80	0
● Effective Governance	75	0
● Pervasiveness of Corruption	100	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

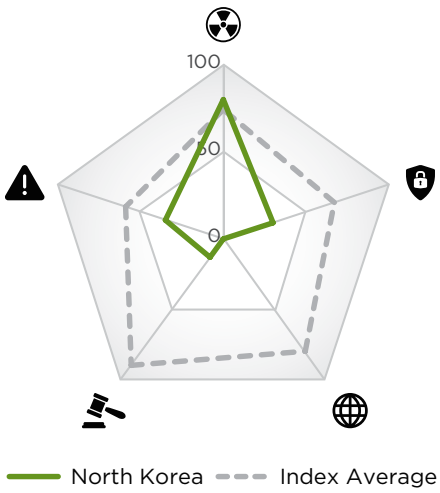
SABOTAGE RANKING: COUNTRY SUMMARIES

NORTH KOREA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
24	0	45

HIGHLIGHTS

North Korea ranks 45th in the Sabotage Ranking. North Korea does not publish its nuclear security laws and regulations or other information, and this lack of available information negatively affected its score. North Korea's nuclear security conditions are adversely affected by political stability, governance, and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**30**	**0**
● On-Site Physical Protection	40	0
● Control and Accounting Procedures	14	0
● Insider Threat Prevention	22	0
● Response Capabilities	71	0
● Cybersecurity	0	0
Global Norms	**0**	**0**
● International Legal Commitments	0	0
● Voluntary Commitments	0	0
● International Assurances	0	0
Domestic Commitments and Capacity	**13**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	0	0
● Domestic Nuclear Security Legislation	33	0
● Independent Regulatory Agency	0	0
Risk Environment	**35**	**+1**
● Political Stability	30	+5
● Effective Governance	0	0
● Pervasiveness of Corruption	0	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

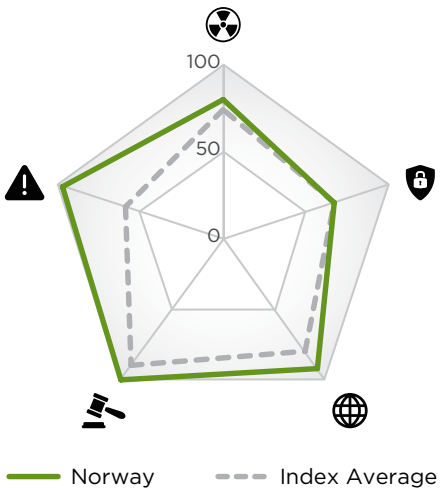
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

NORWAY

2018 SCORE	CHANGE SINCE 2016	2018 RANK
86	+3	=14

HIGHLIGHTS

Norway is tied for 14th in the Sabotage Ranking. Since 2016, Norway improved law enforcement response training at nuclear facilities and incorporated cyber threats into its Design Basis Threat. Norway's nuclear security conditions could be further improved by requiring more stringent and frequent personnel vetting and additional surveillance measures to mitigate the insider threat, by strengthening emergency response capabilities, and by improving cybersecurity measures at its nuclear facilities.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**67**	**+7**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	22	0
● Response Capabilities	57	+14
● Cybersecurity	60	+20
Global Norms	**92**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	75	0
Domestic Commitments and Capacity	**100**	**+5**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**97**	**0**
● Political Stability	100	0
● Effective Governance	88	0
● Pervasiveness of Corruption	100	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

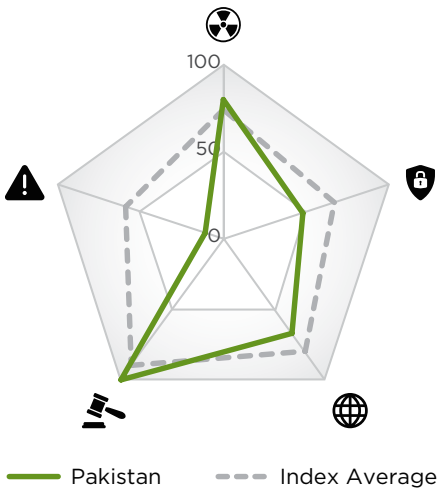
SABOTAGE RANKING: COUNTRY SUMMARIES

PAKISTAN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
58	+6	=37

HIGHLIGHTS

Pakistan is tied for 37th in the Sabotage Ranking. Since 2016, Pakistan improved its control and accounting procedures, increased its surveillance measures to mitigate insider threats, ratified the 2005 Amendment to the CPPNM, and complied with Convention on Nuclear Safety reporting requirements. Pakistan could improve its nuclear security conditions by strengthening surveillance of protected areas, on-site physical protection, control and accounting procedures, and cybersecurity measures, as well as by hosting an international security review. Pakistan's nuclear security conditions are adversely affected by corruption challenges and the judgment that groups interested in and capable of committing acts of nuclear terrorism are present.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Number of Sites	**80**	**0**
●	Number of Sites	80	0
	Security and Control Measures	**48**	**+9**
●	On-Site Physical Protection	60	+20
●	Control and Accounting Procedures	57	+14
●	Insider Threat Prevention	33	+11
●	Response Capabilities	71	0
●	Cybersecurity	20	0
	Global Norms	**67**	**+6**
●	International Legal Commitments	71	+14
●	Voluntary Commitments	80	0
●	International Assurances	50	0
	Domestic Commitments and Capacity	**100**	**+13**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
●	Domestic Nuclear Security Legislation	100	+33
●	Independent Regulatory Agency	100	0
	Risk Environment	**11**	**-5**
●	Political Stability	20	+5
●	Effective Governance	25	0
●	Pervasiveness of Corruption	0	-25
●	Group(s) Interested in Committing Acts of Nuclear Terrorism	0	0

= denotes tie in rank

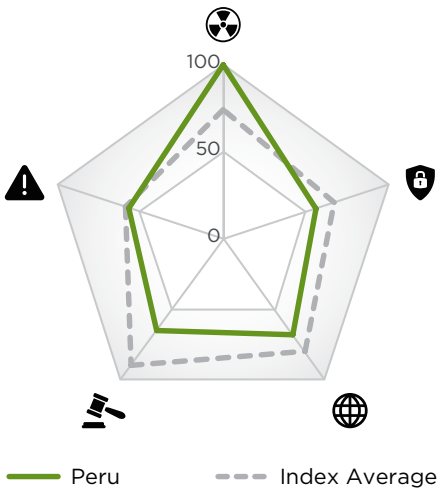
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

PERU

2018 SCORE	CHANGE SINCE 2016	2018 RANK
63	+1	=34

HIGHLIGHTS

Peru is tied for 34th in the Sabotage Ranking. Peru could improve its nuclear security conditions by requiring more frequent personnel vetting and constant surveillance of protected areas at nuclear facilities, by explicitly mentioning the protection of nuclear facilities in its emergency preparedness regulations for natural disasters, and by requiring cybersecurity measures for nuclear facilities. Peru could also improve its nuclear security conditions by establishing an independent regulatory agency and by hosting a new international security review. Peru's nuclear security conditions are adversely affected by governance and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**56**	**0**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	86	0
● Insider Threat Prevention	22	0
● Response Capabilities	71	0
● Cybersecurity	0	0
Global Norms	**68**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	40	0
● International Assurances	50	0
Domestic Commitments and Capacity	**65**	**+5**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	0	0
Risk Environment	**57**	**-2**
● Political Stability	60	+5
● Effective Governance	38	-12
● Pervasiveness of Corruption	25	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

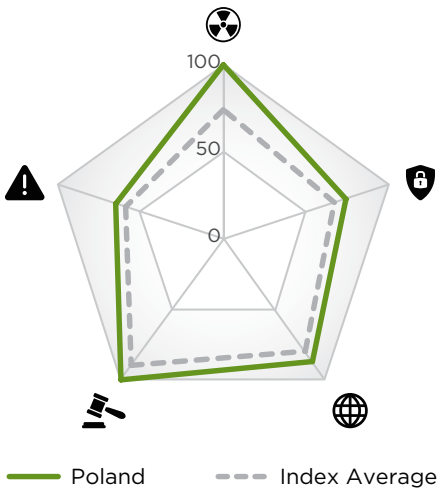
SABOTAGE RANKING: COUNTRY SUMMARIES

POLAND

2018 SCORE	CHANGE SINCE 2016	2018 RANK
82	-1	19

HIGHLIGHTS

Poland ranks 19th in the Sabotage Ranking. Poland could improve its nuclear security conditions by requiring updates to its Design Basis Threat, by increasing the frequency of personnel vetting, by increasing surveillance and reporting measures that mitigate insider threats, and by strengthening cybersecurity measures. Poland's nuclear security conditions are adversely affected by decreasing political stability.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**74**	**0**
● On-Site Physical Protection	80	0
● Control and Accounting Procedures	86	0
● Insider Threat Prevention	67	0
● Response Capabilities	100	0
● Cybersecurity	40	0
Global Norms	**87**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	80	0
● International Assurances	75	0
Domestic Commitments and Capacity	**100**	**+5**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**65**	**-9**
● Political Stability	55	-25
● Effective Governance	50	-13
● Pervasiveness of Corruption	50	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

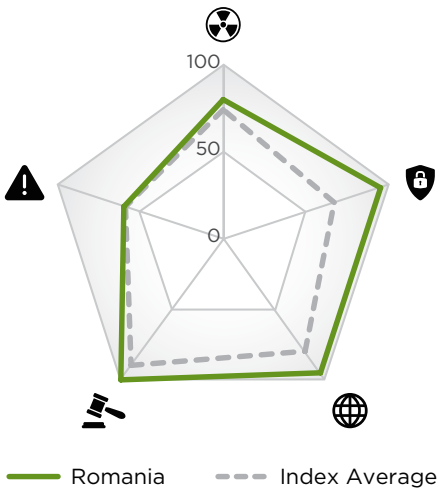
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

ROMANIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
88	0	10

HIGHLIGHTS

Romania ranks 10th in the Sabotage Ranking. Romania could improve its nuclear security conditions by requiring more stringent personnel vetting and surveillance measures of protected areas to mitigate insider threats, as well as by increasing its voluntary commitments. Romania's nuclear security conditions are adversely affected by governance and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**95**	**0**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	78	0
● Response Capabilities	100	0
● Cybersecurity	100	0
Global Norms	**95**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	80	0
● International Assurances	100	0
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**60**	**+3**
● Political Stability	70	0
● Effective Governance	38	+13
● Pervasiveness of Corruption	25	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

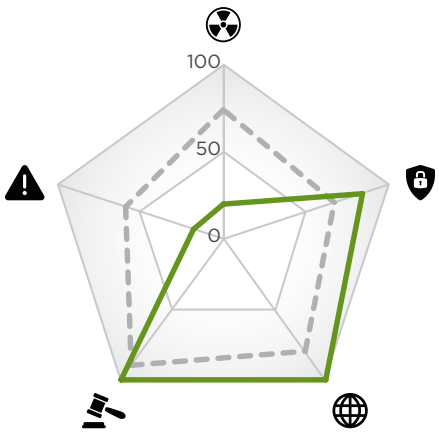
SABOTAGE RANKING: COUNTRY SUMMARIES

RUSSIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
74	+3	=24

HIGHLIGHTS

Russia is tied for 24th in the Sabotage Ranking. Russia could improve its nuclear security conditions by requiring updates to its Design Basis Threat, by mandating more frequent personnel vetting, and by reporting suspicious personnel behavior at nuclear facilities. Russia could further improve its nuclear security conditions by requiring a cyber-incident response plan. Russia's nuclear security conditions are adversely affected by the large number of nuclear sites; by political stability, governance, and corruption challenges; and by the judgment that groups interested in and capable of committing acts of nuclear terrorism are present.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Number of Sites	**20**	**0**
●	Number of Sites	20	0
	Security and Control Measures	**84**	**0**
●	On-Site Physical Protection	80	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	78	0
●	Response Capabilities	86	0
●	Cybersecurity	80	0
	Global Norms	**100**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	100	0
	Domestic Commitments and Capacity	**100**	**+11**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	+40
●	Domestic Nuclear Security Legislation	100	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**18**	**+4**
●	Political Stability	45	+15
●	Effective Governance	25	0
●	Pervasiveness of Corruption	0	0
●	Group(s) Interested in Committing Acts of Nuclear Terrorism	0	0

= denotes tie in rank

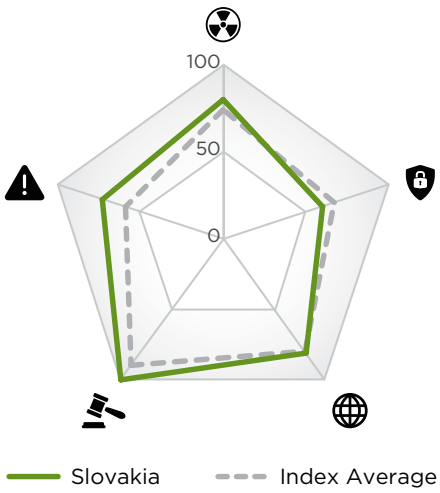
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

SLOVAKIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
77	0	22

HIGHLIGHTS

Slovakia ranks 22nd in the Sabotage Ranking. Slovakia could improve its nuclear security conditions by requiring nuclear facilities to define responsibilities and accountabilities for nuclear security, to increase frequency of personnel vetting, and to strengthen on-site armed response capabilities. Slovakia could also explicitly mention the protection of nuclear facilities in its emergency preparedness regulations for natural disasters and strengthen cybersecurity measures.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**60**	**0**
● On-Site Physical Protection	80	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	67	0
● Response Capabilities	57	0
● Cybersecurity	0	0
Global Norms	**81**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	60	0
● International Assurances	75	0
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**73**	**0**
● Political Stability	75	0
● Effective Governance	63	0
● Pervasiveness of Corruption	50	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

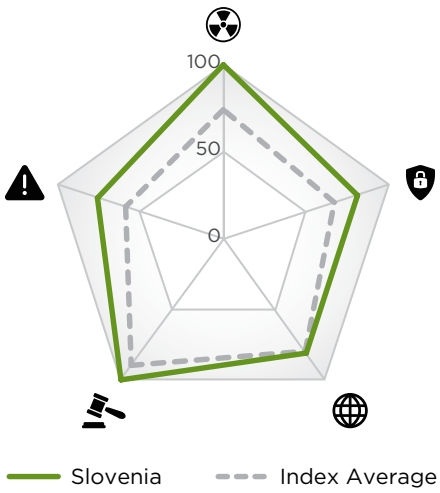
SABOTAGE RANKING: COUNTRY SUMMARIES

SLOVENIA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
85	+2	16

HIGHLIGHTS

Slovenia ranks 16th in the Sabotage Ranking. Since 2016, Slovenia improved its nuclear security conditions by requiring nuclear facilities to protect critical digital assets from cyberattack and by requiring a cyber-incident response plan. Slovenia could further improve its nuclear security conditions by using a performance-based program to assess security systems at nuclear sites, as well as by requiring more frequent personnel vetting, by mandating reporting of suspicious behavior, and by requiring surveillance of protected areas to mitigate insider threats.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**81**	**+8**
● On-Site Physical Protection	80	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	67	0
● Response Capabilities	100	0
● Cybersecurity	60	+40
Global Norms	**81**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	60	0
● International Assurances	75	0
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**76**	**-3**
● Political Stability	75	0
● Effective Governance	50	-13
● Pervasiveness of Corruption	75	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

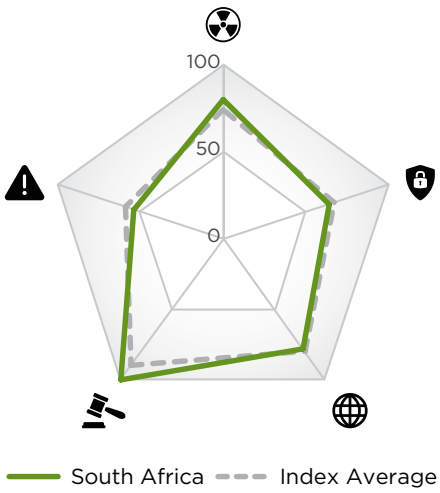
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

SOUTH AFRICA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
74	+3	=24

HIGHLIGHTS

South Africa is tied for 24th in the Sabotage Ranking. Since 2016, South Africa improved its nuclear security conditions by complying with the reporting requirements of the Convention on Nuclear Safety. South Africa could improve its nuclear security conditions by requiring more stringent and frequent personnel vetting and constant surveillance of protected areas at nuclear facilities, by requiring updates to its Design Basis Threat, and by defining nuclear security responsibilities in its laws and regulations. South Africa could also improve its nuclear security conditions by strengthening cybersecurity measures.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**80**	**0**
● Number of Sites	80	0
Security and Control Measures	**64**	**0**
● On-Site Physical Protection	60	0
● Control and Accounting Procedures	71	0
● Insider Threat Prevention	33	0
● Response Capabilities	100	0
● Cybersecurity	60	0
Global Norms	**78**	**0**
● International Legal Commitments	86	0
● Voluntary Commitments	40	0
● International Assurances	100	0
Domestic Commitments and Capacity	**100**	**+13**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	+33
● Independent Regulatory Agency	100	0
Risk Environment	**54**	**-1**
● Political Stability	65	-5
● Effective Governance	50	0
● Pervasiveness of Corruption	50	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

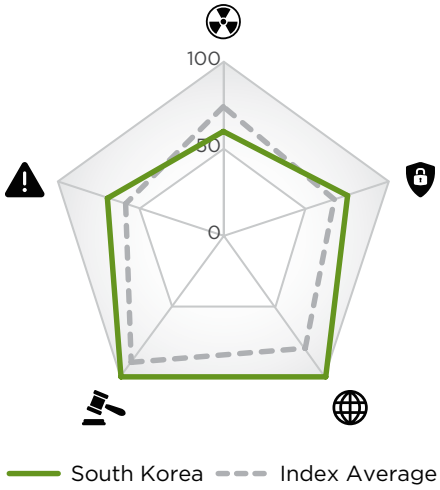
SABOTAGE RANKING: COUNTRY SUMMARIES

SOUTH KOREA

2018 SCORE	CHANGE SINCE 2016	2018 RANK
84	0	=17

HIGHLIGHTS

South Korea is tied for 17th in the Sabotage Ranking. South Korea's nuclear security conditions could be improved by requiring assessments of its security measures at nuclear sites. South Korea could also improve its nuclear security conditions by considering the radiological consequences of sabotage when designing physical protection measures, by requiring more frequent personnel vetting, and by mandating reporting of suspicious behavior.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**60**	**0**
Number of Sites	60	0
Security and Control Measures	**75**	**-4**
On-Site Physical Protection	60	0
Control and Accounting Procedures	57	0
Insider Threat Prevention	56	-22
Response Capabilities	100	0
Cybersecurity	100	0
Global Norms	**100**	**0**
International Legal Commitments	100	0
Voluntary Commitments	100	0
International Assurances	100	0
Domestic Commitments and Capacity	**100**	**+5**
UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
Domestic Nuclear Security Legislation	100	0
Independent Regulatory Agency	100	0
Risk Environment	**70**	**+2**
Political Stability	50	+5
Effective Governance	75	0
Pervasiveness of Corruption	50	0
Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

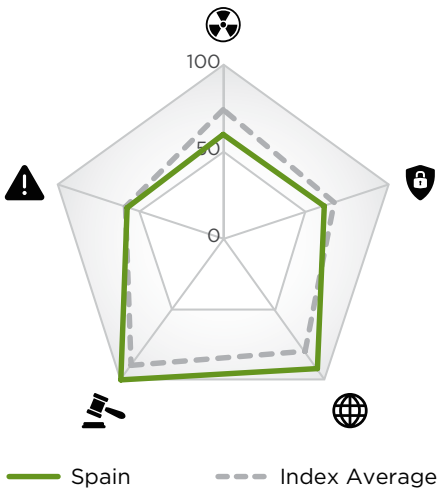
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

SPAIN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
75	+6	23

HIGHLIGHTS

Spain ranks 23rd in the Sabotage Ranking. Since 2016, Spain improved its nuclear security conditions by requiring reporting of suspicious personnel behavior at nuclear facilities and by improving cybersecurity regulations for nuclear facilities. Spain could further improve its nuclear security conditions by requiring more frequent personnel vetting, surveillance, and reporting measures to protect against insider threats. Spain could also require on-site armed response capabilities at facilities, assessments of its cybersecurity measures, and a cyber-incident response plan at nuclear facilities. Spain's nuclear security conditions are adversely affected by increasing governance challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**60**	**0**
● Number of Sites	60	0
Security and Control Measures	**61**	**+14**
● On-Site Physical Protection	60	0
● Control and Accounting Procedures	71	0
● Insider Threat Prevention	33	+11
● Response Capabilities	86	0
● Cybersecurity	60	+60
Global Norms	**92**	**-8**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	75	-25
Domestic Commitments and Capacity	**100**	**+18**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Security Legislation	100	+33
● Independent Regulatory Agency	100	0
Risk Environment	**58**	**-5**
● Political Stability	80	+5
● Effective Governance	50	-25
● Pervasiveness of Corruption	50	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

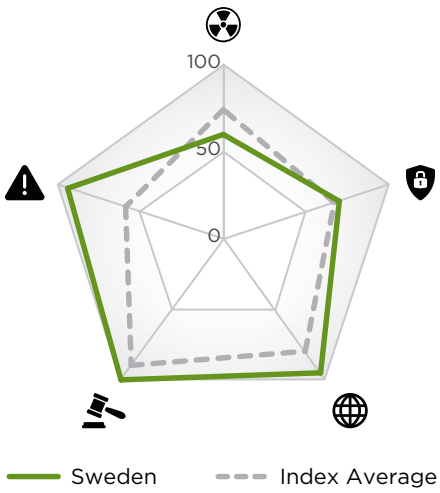
SABOTAGE RANKING: COUNTRY SUMMARIES

SWEDEN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
86	0	=14

HIGHLIGHTS

Sweden is tied for 14th in the Sabotage Ranking. Sweden's nuclear security conditions could be improved by requiring more stringent measures to mitigate insider threats, assessments of its cybersecurity measures, and on-site armed response at nuclear facilities. Sweden could further improve its nuclear security conditions by explicitly mentioning the protection of nuclear facilities in its emergency preparedness regulations for natural disasters.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**60**	**0**
Number of Sites	60	0
Security and Control Measures	**70**	**0**
On-Site Physical Protection	100	0
Control and Accounting Procedures	86	0
Insider Threat Prevention	33	0
Response Capabilities	71	0
Cybersecurity	60	0
Global Norms	**95**	**-5**
International Legal Commitments	100	0
Voluntary Commitments	80	-20
International Assurances	100	0
Domestic Commitments and Capacity	**100**	**+5**
UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
Domestic Nuclear Security Legislation	100	0
Independent Regulatory Agency	100	0
Risk Environment	**94**	**0**
Political Stability	90	0
Effective Governance	88	0
Pervasiveness of Corruption	100	0
Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

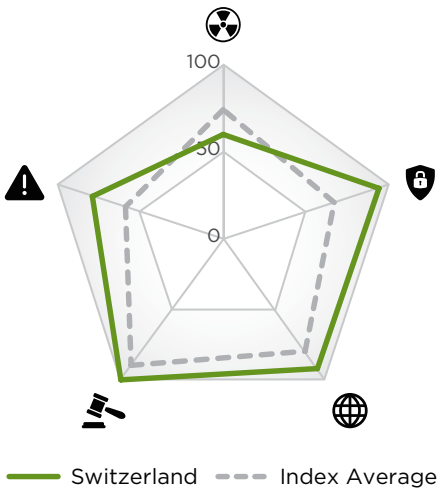
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

SWITZERLAND

2018 SCORE	CHANGE SINCE 2016	2018 RANK
90	+3	=6

HIGHLIGHTS

Switzerland is tied for sixth in the Sabotage Ranking. Since 2016, Switzerland improved its nuclear security conditions by making additional voluntary commitments. Switzerland could further improve its nuclear security conditions by strengthening surveillance measures at nuclear facilities and by requiring a cyber-incident response plan.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**60**	**0**
● Number of Sites	60	0
Security and Control Measures	**94**	**0**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	89	0
● Response Capabilities	100	0
● Cybersecurity	80	0
Global Norms	**92**	**+11**
● International Legal Commitments	100	0
● Voluntary Commitments	100	+40
● International Assurances	75	0
Domestic Commitments and Capacity	**100**	**+5**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**79**	**0**
● Political Stability	85	-10
● Effective Governance	88	+13
● Pervasiveness of Corruption	100	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

SABOTAGE RANKING: COUNTRY SUMMARIES

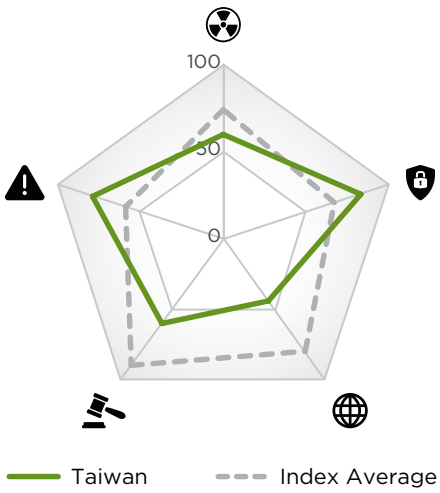
TAIWAN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
68	-1	=32

HIGHLIGHTS

Taiwan is tied for 32nd in the Sabotage Ranking. Taiwan's nuclear security conditions could be improved by establishing an independent regulatory agency, by publishing an annual report on nuclear security, and by hosting a new international security review. Taiwan's nuclear security conditions are adversely affected by increasing risk of international disputes.

For information on Taiwan's status and its treatment in the NTI Index, see the full EIU Methodology at www.ntiindex.org.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**60**	**0**
● Number of Sites	60	0
Security and Control Measures	**83**	**0**
● On-Site Physical Protection	80	0
● Control and Accounting Procedures	86	0
● Insider Threat Prevention	78	0
● Response Capabilities	71	0
● Cybersecurity	100	0
Global Norms	**44**	**-8**
● International Legal Commitments	43	0
● Voluntary Commitments	40	0
● International Assurances	50	-25
Domestic Commitments and Capacity	**60**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	80	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	0	0
Risk Environment	**79**	**+2**
● Political Stability	65	-5
● Effective Governance	75	+12
● Pervasiveness of Corruption	75	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

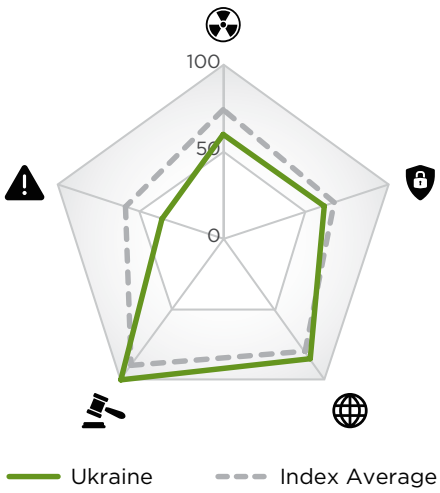
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

UKRAINE

2018 SCORE	CHANGE SINCE 2016	2018 RANK
70	+5	=30

HIGHLIGHTS

Ukraine is tied for 30th in the Sabotage Ranking. Since 2016, Ukraine improved its nuclear security conditions by complying with the reporting requirements of the Convention on Nuclear Safety. Ukraine's nuclear security conditions could be improved by strengthening laws and regulations to increase the frequency of personnel vetting, by strengthening surveillance and reporting measures to mitigate insider threats, by requiring protection of nuclear facilities and critical digital assets from cyberattack, and by hosting a new international security review. Ukraine's nuclear security conditions are adversely affected by political stability, governance, and corruption challenges.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Number of Sites	**60**	**0**
●	Number of Sites	60	0
	Security and Control Measures	**61**	**0**
●	On-Site Physical Protection	80	0
●	Control and Accounting Procedures	86	0
●	Insider Threat Prevention	22	0
●	Response Capabilities	100	0
●	Cybersecurity	20	0
	Global Norms	**85**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	50	0
	Domestic Commitments and Capacity	**100**	**+18**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	+20
●	Domestic Nuclear Security Legislation	100	+33
●	Independent Regulatory Agency	100	0
	Risk Environment	**37**	**+1**
●	Political Stability	15	+5
●	Effective Governance	25	0
●	Pervasiveness of Corruption	0	0
●	Group(s) Interested in Committing Acts of Nuclear Terrorism	100	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

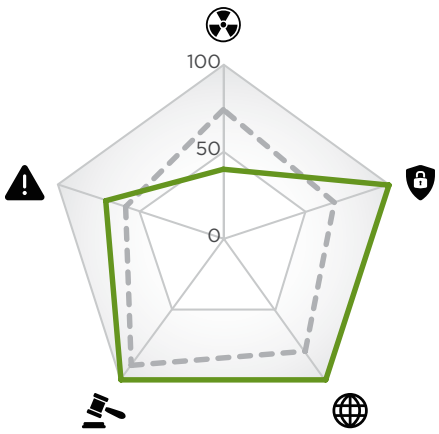
SABOTAGE RANKING: COUNTRY SUMMARIES

UNITED KINGDOM

2018 SCORE	CHANGE SINCE 2016	2018 RANK
91	+1	=4

HIGHLIGHTS

The United Kingdom is tied for fourth in the Sabotage Ranking. Since 2016, the United Kingdom has improved its nuclear security conditions by requiring a cyber-incident response plan at nuclear facilities. The United Kingdom's nuclear security conditions are adversely affected by the large number of nuclear sites in the country and by increasing governance challenges.



● Above Average ● Average ● Below Average

		2018 Score	Change Since 2016
	Number of Sites	**40**	**0**
●	Number of Sites	40	0
	Security and Control Measures	**100**	**+4**
●	On-Site Physical Protection	100	0
●	Control and Accounting Procedures	100	0
●	Insider Threat Prevention	100	0
●	Response Capabilities	100	0
●	Cybersecurity	100	+20
	Global Norms	**100**	**0**
●	International Legal Commitments	100	0
●	Voluntary Commitments	100	0
●	International Assurances	100	0
	Domestic Commitments and Capacity	**100**	**0**
●	UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
●	Domestic Nuclear Security Legislation	100	0
●	Independent Regulatory Agency	100	0
	Risk Environment	**71**	**-1**
●	Political Stability	75	+5
●	Effective Governance	63	-12
●	Pervasiveness of Corruption	100	0
●	Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

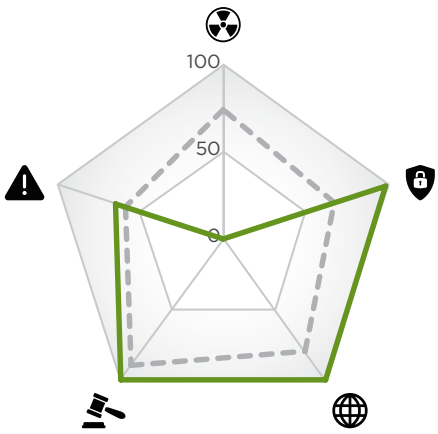
Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

UNITED STATES

2018 SCORE	CHANGE SINCE 2016	2018 RANK
87	-1	=11

HIGHLIGHTS

The United States is tied for 11th in the Sabotage Ranking. The United States could improve its nuclear security conditions by requiring more frequent personnel vetting at nuclear facilities. The nuclear security conditions in the United States are adversely affected by the large number of nuclear sites in the country, as well as by political stability and governance challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**0**	**0**
● Number of Sites	0	0
Security and Control Measures	**98**	**0**
● On-Site Physical Protection	100	0
● Control and Accounting Procedures	100	0
● Insider Threat Prevention	89	0
● Response Capabilities	100	0
● Cybersecurity	100	0
Global Norms	**100**	**0**
● International Legal Commitments	100	0
● Voluntary Commitments	100	0
● International Assurances	100	0
Domestic Commitments and Capacity	**100**	**0**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	0
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**65**	**-6**
● Political Stability	75	-10
● Effective Governance	63	-12
● Pervasiveness of Corruption	75	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

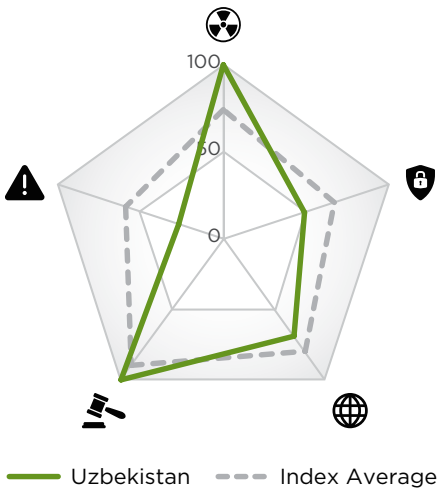
SABOTAGE RANKING: COUNTRY SUMMARIES

UZBEKISTAN

2018 SCORE	CHANGE SINCE 2016	2018 RANK
63	+7	=34

HIGHLIGHTS

Uzbekistan is tied for 34th in the Sabotage Ranking, with a score increase of seven points since 2016. Uzbekistan improved its nuclear security conditions since 2016 by hosting an international review of its security arrangements. Uzbekistan's nuclear security conditions could be improved by strengthening control and accounting procedures, by enhancing insider threat prevention measures, and by establishing cybersecurity requirements for nuclear facilities. Uzbekistan's nuclear security conditions remain adversely affected by governance and corruption challenges.



● Above Average ● Average ● Below Average

	2018 Score	Change Since 2016
Number of Sites	**100**	**0**
● Number of Sites	100	0
Security and Control Measures	**49**	**0**
● On-Site Physical Protection	80	0
● Control and Accounting Procedures	57	0
● Insider Threat Prevention	22	0
● Response Capabilities	86	0
● Cybersecurity	0	0
Global Norms	**69**	**+7**
● International Legal Commitments	71	0
● Voluntary Commitments	60	0
● International Assurances	75	+25
Domestic Commitments and Capacity	**100**	**+16**
● UN Security Council Resolution (UNSCR) 1540 Implementation	100	+60
● Domestic Nuclear Security Legislation	100	0
● Independent Regulatory Agency	100	0
Risk Environment	**27**	**+6**
● Political Stability	50	+20
● Effective Governance	0	0
● Pervasiveness of Corruption	0	0
● Group(s) Interested in Committing Acts of Nuclear Terrorism	50	0

= denotes tie in rank

Scores are normalized (0–100, where 100 = most favorable nuclear security conditions)

Explore the NTI Nuclear Security Index at www.ntiindex.org

- See profiles for all countries in the NTI Index, including areas for improvement
- Use the score simulator to adjust scores and see the impact on a country's ranking
- Compare country scores, ranks, and trends
- Review the full methodology, including detailed descriptions of the NTI Index indicators
- Download Excel spreadsheets to analyze all NTI Index data
- Find translations of the 2018 NTI Index—Russian, Chinese, Arabic, French, and Spanish
- Join the NTI Nuclear Security Index Challenge, a chance for NTI to reward your innovative use of the data!

THE 2018 NTI NUCLEAR SECURITY INDEX: THEFT AND SABOTAGE

Developed in 2012 with the Economist Intelligence Unit (EIU) and with input from a respected international panel of nuclear security experts, the Nuclear Threat Initiative (NTI) Nuclear Security Index tracks country-level progress on nuclear security and encourages governments to take actions to protect and build confidence in the security of their materials and facilities. The NTI Index is recognized as the premier resource and tool for tracking progress on nuclear security.

The 2018 NTI Nuclear Security Index assesses the security of some of the world's deadliest materials (highly enriched uranium and plutonium that can be used to build nuclear weapons), as well as the security of nuclear facilities, which, if sabotaged, could release dangerous levels of radiation.

The NTI Index ranks 22 countries with one kilogram or more of weapons-usable nuclear materials across a broad framework capturing policies, actions, and other conditions that shape their nuclear security. An additional 154 countries with less than one kilogram of weapons-usable nuclear materials or none at all are assessed across a subset of the framework. This "Theft Ranking" has been included in every edition of the NTI Index. In 2016, the NTI Index added a third set of countries in a new "Sabotage Ranking." An act of sabotage against a nuclear facility could lead to a dangerous radiation release. This assessment reviews the protection of nuclear facilities against sabotage in 44 countries and Taiwan.

The NTI Index is presented in three formats:

- The **print report**, which contains NTI observations and recommendations, an overview of the EIU methodology, selected data, and country profiles;
- The **website**, www.ntiindex.org, which shows high-level results, country profiles in an easily accessible format, and a detailed description of methodology;
- A **downloadable version of the 2018 NTI Index**, which is available through the website and shows detailed results and data and which provides extended interactive features in an Excel format.

This initiative is led by Page Stoutland, NTI Vice President, and Erin D. Dumbacher, Program Officer, Scientific and Technical Affairs.

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