

The Danger of Proliferation of Nuclear Weapon and Fissile Materials in the era of Global Terrorism

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ABSTRACT: *There is a consensus among international leaders that proliferation of nuclear weapons and falling of fissile materials into the hands of terrorist groups is a real and present danger. The possible nuclear terrorism presents one of the most serious challenges to international peace and security in the 21st century. The forces of globalization increase the capability of non state actors in terms of technological knowhow, raising funds for terrorist activities, providing training, spreading propaganda etc. The paper studied the possibility of nuclear and fissile material proliferation to terrorist groups after the end of Cold War and the subsequent disintegration of former Soviet Union, the instability in Pakistan and increasing capability of terrorist groups who harboured intention to acquire nuclear weapon, what would happen if terrorist groups like Al Qaeda or ISIS acquires nuclear weapons or have dirty bombs.*

KEYWORDS - *nuclear weapons, terrorist groups, globalization, fissile material, proliferation, ISIS*

I. INTRODUCTION

Harnessing nuclear power is one of the most important scientific innovations in the 20th century. While this scientific innovation contribute significantly toward human progress it also leads to the development of most dreaded nuclear weapons. Due to its immense destructive power, nuclear weapon changes the entire course of international relation in the post Second World War period. During the Cold War period the US-Soviet Union arms race, rivalry and competition together with pursuing of nuclear deterrence doctrine had resulted in accumulation of huge stockpiles of WMD, both tested and deployed which have the capacity to destroyed the planet hundreds of time, or the over-kill capacity. However, nuclear weapons and fissile materials were under the safe custody of strong and stable government. The concern for clandestine proliferation was never an issue during the Cold war period because nuclear weapon states developed highly competent nuclear security system. The end of Cold War and the disintegration of former Soviet Union resulted into collapsed of entire Soviet nuclear security system. Beside former Soviet states, nuclear state like Pakistan is very unstable. The disintegration of former Soviet Union opened Pandora box for nuclear proliferation to Rogue States and terrorist groups. The situation of nuclear insecurity is intensified by unstable governance system in Pakistan. Therefore in the present era of global terrorism, the foremost concern for nuclear proliferation is terrorist groups operating at various parts of the world.

The term ‘Terrorism’ is derived from Latin words ‘terrere’ and ‘deterre’, the word ‘terrere’ means to tremble, and the term ‘deterre’ implies to frighten. Thus, terrorism means to harm people so that they are so frightened that they start trembling. It is a strategy to achieve an avowed objective through the systematic use of violence thereby undermining the lawful authority of a government or a state. They are willing to use whatever means available to achieve their objectives. Various terrorist groups have a clear intention of acquiring nuclear capability or having fissile material in order to make *dirty bomb*.¹ The forces globalization like information technology, open border, increasing trade and commerce enable the emergence of global network of terrorist organization. Therefore the chances of looting of nuclear installation as well as theft and diversion of nuclear and fissile materials are all the more plausible.

II. NUCLEAR AND FISSILE MATERIAL SECURITY AFTER COLD WAR

The security of nuclear weapons and fissile materials become a serious issue at the end of Cold War due to changing international order and changing concept of security itself. The role of non-state actors increased manifold. The Al-Qaeda attacked on World Trade Center (WTC) changed international relation into large extent.

¹ A dirty bomb is type of explosive device like dynamite laden with radioactive materials that can contaminate its surrounding areas with nuclear radiation. It is called dirty bomb because of the scattering of radiological particles as a result of explosion.

The first opportunity of acquiring nuclear weapons or fissile material was offered by the collapsed of the former Soviet Union in 1991. A strong and powerful nuclear weapon state was disintegrated into 15 independent republics. Literally four new nuclear states emerged from the former Soviet Union overnight and weapon grade highly enriched uranium (HEU) and plutonium were scattered in the entire length and breadth of former Soviet Union. Despite determine effort by world community and particularly the United States, the former Soviet Union remains the hotspot of nuclear smuggling even today. Various reasons can be attributed to this. *First*, weak governance; *second*, economic hardship; *third*, ethnic problems; *fourth*, proximity to terrorist hotspot like Middle East and South Asia; *finally*, weak material protection, control and accounting (MPC&A). In fact most of nuclear theft and illicit trafficking of nuclear materials originated from this region.

Today, a nuclear Pakistan is highly unstable due to series terrorist activities. For instance, Tehrik-e Taliban Pakistan (TTP) has carried out its terror activities mostly in Pakistan's nuclear sensitive area. According to report by Harvard University's Belfer Centre for Science and International Affairs, its stockpile faces a greater threat from Islamic extremists seeking nuclear weapons than any other nuclear stockpile on earth. The report also said that "Despite extensive security measures, there is a very real possibility that sympathetic insiders might carry out or assist in a nuclear theft, or that a sophisticated outsider attack (possibly with insider help) could overwhelm the defences" [1]. Insider threat is one of the most critical issue in Pakistan's nuclear security system as we had seen in Dr. Khan's episode. Terrorist groups have made several attacks on military installations. For example, in 2012, Islamic militants attacked a major Pakistani Air Force Base where some 100 warheads are said to be stored. Beside these military installations, its nuclear reactor which produces HEU and plutonium are the possible targets for terrorist who wants to acquire nuclear capability. Nuclear reactor or nuclear research centre will be an easy target if they could attack heavily guarded military installation. The uncertainty in the region surrounding Afghanistan and the continued tension with a rival nuclear power make this region ripe for illicit activity.

III. TERRORIST GROUPS AND NUCLEAR WEAPONS

In traditional thinking, only states were considered to have the willingness to acquire nuclear capabilities. Nuclear commerce was conducted between states and states entered into international arms control and disarmament treaties. However, this thinking has been changed drastically with the increasing evidence that terrorist groups have intention of acquiring nuclear weapons. In fact in the era of global terrorism, the greatest threat to nuclear security comes from terrorists groups possessing sufficient quantities of plutonium or highly enriched uranium (HEU) to construct a crude nuclear explosive device or making dirty bomb. In order to build a crude nuclear weapon like the one dropped in Hiroshima and Nagasaki, high level of sophistication is not require. It is the availability of fissile material like HEU or plutonium that matter.

In this regard, the biggest obstacle to building a nuclear weapon is the acquisition of the necessary weapon useable nuclear material. The process of enrichment of uranium sufficient to create nuclear device involved difficult technological process. Plutonium does not exist naturally. It is the by-product of nuclear reactor as spent fuel. But if non-states actor like terrorist groups had acquired HEU or plutonium, practically, they bypass all the technological barriers to acquire nuclear weapons. In other words, if they access direct materials, they would not require undergoing a very complex process of developing nuclear weapons like the Manhattan Project. Theft or purchase of weapon useable nuclear material could constitute a major short cut on the road to developing a nuclear weapon [2]. Expert like Matthew Bunn is of the opinion that if they had these materials in hand and the ability to buy these materials on a nuclear black market could shorten a proliferating state's bomb programme from a decade to months or even less [3].

According to Lee (2003), accounts of varying credibility also point to efforts by terrorists to purchase finished nuclear weapons from inside the former USSR and apparently, the Aum Shinrikyo cult apparently harboured such intentions which is evident in the documents seized from the cult's "construction minister," who had visited Russia extensively in the early 1990s, contained the ominous notation, "*How much is a nuclear warhead?*" and listed several prices, though whether these references reflected actual negotiations was not clear [4]. Osama bin Ladin's assertion in 1998 that it was his Islamic duty to acquire weapons of mass destruction ensured that the fulfillment of this intent would become a top priority for his lieutenants in the ensuing years [5]. The Tehreek-e-Taliban Pakistan's (TTP's) is another potential group that might have intention to acquire nuclear or radiological capability. Operating in Pakistan which is the hotspot of nuclear insecurity, this group may have been want to use nuclear or radiological weapon to fulfill their avowed objective of establishing an Islamic state. Finally, the most potent terrorist group Islamic State of Iraq and Syria (ISIS) pose the gravest danger to proliferation of nuclear and fissile material.

According to the United States' Government Accountability Office (GAO) Report, the order to make crude nuclear weapon, as little as 25 kilograms of highly enriched uranium or 8 kilograms of plutonium is sufficient [6]. This could be utilized by terrorist groups and countries seeking to make WMD. This was also mentioned by Cochran and Paine (1995) in their work which states that the amount required for making a nuclear bomb is small. According to them, "Four kilograms of plutonium, an amount smaller than a soda can, or about three times that amount of HEU is potentially enough for a nuclear bomb. For instance, the Nagasaki bomb, the Fat Man, which produced a 20 kilotons (kt) explosion used only 6.1 kilogram of weapon grade plutonium" [7].

IV. ISIS AND THE DANGER OF NUCLEAR PROLIFERATION

The world today faces the most potent and powerful terrorist group so far called the Islamic State Iraq and Syria (ISIS). Formed in April 2013, this powerful terrorist group overran large part of Iraq and Syria within short period of time. The group attempt at establishing Islamic emirate in Iraq and Syria. It is the main jihadist group fighting against government forces in Iraq and Syria. Their demonstrated brutality and willingness to kill large numbers of innocents is shocking, but is now the kind of terrorism that we have become familiar with over the past 20 years. ISIS adds three capabilities that catapult the threat beyond anything seen before: control of large, urban territories, huge amounts of cash (perhaps as much as \$2 billion), and a global network of recruits [8]. The ISIS is also reportedly earned significant amount from the oilfield it control. There is no doubt that they have enough resources to buy nuclear weapon or fissile material from black market. With these huge assets they could illicitly acquire the nuclear material and fissile material from nuclear black market from vulnerable storage sites in former Soviet states or Pakistan, and possibly nuclear expertise as well.

After victory over Mosul in June 2014, the ISIS reportedly took possession of 40 kg of radioactive material from Mosul University. They proudly announced that they have nuclear device and threatened to use it against its opponents like Israel [9]. Looking at the level of brutality of ISIS, there is a clear signal that they would not hesitate to use against their opponents. Although these 40 kilograms may not be useful for making nuclear devices or dirty bomb [10], it clearly showed the intention of Islamic States desire for acquiring nuclear weapons. Therefore, global effort is necessary to prevent terrorist groups from acquiring weapons of mass destruction.

V. CASES OF NUCLEAR TRAFFICKING

The matter is made more serious with the continued and persistent incidents of nuclear trafficking in different parts of the world. The price of highly enriched uranium is running at least \$10,000 per gram. The risk-reward calculation is changing in a way that incentivizes illicit traffickers to include nuclear material in the contraband they move. This means that terrorists can become commodities purchasers, much like the buyers of illegal drugs. In short, the odds of terrorists successfully acquiring nuclear material have increased in their favor [11]. The IAEA Incident and Trafficking Database (ITDB) reported that from January 1993 to December, 2013, a total of 2477 incidents were reported to the ITDB by participating States and some non-participating States. Of the 2477 confirmed incidents, 424 involved unauthorized possession and related criminal activities. Incidents included in this category involved illegal possession, movement or attempts to illegally trade in or use nuclear material or radioactive sources. Sixteen incidents in this category involved high enriched uranium (HEU) or plutonium. There were 664 incidents reported that involved the theft or loss of nuclear or other radioactive material and a total of 1337 cases involving other unauthorized activities, including the unauthorized disposal of radioactive materials or discovery of uncontrolled sources [12]. Even though a bulk of these reports mentioned here involved radioactive materials which could not be used for production of nuclear weapons, it however proved the vulnerability associated with fissile materials.

VI. CONCLUSION

Under the shadow of nuclear weapon, the world depends upon deterrence for security. But deterrence is effective only where there is clearly defined geographic territory or any other definite attributes. But the absence of geographical locations of terrorist groups denied the reliability of deterrence against the same. Another problem of terrorist groups acquiring nuclear weapons is that prevention of nuclear detonation would be very difficult. Falling of weapons of mass destruction into the hands of terrorist groups is a clear and present danger. The horrifying nature of nuclear explosion was demonstrated by the bombing of Hiroshima and Nagasaki in 1945. Nuclear bomb with 10 to 20 kilotons killed more than 100,000 people at immediate impact and several more were killed in the aftermath. If terrorist group acquire nuclear weapons or could assemble nuclear weapon from fissile materials. The horror would be tremendous. Nuclear weapon with only 10–20% of such destructive power could still kill tens to hundreds of thousands of people if detonated in one of the world's mega-cities. Nuclear destruction is overwhelming and almost instantaneous; therefore, the focus must be on prevention [13].

In the present era of global terrorism, the forces of globalization like information technology, global network of transportation and open border significantly eased the movement of people and goods across international boundaries. It is true that these forces of globalization have also increased the lethality, and influence of terrorist groups immensely. In this context, the threat of global peace and security is increasingly originate from non state actors like ISIS who has the capability to wage large scale war or other fundamental groups. Therefore, global community needs a concerted effort to prevent terrorist groups from acquiring nuclear capability.

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