

PAKISTAN'S NUCLEAR SECURITY: A JOURNEY OF EXCELLENCE

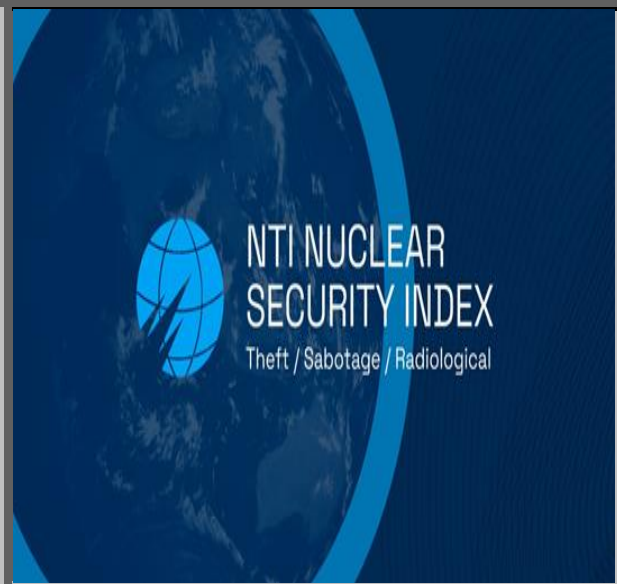
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(Views expressed in the brief are those of the author, and do not represent those of ISSI)



In July 2023, the Washington-based Nuclear Threat Initiative (NTI) released its nuclear security index that evaluated the status of global nuclear security. It ranked Pakistan at number 19 out of 22 states on its handling of hazardous material,¹ above India, Iran, and North Korea. Moreover, Pakistan improved its ranking by 3 points since the last assessment in 2020 with a score of 49 out of 100.² While this is tangible evidence of how Pakistan is constantly improving its nuclear security, this is at best a small reflection of the overall achievements. Pakistan has done a tremendous amount of work in building a strong nuclear security regime with several components – from an extensive legislative and regulatory framework that governs the security of nuclear materials, radioactive substances, and associated facilities and activities to the requisite institutions, resources, and manpower for its effective implementation.

¹ Secure Materials is a ranking of 22 countries with 1 kilogram or more of weapons-usable nuclear materials – HEU and separated plutonium – to assess actions to secure materials against theft.

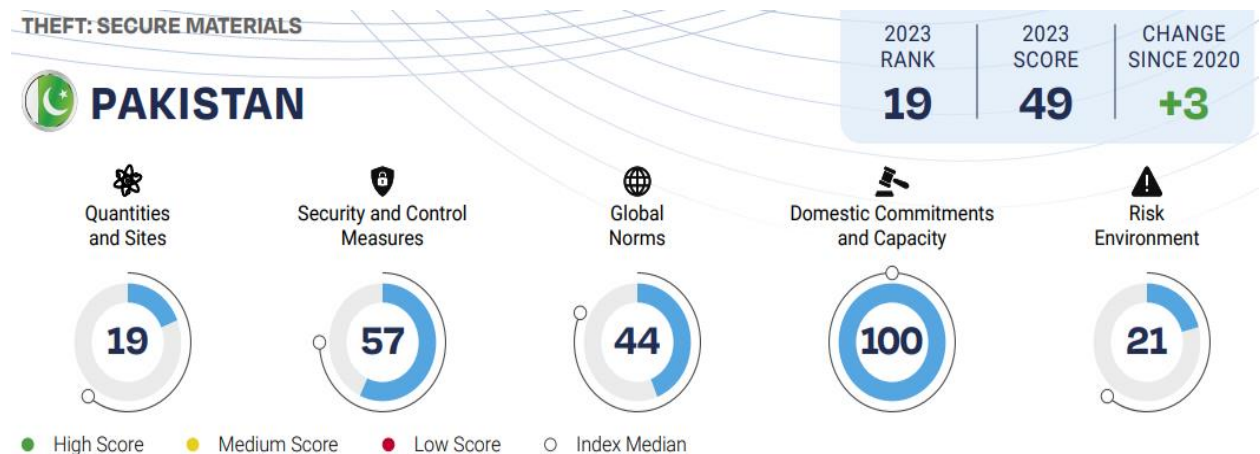
² The NTI Index assesses nuclear and radiological security conditions in 175 countries and Taiwan. The three nuclear security rankings score countries and areas on a scale of 0 to 100, where 100 is the highest possible score.



Source: "Pakistan," <https://www.ntiindex.org/country/pakistan/>

Nuclear Security Index

The NTI Nuclear Security Index measures states' nuclear security capabilities and efforts based on several indicators and criteria including factors like the security of nuclear materials and facilities, the adherence to international norms and treaties, the regulatory framework for nuclear security, and the implementation of best practices to prevent unauthorized access to nuclear weapons or materials. According to the latest ranking in the secure materials category Pakistan's total score of 49 which was higher than India's 40, Iran's 29, and North Korea's 18.

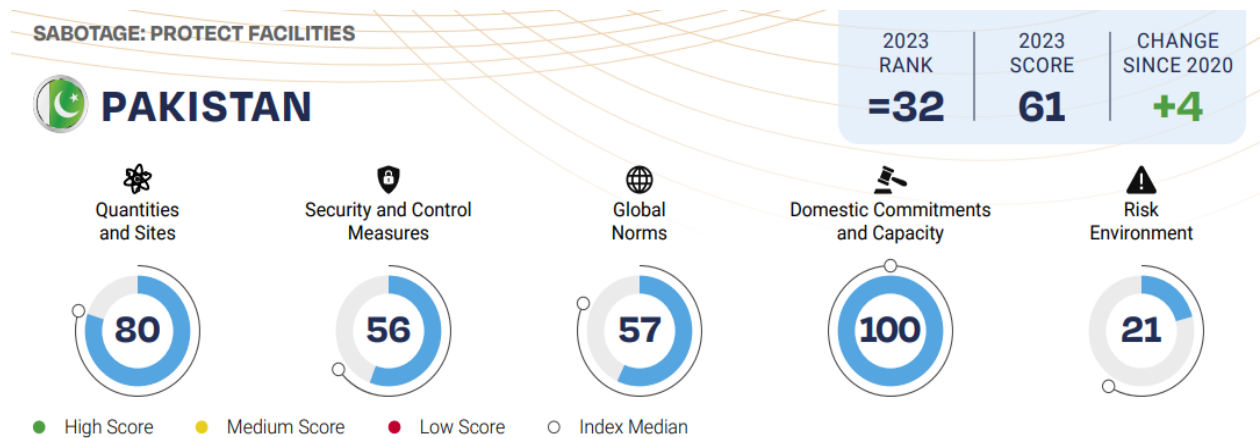


Source: "NTI Nuclear Security Index Report," July 2023, P.101

<https://www.ntiindex.org/wp-content/uploads/2023/07/2023-NTI-Index-Report.pdf>

It also showed that in the protection of nuclear facilities, Pakistan ranked 32 along with Russia and Israel. In terms of the security of its nuclear facilities Pakistan is above India, Iran, Mexico, South Africa, and several others on a list of 47 countries. In this category, Pakistan improved by 4 points

since the last assessment in 2020.³ In both categories Pakistan scored 100% on the 'Domestic Commitments and Capacity' segment due to the complete implementation of UNSCR 1540; relevant domestic nuclear security legislation; and independent regulatory agencies.



Source: "NTI Nuclear Security Index Report," July 2023, 136, https://www.ntiindex.org/wp-content/uploads/2023/07/2023_NTI-Index_Report.pdf

Renowned nuclear scientist Dr. Samar Mubarakmand said that "the improvement in the nuclear security index shows that Pakistan is a responsible nuclear state. Pakistan had possessed nuclear weapons for over three decades, and despite witnessing testing times, its nuclear program has remained safe and secured."⁴

Pakistan's Nuclear Security

Pakistan has worked diligently to improve all aspects of its nuclear security. Especially in the two and a half decades since its 1998 nuclear tests, Pakistan has taken important steps to strengthen its nuclear safety and enhance its nuclear security culture.⁵ At present its nuclear security is comprised of three main pillars – legislative and regulatory framework, the number of organizations that help implement security regulations, and systems it has in place and measures to ensure nuclear security. This regime has come together as a result of decades of hard work in order to cover the entire spectrum of activities.

³ "NTI Nuclear Security Index Report," July 2023, https://www.ntiindex.org/wp-content/uploads/2023/07/2023_NTI-Index_Report.pdf

⁴ "Pakistan's Nuclear Security Ranking upgraded," *Dawn*, July 20, 2023, <https://www.dawn.com/news/1765748>

⁵ IAEA defines nuclear security culture as: "the assembly of characteristics, attitudes and behavior of individuals, organizations, and institutions which serves as a means to support and enhance nuclear security." "Nuclear Security Culture," IAEA Nuclear Security Series No. 7, 2008, https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1347_web.pdf#page=12

The legislative aspect of the regime is comprised of the NCA Act enacted in 2010, PAEC Ordinance 1965, the Pakistan Nuclear Regulatory Authority (PNRA) Ordinance 2001; and Strategic Export Control Act 2004. Under the NCA Act, the National Command Authority is responsible for formulating policies on deployment, and security of Pakistan's nuclear arsenal as well as nuclear safety, security, and physical protection of nuclear assets. Strategic Export Control Act 2004 governs strengthened export controls on sensitive and dual-use goods/technologies related to nuclear and biological weapons and delivery means. PNRA, established in 2001, regulates the nuclear and radiation safety and nuclear security aspects of nuclear installations and radiation facilities; and is responsible for licensing and implementation of regulations at facilities. These legislative measures cover all aspects of nuclear activities.

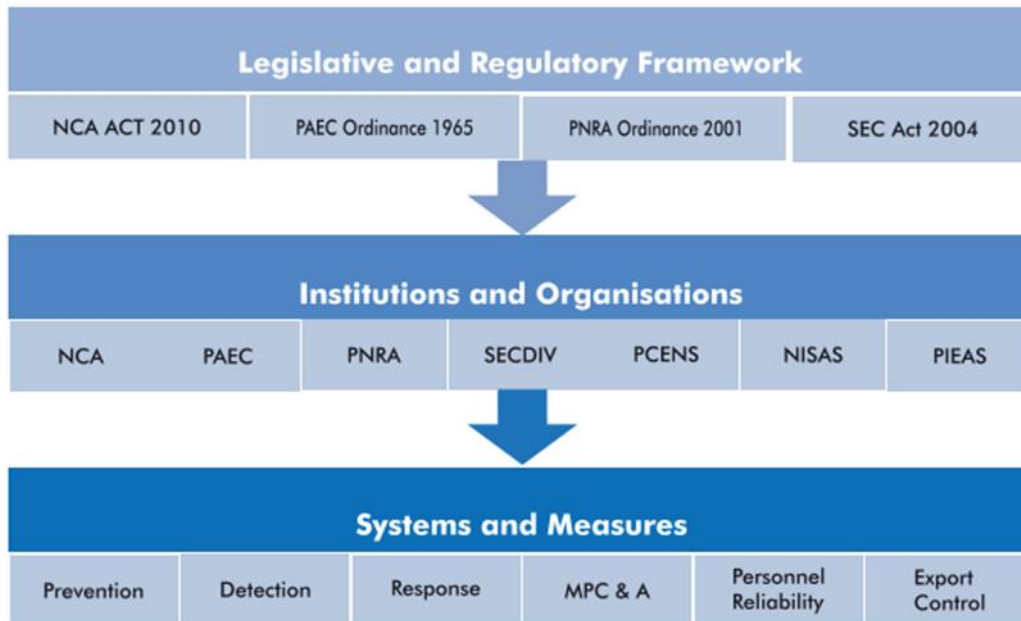
The legislative framework is backed by a number of organizations and institutions. The Pakistan Atomic Energy Commission (PAEC) oversees all civil nuclear activities – from nuclear energy production⁶ to the health⁷ and agriculture sector as well as industry. The Strategic Export Control Division (SECDIV) was created in 2007 as part of the Ministry of Foreign Affairs to administer and enforce export controls in pursuance of the Strategic Export Control Act 2004.⁸ It maintains National Control Lists which are consistent with the lists of international export control groups, namely the Nuclear Suppliers Group (NSG), Australia Group (AG), and Missile Technology Control Regime (MTCR).⁹

6 Pakistan operates 6 nuclear power plants that provide 12% of energy needs in Pakistan. For details on nuclear energy in Pakistan see Ghazala Yasmin Jalil, "Nuclear Energy in Pakistan: Prospects and Challenges," Dec 21, 2022, <https://issi.org.pk/issue-brief-on-nuclear-energy-in-pakistan-prospects-and-challenges/>

7 PAEC operates 19 cancer hospitals across the country that treat over a million cancer patients every year.

8 "Strategic Export Control Act 2004," <http://www.secdiv.gov.pk/uploads/Doc-1%20Export%20Control%20Act-2004-0c0c.pdf>

9 Malik Qasim Mustafa, Ghazala Yasmin Jalil and Tahir Mahmood Azad "Pakistan and India: Non-Proliferation Credentials," Nuclear Paper Series No. 2, Islamabad Papers 2016, Institute of Strategic Studies, Islamabad, <https://issi.org.pk/wp-content/uploads/2016/02/Nuclear-Paper-Series-No.-2.pdf>



Source: Pakistan's Nuclear Security Regime, Ministry of Foreign Affairs Government of Pakistan, 2020, <https://mofa.gov.pk/wp-content/uploads/2020/02/NSRFinal08-02-2020.pdf>

Pakistan also operates the Centre of Excellence for Nuclear Security (PCENS), which offers training in nuclear security and response and has organized training courses on nuclear security for personnel from national and regional organizations. Pakistan is also collaborating with the growing International Network for Nuclear Security Training and Support Centres (NSSC), developed by IAEA and aimed at fostering nuclear security culture and enhancing coordination and collaboration among States that have established nuclear security centers. Pakistan promotes and shares best practices in nuclear security through three affiliated institutes: the PCENS, the National Institute of Safety and Security (NISAS), and the Pakistan Institute of Engineering and Applied Sciences (PIEAS). NISAS conducts specialized courses to provide comprehensive training for professionals, technicians, and managers in the fields of nuclear safety and security and radiation safety while PIEAS conducts academic courses at the master's level in nuclear security. NISAS is already collaborating with the IAEA Centre for Nuclear Security Education, Training, and Technical Support since October 2022.¹⁰ It is one of only ten IAEA collaborating centers in the world on nuclear security. It is a matter of great pride for Pakistan and serves to underscore the high standards in nuclear safety and security that it has maintained.

¹⁰ Vasiliki Tafili "Pakistan National Institute of Safety and Security Becomes IAEA Collaborating Centre for Nuclear Security Education, Training and Technical Support," October 12, 2022, <https://www.iaea.org/newscenter/news/pakistan-national-institute-of-safety-and-security-becomes-iaeacollaborating-centre-for-nuclear-security-education-training-and-technical-support>

International Instruments

At the international level, Pakistan has engaged widely and signed several instruments to strengthen its commitment to nuclear safety and security:

- In 2002, Pakistan signed the Convention on the Physical Protection of Nuclear Material (CPPNM)¹¹ and has also signed the 2005 CPPNM amendment.
- In 2019, Pakistan also enacted “Regulations on Physical Protection of Nuclear Material and Nuclear Installations PAK/925” which is in line with IAEA’s Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Rev.5).
- In 2018, PNRA enacted “Regulations on Security of Radioactive Sources - (PAK/926)” in 2018, which is harmonized with the provisions of the IAEA’s ‘Code of Conduct on Safety and Security of Radioactive Sources’ and its two Supplementary Guidance on ‘Import/ Export of Radioactive Sources’ and ‘Management of Disused Sources’.¹²
- Pakistan has submitted five reports on National Measures to implement UN Security Council Resolution 1540 and is in complete compliance at the moment.
- In 1994, Pakistan signed the International Convention on Nuclear Safety.
- Pakistan is also party to the Convention on Early Notification of Nuclear Accidents since 1989.
- Pakistan has a long history of engagement with the IAEA for promoting nuclear safety and security, as well as peaceful uses of nuclear technologies.

Pakistan’s adherence to international instruments, protocols, and codes of conduct demonstrates its confidence in its national nuclear security regime which is at par with the latest international standards. It is also a reaffirmation of Pakistan’s commitment to the objective of nuclear security and reinforces Pakistan’s credentials as a responsible nuclear state. Pakistan also has a robust nuclear security culture that has matured over decades bringing together legislative framework, regulatory institutions, and bodies that ensure nuclear safety and security.

¹¹ It deals with physical protection of nuclear material and establishes measures related to the prevention, detection and punishment of offences related to nuclear material.

¹² Pakistan’s Nuclear Security Regime, Ministry of Foreign Affairs Government of Pakistan, 2020, <https://mofa.gov.pk/wp-content/uploads/2020/02/NSRFinal08-02-2020.pdf>

Conclusion

Pakistan has come a long way in its journey of nuclear security excellence. However, it still has a long way to go for excellence is a journey, not a destination. Pakistan has a robust nuclear security regime that ensures the security of its facilities and materials, while maintaining effective regulatory mechanisms. Pakistan has implemented stringent export control measures to ensure there is zero proliferation of nuclear technology, materials, and expertise. It is a member of various international non-proliferation regimes and instruments; and has put in place export control laws that comply with international standards. This demonstrates Pakistan's unwavering commitment to ensuring nuclear safety. The Director General IAEA, Mr. Rafael Mariano Grossi, visited Pakistan in February 2023 and lauded the highest standards of nuclear safety and security that it maintains. The NTI 2023 nuclear security index's ranking of Pakistan also reflects this commitment whereby Pakistan improved the ranking by 3 points since 2020. In 2020, Pakistan was declared the most improved country in the theft ranking, improving its overall score by 7 points from 2018. Pakistan's nuclear security has, thus, improved by leaps and bounds.

Compared to India, Pakistan has a better safety and security record which is also backed by the evidence of the Nuclear Security Index. Pakistan has had over 50 years' record of safe operation of its nuclear power plants, its commitment to peaceful uses of nuclear technology,¹³ its increasing cooperation with the IAEA,¹⁴ and its commitment to principles of nuclear non-proliferation. India has had dozens of incidents of nuclear materials theft with fears that there is a nuclear black market in India.¹⁵ In comparison, Pakistan has an impeccable safety and security record, which helps promote the positive image of a responsible nuclear state. These achievements need to be showcased to challenge misperceptions about Pakistan's nuclear security regime and improve the global image. It is indispensable to continue the productive and proactive nuclear diplomacy for advancing these vital goals.

¹³ For details see Alishba Khan, "Nuclear Technology for Socio-Economic Development in Pakistan," Oct 13, 2022, Issue Brief, https://issi.org.pk/wp-content/uploads/2022/10/IB-Alishba_Oct_13_2022.pdf; and Ghazala Yasmin Jalil, "Nuclear Energy in Pakistan: Prospects and Challenges," Dec 21, 2022, <https://issi.org.pk/issue-brief-on-nuclear-energy-in-pakistan-prospects-and-challenges/>

¹⁴ For details see Ghazala Yasmin Jalil, "Pakistan-IAEA Cooperation Set To Strengthen," Feb 23, 2023, Issue Brief, <https://issi.org.pk/issue-brief-on-pakistan-iaea-cooperation-set-to-strengthen/>

¹⁵ Pakistan and India: Non-Proliferation Credentials, op.cit.