

Nuclear Terrorism: Hype, Risks and Reality-A Case of Pakistan

Rizwan Naseer

COMSET University, Islamabad, Pakistan.

Musarat Amin

Fatima Jinnah Women University, Rawalpindi, Pakistan.

ABSTRACT

The danger of nuclear terrorism has heightened significantly in the recent years largely because of the transnational terrorist networks and their unrelenting efforts to acquire nuclear technology. The menace of nuclear terrorism is alarming and should be calculated as credible source of emerging trends in terrorism. No incident of nuclear terrorism happened yet but terrorist groups are struggling to steal fissile materials, nuclear technology or insiders' support to either procure a crude weapon or steal one. International community is concerned with such foreseeable scenario. This research attempts to make a realistic calculation of the hazards of nuclear terrorism. First part of the paper underlines hype of nuclear terrorism and the risks it poses. It also signifies magnitude of reality involving nuclear terrorism. Second part of the paper underscores the response to international media that is frenzy about risk of nuclear terrorism in Pakistan. It also highlights the safety and security measures that Pakistan has adopted under the guidelines of IAEA and Nuclear Security Summits. This paper concludes with the argument that over the years Pakistan has remained relatively open about sharing information regarding how it is making advancements in its command and control system to ward off any risks of nuclear terrorism and has been successful in achieving better levels of security.

Key words: Nuclear Terrorism, Command and Control, Nuclear Safety, Nuclear Security, Pakistan and Nuclear Security Summit

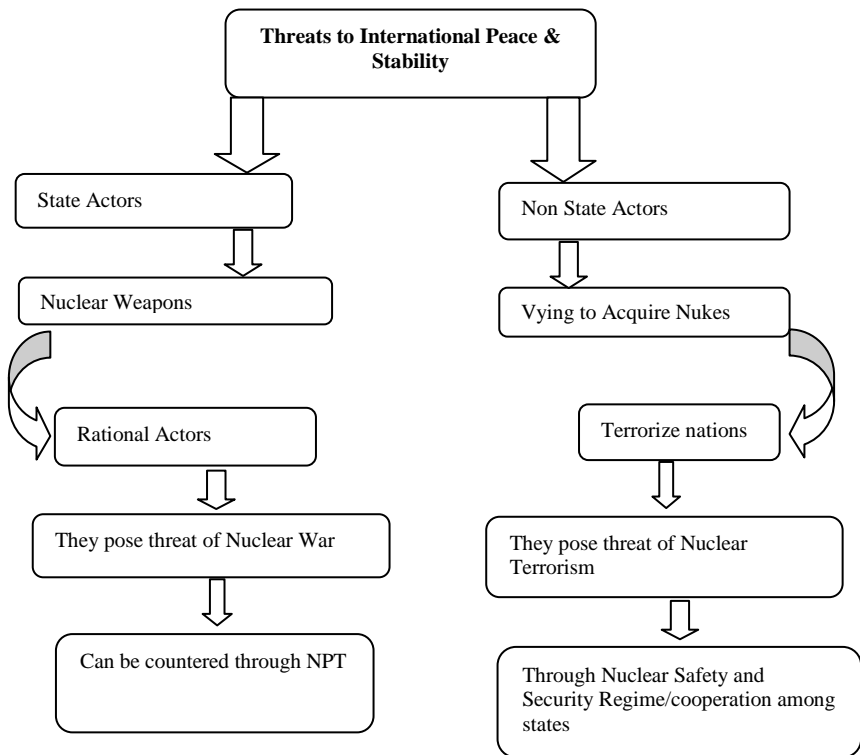
Introduction

“Nuclear Terrorism is one of the most serious threats of our time. Even one such attack could inflict mass casualties and create immense suffering and unwanted change in the world forever. This prospect should compel all of us to act to prevent such a catastrophe” (Ban Ki Moon, UN Secretary General 2007-2016).

The intellectuals involved in the study of political violence have been facing trouble for so long in finding an accurate functional definition of terrorism. In simple terms it is described as “the frequent use of politically driven violence with coercive determination by non-state actors affecting more than one state” (Badey, 1998). One noteworthy assessment is that if not from all then at least from some international definitions of terrorism the immediate interaction between the states has been excluded. Terrorism thus, does not include direct relations of the states but rather it's the act of non-state violent actors. Though the threats emanating

from other states regarding the usage of nuclear weapons might induce fear but they generally are not supposed to suggest what is usually labelled as the term ‘nuclear terrorism’ (Badey, 1998).

The term Nuclear Terrorism can be defined in various ways. It refers to an act of terrorism in which individuals belonging to a terrorist organization carry out an attack using a nuclear device. The most frightening scenario is the acquisition of nuclear weapon by transnational terrorists either by stealing or purchasing it from black market. An accidental explosion or an act of nuclear terrorism might kill 100,000 people or more. The terrorists who are determined to carry out suicide attacks, would not need aircraft or missiles to deliver the weapon, in fact it could be transported by truck or a boat. According to a study of United States’ government in 1977, it is quite possible for a small group of people (rogue elements) to design and build a basic nuclear weapon by using mere modest mechanical facilities, if they acquire enough fissile material. Fissile material might be under not so stringent security controls as compared to the nuclear devices (Badey, 1998). Following chart reflects that non-state actors pose serious threat of nuclear terrorism to international peace and stability.



Terrorist groups seeking nuclear weapons

One should also plainly differentiate between the attainment of the nuclear weapons potentially and the actual use of nuclear weapons by state actors, and side by side the procurement and eventually the use of such weapons by the non-state actors. It is vital to understand that the first does not necessarily lead to the latter. The threat of nuclear weapons by terrorist organizations invokes concrete measures by whole international community (Thomas.J, 2001). Some of the western scholars opine that rogue states may have the potential to engage in nuclear related trade. They also fear that states like Iraq, North Korea, Libya, Iran, and Sudan that desire to acquire nuclear weapons, would invest millions of dollars in research and development of a nuclear arsenal; only to auction off or transfer them in favor of non-state entities, while being absolutely conscious of the fact that they'll be held accountable for the actions of their prospective customers.

The conundrum regarding the procurement and employment of nuclear weapons by sovereign states differs radically from the question of acquirement and usage of nuclear arsenals by non-state entities (Badey, 1998). Aggrandizing of the nuclear security can prevent any such chances of nuclear terrorism. When defining nuclear security, one might say that it is linked to the defensive measures taken to prevent a non-state, malevolent actor from stealing nuclear weapons or sabotaging a nuclear facility. The concept of nuclear terrorism is not new however it can be traced back to the beginning of the atomic era. The apprehensions regarding the loose nukes gradually amplified following the fall of Soviet Union due to the deficient security of its nuclear facilities. Over the last decade, given the experience of the international community with the threat of terrorism there is an enticement of considering all irregular warfare as stereotypical which involves different types of attacks like using car bombs, small arms, and improvised explosive devices which might be generally correct. However, the reality is that the dynamics have evolved and some transnational terrorist groups would be eager to acquire nuclear weapons to wreak havoc (Mattox, Nuclear Terrorism: The 'Other' Extreme of Irregular Warfare, 2010).

Terrorist groups and their capabilities

Harvard University published a report '*Project on Managing the Atom*', it was definite from the report that it seems quite difficult for a terrorist organization to carry out a nuclear attack, but the fact cannot be ignored that a well-organized and expert terrorist group having the significant fissile materials can probably transport, construct and detonate a crude bomb which is capable to destroy the heart of any main city. However, several paths can be followed for the acquisition of nuclear weapons (Mondogal, 2016). One way may involve selling the weapons to the violent non-state actors stealing by the rogue states to use them against their rivals or stealing the nuclear weapons from a state's nuclear arsenal. Another

possibility is the transference of nuclear technology and knowledge to the terrorist groups by the nuclear scientists through black market.

United Kingdom's Prime Minister Tony Blair after the disastrous terrorist attacks on 9/11 stated that the single restriction faced by Al Qaeda in gaining and using a nuclear weapon is technical and practical, not moral or political barrier (HOUSE, 2001). A question arises that what might be the possible paths through which a terrorist group may perhaps attain a nuclear weapon? (Rolf Mowatt-Larssen & Graham Allison, 2010).

As terrorist groups have their transnational presence and vivacious networks, the three comprehensive pathways may include;

1. Transference of nuclear technology/weapons
2. Leakage of nuclear secrets
3. Indigenous production of nuclear technology (Mondogal, 2016).

Transfer of the nuclear weapons

This pathway includes the thoughtful handing over and sale of nuclear weapon from a state to the violent non-state actors. The tragic incident of 9/11 was not thought of by security optimists but Al-Qaeda managed to wreak havoc in the heart of New York city. After the incident of 9/11, the National Strategy of President George W. Bush, to fight against the Weapons of Mass Destruction stated, "the probable forthcoming connections amid the terrorist groups and the states sponsoring terrorism are predominantly hazardous and require significant attention" (US Department of the State, 2006). The link between terrorism and proliferation was the main motivation underlying the advancement of preemptive doctrine that Bush wanted to smash terrorist networks before they were too strong to be defeated. In the West Point speech by George Bush, he stated, "The gravest danger to freedom lies at the crossroads of radicalism and technology. When the spread of chemical, biological and nuclear weapons, along with ballistic missile technology occurs, even weak states and small groups could attain a catastrophic power to strike great nations. Our enemies (terrorists) have declared this very intention, and have been caught seeking these terrible weapons" (Strategy, 2002). Bush invaded Iraq and toppled Saddam's regime establishing an alibi of the fear of weapons of mass destruction. The Bush administration's motivation for invading Iraq was the fear that Saddam possesses weapons of mass destruction (WMD) and could transfer to Al-Qaeda (Pan, 2005). He assured the nation, "The threat of terrorism to America and the rest of the world will be diminished the moment that Saddam Hussein is disarmed" (Trupp, 2003).

The conjunction of strategic interest is generally attributed impetus for a state to transfer nuclear technology to a terrorist organization (Strategy, 2002). Similarly Taliban regime was supporter of Al-Qaeda and the U.S. forces wanted to ensure that neither Taliban nor Al-Qaeda get access to nuclear or biological weapons. Some analysts believe that the Iranian regime has refrained from providing chemical weapons to the Hezbollah, due to the lack of security measures

in place within the Hezbollah regime. Experts on the Iranian region, such as Steven Simon and Ray Takeyh have observed that an apprehension of NATO strikes, in the form of an operation on Iran, is a great risk for the existence and continued survival of the Islamic regime in Iran. It is, therefore, for these reasons that no such transference of technologies has taken place between Hezbollah and Iran (Litwak, 2016).

Leakage of the nuclear technology/weapons

Another anticipated way would be through accidental leakage of radioactivity from nuclear power plants which would be affecting thousands of people in a short span and if not controlled efficiently the risk is going to be much larger than anticipation. Same was the fear during the Tsunami that hit Japan on March 11, 2011 and caused Fukushima Daiichi nuclear accident. There were about 47,000 residents of the area who evacuated their homes within the 20-kilometres of the warning zone. Japan was quick to respond to such incident and controlled radioactivity with the help of United States assistance. Kyodo news agency claimed that the exposure to radiation could lead to infertility, loss of hair and cataracts while four sieverts could kill half the people exposed to it (Anna Fifield & Yuki Oda, 2017) . Some of the pessimists forecast that Pakistan's nuclear arsenal is rapidly expanding and has a risk of leakage of nuclear technology (Litwak, 2016). But at the same time India has also been under terrorist attacks even in recent years Pathankot Air force check-post (2016) and Uri attack (2016) but no pessimistic viewpoint on fear of nuclear terrorism was heard either from India or from international community.

New York Times in 2004 reported about the nuclear black-market operating internationally to transfer technology in exchange for money or missile technology. North Korea, Libya and Iran were striving to get nuclear technology to procure atomic weapons indigenously. The MacArthur fellow in science and technology at the Council on Foreign Relations to *New York Times*, Robert W. Nelson also mentioned Dr. A.Q Khan of trading nuclear assistance in exchange for missile technology (NYTimes, 2004) . A country going nuclear is alarming but a terrorist group getting nuclear technology is unacceptable as they would not wait to strike.

Indigenous production of nuclear weapons

Such a scenario is unlikely but still possible as the rogue scientists who share ideology with terrorist organization may aid them in building crude weapon indigenously. In October 2001, however, the CIA reached a conclusion that it was within Al-Qaeda's abilities to construct at the minimum, a simple nuclear device, if it gets access to the fissile material (The Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, 2005).

Shifting dynamics post 9/11

However, the 9/11 event proved the Al-Qaeda's willingness to wreak mass noncombatant casualties which left many in doubt that it would try to acquire nuclear weapons, a goal described by Bin Laden as his 'religious duty' (Comments, 2009).¹ The threat of proliferation of the nuclear weapons emerged as the most significant challenge in the recent years. Be it the 9/11 incident, Bali bombing (2002), Madrid attack (2004), or the London bombing (2007), all demonstrate the increase in ferocity of terrorism. The most lethal terrorist group that is using technology more frequently is the Islamic State (IS) that has penetrated into Afghanistan and some local terrorist groups in Pakistan have owed their allegiance to IS ideology. The Islamic State is also using hackers and computer wizards to propagate their ideology. They are also recruiting through social media and claim responsibility of terrorist attacks through the same medium. Under such circumstances it becomes challenging for states to counter such groups because their physical presence is not vivid.

The most hazardous but least likely to occur nuclear terror scenario involves the theft or trafficking nuclear weapons by the terrorist organizations such as Al-Qaeda or IS. Many international efforts are underway like the "Nunn-Lugar Cooperative Threat Reduction Program" created in 1991 and "the G-8 Global Partnership against the Spread of Weapons and materials of mass destruction 2002". Though, much still remains to be done in the former Soviet Union and Pakistan to avert the incidence of nuclear terrorism (Kazi, Pakistan's HEU-based Nuclear Weapons Programme and Nuclear Terrorism: A Reality Check, 2009).

For different terrorist groups to develop a nuclear weapon would be quite costly. Even to steal nuclear material or weapons or to convince a government sponsor to supply it is a difficult idea. But the issue that is of grave concern is that if Al-Qaeda or any such terrorist group acquires and explodes a bomb and challenge all the possible interpretation of 'just war theory' i.e. for instance attack not against a military target in Afghanistan, but rather it is carried out against civilians in New York City. Contemplation of this matter is chiefly apt considering the recent nuclear review by the government of United States, '*Nuclear Posture Review*'. The word 'terrorism' has been used around 40 times in the posture review, which lists "preventing nuclear proliferation and nuclear terrorism" as the first of the Review's five key goals (Kazi, Pakistan's HEU-based Nuclear Weapons Programme and Nuclear Terrorism: A Reality Check, 2009).

However, the combination of nuclear weapons and terrorism is the gravest threat to the national security of states. Graham Allison in his book '*Nuclear Terrorism: The Ultimate Preventable Catastrophe*' discussed that the world in contemporary era considering the policies and practices, a nuclear terrorist attack is inevitable. According to his findings if the states fail to do more as compared to

what these states are doing right now than the probability of such an event is more than 50%. Moreover, the Senator Richard Lugar stated that the prevention of acquisition of the weapons of mass destruction and nuclear weapons by the terrorist cells is the least standard for the triumph in this war (Etzioni, 2004).

Vulnerability of nuclear terrorism in South Asia

The state of South Asian region remains entirely diverse in comparison with other regions worldwide because of several understandings such as the existence of two nuclear powers (Pakistan and India) having a history of wars and confrontation with unresolved issue of Kashmir that is the main bone of contention between nuclear contenders. Transnational terrorist groups are sabotaging peace in both the countries. With the war against terrorism at full swing, terrorist groups are seeking greater targets and that is the reason the risk of nuclear terrorism is greater in South Asia than any other region. Approximately 32 terrorist groups are operating the South Asian region which makes the region highly vulnerable to such incidents. Most of the academic literature focuses on dangers of nuclear war but there is a dearth of literature on nuclear terrorism in South Asia. In post 9/11, scholars contributed a great deal of research on the dangers of nuclear terrorism in South Asia (Mondogal, 2016).

Keeping in consideration the issue of the porous borders of Pakistan with Afghanistan, it is quite probable that the fissile material once stolen could be smuggled anywhere. Another potential form of nuclear terrorism involves sabotaging or attacking the nuclear facility. Under certain conditions sabotaging a nuclear power plant might prove to be as disastrous as the Chernobyl or Fukushima incident. Both the nuclear disasters of Fukushima and the Chernobyl nuclear power plant in the *International Nuclear and Radiological Event Scale* (INES) were characterized as level 7 (PRESS, 2014). According to another 2015 report nearly 32 million individuals had been affected by the radioactive effect from the nuclear catastrophe in Fukushima in Japan (International, 2015).

The destruction caused would be similar to massive dirty bomb with poisonous radiations rather than just a nuclear weapon's effects like strong blast and heat. However, another type of nuclear terrorism is the actual detonation of the 'dirty bomb' utilizing the radioactive sources like strontium-90, cobalt-60, caesium-137 or iridium-192, that are used in industrial and medical applications. Pakistan is not necessarily more prone to such radiological attacks than any other country (International, 2015). Pakistan has achieved better standards of nuclear safety and security in order to rule out misperceptions regarding its nuclear security. Pakistan has implemented the International Atomic Energy Agency (IAEA) Code of Conduct on the Safety and Security of sealed radioactive sources. The Pakistan's Nuclear Regulatory Authority (PNRA) keeps record of the radioactive sources that are being exported to other countries. According to a report published in 2003, Al-Qaeda in Afghanistan was involved into making of

the dirty bomb and from where it might try to transfer it to the neighboring states for conducting nuclear terrorism (Frank, 2003).

Dirty bomb as a tool to terrorize

Assuming the noteworthy obstacles for non-state actors to construct, obtain or thieving a nuclear weapon; nuclear terrorist attack is expected to be carried out in the alleged kind of ‘radiation dispersal devices’ or ‘RDD’, more commonly referred to as ‘dirty bombs’; using either dynamite or similar conventional explosives to disperse radioactive material. Such a weapon, wouldn’t even require weapons grade fission material, such as Uranium or Plutonium, rather it could use radioactive sources like strontium, and cesium that are used for commercial uses or in hospitals. The casualties a dirty bomb can cause depend on its capacity. It can also cause human contamination through its diffusion in the atmosphere. However, derived from models of radiological dispersal device (RDD) the casualty estimates attacks differ significantly. A report published in Washington D.C. by the ‘*National Defense University*’ deduced that RDDs are not weapons of mass destruction which is quite contrary to the popular beliefs (Zimmerman, 2004). The costs of an attack by the dirty bomb would be mainly social, economic and psychological.

The only incident of a dirty bomb was by the Chechen resistance movement in 1990s. A Chechen separatist leader in November, 1995 communicated through media to inform Russian government that a cesium containing ‘dirty bomb’ had been buried in a park in Moscow. Russian bomb disposal squad was quicker to disable the dirty bomb, that was perhaps installed as an instrument of psychological warfare by the Chechens. But with the frequent use of advanced technology by terrorist organizations the dirty bomb scare gets unimaginable.

Risks of nuclear terrorism

Rolf Mowatt-Larssen in his research ‘*Al Qaeda Weapons of Mass Destruction Threat: Hype or Reality?*’ stated that Al-Qaeda’s leader Osama bin Laden in 1998 declared, “acquiring and using weapons of mass destruction (WMD) was his Islamic duty—an integral part of his jihad”. Even though several clerics having links with Al-Qaeda believed that the use of such weapons is characteristically morally wrong which makes the issue ambiguous (Garfinkle, 2009). As exposed in the memoir by the former Director of CIA, George Tenet, it was valid that the most senior leaders of Al-Qaeda are still individually focused on acquiring weapons of mass destruction, while the foremost threat is the nuclear one. He further added that “he is convinced that this is where Osama bin Laden and his operators desperately want to go” (ALLISON, 2008). According to John J. Klein “for well over a decade, Al-Qaeda and similar violent extremist organizations have communicated their interest in using nuclear weapons against the United States or its allies” (J.klein, 2012).

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Taking the case of South Asia, it is more pessimistic than the western states, facing the risks and threats of nuclear terrorism from the violent non-state actors like Al-Qaeda that is mainly based in the South Asian region and Middle East. They require advanced level of nuclear delivering technology to carry out an attack against the Western states. Nuclear materials and equipment are not easy to mobilize or hide. Hence, it would require a lot of high-level technology to bring the bomb to United States. It is not like they bring it in a bag or suitcase and attack there. It is difficult to transport it through the airports because of the radiation detection equipment (Mondogal, 2016).

The Congress of the United States mandated a report titled, “*World at risk the report of the Commission on the Prevention of WMD Proliferation and Terrorism*” in 2008 that focused on averting the spread of weapons of mass destruction put it explicitly that if one had to map terrorism and weapons of mass destruction these days, all roads would meet in Pakistan (Bob Graham & Jim Talent, 2008). The fundamentalism throughout Pakistani society spurs another fear about insider conspiracy that might enable radicals to elude security measures. Nevertheless, most of the Western discourse regarding these concerns is overstated. The risk related to only Pakistan is typically overestimated and hyped, and the efforts made by Pakistan to decrease the dangers is frequently ignored and overlooked. A reason is the Indian propaganda against Pakistan’s security establishment and malign Pakistan in the eyes of international community.

The Pakistan’s government has implemented the ‘*United Nations Security Council (UNSC)*’ *Resolution 1540* since September 2004. The respective resolution prohibits the states from supporting the non-state actors that are determined to obtain, handover, build or use the chemical and biological weapons and their delivery vehicles.

Even though it might be correct that no state other than Pakistan is more likely to be affected by nuclear terrorism but it is also true that no state other than Pakistan has done more to secure its nuclear infrastructure (series, 2014). Pakistan’s proactive participation in nuclear security summits (2010, 2012, 2014 and 2016) is the evidence, also U.S. President Obama expressed his confidence on Pakistan’s nuclear arsenal’s security and lauded that Pakistan was committed to maintain better security of its nuclear assets (NTI, 2013).

In the context of India and Pakistan; both are nuclear capable states and have hostile relations since partition of sub-continent with unresolved issue of Kashmir. Somehow, stability in the region was maintained due the mutual deterrence in the region after the nuclear tests of 1998 leading to Lahore Declaration and CBMs on various outstanding issues. But with the wave of terrorism relations between both the nuclear arch-rivals touched lowest ebb. During Pakistan’s war against terrorism, it has to pay greater human and material cost on one hand whereas International community alleges Pakistan to be the hub of the terrorist organizations. Indian military bases of Pathankot and Uri came under terrorist attack in 2016 and Indian Parliament was targeted in December, 2001, means India also faces grave threats to its nuclear facilities but no country mentions the nuclear

terrorism dangers faced by Indian. The likelihood of nuclear terrorism in the South Asian region is greater than the risk in any other region due to the complex nature of regional dynamics (Mondogal, 2016).

Attacks on Pakistan's strategically important sites

Because of the international conspiracies against Pakistan's nukes it is vulnerable to considerable threats from outside. The assessment is not hypothetical regarding the prospects of Pakistan's strategic sites being attacked by heavily equipped terrorists. Extremist groups have lately expressed their discontentment with the Pakistan's civilian government. As it is obvious from the attack on the Marriot Hotel in Islamabad on September 21, 2008 the terrorist groups have tried to disturb the democratic system (Shahzad, 2008). Pakistan's military installations have been a prime target for militants. A number of attacks have been carried out by terrorist on military complexes, naval complexes and airforce complexes. One example is of the PNS Mehran attack which was carried out on 22 May 2001. Tehreek-e-Taliban (TTP) and Al Qaeda took the responsibility of the attack publicly. 18 military officials embraced martyrdom whereas, 16 military personnel suffered injuries in the terrorist attack. The PNS Mehran attacks was more lethal than the GHQ attacks in 2009, according to the western intelligence sources (DAWN, 2012). Another major terrorist attack on the sensitive military installation of Pakistan is the attack on Pakistan army headquarters (GHQ). In a lethal terrorist attack on GHQ, four terrorists were killed whereas six Pakistani soldiers including two senior army officers were martyred. Later, around four to five terrorists made 10 to 15 security personnel hostages in a security office near check post No 2 (Rao, 2009).

Security measures taken by Pakistan

Keeping in view the historical proliferation record of Pakistan such as the proliferation of the A.Q Khan network which apparently the government of Pakistan denied and declared that act of an individual. To uplift Pakistan's image as a responsible international stakeholder for countering risks of nuclear terrorism Pakistan has been implementing UNSC 1540 resolution since 2004 and has established several domestic legal export control systems for the safety and security of its nuclear program. Such steps are also appreciated by the International community at several forums and such attempts by the Pakistani government has elevated its stature in the International system as a responsible nuclear state. As a part of nuclear CBMs both Pakistan and India have exchanged the list of nuclear facilities and pledged not to attack them. Indian literature published about Pakistan's nukes is largely biased and is an attempt to hold Pakistan responsible for instability in the region. Part of that is the Indian scholars however, raise doubts that if Pakistan handovers this list Indian nuclear installations to any terrorist organization, the latter would be able to attack on Indian nuclear facilities

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(Mondogal, 2016). Such rumors and baseless propaganda against Pakistan does not let peace prevail in South Asia. Whereas Pakistan has captured an Indian naval officer of RAW, Kulbhushan Yadav who has confessed of orchestrating attacks against Pakistan's strategic sites as well disrupting China-Pakistan Economic Corridor.

The Pakistan's military has devised security mechanism for nuclear weapons that are not only hard but almost impossible to breach for individual or terrorist groups because they do not have cutting edge technology. An electronic safety mechanism and a personnel reliability program— a sensibly framed outline— is already working. Pakistan's nuclear arsenal is spread over various sites in disassembled form and is fully secured which makes it difficult for the terrorists to acquire it. Pakistan's nuclear arsenal is believed to be effectively safe and protected. Moreover, the Strategic Plans Division in 2004 had begun major modifications in its nuclear command and control systems (Mondogal, 2016) . It is supposed that the SPD is commended with the general management and security of Pakistan's nuclear arsenal. Furthermore, The Strategic Plans Division for the safety of the nuclear sites had established a distinct sector which comprises of approximately 10 thousand troops. According to the Pakistan's government, it has protected its nuclear arsenal by a unique code technology fortified with procedures that will avert the access to the system of nuclear weapons by any un-authorized person (Lee Feinstein, James C. Clad, Lewis A. Dunn, & David Albright, 2002) . The 'Permissive Action Links' is the United States' code system technology, that is vital for developing the weapon, quite difficult for the non-state actors to circumvent it, and it also has the features of limiting the trials of putting in the code which if someone adds the wrong codes multiple times allows the system to disable the weapon permanently.

Pakistan has assured IAEA to take some stringent measures to further augment its nuclear safety and security. For instance, the nuclear establishment in June, 2007 had announced that with the assistance of IAEA Pakistan is executing a rigorous 'National Security Action Plan (NSAP)' (Paul K. Kerr & Mary Beth Nikitin, 2012) . The task of physical safety of nuclear and fissile material has been assigned to the competent Pakistan Nuclear Regulatory Authority by the government of Pakistan. In order to reduce chances of proliferation to zero level, Pakistan had implemented new domestic export controls legislation since September, 2004 (Kazi, 2009).

Former director 'Arms Control and Disarmament Division' of the SPD, Khalid Banuri, in a televised interview firmly denied any security threat to Pakistan's nuclear weapons. He stated that "The whole world was of the view that Pakistan could not make a nuclear bomb. But Pakistan made the nuclear bomb, didn't it?". He further added that the world is wrong about the security of Pakistan's nukes. Pakistan can take care of its nuclear weapons very well" (Zeb, 2014). Though the international community is concerned but the fact is that not even a single security breach has been reported yet since the formation of the 'Nuclear Command Authority (NCA)', even though Pakistan is a new candidate in

the nuclear realm compared to other nuclear powers but with an evolving security mechanism. Pakistan's protective measures are of higher standards but with significant external inputs at the NSS level, it can bring the security mechanism at par with great powers (Braun, 2008). The performance of the nuclear plants of Pakistan will possibly reach the ideals similar to the other developed nuclear weapon states with satisfactory external backing, accompanied by the advancements in other nuclear infrastructures and technical capacities.

The condition of South Asia requires a prioritized and an inclusive approach to thwart the risks of nuclear terrorism. In order to meet the recommendations of IAEA physical protection, it is vital for Pakistan to verifiably promote and make progress in upgrading the security of the locations of the nuclear weapons and materials. Likewise, attempts need to be made in order to improve the security of present HEU stockpiles. In South Asian region the menace of nuclear terrorism might be noticeably decreased if both the nuclear rivals agree mutually to cut the production fissile material stockpiles. This can only be achieved with mutual cooperation which is a hard nut to crack in the case of Pakistan and India (Kazi, Pakistan's HEU-based Nuclear Weapons Programme and Nuclear Terrorism: A Reality Check, 2009).

The risk of nuclear terrorism is likely to intensify if the prevailing trends remain uncontrolled. The terrorist groups remained unsuccessful to take hold of nuclear weapons in the aftermath of political chaos followed by collapse of Soviet Union. Such errant terrorist groups might capitalize the situation for seizing control of nuclear weapons and fissile materials. An institutionalized system of management based on effective intelligence and oversight to counter the threat of nuclear terrorism in South Asia is the need of hour (Kazi, Pakistan's HEU-based Nuclear Weapons Programme and Nuclear Terrorism: A Reality Check, 2009).

Nuclear security summits and evolving cooperation

The Nuclear Security Summits (NSS) are significant development in international cooperation to prevent the nuclear terrorism dangers. They have elevated the profile of significant subjects, and have been successful in reducing the stockpiles of vulnerable nuclear materials. Though, they have not reached their full potential in eradicating weak links in the global nuclear security system. Potential worries that a non-state actor would be able to cross the technological threshold to build a nuclear bomb, has strengthened the global efforts for securing weapons grade fissile material. In notable Prague speech (2009), former U.S. President Barack Obama highlighted it as one of the main pillars of the comprehensive 'arms control and nonproliferation goal. The chief purpose of the four Nuclear Security Summits was to engage about fifty world leaders for protecting approximately two thousand metric tons of plutonium and highly enriched uranium globally (Litwak, 2016). The Hague Summit (2014) followed by the final summit in the United States (2016) offers an opportunity to further minimize these vulnerabilities. The Nuclear Security Summits have done well in raising the profile of the nuclear security

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problems through the participation of heads of state (N.Luongo, 2014). The Director General of IAEA stated at the Nuclear Security Summit 2016 that, “Protection against possible nuclear terrorist attacks will be enhanced as an important legal instrument — the Amendment to the *Convention on the Physical Protection of Nuclear Material* — enters into force. It will reduce the likelihood of terrorists being able to detonate a ‘dirty bomb’, and the risk of a terrorist attack on a nuclear power plant” (IAEA, 2016).

However, Pakistan is devotedly dedicated towards the aim of nuclear security and has persistent involvement in the promotion of nuclear safety and security along with the efforts of international community. Pakistan has granted assurances that its all radioactive materials, nuclear and related facilities are totally safe. Conferring to the Pakistan’s National Statement of the Nuclear Security Summit (2016), over the years, it has modernized and strengthened its export control system and has enhanced its coordination with multilateral export control regimes. Pakistan also maintains strong credentials that are deemed important for gaining the membership of NSG according to the criteria-specific approach. Also, Pakistan’s contribution and commitment in the entire Nuclear Security Summit process demonstrates its seriousness and a position as a responsible nuclear weapon state (Naeem Salik & Kenneth N. Luongo, 2013).

Conclusion

Since the initiation of war against terrorism, terrorists are backtracking from conventional terrorism and are vying to seek biological, chemical or nuclear weapons. Terrorist groups in Pakistan have been successful in attacking military posts, including GHQ which the western media perceived as Pakistan’s nukes are not safe and may fall into hands of terrorist groups. Much literature was published in news and research journals about the possible risk of nuclear terrorism, but this research through in-depth analysis of terrorist groups, their capability and transnational resources reaches the conclusion that though risk of terrorism is present in world because of the fear of loose nukes but in case of Pakistan, it has achieved greater level of nuclear safety and security. Nuclear Security Summit was the brainchild of U.S. president Obama but it went fruitful by invoking cooperation and coordination from all nations particularly nuclear weapons states. Nuclear terrorism can be averted by stringent arms control, Non-proliferation and safety of fissile materials at intuitional level.

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Biographical Note

Dr. Rizwan Naseer is an Assistant Professor of International Relations at Department of Humanities, COMSATS University Islamabad, Pakistan.

Dr. Musarat Amin is an Assistant Professor at Department of Defence and Diplomatic Studies, Fatima Jinnah Women University Rawalpind, Pakistan.