Panel 1: South Asia

1. **Guarav Kampani**, CISAC: *Institutional “Software”: The Hidden Dimension of Nuclear Instability in South Asia*

**Summary**

Since India and Pakistan claimed formal nuclear status in 1998, a debate has revived among nuclear optimists and pessimists on the consequences of nuclear proliferation. The original Sagan-Waltz debate has been followed up by Ganguly, on the one hand, who optimistically argues that South Asia is stable and Kapur, on the other, who pessimistically maintains that there remain serious grounds for instability. The arguments these latter scholars make have an inherent structural focus. They zero in on the stability/instability inducing effects of nuclear weapons on large-scale war. Missing from their arguments, however, is any discussion of the role “software” plays in managing nuclear stability. By software I mean India and Pakistan’s institutional capacities and operational strategies to wield nuclear forces. Using data from the open-source domain and field research in India, I argue that India and Pakistan now substantially differ in their approaches to nuclear use. In Pakistan, nuclear weapons appear well integrated with its broader national security strategy. The Pakistani military’s institutional dominance has ensured that the strategy of nuclear signaling and early and limited first use melds with its conventional war approach. In India, however, the contradictory conventional and nuclear war doctrines reflect the civil-military institutional divide. The Indian military, for example, proposes to fight a limited though swift and aggressive conventional war, which does not address Pakistan’s suggested early and limited nuclear use. Furthermore, the nuclear doctrine prepared by the civilians proposes massive retaliation against any nuclear use by Pakistan, howsoever limited. It thus purports to *transform a limited war with limited means into an unlimited war of unlimited means and ends*. These differences are so glaring that they are likely to contribute to the risks of misperception and miscommunication; risks that could render nuclear use more likely in a future war.

**Memo**

With an estimated arsenal count of 90-110 warheads, Pakistan is now poised to overtake Britain as the world’s fifth largest nuclear weapons power. In both warhead numbers and missile-based delivery systems, its capability is believed to exceed India’s. But numbers and hardware apart, there is something else that fundamentally makes Pakistan’s nuclear capability different from India’s: the interface of the weapons with their institutional management and doctrine. The latter seamlessly integrate nuclear forces into Islamabad’s national security and military strategy.
in a manner that India’s do not. This difference in the management of nuclear forces undermines nuclear stability in South Asia.

The army has been in charge of Pakistan’s nuclear weapons program for most of its history. That institutional stewardship has substantially shaped the role that nuclear weapons play in Islamabad’s national security strategy. Back in the 1970s, it was believed that a nuclear deterrent would guarantee Pakistan’s existential security. But from the 1980s on, nuclear weapons have assumed an offensive role. Since then, the Pakistani military has used the protection of the proverbial nuclear “umbrella”, first imagined and then real, to wage a sub-conventional war against India by supporting insurgencies in Indian Punjab and later Kashmir. The nuclear deterrent, the Pakistani military believes, has effectively immunized Pakistan from the threat of a punishing Indian conventional retaliatory attack. The Pakistani national security establishment has also mythologized the belief that nuclear weapons deterred Indian conventional attacks on four occasions: the 1986-87 Brasstacks Crisis; the 1990 Kashmir Crisis; the Kargil War in 1999; and most recently, the 2001-2002 military standoff when India unsuccessfully attempted coercive diplomacy.

South Asia was more stable in the late 1980s and early 1990s when compared to the last decade. Back then, India settled on a defensive strategy of dissuasion and denial to deal with Pakistani provocations. Dissuasion meant that India would use its considerable conventional power to deter the Pakistani army from directly intervening in the Punjab and Kashmir in open support of the insurgents that it was helping wage sub-conventional war. As a complement to that strategy, India also tried to deny the insurgents’ victory through a combination of politico-economic inducements and paramilitary/police pressure. However, in the late-1990s, India switched from dissuasion and denial to a strategy of denial and punishment. Pakistan’s unrelenting support for the Kashmiri insurgency through the decade was one cause for this switch. But its immediate trigger was the Kargil War. In the summer of 1999, Indian military patrols discovered that Pakistan had illegally occupied some mountain ridges along the Indian side of the line of control (de facto border) in Kashmir. A local war followed, which Pakistan lost. However, the implications were clear. Nuclear weapons had emboldened the Pakistani army to commit aggression. India’s strategy of dissuasion had failed. In that aftermath India decided that one way to possibly end the sub-conventional war was to punish the insurgents’ institutional sponsors – the Pakistan Army – through conventional means. The challenge however was to find middle ground that would enable the Indian military to unleash its conventional power without pushing Pakistan over the nuclear edge. In 2000, Indian Defense Minister George Fernandes signaled that, in the future, India would find ways to prosecute limited conventional operations under nuclear conditions.

In 2001-2002, New Delhi tried this new strategy when it threatened Pakistan with conventional war in the wake of attacks on the Indian parliament. That attempt failed because despite the doctrinal shift in principle, the Indian military had not devised the logistical and operational means to swiftly prosecute limited conventional operations. The slow Indian mobilization
allowed Pakistan sufficient warning time to counter mobilize, a move that forced the Indian military into planning for a much larger conventional war than it had originally anticipated. The dilemma facing Indian political leaders in that crisis was ‘all or nothing’ and they wisely chose the latter.

In the aftermath of this failed attempt, the Indian military has gone about developing the logistical and operational means to make limited conventional war feasible. The new Indian strategy – Cold Start – has two components. The first is to improve India’s war mobilization times so that it can respond almost immediately to any future Pakistani provocations. And the second is to restructure the army’s defense divisions along the western border into smaller, more mobile and integrated battle groups that will have the capability to launch conventional probes and hold Pakistani territory along the border without assistance from the offensive strike divisions that are based far away from the border and have longer mobilization times.

The Pakistan Army has made note of the changes in India’s new conventional war approach and adjusted its nuclear strategy accordingly. From the late 1980s until 1998, Pakistan sought to deter a conventional Indian riposte not so much by threatening New Delhi with nuclear attacks as much as by frightening the United States into intervening to ward off a potential nuclear catastrophe in the subcontinent. But since India and Pakistan’s tit-for-tat nuclear tests in 1998 and the Kargil War in the summer of 1999, Pakistan’s nuclear strategy has evolved to defeat India’s new punishment strategy by adopting what MIT professor Vipin Narang terms “asymmetric escalation.” What this essentially means is that Pakistan proposes to use nuclear weapons first and early. The Pakistani strategy is in many ways similar to NATO’s war fighting approach in Western Europe during the Cold War. But it is unlikely that Pakistani nuclear war plans envisage widespread tactical nuclear weapons use on NATO’s scale. Rather, the strategy appears to use a limited number of weapons to signal the seriousness of Islamabad’s resolve, induce ceasefire, and terminate any conventional war early. To be sure, the Pakistani military has not made its nuclear doctrine or operational plans public. But there is some public discussion to suggest how this might happen. Pakistan would first issue a nuclear threat. As a next step, it would demonstrate the seriousness of its resolve by detonating a nuclear weapon on its own soil. Invading Indian forces would be the target in the third phase. As a fourth step, Pakistan would consider nuclear attacks against military targets co-located with low-density population areas in India. This nuclear war fighting strategy, Pakistan hopes, would spare large population centers from nuclear attacks, and keep nuclear war limited.

In contrast, India has adamantly insisted that: (a) it will not use nuclear weapons first; and (b) that any Indian response to nuclear use, even limited use in Pakistani territory, will be punishment through massive retaliation. Nuclear weapons, India maintains, are not weapons of war. Their sole purpose is to deter the use of nuclear, chemical, and biological weapons by others. Further, limited nuclear use and controlled escalation in warfare are paper strategies that will probably result in an uncontrolled nuclear exchange. Hence, India maintains that it will alternate between two extremes: either do nothing or undertake massive attacks that will
impose unacceptable losses on the enemy. India’s nuclear doctrine thus contradicts its conventional war strategy. *Whereas Cold Start envisages a war of limited aims with limited means, massive retaliation proposes a war with unlimited means for unlimited ends.* The latter threatens Pakistan’s destruction; and by extension, India’s as well.

The Indian nuclear belief system is thus entirely at odds with its Pakistani counter. New Delhi thinks that Islamabad will initiate nuclear use in *extremis*, whereas Islamabad has indicated the opposite is more likely. It is also evident from Pakistan’s hinted nuclear strategy that the Pakistani army does not believe that India will respond to early or symbolic Pakistani nuclear use with massive retaliation. The all or nothing approach enshrined in India’s declared doctrine thus makes it incredible. It actually undermines deterrence. Doing nothing in such circumstances might be the best thing to do. But doing nothing would probably signal the collapse of Indian political will and possibly encourage still further nuclear probes. Massive retaliation, on the other hand, will be a disproportionate response. It will saddle Indian decision-makers with responsibility for genocide and expose Indian cities to retaliation from surviving Pakistani nuclear forces. Thus the Indian nuclear doctrine creates room for the very outcome that it hopes to prevent.

The source of the mismatch between Indian and Pakistani nuclear use philosophies is the civil-military institutional divide in the two countries. In Pakistan, the army has imposed its organizational logic on force structure and doctrine. This is why the Pakistani deterrent has systematically increased in size and sophistication in the past decade. The war fighting doctrine also dovetails with the sub-conventional and conventional war strategies. It is credible, not only because of the existing force structure on the ground, but also because the Pakistan Army is the single source and coordinator for both conventional and nuclear war strategies. Thus both speak to one another. The idea of nuclear use by Pakistan may appear more sinister. But it also bolsters deterrence credibility.

India on other hand has a civilian-military institutional divide that separates conventional and nuclear war planning. The military has devised conventional war strategy with little or no direction from their civilian overlords. Similarly, the civilians have developed nuclear doctrine with minimal inputs from the military. Many Indian military leaders at the highest levels grasp the doctrinal incongruities that characterize their conventional and nuclear war approaches. But they are powerless to resolve them. The civilians are paranoid that military intervention in nuclear decision-making will be a slippery slope that will lower the bar for nuclear use. They therefore keep the military at an arms length. To be sure, it is entirely possible that India’s operational nuclear plans may depart from declared doctrine. But there are no indicators for this so far. India’s Strategic Forces Command, the tri-service agency that will command nuclear forces during wartime, and the three services that will fight the conventional war, operate out of institutionally compartmentalized domains. Their roles in nuclear and conventional operational planning have been deliberately bifurcated. Neither has the Indian government created institutions equivalent to the British Chief of Defense Staff or the American Joint Chiefs
of Staff to oversee the totality of India’s war efforts. The net result is that India’s conventional and nuclear war approaches don’t sync with one another.

The irony here is that Indian nuclear use aversion has only heightened the risk of actual nuclear use. In the Indian policy makers’ minds, an enduring belief has taken root that nuclear responsibility lies in ensuring that nuclear weapons never go off in anger. This is a noble undertaking. However, the absence of a significant institutional capacity and strategy to manage nuclear hardware has created doubts that that wish can remain a reality.
2. **Karthika Sasikumar**, BCSIA: *Playing by the Rules of the Nuclear Game*

I have been working on my project, “Playing by the rules of the nuclear game” since September 2010. My research investigates how India convinced the international community that it was a responsible holder of nuclear weapons. China in its first decade as a nuclear weapon power will be a secondary case.

**Research questions**

The central research question is: What steps has New Delhi taken to reassure powerful states in the international community that India’s nuclear arsenal will reinforce stability? These steps include both concrete policies and declarations, since nuclear deterrence to a great extent rests on declaratory policy. Because the United States is the most powerful country and the norm leader in the nonproliferation regime, I focus on the interaction between Indian and American security elites.

My investigations focus on five dimensions of Indian policy:

a) **Doctrine** (declaration of commitment to deterrence)

b) **Arsenal size** (small) and **crisis behavior** (restrained)

c) **Internal control of the arsenal** (retention of civilian dominance)

d) **Containment of the external diffusion of nuclear technology** (growing acceptance of multilateral export controls and safeguards)

e) **Arms control and disarmament** (selective adoption of regional and global agreements)

**Methodology and deliverables**

To answer these questions, I have been conducting interviews with current and retired policymakers and analysts. The majority of these have been in Washington DC and New Delhi. I also study the public record of government documents and media discourse. For the China case, I rely mainly on secondary sources, though I am conducting a few interviews with academic analysts. I seek to identify the circumstances under which Chinese leaders successfully reassured the United States—both an adversary and a norm leader.

The final product will be a book manuscript, to be submitted to a university press. Here is a tentative chapter outline:

- Ch.1: Laying out the argument (the concept of responsibility in the global nuclear order—its evolution, history of the Indian nuclear program, literature review, methods)
Ch.2: Resources India draws upon (international norms as well as domestic social, economic and political attributes)

Ch.3: Indian behavior and United States response: This chapter will treat the five issue-areas outlined above

Ch.4: Comparison with China (1964-1974)

Ch.5: Conclusion (review of the argument and implications for theory and policy, including for states of concern for the nonproliferation regime)

In addition, I plan to complete a discussion paper (to be published by the Belfer Center) on India’s complicated relationship with global export controls—as a target, an implementer, and a potential formulator of such controls.

Outline of research activities to date

In the first three months of my fellowship, I conducted a survey of the existing literature. I secured permission from the Institutional Review Board to conduct interviews. I also interviewed a few key individuals in the United States. In early November 2010, I presented my theoretical framework at a seminar at the Kennedy School. This enabled me to garner useful feedback on the basic structure of the project. I undertook my first research trip to India in November-December 2010, where I conducted interviews with sixteen key policy-makers and analysts. During my second trip in January 2011, I conducted more interviews and presented my argument at a seminar organized by the Institute for Defence Studies and Analysis in New Delhi.

In the last two months, I have been focusing on developing my argument and conducting more interviews in the US. At the end of April, I will present one of my key chapters at a seminar at the Kennedy School. I intend to circulate drafts of Chapters 1 through 3 by the end of July 2011.

Policy implications (based on research so far)

India’s commitment to playing by the rules is acutely sensitive to international changes. This means that substantive policy changes are possible. This is also a propitious moment for initiating these changes, as we have moved some distance from the pressures and deadlines of the negotiations between India and the United States/International Atomic Energy Agency/Nuclear Suppliers Group (NSG).

My first recommendation for policy is that the United States should step back from its role in advocating for India’s inclusion in the nuclear mainstream. There are now close associations in the Indian discourse between such issues as export controls and safety and security measures, and a larger strategic partnership with the United States. It is advisable for these important policies to be insulated from the vicissitudes of bilateral relations. In terms of international acceptance as well, India and the United States would both be best served if other countries...
with commercial and strategic ties to the Indian nuclear program (like France and Russia) were to take the lead in facilitating India’s entry into the institutions of the nuclear regime such as the NSG.

My second recommendation is that the Indian government should revamp its procedures relating to the administration of the ‘nuclear estate’ to be more transparent. While secrecy has been necessary in the past, now that the civilian program has been separated from the military program, it is less of an imperative. However, the decisions of the ‘atom managers’ in Mumbai remain opaque, creating confusion and misapprehension both within and outside the country.

My third recommendation relates to multilateral cooperation. India has long been the target of export controls and continues to be one, although it is now an implementer and potentially a formulator of export controls. Indian scientists and technocrats, who are immensely influential in determining state policy, have been isolated from the global mainstream and may have developed a ‘siege mentality.’ It is vital for the international community as a whole, not just the United States, to engage them intellectually and build bridges on technical topics and collaborations that are now possible.

My final recommendation is to expand the discussion of energy security in India to include all options, moving away from the focus on nuclear energy which was essential to convincing the rest of the world to commence nuclear commerce with India. India needs to explore other options such as natural gas, renewables, and cleaner coal in order to secure its energy requirements for the future.
3. Petr Topychkanov, CE: Enhancing Strategic Security in South Asia

Defining Strategic Security: Regional Perspective

The term “strategic security” is ambiguous because it embraces a broad range of issues. It can be referred to national, international and global security issues. For example, on May 31st, 2007, Vladimir Putin, then President of Russia, used this term as a synonym for “strategic balance”, when describing Russia’s nuclear weapons development programs, Russia’s relations with the United States and European countries1. Such understanding of “strategic security” is close to the classical meaning of the term “strategic stability” based on mutual assured destruction and ratio of the sides’ strategic offensive and defensive arms2. This understanding possibly formed the basis of the proposal to launch a strategic-security dialogue on nuclear forces, missile defense, space and cyber warfare issues, which was made by the U.S. Defense Secretary Robert Gates to China in January 2011. The ambiguousness of the term “strategic security” was manifested in the reaction of Gen. Liang Guanglie, Defense Minister of China, who insisted on limiting this dialogue to counterpiracy, counterterrorism and peacekeeping (undoubtedly, this reaction also meant the unwillingness to discuss the issues relating to nuclear weapons)3.

The ambiguousness of the term impedes official negotiations, but it can be useful for analysis of issues affecting nuclear security in South Asia. Many authors from India and Pakistan argue that the regional nuclear security cannot be described only in a narrow sense of strategic stability, because it is affected by political, military, diplomatic, economic and cultural factors and it affects them4. Considering nuclear weapons as the core of strategic security in South Asia, I will use this term in the broader sense for purposes of the research, including the analysis of political, military and diplomatic factors of internal and external origin.

---

1 “One of the most important problems is the problem of strategic security. Our American partners withdrew from the antiballistic missile treaty. We immediately warned them that we would take retaliatory steps to preserve the strategic balance in the world. This is extremely important for maintaining world peace. And our responses will be asymmetrical. Yesterday we completed a regular test of a new strategic ballistic missile with a large number of warheads... We have signed and ratified the Adapted Conventional Armed Forces in Europe Treaty. We are fully implementing it... But what about our partners? What are they doing?” (“Vladimir Putin and Karolos Papoulias,” May 31, 2007; available from www.rieas.gr/research-areas/greek-studies/266.html, accessed Apr. 31, 2011).


Challenges to Strategic Security in South Asia

India-Pakistan relations are usually described as a relationship of conflict, rivalry, and competition. These characteristics have historical reasons, because after India and Pakistan gained independence in 1947 there were four wars and major military conflicts between the two countries (1947, 1965, 1971, 1999). The Kashmir dispute is one of the main sources of regional instability. From India’s perspective, it was in Kashmir that Pakistan started to use terrorist groups as a part of its regional strategy. From this point of view, the activity of these groups brought to Pakistan several benefits: strategic (acting in India terrorists provided “strategic depth” and “early warning capabilities” to Pakistan), military (they were a low-cost instrument of proxy war) and political (an instrument of indirect pressure on India and intervention in its domestic affairs). The regional security was also affected by other problems, namely sharing of the Indus water, the territorial disputes about Rann of Kutch and Siachen glacier. Some authors believe that the latter three issues have been resolved successfully. But according to opinions of a number of the interviewed experts and diplomats of Pakistan the Indus water dispute can result into escalation of the situation in South Asia. All of these problems created a high conflict proximity. In the 1980s, in order to respond to these challenges, India and Pakistan created the situation, which was described as a “recessed deterrence” (deterrence without nuclear weapons, but on the nuclear threshold). The transformation of this situation into the nuclear deterrence in 1998 can be considered as a response to the security challenges as well as a security challenge itself. India and Pakistan appeared to be in the stability-instability situation.

Many experts in India and Pakistan believe that nuclear weapons attained the major goal to deter their opponent from implementing a nuclear strike. This “nuclear optimism” can be acceptable if the concept of nuclear deterrence is limited to the minimal nuclear deterrence, which is a part of the nuclear postures of the both states. There are two counterarguments. First, the nuclear weapons did not prevent conflicts between India and Pakistan, including the Kargil armed conflict in 1999. All these conflicts lowered the threshold of a nuclear war. According to the opinion of senior experts of several Indian think-tanks, this level is being lowered by every terrorist attack in India, that can be linked to Pakistan. Second, it can be

---


assumed, that the absence of military parity in South Asia and the relatively underdeveloped nuclear weapons of India and Pakistan do not allow them to create the situation of efficient nuclear deterrence (see Figures 1-3).
Fig. 1. Asymmetry of Defense Budgets of India and Pakistan

1. Military Expenditures, 1990-2010 (in US$ m.)

![Graph showing military expenditures of India and Pakistan from 1990 to 2010.](image)

2. GDP and Military Expenditures, 2010 (in US$ m.)

![Graph showing GDP and military expenditures of India and Pakistan in 2010.](image)


---

Fig. 2. Conventional Military Asymmetry of India and Pakistan

1. Active Military Manpower, 2010

![Graph showing active military manpower of India and Pakistan in 2010.](image)

2. Military Equipment, 2010

![Graph showing military equipment of India and Pakistan in 2010.](image)

### Fig. 3. Nuclear Weapons in South Asia

1. Nuclear Buildup, 1998-2011

![Graph showing nuclear buildup from 1998 to 2011 for India and Pakistan]

2. Nuclear Weapons Capabilities, 2011

<table>
<thead>
<tr>
<th>Stockpiles of Weapon-Grade Nuclear Materials (Estimate)</th>
<th>India</th>
<th>Pakistan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weapon-grade Pu (number of warheads)</td>
<td>334-504 kg (75-110 warheads)</td>
<td>36-80 kg (10-20 warheads)</td>
</tr>
<tr>
<td>Weapon-grade U (number of warheads)</td>
<td>?</td>
<td>1100-1400 kg (50-110 warheads)</td>
</tr>
</tbody>
</table>

**Nuclear Weapons Delivery Vehicles**

<table>
<thead>
<tr>
<th>Aviation (range, km; payload, kg)</th>
<th>Mirage 2000H (1800;6300); Jaguar S(I) (1600;4775).</th>
<th>F-16A/B (1600;4500); Mirage V (2100;4500).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tactical missiles (range, km; payload, kg)</td>
<td>Prithvi I (150;1000); Agni I (700+;1000); Dhanush (350;500); Sagarika/K-15 (300-700; 500-600)</td>
<td>Ghaznavi/Hatf III (400;500); Shaheen I/Hatf IV (450+;1000); Babur/Hatf VII (320+;n/a); Ra’ad/Hatf VIII (320+;n/a)</td>
</tr>
<tr>
<td>Strategic medium range missiles (range, km; payload, kg)</td>
<td>Agni II (2000+;1000); Agni III (3000; 1500)</td>
<td>Ghauri/Hatf V (1200+;1000); Shaheen II/Hatf VI (2000+;1000).</td>
</tr>
</tbody>
</table>

India and Pakistan have a relative parity only in the nuclear forces. But this parity is devalued by the wide differences in their nuclear postures. For example, India and Pakistan have declared the adherence to the concept of minimal nuclear deterrence. But in India’s case, its main goal is prevention of the use of weapons of mass destruction by the other side, and in Pakistan’s case, it aims at the prevention of critical war with the use of weapons of mass destruction and conventional forces. Another example is the non-first-use policy. India accepted it, Pakistan did not. Two non-nuclear factors also affecting the strategic security in South Asia need to be considered: cross-border terrorism and the Cold Start doctrine of India. India considers the first factor as a threat from Pakistan. The Cold Start doctrine was announced in 2004 particularly to respond to this threat (the doctrine is still at the preparatory stage)\(^9\).

**Security Enhancing Efforts: Within and From Outside the Region**

The strategic security in South Asia can be described as rather unstable. There is a high proximity of conflicts between India and Pakistan caused by various problems such as: the cross-border terrorism, the accidents, relating to the nuclear capabilities in both states, the Kashmir dispute, the problem of sharing of the Indus water, etc. It is obvious that major efforts to enhance the regional security must be made by India and Pakistan. But I will argue that the third country, international organizations, and nonproliferation regimes can play positive role as well.

**Unilateral and Bilateral Measures**

India and Pakistan have many options for furthering the security in South Asia. The following recommendations are based on a number of interviews and papers\(^10\): 1. Increasing transparency and symmetry in nuclear doctrines; 2. Negotiating confidence-building measures with regard to nuclear and conventional forces (separately on missiles); 3. Exercising mutual restraint in the development of nuclear weapons, and creating verification mechanisms; 4. Including the issues of Kashmir, nuclear security and counterterrorism in the agenda of the Composite Dialogue.

**Multilateral Measures**

The nuclear weapons states (foremost the United States, Russia and China) should demonstrate to other states their strong commitment to nuclear non-proliferation and disarmament not only by the new START Treaty, but also through START follow-on, ratification of CTBT and achieving FMCT. India and Pakistan should be engaged to the nonproliferation regimes on a non-discriminatory basis (IAEA, NSG, MTCR etc.), but this engagement should not set a bad example to the nuclear threshold states. The Indian and Pakistani cases are challenges to the nonproliferation regime. Usually this regime is not a priority for the regional organizations,

---


where India and Pakistan are the members or observers (SAARC, SCO, ASEAN, ECO, OIC). These organizations can play positive role in enhancing strategic security in South Asia, but their potential in strengthening nuclear security is less than the potential of the nonproliferation organizations and several countries.