

## Nuclear Issues and Strategic Technologies in Multi-Polar World

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### Abstract

*The nuclear issue in China one must do so within the ambit of a complex and often obscured environment. The task is not, however, impossible, for even without the luxuries of doctrinal guidance and warhead quantity, important factors can be isolated. Even with the added impediments of vague, ambiguous decision-making procedures and accusations of technological inferiority, a likely Chinese position on nuclear force is visible. Furthermore, it is apparent that China pursues an unorthodox and unique nuclear-deterrent posture. Whether under the western guise of 'minimum deterrence' or viewed entirely in its own right, China's security via nuclear force is the most efficacious at a regional, theatre level. Attempts to counter this regional capability through Theatre Missile Defence initiatives have been found to be problematic and could force China down several avenues that would undermine, rather than enhance, security northeast Asia. China, in any case, is unlikely to allow this regional deterrence to be seriously eroded. These three developments do much to explain the shaky basis for assuming that Mutual Assured Destruction (MAD) based on each side's secure (and adequate) second-strike capability remains the underpinning for strategic stability even in the U.S.-Russian relationship, let alone in the nascent U.S.-Chinese relationship. Within both pairings a range of factors has emerged that threaten to ease the pathways to inadvertent nuclear war. They include the Russian and Chinese holdings of dual-capable nuclear and conventional missiles together with possibly shared command and control systems, creating the risk that a U.S. attack intended against a conventional facility could unintentionally strike its nuclear counterpart; China's possible plans in a regional conventional conflict to incapacitate U.S. systems needed to manage its maritime operations, systems that include satellites and ground-based radars critical to early warning of a nuclear attack, the evolution of U.S. nuclear doctrine to permit nuclear retaliation in the event of a non-nuclear attack on vulnerable U.S. nuclear C3I (communications, command, control, and intelligence) facilities and the uncertain consequences if cyber weapons were used in a conventional conflict to impair war fighting capabilities essential as well to a country's ability to communicate with and control its nuclear forces.*

**Keywords:** Cyber Weapons, Decision-Making, U.S.-Chinese Relationship, MAD.

### Introduction

Why cooperative threat reduction programs developed for the former Soviet Union are considered model for assistance elsewhere and their potential application in India and Pakistan. The type of assistance provided under CTR and potential constraints on U.S. assistance in this area, including domestic and international legal and political restrictions on cooperation with states outside the Nuclear Nonproliferation Treaty (NPT): the low level of cooperation and transparency exhibited by India and Pakistan, lack of incentives for India and Pakistan to pursue threat reducing proceeding and potentially competing objectives of threat reducing and nuclear deterrence. The distinguishes between assistance

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oriented toward making nuclear weapons more secure and assistance oriented toward making nuclear materials more secure. Given the existing framework of nonproliferation related laws and policies, proceeding focused on nuclear material and personnel may be more feasible in the short term.

Since India and Pakistan tested nuclear weapons in 1998, there has been a debate on whether the United State should provide assistance in making those weapons safer and more secure. In wake of September 11, 2001, interest in this kind of assistance has grown for several reasons: the possibility of terrorist gaining access to Pakistan's nuclear seems higher, the U.S military is forging new relationship with both Pakistan and India in the war on terrorism and heightened tension in Kashmir in 2002 threatened to push both states closer to the brink of nuclear war. In October 2001, media reported that the United States was providing assistance to Pakistan to keep its weapons safe, although those reports have not been confirmed.

In the specific case of India and Pakistan, there may be key differences from the FSU that limit the program's applicability. Many of those differences stem from the fact that India and Pakistan are not legal nuclear weapon states under the Nuclear Nonproliferation Treaty (NPT), as Russia was. The United States is currently prohibited from providing many kinds of assistance to non nuclear weapon states, particularly those without full scope nuclear safeguards. Most type of assistance the United State can feasibly would probably focus on helping secure nuclear materials and providing employment for personnel, rather than on security of nuclear weapons. Extreme sensitivity in India and Pakistan about their nuclear weapons and programs and programs will also likely restrict access to facilities, which in turn will limit how well assistance can be tailored to potential problems. Also, technical measures to make weapons safer from unauthorized use may make those weapons more deployable or usable and thus inadvertently undermine the goal of reducing the nuclear threat. Nonetheless, some measures may be useful.

#### **Pakistani Nuclear Threats**

This threat to India is very real. India nuclear war threat as one of the three most vexing issue of the present time. Pakistan completed its stolen U-235. The existing F-16 and missile added a big punch to Pakistan nuclear threats. The West was still not convinced and allowed Pakistan to launch a terrorist campaign in India and Kashmir. It was only with 9/11 in 2001 that the overall subject of nuclear weapons in Pakistan and their possibility of falling into terrorist hands became a hot issue.<sup>1</sup> This could become even hotter, if a Jehadi general or a Mullah take over the reign of power in Pakistan and decided to black mail India.<sup>2</sup>

#### **Threat to India**

Pakistani nuclear threat to India is more real than to the West. They want Kashmir to start with and Muslims rule in India their ultimate goal. nuclear weapons are instruments to achieve it. They will continue to try and try again to achieve it. Small failures in 1965, 1971 and 1999 are ignored. History speaks for itself. The Muslim influence in India did not arrive in one day. The point is that Muslims intension are perfidious. Their disputes will always be ongoing until the ultimate goal of rule over India is achieved. They are preaching these concepts in Madras's, where most of the Jehadi recruits get education. Unwitting western observers are sweet talked into believing their good intensions and peaceful purposes. Reasons why Pakistanis have not begun their conquest of India to date, is that India has much bigger nuclear weapons and stronger economy to buy any military hardware to kill the enemy. Still the Pakistanis believe that a sudden first strike from a short distance will kill India's nuclear forces and lead them to victory.<sup>3</sup>

India has been troubled by sectarian violence for decades, reflecting a constant conflict between its federal system and ethnic and regional aspirations. Ethnic unrest and rebel violence have been major Indian security concerns since the Chinese-aided Naga and Mizo separatist insurgencies flared in the 1960's. But the recent growth and expansion of terrorism across the nation strikes at the very heart of India's Constitution and democratic system. While hit-and-run attacks have declined in the northeast (except in Tripura state), terrorist violence has in recent years spread to the hills of Darjeeling, the plains of Tamil Nadu and the farms of Punjab. Group blamed for terrorist attacks in India include the exiled Tamil militants from Sri Lanka. Gurkha nationalists, Kashmiri Moslem fundamentalists and Tripura tribal rebels. Several Sikh groups have helped turn the rich farms of Punjab into India's "Killing fields". They include the Khalistan Commando Force, the Babbar Khalsa, the All-India Sikh Students Federation, the Khalistan Liberation Army, the Dal Khalsa and the Dashmesh Regiment. At least two of these groups, the Babbar Khalsa and the Dashmesh Regiment, are believed to be active overseas, particularly in Canada and West Germany.

## **Military**

Military, India is doing the right things today. It has doubled its defense expenditures in years. Its army, Air force and Navy is better equipped to deal with Pakistan today than some years back. Additional induction of Phalcons, Artillery and LCA etc. in next few years will tilt the balance completely in India's favor. Pakistan knows about it, hence is concentrating on upgrading its nuclear weapons and missiles.<sup>4</sup> They are so confident about their missiles and nuclear weapons that they feel that they can destroy India's nuclear weapons and other nuclear establishment in a first strike. It could be true as the flight time for a nuclear armed missile and F-16 planes to Indian targets is less than 7 minutes. This leaves time for India to activate its defense against incoming missiles. It is the return salvo India has to plan for. This salvo will have to be well protected and large enough to annihilate the enemy.

## **Nuclear Material Security**

Nuclear material security is a concern for all states in the context of terrorist threat. Physical security has long been considered a subset of international safeguards, but it has never been a prerequisite for placing nuclear material under international safeguards. It can be requirement of bilateral nuclear trade, however, and the United States requires physical security measures on some of the nuclear material it exports, mostly in conjunction with military program. Often, physical security measures are implemented as a matter of course in implementing safeguards.

Measures to enhance material security generally fall into the category of material protection, control and accounting. In some cases, securing material in a storage site with tamper proof seals, cameras and other monitoring techniques is adequate, but some most often the material is intended to be used in processes. This requires a system of accounting and control that can follow material flows. International safeguards rely heavily on state system of accounting and control in measuring physical inventories of materials. Some technical exchanges in these areas may be possible. Some new techniques for securing material in place could be shared. Pakistan and India's participation in multilateral programs on physical protection of material could be encouraged as well as their participation in experts training sessions conducted by Sandia National Laboratory on physical protection. It is also possible to provide equipment for physical protection under license.<sup>5</sup>

## **Site Security**

Improving site security help guards against threat or weapons or materials or components leaving a sensitive site either through theft by someone within the facility or from outside theft. Perimeter security measures, such as fences and other barriers like barbed wire and personnel identification system, can help minimize the threat of unauthorized entry. Sensors to detect unauthorized action can help against both insider and outsider threats. Measures to protect against inside theft include checks on personnel leaving facilities cameras in sensitive areas and accounting and access procedures. Armed guards could help, as would operational; and administrative controls.

## **Nuclear Materials Safeguards**

Most of the material and facilities in India and Pakistan is not subject to international safeguards. In India, there are safeguards on reactors. The Tarapur plutonium reprocessing facility is safeguards when safeguarded fuel is used in the facility and the Tarapur MOX fuel fabrication plant has safeguards when it runs safeguards material through it. The Hyderabad fuel fabrication plants has partial safeguards. Pakistan has IAEA on a few facilities . the PANUPP power reactor, which uses material uranium, Chasma-1, LEU fueled power reactor and two research reactors at Rawalpindi that have used HEU in the past are under international safeguards. The following facilities are not under safeguards. These nuclear production sites, as well as weaponization, storage and assembly sites, could be high value targets for terrorist.

## **Nuclear Weapons Security**

Most observers still believe that neither Pakistan nor India has deployed warheads mated with delivery system. Missile material components are thought to be kept separately from the rest of the warhead. Such a physical separation helps deter unauthorized use and complicates theft. In addition to physical separation, however, there need to be rules and procedures for authorized use, it is not clear what those are for India or Pakistan.<sup>6</sup> India and Pakistan have been moving towards more structured nuclear command and control authority, organization and strategic planning. However, there is no information no whether they have implemented two man rules or other procedures for ensuring no unauthorized use.

There is no reliable information on where fissile material is shaped or machined into components for weapons or where fissile cores are kept if they are separated from other weapon components and delivery system for India and Pakistan. Some observers believe that nuclear weapons parts are probably distributed in a number of tightly secured facilities at different locations thought Pakistan. Physical security in case of Pakistan is provided by the military. India has kept strong civilian oversight of the weapons program, with the military kept predominantly at arm's length.

Assistance on nuclear weapons security would be extremely limited if it were considered desirable. The objective of such measures would be to ensure that weapons could not be stolen or detonated by an unauthorized person. Again, the simplest measures are armed guards, undoubtedly both India and Pakistan are aware of the advantage of protecting their nuclear weapons. Advice or equipment to ensure no unauthorized use of nuclear weapons, such as PALs, would require access to nuclear weapons. General information on permissive action links, such as concepts or approaches, is publicly available and would not require access to weapons.<sup>7</sup> In all likelihood, however, both India and Pakistan have probably exhausted public sources of information on the topic. Beyond the warheads themselves, measures to ensure that command and control system works would also help ensure no unauthorized use, but could possibly enhance operational capabilities.

### **Technical Constraints**

Descriptions of Indian and Pakistani nuclear weapons programs are incomplete and their accuracy is not reliable. More is known about missile material production site than weapons machining or assembly sites, but overall there is a high level of secrecy attached to both nuclear weapons programs.<sup>8</sup> Without knowledge of where vulnerabilities lie, it will be difficult to target even the most rudimentary assistance. In the case of Russia and the NIS, U.S. government officials have complained for years that Russia has not provided the kinds of access necessary for the United States to ensure that its goals are being met. With respect to the material protection, control and accounting programs, most of the materials, according to one report, remains outside of the program because the United States cannot gain access to sensitive facilities.

### **Cooperative Threat Reduction**

Preventing diversion of scientific expertise is also applicable to India and Pakistan. However, the underlying causes for concern are different and therefore may call for different solutions. In Pakistan, the incentive is more likely to be associated with sympathy for terrorist aims. There are more scientists than can be paid or are needed, but there are no indications that Pakistani and Indian scientists are superfluous to their nuclear program. Both India and Pakistan are probably interested in retaining their nuclear experts. The Cooperative Threat Reduction program had four key objectives:

- Destroy nuclear, chemical and other weapons of mass destruction.
- Transport, store, disable and safeguard these weapons in connection with their destruction.
- Establish verifiable safeguards against the proliferation of these weapons, their components and weapons usable materials.
- Prevent the diversion of scientific expertise that could contribute to weapons programs in other nations.

### **Conceptualizing Nuclear Prevention**

Nuclear weapons challenge war as an instrument of politics. With nuclear weapons, strategy has become an instrument to prevent war, the sole purpose of nuclear weapons is prevention, which is the prevention of military conflict. Nuclear weapons appear to have had three general effects on inter-state relations.

- Nuclear weapons provide the nuclear state with an in-frangible guarantee of its independence and physical integrity.
- Mutual deterrence among antagonistic nuclear States places limits on violence and it thus acts as a brake on total war.
- By altering the offensive defence balance in favor of defence, nuclear weapons have made it possible for weaker states to defend themselves effectively against larger power countries.

The theory of nuclear prevention rationalizes the development of Indian and Pakistani nuclear arsenals. Both sides articulated that a triad-based minimum nuclear prevention was essential for their

sovereign defence. Proliferation optimists following the logic of rational prevention theory, argue that South Asian nuclearization has narrowed the number of strategies that might permit India and Pakistan to exploit a temporary military advantage to achieve a more permanent and favorable distribution of power without risking unprecedented and prohibitive self destruction.<sup>9</sup> Statesmen and soldiers in Islamabad and New Delhi understand that a nuclear exchange in South Asia would create devastating damage and therefore would be deterred from starting any military conflict in which there is a serious possibility of escalation to the use of nuclear weapons.

### **Political Constraints**

U.S assistance is likely to be a sensitive issue for the Indian and Pakistani government. Neither state will want to be seen as needing assistance. India has refused to participate in technical cooperation with IAEA except on a regional basis precisely for this reasons. On the other hand, India has welcomed talks with the United States on reactor safety and a U.S delegation traveled to India in 2003 for meeting on the topic.<sup>10</sup> It may be possible to make such assistance less sensitive if it is focused on physical security of the nuclear fuel cycle and not linked to nuclear weapon capabilities. Pakistani officials have been quite vocal in insisting that their nuclear assets are safe and secure and the U.S assistance is not required.

On the whole, despite some progress in Kashmir, there are still few indications that India or Pakistan would want to enhance transparency to build confidence, either with each other or with the United States. Between the two states, there appears to be more interest in threat enhancement than threat reduction. In addition, Pakistan's reliance on foreign procurement sources could also make transparency measures difficult. A culture of secrecy for India and Pakistan, not easily overcome in the case of Russia, may be difficult to transcend.

### **Personnel Security**

The types of measures for personnel security that could be implemented absent Pakistani and Indian disarmament are limited. Obviously, if there are ongoing nuclear weapons programs, the two government are unlikely to welcome proposals to divert their scientific expertise into civilian enterprises. However, there are clearly training programs in physical security and personnel vetting that could provide more security to those nuclear programs without enhancing their nuclear deterrents in a way that would contravene the NPT.

### **India-Pakistan Nuclear Posture**

Indian and Pakistani nuclear posture proves that both States are engaged in strategic modernization programs of considerable breadth, building nuclear-tipped cruise missiles as well as ballistic missiles to be carried by their land, sea and air forces. In addition, both sides have also been steadily upgrading their respective air forces. India and Pakistan's current nuclear postures-including the acquisition of delivery systems with greater range, accuracy and flexibility amount to an affirmation of the utility of nuclear weapons and thereby contradict efforts to downgrade their importance and promote nuclear no-proliferation and disarmament in South Asia.<sup>11</sup>

### **Other Consideration**

A broader issue is whether the United States should strive for consistency in the treatment of states WMD programs. Although India, Pakistan and Israel are not parties to the NPT and therefore have not violated any treaties, their nuclear weapons programs conflict with U.S. nonproliferation objectives and policies. Assistance to countries outside the NPT may be viewed as a wink and a nod to nuclear weapons development.<sup>12</sup> At the same time, the use of military force to disarm Iraq or its weapons of mass destruction provides a strong counterpoint to such assistance. As such, this could threaten international consensus to combat nuclear proliferation. Should the United States move in the direction of accepting Indian and Pakistani nuclear weapons status, say some observers, would there be pressure to do the same for Israel? If so, such action could have a significant impact on security and stability in the Middle East. This approach would include accepting the nuclear weapons status of India and Pakistan and relaxing all restrictions. Other observers have argued that the purpose of restraints was to inhibit proliferation and that relaxing the rules for successful state would set a bad precedent and result in the collapse of the nonproliferation regime.<sup>13</sup>

### Weaponization of Space

China tried to slow down the United State effort of deploying space-based interceptions and other missile defence elements into space. In the Geneva-held conference of disarmament, china tried to negotiate an agreement on the prevention of an arms race in outer space, which was rejected by the United State with an argument that the outer space issue is not ripe for negotiations because there is no current arms race in outer space. The united State and Israel were the only two Conference of Disarmament member to abstain from a UN General Assembly vote in November 2002 for a resolution calling on the conference to works on outer space in 2003.<sup>14</sup> China is also wary of the U.S National Space Policy, which was released October 2006. It seems that China is particularly apprehensive of two principles in the policy.

- The United State considers space capabilities-including the ground and space segments and supporting links-vital to its national interests. Consistence with this policy, the United State will preserve its rights, capabilities and freedom of action is space dissuade or deter others from either impeding those rights or developing capabilities intended to do so, take those actions necessary to protect its space capabilities , respond to interference and deny adversaries, if necessary, the use of space capabilities hostile to U.S. national interests.
- The United State will oppose the development of new regimes or other restrictions that seek to prohibit or limit U.S. access to or use of space. Proposed arms control agreements or restrictions must not impair that right of the United State to conducts research, development, testing and operations or other activities in space for U.S. national interests.

All these lead China to conclude that the United State is determined to dominate and control space and an inevitable trend of weaponization of space is seen.<sup>7</sup> From China's perspective, all the United State has done has been to diminish a diplomatic solution, but at the same time hasten the pace of military development in space.

### Conclusion

It should be clear that nuclear terrorism constitutes a significant danger in South Asia and that urgent steps should be initiated to upgrade the physical security and safety of atomic installations and materials. The danger has been nurtured and reinforced by the escalating level of terrorism in the region, the growing most secure state of affairs for the region if political conditions allow. In this regard, every effort should be made to minimize or avoid altogether the further production and use of bomb-grade nuclear materials, not only in this region but also in other parts of the world because such restraint would be the best defense against these materials falling into the hands of terrorists or being used by nations in weapons.

This could threaten international consensus to combat nuclear proliferation, should the United States move in the direction of accepting Indian and Pakistan nuclear weapons status, say some observers, would there, be pressure to do the same. Indian and Pakistan data are scarce on the state of nuclear materials and so it is difficult to determine the cope and time frame of any such program. At a minimum, however, such a program is likely to be incrementally implemented. both India and Pakistan have probably exhausted public sources of information on the topic. India and Pakistan about their nuclear weapons and programs will also likely restrict access to facilities, which in turn will limit how well assistance can be tailored to potential problems. Also, technical measures to make weapons safer from unauthorized use may make those weapons more deployable or usable and thus inadvertently undermine the goal of reducing the nuclear threat. The low level of cooperation and transparency exhibited by Indian and Pakistan, lack of incentives for two countries to pursue threat reduction measures and potentially competing objectives of threat reduction and nuclear deterrence.

The positive factor for prevention optimists is that India and Pakistan had agreed to some confidence-building and nuclear risk-reduction measures, such as non-attack on each other's nuclear installation and notifications regarding certain missile flight tests and military exercises . trends in the regional and international politics indicate that in the near future, the composite dialogue between India and Pakistan would resume, perhaps yielding more agreements that reducing the possibility of unintended escalation. The realistic accounts is that prevention in South Asia is dynamic rather than static, contingent on the opponent's moves and technology advances. The pessimistic wrapping up is that nuclear prevention between India and Pakistan is very much vulnerable to non-State actors, India's ethnocentrism cum superiority obsession increasing conventional asymmetry between the belligerent

neighbors, Pakistan's political and economic instability and above all, its insufficient investment in modern conventional weaponry. Hence, prevention may well fail in preventing war despite New Delhi's and Islamabad's recognition of the vast devastation of nuclear war.

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