



NUCLEAR SECURITY

THE NTI INDEX 2014: AN ASSESSMENT



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Global indices comparing nations on the basis of criteria like ease of doing business, transparency and corruption, access to education, public health and so on are bound to be controversial, especially in regard to the inter-se ranking of nations, leading them to question the parameters on which these indices are premised. Clearly, the need to establish parameters with a global remit will clash with purely regional and national interests and considerations. Ultimately, these indices derive from lay perceptions of individuals and specialists that could differ radically from each other.

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The exercises undertaken by the Nuclear Threat Initiative (NTI) to construct an Index on the global state of nuclear materials security fall into this genre. They are designed to assess the security of weapons-usable nuclear materials in countries that possess more than 1 kilogram of either highly enriched uranium (HEU) or weapons-grade plutonium, which are the two basic ingredients for manufacturing nuclear weapons. The angst underlying the compulsion to strengthen nuclear security arises from the danger of these hazardous materials, scattered around the globe, falling into the hands of either 'rogue' nations or terrorist organizations, which is recognized as the present and imminent danger, especially after 9/11. True, the acquisition of weapons-usable fissile materials is only the first step; thereafter, several technical steps are needed to fashion these materials into a nuclear weapon and deploy a delivery system. But, the acquisition of weapons-usable nuclear materials is the critical first step to acquiring nuclear weapons; hence the need to gain control over these materials.

Both the earlier 2012 and present 2014 Index were developed with the technical assistance of

Nuclear Security Programme (NSP)



the Economist Intelligence Unit (EIU) in London, which assigned grades that influenced the ranking of countries in the NTI Index. Apart from the EIU, NTI also drew on the inputs from analysts around the world and an international panel of nuclear security experts and technical advisors. The NTI hopes to encourage governments to upgrade the security of their weapons-usable nuclear materials inventory, and, thereby, reassure the international community.

The relevance of the NTI Index and the need to gain control over weapons-usable nuclear materials was highlighted by Senator Sam Nunn while making the NTI Index (2014) public. He cited IAEA Director General Amano's confession that, "Over a hundred incidents of thefts and other unauthorized activities involving nuclear and radioactive materials are reported to the IAEA every year. ... Some material goes missing and is never found." Nunn also cited Amano's predecessor, Mohamed El Baradei, who had confessed that, "A large percentage of materials which are recovered have not been previously reported as missing."

Nuclear security, incidentally, includes measures to prevent the theft, diversion, or sabotage of nuclear materials or a nuclear facility by insiders or outsiders. Nuclear security envisages, besides physical protection, a definite plan to counter threats; the deployment of guards to undertake protection on site and respond from off site; apart from automated systems to delay or prevent an adversary from acquiring nuclear materials. Nuclear security events are termed "incidents." The NTI Index does not assess nuclear safety. It is arguable, however, that the Fukushima episode (2011) highlighted the

danger of radioactive substances released becoming available to anti-social elements to affect nuclear security, thereby linking nuclear security and nuclear safety.

I BRIEF HISTORY

The "loose nukes" problem was recognized following the end of the Cold War, resulting in fears that a chaotic situation would ensue after the break-up of the Soviet Union and dissolution of the Warsaw Pact. President Obama highlighted the urgency of this problem in his Prague speech (2007) wherein he said: "So today I am announcing a new international effort to secure all vulnerable nuclear material around the world within four years. We will set new standards, expand our cooperation with Russia, pursue new partnerships to lock down these sensitive materials."

The first NTI Index, released in 2012, stressed the need for an international dialogue on nuclear materials security; the need to hold states accountable for their security; building transparency to increase international confidence by publishing and providing access to nuclear materials security regulations, declaring nuclear materials inventories, inviting peer reviews, and stop increasing stocks of weapons-usable materials. The imperative to eliminate weapons-usable nuclear materials; strengthen security and control measures, including physical protection, control, accounting, and personnel reliability measures in facilities and during transport of nuclear materials; bring all civil uranium enrichment and reprocessing facilities under IAEA safeguards; ratify and implement existing materials security-related treaties was also stressed. The 2012 NTI Index had adopted a maximalist position on issues related to nuclear materials security; unsurprisingly, it also evoked a strong negative response.

In its 2014 Index the NTI has recommended measures for States to develop a global nuclear security system for lasting security. Specifically, they should reach consensus on the key principles of a global system; build confidence in the effectiveness of their security practices; become parties to nuclear security treaties;

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strengthen voluntary mechanisms; and, secure military and other non-civilian materials to the same or higher standards as civilian materials. And, to improve state stewardship of nuclear materials States should further commit to further decreasing stocks of weapons-usable nuclear materials; improve measures to protect weapons-usable nuclear materials from theft; establish independent regulatory agencies, and strengthen existing ones; and deliver on their Nuclear Security Summit commitments.

Before proceeding further it would be useful to critically evaluate the criteria on which the NTI Index was based in 2012, and further refined in 2014 to rank the 25 countries having more than 1 kg. of weapons-usable nuclear materials. It is premised on five factors viz. Quantities and Sites, Security and Control Measures, Global Norms, Domestic Commitments and Capacity, and Risk Environment. The components of these five factors are:-

Quantities and Sites

Quantities of nuclear materials, sites and transportation, material production /elimination trends.

Security and Control Measures

On-site physical protection, control and accounting procedures, insider threat prevention, physical security during transport, response capabilities.

Global Norms

International legal commitments, voluntary commitments, international assurances.

Domestic Commitments and Capacity

UNSCR 1540 implementation, domestic nuclear materials security legislation, safeguards adherence and compliance, independent regulatory agency.

Risk Environment

Political stability, effective governance, pervasiveness of corruption, groups interested in illicitly acquiring materials.

Each of these criteria, their components and the inter-se weight accorded to them can be disputed, and an element of subjectivity in this exercise is undeniable. They are placed aside in

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an Appendix. XXX It is proposed to draw attention to some of these problems in the 2014 NTI Index, before focusing attention on its particular findings in respect of India.

II

CRITIQUE: GENERAL CONSIDERATIONS

The broad global objectives identified by the NTI to be underlined are:

Reaching consensus on the principles that should guide the establishment of a global system to ensure the security of weapons-usable nuclear materials. This goal is undoubtedly a universal expectation, but also a sovereign responsibility. Some of the guiding principles should be based on international best practices, and all weapons-usable nuclear materials in the civilian and non-civilian sectors should be included.

Building confidence in the effectiveness of individual security practices. Here, joining international peer reviews; publishing nuclear security regulations and other information outlining security arrangements; and declaring HEU and plutonium inventories should be prioritized.

Becoming parties to nuclear security treaties. These treaties include measures to tackle nuclear terrorism and ensure physical protection of nuclear materials like the Convention for the Physical Protection of Nuclear Materials (CPPNM), with its 2005 Amendment, and the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT). But, these international legal

agreements are not being implemented universally, nor do they have any mechanisms to ensure enforcement or accountability.

Strengthening voluntary mechanisms. States could contribute to the IAEA's Nuclear Security Fund and the World Institute for Nuclear Security, and join the G-8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction.

Securing military and other non-civilian materials to same or higher standards as civilian materials. About 85 percent of global stocks of weapons-usable nuclear materials are not covered by IAEA nuclear security guidelines, or the CPPNM and its 2005 Amendment. Nor are they subject to voluntary confidence-building measures. States should secure and hold these materials to the same or higher standards of security like materials in civilian programs.

Going ahead with this critique of global norms, the following is evident:

The Index relies on public and open-source information. However, an issue emerges between the need for greater transparency to reassure domestic and international constituencies, and the need for national governments to retain opacity in the interest of their national security. For instance, the declaration of 'Quantities and Sites' recommended by the NTI Index would be anathema to countries that premise their nuclear deterrence on uncertainty in regard to the size of their nuclear holdings or where they are located. Countries with limited sites would be loathe to declare them lest they be eliminated in a first strike; however dispersing

dangerous nuclear materials over several sites raises equally difficult questions regarding their security and safety.

No doubt, the Index has consciously eschewed seeking sensitive information from national entities for undertaking a facility-by-facility assessment of security practices. But, this self-abnegation frames a lacuna, in that glaring instances of security lapses are not adequately recognized to figure in the 'security and control measures' factor identified in the NTI Index. They could also be included in the 'risk environment' factor as displaying a lack of 'effective governance.' Recent such incidents have occurred in Tennessee, where three protestors entered a high security nuclear facility storing highly enriched uranium, and remained undetected for some two hours. Innumerable similar instances of security lapses have occurred in the United States. Currently, ethical issues are excoriating a Montana-based US nuclear Minuteman 3 ICBM base where a large number of personnel were caught cheating in their certification tests intended to assess their knowledge of launch-control procedures. A similar problem has occurred in the Burghfield site of the British Atomic Weapons Establishment where several security personnel were found inadequate to carry out their assigned roles at the.

Moreover, deliberate attempts to transfer nuclear materials, nuclear technology and equipment are also not captured by the NTI Index. Ironically, the statement made after the release of its 2014 NTI Index notes that; "Among nuclear-armed states, Pakistan is the most improved through a series of steps to update nuclear security regulations and to implement best practices, though it ranks 22nd overall." This certification ignores Pakistan's stellar role in illicitly transferring nuclear materials, technology and equipment to several nations including North Korea. Or its being at the apex of the other global security problems of Islamic fundamentalism and international terrorism. Several American experts can be cited here, without comment.

"Leonard Weiss has emotionally concluded, 'Pakistan lied, stole, and conned its way to becoming a nuclear weapons power. Now it's

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doing the same as a nuclear broker.” David Albright wondered, “What other society has leaked nuclear secrets like Pakistan?” Pakistan’s duplicity is further amplified by the refusal of its government to permit A.Q. Khan to speak to international investigators. The fall of the Taliban also revealed that Bin Laden had met scientists from the Pakistani nuclear weapons program, Sultan Bashiruddin Mahmood and Abdul Majeed, on several occasions before 9/11, leading the CIA to determine that al Qaeda “probably had access to nuclear expertise and facilities and that there was a real possibility of the group developing a crude nuclear device.” Bruce Riedel noted, “It has more terrorists per square mile than any place else on earth, and it has a nuclear weapons program that is growing faster than any place else on earth.” Graham Allison uses a similar analogy, “When you map (weapons of mass destruction) and terrorism, all roads intersect in Pakistan.”

Thus, the recognition of Pakistan as the ‘most improved’ nation in the 2014 NTI Index fails to appreciate Pakistan’s lack of ‘Security and Control Measures’ factored into the NTI Index, but also the requirement for credible ‘control and accounting procedures,’ and ‘insider threat prevention.’

Further, the Index does not address the security of establishments possessing low enriched uranium (which can be upgraded to weapons grade) or other radioactive sources (eg. reactor grade plutonium), or proliferation risks in general and disarmament issues. Perhaps the intention was to restrict this inquiry to manageable proportions; but the result is disproportionate attention being focused on the security of weapons-usable nuclear materials and the threat of nuclear terrorism, diminishing the major issues of nuclear proliferation and nuclear disarmament.

The NTI index lays great stress on nations joining international treaties to ensure the security of nuclear materials and establishing independent regulatory agencies and strengthening existing ones. Clearly these requirements are wholly unexceptional. The anomaly arises from the fact that, as noted above, all best practices can be accepted on paper, without any corresponding action on the

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ground. In other words, an independent regulatory authority could be established without being able to correct infractions relating to trafficking of nuclear materials. Such a regulatory authority, in fact, is egregious, in that it provides an alibi for illicit activities to proceed under its aegis.

Agency is important to supervise and implement the resolve of the international community to secure dangerous nuclear materials. The IAEA is the logical and best-endowed authority to fulfill this mandate, and it behooves the international community to provide adequate funding to it for this purpose.

III CRITIQUE: THE CASE OF INDIA

How has India fared in the 2014 Index? The NTI Report informs that it was ranked 23rd in the list of 25 countries with more than 1 kilogram of weapons-usable nuclear materials. Of interest here is that only Iran (24) and North Korea (25) ranked below India, while Pakistan (22), Israel (21) and China (20) were ranked above India. In terms of overall scores based on the five factors listed above as being relevant to nuclear security, India received 41 out of 100 points, while China secured 64, Israel 57, Pakistan 46, Iran 39 and North Korea 30 points. Placed aside is an Appendix with NTI’s ranking of the 25 countries that possess more than 1 kilogram of weapon-usable nuclear materials, along with their points score for the five factors identified.

It should be noticed that these 25 countries were sent the NTI Index 2014 before its publication, and invited to comment on its

findings. Only 17 responded—the other 8, including India, preferred the dignity of silence. This is unfortunate because the NTI Index is a dynamic process. It will continue to track progress, and continue to exhort governments to review, confirm, and correct data collected. NTI had also seeking inputs from domain experts, industry representatives and other stakeholders to improve its findings. Hence charges of partisanship overstate the case.

Incidentally, India's poor performance was diagnosed by the NTI as deriving from weak regulations that only serve as guidance rather than statutory obligations; its increasing quantities of weapons-usable nuclear materials for civilian and military use; its lack of an independent regulatory authority; and external risk factors like high levels of corruption among public officials, which undermines confidence in its enforcement and implementation of security measures but also increases the risk of officials contributing (even unwittingly) to theft of nuclear material. Since India's nuclear program proceeds in a high security island, this last assertion also overstates the case..

India's strengths, as recognized by the NTI, arise from its accepting international legal commitments like signing and ratifying the Convention on Physical Protection of Nuclear Materials and its 2005 Amendment, as well as the International Convention for the Suppression of Acts of Nuclear Terrorism. India also receives high marks for implementing

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United Nations Security Council Resolution 1540. NTI's suggestion is that India should strengthen its laws and regulations for mitigating insider threats, control and account for its nuclear materials, and enhance the physical security of materials during their transport. India's existing regulations should be strengthened by making them recommendatory rather than prescriptive.

NTI has further advised India to regulate its licensees better by holding identified individuals accountable for security lapses; maintain accurate, records of its nuclear materials inventory to detect diversion or theft of nuclear materials; ensure that nuclear materials remain in well-defined and controlled geographical locations; establish on-site emergency response capabilities for civilian nuclear facilities; require notification of incident reports to increase preparedness against nuclear thefts; and require armed response capabilities at nuclear facilities. India's nuclear materials security could also be improved by establishing an independent nuclear regulatory agency, which it had committed to ensure in the 2012 Nuclear Security Summit. The importance of an independent regulatory agency was also highlighted by an Indian parliamentary panel. But, it is believed that some measures to achieve this end have been taken, although nothing certain is known in this regard.

In general, the NTI argues that States need to improve their control over nuclear materials, for which they should:

Decrease their stocks of weapons usable nuclear materials, by (a) eliminating HEU use for civilian purposes, (b) expanding programs to convert research reactors using HEU to low-enriched uranium, and (c) not increasing plutonium inventories above what is needed for civilian power production in any year.

Improve protection of weapons-usable nuclear materials from theft, by enhancing physical security, strengthening laws and regulations,

building a security culture, and noting best practices.

Establish independent regulatory agencies, and strengthen existing ones. India, Iran, and North Korea should establish independent regulatory agencies, being the only states with weapons-usable nuclear materials that currently lack such agencies.

Deliver on Nuclear Security Summit commitments. The NTI Index serves as a tool here by noticing gaps in security systems, working to create a global nuclear security system to assess performance, and hold each other accountable.

IV A NUCLEAR SECURITY POLICY FOR INDIA

It bears reiteration that the strength of a chain lies in its weakest link; hence the leakage of weapons-usable nuclear materials from any one state threatens the security of all other states and the global security architecture. Hence the imperative need obtains to ensure that all states pursue best practices and take into account the lacuna identified by the NTI Index.

Coming to the specific issues relating to weaknesses discovered by NTI in India's stewardship of its nuclear materials there is much to commend but also to disagree with their analysis. The difficulty before India in being fully transparent in respect of its nuclear sites and stock holdings, for instance, has been discussed above. Any country facing nuclear adversaries would find itself in a similar predicament.

Further, India does not use HEU in its atomic energy program; nor does it have any research reactors using HEU; nor does it use plutonium for nuclear power generation. India's fast breeder program would undoubtedly use fair quantities of plutonium, but this program is still in the doldrums with serious doubts having arisen about its viability.

A case can certainly be made for enhancing the physical security of nuclear materials in the Indian program on the general principle that

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arrangements to achieve control over these dangerous materials can always be improved, and are in constant need for review, in view of the current threat from terrorists. However, the conflation of political stability with nuclear security is altogether mechanistic, as the two processes are not linked to each other. In other words, the procession of governments in many Indian states with nuclear establishments does not imply that the security of the nuclear installations and facilities within their geographical limits will be compromised. In truth, the nuclear program functions in India as a high security island, as noted above, under the control of the Central government.

A justified criticism leveled against India is that, alongside Iran and North Korea, it does not have an independent nuclear regulatory authority. India had taken the initiative to lay its Nuclear Safety Regulatory Authority (NSRA) Bill before Parliament in 2011. However, this Bill has yet to be passed for becoming law. Apropos, a general argument has been made by some people that there is no need for any independent regulatory authority because domain knowledge is limited. Hence, the members of any regulatory body would have to be either serving or retired persons from the Atomic Energy establishment. This argument over-states the case, since recent experience has shown that even the present regulatory authorities like the Atomic Energy Regulatory Board manned by former AEC officials have functioned with a degree of autonomy that has embarrassed the Government on occasion.

Moreover, the Indian bureaucracy's obsession with secrecy often works against its own larger

interests. The democratic tradition that India professes requires a certain openness and willingness to debate issues, which should extend, within limits, to the nuclear and security administration. Only an obsession with secrecy and opacity would explain why the Indian establishment is leery of agreeing to any form of “peer review” of its nuclear security arrangements by either neutral international experts, or the International Atomic Energy Agency (IAEA). Some part of this reluctance has its roots in the inability of the atomic establishment to coordinate its policies in matters like transparency with the foreign policy and defense establishments that are also obsessed with secrecy to maintain their primacy in the Indian bureaucratic establishment.

In the 2012 Nuclear Security Summit India had pledged to establish a Centre of Excellence to sensitize and train personnel in nuclear safety and security matters. Not much information is available in the public domain about its charter of duties. Little is also known about the progress in establishing this Center, apart from stray news that land for its establishment has been acquired in Haryana in proximity to New Delhi. Still, the need for publicizing the hazards of nuclear radiation and the need to gaining control over nuclear materials cannot be ignored, since this threat seems abstract to political leaders and bureaucracies.

Then there is the vexed question of corruption. Clearly, a direct and causal link between nuclear security and general corruption in the polity is difficult to discern. There is no evidence that the integrity of the personnel reliability program in the Indian nuclear establishment has ever been compromised. The NTI’s belief that corruption “undermines confidence in implementation or enforcement of security measures and also increases the risk that officials may contribute (even unwittingly) to the theft of nuclear material” is quite excessive. The issue of insider links with terrorist organizations should be of greater concern in the case of Pakistan.

Deriving a linear connection also between quantities of weapons-usable material and the number of facilities storing them overstates the case. As noted earlier a trade-off must be effected between the demands of nuclear security and the requirement of nuclear deterrence. Moreover, India’s nuclear strategy, premised on its no-first-use doctrine, requires the maintenance of its nuclear arsenal in a demated condition, which makes it difficult to minimize the number of its nuclear weapons and their sites below an optimal number. No compromise would obviously be made in providing adequate security to them.

Of greater moment here is the transport of nuclear materials in India, about which there is no information in the open domain. Incidentally, radiological sources have been classified by the IAEA into five categories. Category 1 is the most deadly. Individuals coming into contact with category 1 sources can die within a few minutes to an hour. It would be recollected that a leakage of Cobalt-60 had occurred in New Delhi some years back. Cobalt-60 is classified as a category 1 source. Its transport, apart from other radiological materials, requires arrangements to be made for a real-time location-tracking system, their accompaniment with armed escorts; secure parking and rest areas; training truck drivers into knowing how to respond if their vehicle comes under attack; and equipping trucks with vehicle-disabling systems and duress buttons. India could set the lead in ensuring such arrangements for road transport of nuclear materials, and modifying these procedures for other modes of transport.

