

SAND 2005-4957
July 2005

The Role of Transparency in Achieving Strategic Stability in South Asia

*Air Commodore Tariq Mahmud Ashraf
Islamabad, Pakistan
and
Dr. Arpit Rajain
New Delhi, India*

Cooperative Monitoring Center Occasional Paper



Sandia National Laboratories

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, For the United States Department of Energy's National Nuclear Security Administration

Cooperative Monitoring Center

The Cooperative Monitoring Center (CMC) at Sandia National Laboratories assists political and technical experts from around the world to acquire the technology-based tools they need to assess, design, analyze, and implement nonproliferation, arms control, and other cooperative security measures. As part of its mission, the CMC sponsors research on cooperative security and the role of technology. Reports of that work are provided through the Occasional Papers series. Research is conducted by Sandia staff, international technical experts, and visiting scholars. (The CMC's Visiting Scholars Program is administered by the Institute for Public Policy at the University of New Mexico.) For additional information on the CMC's programs, visit the CMC home page on the World Wide Web at <<http://www.cmc.sandia.gov>> or write to:

Cooperative Monitoring Center
Sandia National Laboratories
Mail Stop 1373
Albuquerque, NM 87185-1373

For specific information on this report contact:
Michael Vannoni at the above address.

This report was prepared by Sandia National Laboratories
Albuquerque, NM 87185.

Abstract

According to international relations theory, deterrence can be used as a tool to achieve stability between potentially hostile nations. India and Pakistan's long history of periodic crises raises the question of how they can achieve deterrence stability. "Transparency" describes the flow of information between parties and plays a key role in establishing a deterrence relationship. This paper studies the balance needed between opacity and transparency in nuclear topics for the maintenance of deterrence stability between India and Pakistan. States with nuclear weapons are postulated to implement transparency in four categories: *potential*, *capability*, *intent*, and *resolve*. The study applies these categories to the nuclear components of the ongoing India-Pakistan Composite Dialogue Working Group for *Peace and Security including CBMs*. To focus our efforts, we defined four scenarios to characterize representative strategic/military/political conditions. The scenarios are combinations of these two sets of opposite poles: competition – cooperation; extremism – moderation (to be understood primarily in a religious/nationalistic sense). We describe each scenario in terms of select focal areas (nuclear doctrine, nuclear command and control, nuclear stockpile, nuclear delivery/defensive systems, and conventional force posture). The scenarios help frame the realm of possibilities, and have been described in terms of expected conditions for the focal areas. We then use the conditions in each scenario to prescribe a range of information-sharing actions that the two countries could take to increase stability. We also highlight the information that should not be shared. These actions can be political (e.g., declarations), procedural (e.g., advance notice of certain military activities), or technologically based (e.g., seismic monitoring of the nuclear test moratorium).

Acknowledgements

This research assignment began as a challenge in many ways: firstly, this is probably the first focused attempt at bringing the theoretical concepts of transparency and opacity into the realm of tangible practicality; secondly, most of the collaboration had to be undertaken from a distance via video and teleconferences, with the two principal researchers never getting an opportunity to be together; and, thirdly, the situation on the ground in South Asia has been in such a state of flux that the research group had to continuously keep abreast of these developments for fear of drifting into irrelevance and obsolescence. It must be highlighted here that though only two members of the research team have been indicated as the authors of this report, it would be seriously remiss on our part if the immense intellectual and administrative contributions of Mike Vannoni, Laura McNamara, and Gaurav Rajen in conditioning the final shape of this paper were not acknowledged and appreciated.

Table of Contents

Table of Contents	7
Preface.....	9
EXECUTIVE SUMMARY	10
1. Opacity and Transparency—Relevance to Strategic Stability	13
1.1 The Concept of Opacity and Transparency	13
1.2 Opacity / Transparency and Nuclear Deterrence	15
1.3 Ongoing Nuclear Transparency in South Asia	16
2. Current State of India-Pakistan Relations.....	19
2.1 Salient Past India-Pakistan Accords, Pacts, and Agreements.....	19
2.2 The Current India-Pakistan Composite Dialogue	20
2.3 Assessment of the Composite Dialogue	21
3. A Future View of India-Pakistan Relations and Strategic Stability	23
3.1 Scenario Building for Insight into Future Trends	23
3.2 Defining Criteria for Future India-Pakistan Relations.....	23
3.3 Focal Areas in the ‘Peace and Security including CBMs’ topic.....	25
3.4 Descriptions of Expected Focal Area Conditions for Each Scenario	25
3.4.1 Extremism and Competition Scenario	25
3.5 Moving Toward Strategic Stability.....	29
4. Options for Using Transparency in Achieving Strategic Stability	30
4.1 Introduction.....	30
4.2 Scenario 1: Extremism and Competition	31
4.3 Scenario 2: Extremism and Cooperation	33
4.4 Scenario 3: Moderation and Competition	35
4.5 Scenario 4: Moderation and Cooperation	38
5. Conclusions.....	43
Appendix A Elaborated Description of Select Topics in the.....	45
Composite Dialogue Process	45
Appendix B Summary of Current Status of.....	47
Composite Dialog Working Groups	47
Appendix C Joint India-Pakistan Statements.....	49
on the Composite Dialog	49

Tables

Table 1: Salient Aspects of India-Pakistan Agreements and Accords.....	19
Table 2. Extremism and Competition Scenario	26
Table 3. Extremism and Cooperation Scenario	27
Table 4. Moderation and Competition Scenario	28
Table 5. Moderation and Cooperation Scenario	29
Table 6. Conditions Selected for Analysis for Various Scenarios.....	31
Table 7. Scenario: Extremism and Competition	33
Table 8. Scenario: Extremism and Cooperation	35
Table 9. Scenario: Moderation and Competition.....	37
Table 10. Moderation and Cooperation	40

Figures

Figure 1: How Transparency Supports Stable Nuclear Deterrence	15
Figure 2: The Current Balance of Opacity/Transparency for India and Pakistan in Each Transparency Category	17
Figure 3: Progress on various issues in the CD	21
Figure 4: Scenario Determinants and Possible Scenarios.....	24

Preface

When Henry Kissinger went to India in 1974 after the first Indian nuclear test, he said to Indira Gandhi, the Indian Prime Minister at the time, “You have the bomb. Now what do we do to keep from blowing up the world?” Since then, the cold war has ended and India tested nuclear weapons again in 1998. In response, Pakistan promptly conducted its own series of nuclear tests. Kissinger’s question now has even more resonance in the region.

After the May 1998 tests, some analysts thought that the overt possession of nuclear weapons by India and Pakistan would actually be beneficial for the region. The clarity of this knowledge would make conflict between the two long-term rivals obsolete. Unfortunately this was not the case. India and Pakistan fought a small-scale war in the Kargil sector of Kashmir in 1999. In 2002 both countries mobilized their entire militaries along their border for nearly a year. Diplomatic relations were nearly broken while each country engaged in signaling, using statements, missile tests, and military deployments. In both of these confrontations, the potential for the use of nuclear weapons was a dangerous possibility that both countries and the world had to contend with. There were concerns and allegations that both countries had prepared nuclear weapons and mobilized delivery systems. Third parties—particularly the United States—acted in a facilitating role and outright war was avoided.

India and Pakistan have a long history of periodic crises caused by a number of factors, but a recurrent theme is the perception (or misperception) of a military threat by the other. The role of third party facilitation in these crises—particularly the selective provision of information and the transmission of national intent—raises a larger question of strategy. How should nations define and implement their national defense strategies to maximize the potential for stability?

The Cooperative Monitoring Center of Sandia National Laboratories is devoted to defining how the cooperative sharing of information can play a constructive role in national security. Technology for monitoring, authenticating, and transmitting information can play an important facilitating role. This project unites a pair of regional security experts to research how a strategy for stability in nuclear South Asia can be achieved by selectively sharing security-related information (i.e., the use of “transparency” and “opacity”).

This page left intentionally blank.

EXECUTIVE SUMMARY

How should nations define and implement their national defense strategies to maximize the potential for stability? India and Pakistan have a long history of periodic crises caused by a number of factors, but a recurrent theme is the perception (or misperception) of a military threat by the other. “Deterrence” is defined in international relations literature as a policy that seeks to persuade an adversary, through the threat of military retaliation, that the costs of using military force to resolve political conflict will outweigh the benefits. “Transparency” describes the flow of information and knowledge between parties. The level of transparency that a state maintains, however, is a double-edged sword—while a certain degree of transparency can stabilize a situation by reinforcing deterrence, too much transparency could be destabilizing as it might expose vulnerabilities and tempt an opponent to consider a preemptive strike. Similarly, total opacity can also be destabilizing, because it would not allow a sufficient sharing of information regarding a state’s strengths to deter an adversary. Countries must balance transparency and opacity, but how to do so is a strategic conundrum.

In South Asia, the India-Pakistan relationship has a history of mistrust and confrontation, and so opacity rather than transparency characterizes their relationship. India and Pakistan have, however, used transparency in four categories of national nuclear strategy to bolster deterrence stability.

- *Potential*: Both countries conducted nuclear tests in May 1998.
- *Capability*: Both countries are conducting numerous missile tests and establishing nuclear-oriented command and field units within the military.
- *Intent*: India has publicly circulated documents related to a draft nuclear doctrine in 1999, as well as enunciated the broad contours of its official doctrine in 2003. Pakistani leaders have made comments and statements that provide some insight as to what their doctrine might include.
- *Resolve*: President Musharraf made various statements about Pakistan’s readiness to use nuclear weapons during the 2001-2002 India-Pakistan crises. Indian Prime Minister Atal Vohari Bajpayee and the Defence Minister George Fernandes made similar statements.

On January 6, 2004, India and Pakistan began a diplomatic process of talks aimed at creating a durable peace. They have re-initiated the Composite Dialogue (CD) made up of eight working groups (these were first begun in late 1998, and stopped during the 1999 Kargil crisis). The CD categories are: 1) *Peace and Security including CBMs*; 2) *Jammu and Kashmir*; 3) *Siachen Glacier*; 4) *Wullar Barrage/Tulbul Navigation Project*; 5) *Sir Creek Land/Maritime Boundary*; 6) *Terrorism and Drug Trafficking*; 7) *Economic and Commercial Cooperation*; and 8) *Promotion of Friendly Exchanges in Various Fields*. Although progress has occurred, there is a difference of opinion within India and Pakistan (and between the authors) as to how substantive the progress is (the Pakistani view generally being more pessimistic). The use and acceptance of transparency plays a role in all these negotiations.

This study focuses on the role for transparency in the *Peace and Security including CBMs* CD topic. The authors used a scenario-building process originally developed for strategic business planning to identify driving forces affecting the future and the characteristics of these scenarios. The major drivers are the degree to which India and Pakistan are governed by religious/nationalist versus secular parties and the tendency to compete or cooperate. These drivers were combined to define four scenarios that characterize representative strategic/military/political conditions. The scenarios were used to assess the effects on key focal areas in the *Peace and Security including CBMs* CD topic.

Scenarios	Focal Areas
<ul style="list-style-type: none"> • Competition and Moderation • Competition and Extremism • Cooperation and Moderation • Cooperation and Extremism 	<ul style="list-style-type: none"> • Nuclear doctrine • Nuclear command and control • Nuclear stockpile and nuclear delivery/defensive systems • Conventional force posture

The scenarios are described through sets of expected conditions for each focal area. We then select for each scenario a set of these descriptive conditions and suggest actions that would help stabilize that condition. These actions could be incorporated into national nuclear strategic policies within the context of each scenario. These actions can be political (e.g., declarations), procedural (e.g., advance notice of certain military activities), or technologically based (e.g., seismic monitoring of the nuclear test moratorium).

A significant amount of discussion, negotiation, and planning needs to be done at the working group level of the CD or other bilateral forum to implement these options. The region must break the optimism/pessimism cycle of relations by achieving a “basic minimum level” of stability.

1. Opacity and Transparency—Relevance to Strategic Stability

1.1 *The Concept of Opacity and Transparency*

According to Berkhout and Walker, “Transparency is about the flow of information and knowledge between parties.”¹ It essentially deals with making something visible or providing information to another party. Two vital questions that emerge are, “who sees?” and “what do they see?”² Since transparency relates to information that is shared, “opacity” describes information that is *not* shared. Opacity is thus the complement to transparency.

Transparency is a subtle concept. It is not necessarily synonymous with “confidence building” although the two concepts are linked. For example, two competitive states with no trust in each other may choose to make declarations or conduct actions to demonstrate their resolve and capability. These actions seek to deter or coerce the other. However, in the absence of any information, a competitor may make a misjudgment to the detriment of both. The relationship between the US and USSR during the Cold War of the 1950s is an example of this situation. Hence, we make the seemingly paradoxical observation that the right level of transparency is even more important when relations are bad than when they are good. This is not to say that transparency is not important in a relationship that is improving or relatively favorable and stable. In the first case, selective transparency reassures the other party—it is a confidence-building measure. In the latter, it reaffirms to the other party that conditions and assumptions about behavior have not changed. The relationship between the US and USSR in the 1980s and the relationship between the US and the Former Soviet States today are examples of the former and latter situations respectively.

The level of transparency, or its openness, that a state maintains is a double-edged sword. While a certain degree of transparency can stabilize a situation or relationship, too much transparency could be destabilizing because it might expose vulnerabilities and tempt an opponent to consider aggressive actions. Similarly, total opacity can also be destabilizing, as it would not allow a sufficient sharing of information regarding a state’s strengths and intentions to deter an adversary. Although countries must balance transparency and opacity, “it is unclear where an ideal demarcation between transparency and secrecy should lie.”³

The strategic conundrum is how to blend the use of transparency and opacity in order to gain the benefits of both. As Berkhout and Walker point out, “Opacity was one of the

¹ Frank Berkhout and William Walker, “Transparency and Fissile Materials.” *Disarmament Forum*, Issue 2 (1999): 73.

² *Ibid.*, 76.

³ Annette Schaper, “Looking for a Demarcation between Nuclear Transparency and Nuclear Secrecy.” Peace Research Institute Frankfurt (PRIF) Reports No. 68 (2004): 1.

founding principles of the nuclear age.”⁴ Over time, the US and the USSR were able to establish an environment of selective transparency, but the same is not yet true of the newest nuclear rivals, India and Pakistan.

During a recent Pugwash conference on nuclear stability in South Asia,⁵ delegates could be divided into two groups—the deterrence optimists and the deterrence pessimists—in regards to their opinions on the roles of transparency and opacity. As participant Samina Ahmed wrote:

*Nuclear optimists supported opacity on the grounds that declared thresholds and redlines undermine operational flexibility and increase nuclear risks during crises. Proponents of opacity also argued that transparency only works in the absence of conflict and with at least a semblance of communications between nuclear adversaries. Absent these preconditions, as in the case of India and Pakistan, transparency can be counterproductive. In any case, nuclear doctrines are often misleading and at variance with operational plans. By keeping deterrence vague and by avoiding explication of red lines, Pakistan can also avoid a nuclear arms race with India and keep its weapons un-deployed.*⁶

The strategic use of opacity and transparency is thus linked to deterrence. Michael Howard has defined deterrence as a policy that seeks to persuade an adversary, through the threat of military retaliation, that the costs of using military force to resolve political conflict will outweigh the benefits.⁷ For a policy of deterrence stability to work, there must be an understanding of national intent and capability on both sides of the divide.

Deterrence also represents an evolutionary relationship that can build confidence through reciprocity.⁸ As an evolving strategy, actions for opacity and transparency must strike a balance among three somewhat conflicting requirements:

- what a state wants its adversaries to know
- what a state can afford to disclose
- what potential adversaries want to know about capabilities and potential.

In this study, for brevity we use “transparency” to describe information that is deliberately shared between states on security topics and assume that all information not included in the description of sharing is “opaque.” Therefore anything that is not stated to be transparent is opaque.

⁴ Berkhout and Walker, op. cit., 73.

⁵ Samina Ahmed, Workshop Report on Pugwash Meeting No. 280 held at Lahore, 11-12 March 2003, on the theme of “Avoiding an India-Pakistan Nuclear Confrontation.” Complete text of the report is available at <http://www.pugwash.org/reports/rc/sa/march2003/pakistan2003-workshop-report.htm>

⁶ Ibid.

⁷ Michael Howard, “Reassurance and Deterrence: Western Defense in the 1980’s,” *Foreign Affairs*, 61, no. 2: 315

⁸ Samina Ahmed, op. cit.

1.2 Opacity / Transparency and Nuclear Deterrence

There are four key demonstrations a country might make about its nuclear weapons program once the country has gone overtly nuclear. These are *transparency of potential*, *transparency of capability*, *transparency of intent*, and *transparency of resolve*. These are four distinct “pillars” on which stable nuclear deterrence rests, as illustrated conceptually in Figure 1. Shaun Gregory and Maria Sultan make a similar assessment. They describe deterrence stability as follows: “that each side is credibly deterred (in relation to threats to core norms, values, and interests) by the other and thus there is no uncertainty in the minds of parties about the pillars upon which deterrence rests: (a) possessing the means to deter; (b) ability to undertake a deterrent threat; (c) willingness to undertake deterrent threat; (d) assured control of deterrent forces; (e) rational adversary making expected cost-benefit calculus.”⁹

Transparency of Potential: Conducting nuclear tests and displaying the potential to weaponize demonstrate this capability. Prior to this state, a country’s nuclear weapons program exists in complete opacity.

Transparency of Capability: Conducting actions (e.g., missile tests) that demonstrate the capability of delivering nuclear weapons.

Transparency of Intent: The controlled and public announcement of nuclear doctrine and/or nuclear policy indicating how, why, when, and under what circumstances a country is likely to resort to using nuclear weapons demonstrates intent.

Transparency of Resolve: Resolve is demonstrated by statements by national leaders indicating the will to employ nuclear weapons or increasing the readiness of strategic forces during a crisis.

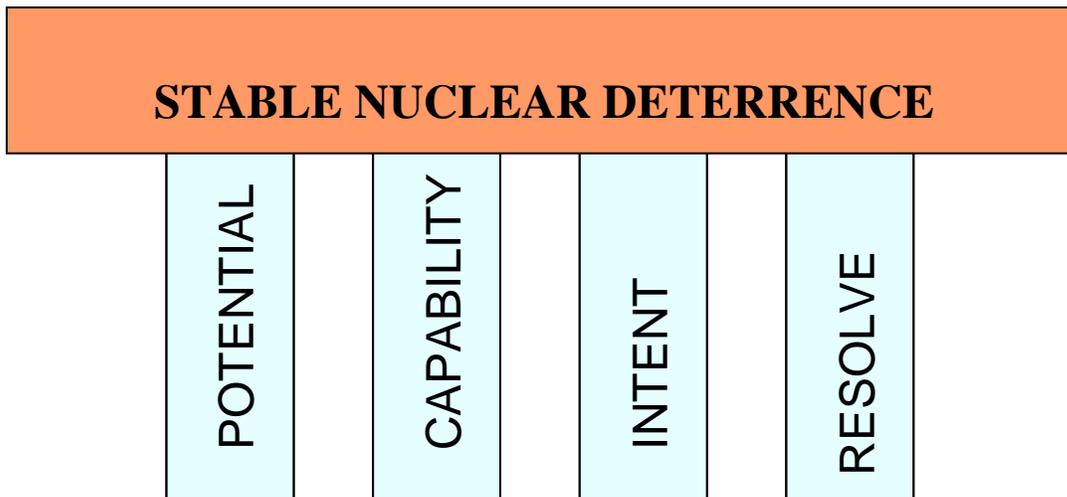


Figure 1: How Transparency Supports Stable Nuclear Deterrence

⁹ Shaun Gregory and Maria Sultan, “Towards Strategic Stability in South Asia: Framework paper for the launch conference of the South Asian Strategic Stability Unit,” Department of Peace Studies, University of Bradford, UK, October 7–8, 2004.

For each of the “pillars” in Figure 1, if the right mix of transparency and opacity is not achieved, the pillar becomes unstable and fails. In this descriptive model, we assume that if even one pillar fails, then stable nuclear deterrence cannot exist.

1.3 Ongoing Nuclear Transparency in South Asia

In South Asia, the India-Pakistan relationship has a history of mistrust and confrontation, and so opacity rather than transparency characterizes the regional environment.¹⁰ However, India and Pakistan at times have taken some steps towards greater transparency.

India and Pakistan demonstrated their nuclear *potential* after conducting nuclear tests in May 1998.

India and Pakistan have demonstrated *capability* by conducting over 50 missile tests and announced the establishment of dedicated military organizations for command and control of units equipped with nuclear weapons.

India has demonstrated *intent* by publishing a draft nuclear doctrine for public comment in 1999.¹¹ Although Pakistan has not publicly presented its nuclear doctrine, statements by officials have provided a sense of its characteristics. In addition, military leaders have demonstrated intent in the formulation of service branch doctrines. For example, the Indian Navy recently announced its Maritime Doctrine,¹² which clearly enunciates the imperative for a nuclear triad in India’s nuclear arsenal. None of the three military services of Pakistan have released any similar documents that address the issue of nuclear weapons development or employment. Even the revised second edition of the Pakistan Air Force’s Basic Air Power Doctrine issued in January of 2004 skirts this issue.

With respect to *resolve*, President Musharraf made various statements about Pakistan’s readiness to use nuclear weapons during the 2001–2002 India-Pakistan military standoff (referred to by India as Operation Parakaram). Similar statements were made by the former Indian Prime Minister Atal Vohari Bajpayee and the former Indian Defence Minister George Fernandes. Although there have been some unconfirmed reports that

¹⁰ Samina Ahmed, op cit.

¹¹ In 1999, India’s National Security Advisory Board (NSAB) prepared a report for India’s National Security Council that dealt with options for India to consider in creating a nuclear doctrine. The document is called the “**Report of the National Security Advisory Board on the Draft Indian Nuclear Doctrine.**” The report was widely circulated by the government to generate dialogue and discussion, and came to be known as India’s “Draft Nuclear Doctrine.” This report, however, was never officially accepted; it has been superseded by an official pronouncement on January 4, 2003. On this day, the Prime Minister’s Office distributed a press release that described conclusions reached by the Cabinet Committee on Security on operationalizing India’s nuclear doctrine. This press release defines the broad contours of India’s official nuclear doctrine.

¹² Tariq Ashraf, “Indian Maritime Doctrine,” *Defence Journal* (Karachi) August 2004: 72-86.

Pakistan and India had brought nuclear forces to a higher level of readiness towards the later part of the Kargil conflict of 1999, these were never officially substantiated.¹³

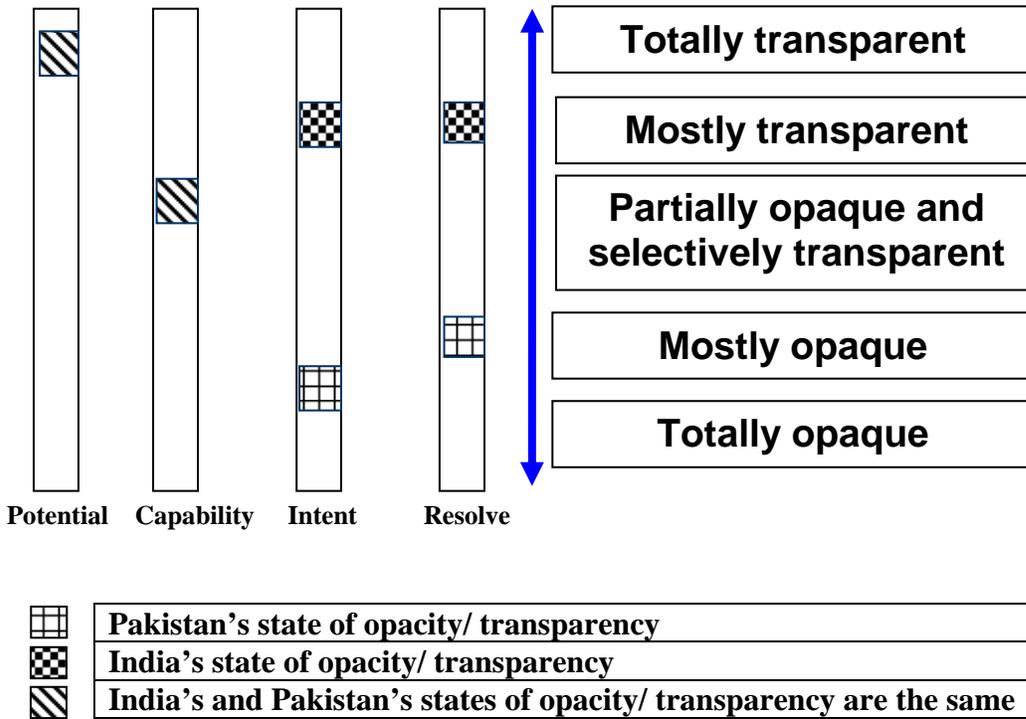


Figure 2: The Current Balance of Opacity/Transparency for India and Pakistan in Each Transparency Category

Figure 2 presents a chart summarizing the authors' assessment of India's and Pakistan's current positions for each pillar of the stable nuclear deterrence model. India and Pakistan are equally transparent (and therefore opaque) for the pillars of potential and capability. In the case of *potential*, they are now almost totally transparent. In the case of *capability* they are partially transparent. In the case of *intent* and *resolve*, the two countries differ quite a bit, with India being much more transparent.

Figure 2 expresses the divergence that exists between India and Pakistan on the acceptance and use of transparency. The gap between the two countries in expressing their intent and resolve increases the risks of misperceptions and miscalculations.

¹³ Bruce Riedel was an Assistant to the US President and Senior Director for Near East and South Asia Affairs in the National Security Council at the White House from 1997 to 2001. He has published a Policy Paper at the Center for the Advanced Study of India at the University of Pennsylvania on "American Diplomacy and the 1999 Kargil Summit at Blair House." (May 2002). In this paper, Riedel reports that President Clinton informed the Pakistani Prime Minister Nawaz Sharif that the US was aware that Pakistani nuclear forces had been brought to a higher state of readiness. In the case of India, according to Raj Chengappa, India had activated its three types of nuclear delivery vehicles during the Kargil Crisis and kept them in what is known as Readiness State 3 (meaning that some nuclear bombs would be ready to be mated with the delivery vehicle at short notice). *Weapons of Peace*, (New Delhi: Harper Collins, 2000), 437

The use of transparency/opacity in implementing a nuclear deterrence strategy is highly situational. Actions that worked between particular countries or in a specific region may not be applicable in other circumstances. A nuclear deterrence strategy must reflect the balance of power among the parties, and unique political, cultural, economic, and geographic characteristics of the region.

India and Pakistan have not yet achieved a stable deterrence relationship. This paper takes a systematic approach to identifying the topics and options for transparency that could facilitate the development of such a relationship. To evolve from the present to a new relationship built on stable nuclear deterrence, we must understand the current state of bilateral relations and postulate how the relationship could evolve in the future. Within the context of these postulated future states, we can define objectives that shift the relationship toward stability. Once objectives are defined, we can then identify options for the use of opacity/transparency to achieve the objectives.

The following chapters elaborate on this process. Chapter 2 assesses the current state of India-Pakistan relations with emphasis on the ongoing CD process. Chapter 3 analyzes the dominant forces affecting bilateral relations and defines several future scenarios. Chapter 4 focuses on specific actions that use transparency to achieve the desired future conditions that support strategic stability based on deterrence. Chapter 5 provides some concluding remarks.

2. Current State of India-Pakistan Relations

2.1 Salient Past India-Pakistan Accords, Pacts, and Agreements

Ever since the partition of British India into the two independent states of Pakistan and India in 1947, the subcontinent of South Asia has been one of the most volatile regions of the world. Disputes and memories resulting from the process of partition, the rivalry between India and Pakistan over Kashmir, and other contentious issues have erupted into three major wars between India and Pakistan. The war in 1971 ended with the dismemberment of Pakistan and the creation of Bangladesh out of the eastern wing of Pakistan. In 1999 and 2002, the two countries again came close to outright war.

Yet interspersed within the lingering India-Pakistan atmosphere of hostility have been instances where India and Pakistan have gone to the negotiating table and signed binding agreements. Most of these agreements have successfully weathered the vicissitudes of time. Although these accords have not ushered in lasting peace or stability, they have served to bring about periods of relative peace. Table 1 presents a list of these accords and agreements.

Table 1: Salient Aspects of India-Pakistan Agreements and Accords

Accord / Agreement	Precipitating Event	International Involvement	Role Of Transparency
UN Resolution on Kashmir	India-Pakistan war of 1948	Yes (United Nations)	Low
Liaquat-Nehru Agreement on Minorities (1950)	The Partition of India/Creation of Pakistan	No	None
Indus Waters Treaty	Water distribution dispute	Yes (World Bank)	High
Tashkent Accord	India-Pakistan war of 1965	Yes (Soviet Union)	None
Simla Agreement	India-Pakistan war of 1971	No	None
Agreement on Prevention of Airspace Violations and for Permitting Over Flights and Landings by Military Aircraft (April 1991)	Conventional CBM, possibly with 1986 and 1990 crises in mind	No	None

Table1 (continued): Salient aspects of India-Pakistan agreements and accords

Agreement on Advance Notice of Military Exercises, Maneuvers, and Troop Movements (April 1991)	Crises of 1986 and 1990	No	Low-Medium
Agreement on non-attack of each other's nuclear installations (1991)	Probable realization by both that they had developed nuclear weapons capability	No	Medium
Joint Declaration on the Complete Prohibition of Chemical Weapons (August 1992)	Negotiation of the international Chemical Weapons Convention	Yes	None
Lahore Memorandum of Understanding (Feb. 1999)	Nuclear weapon tests of 1998	Indirect international pressures	Low-Medium

A survey of these accords and agreements highlights the following significant common aspects:

- India-Pakistan dialogues/agreements have generally followed major regional conflicts or events and global factors.
- Most India-Pakistan dialogues leading to agreements have involved either direct international intervention or indirect international pressures.
- Most India-Pakistan agreements have tended to be issue-specific and focused rather than being wide-ranging.
- The stipulations of these agreements have been adhered to by both India and Pakistan even during periods of hostility, tension, and war.

2.2 The Current India-Pakistan Composite Dialogue

The level of animosity and mistrust engendered by this history is still high. However, since January 6, 2004, India and Pakistan have begun a diplomatic process called the Composite Dialogue (CD). The CD first began in late 1998, but stalled by mid-1999 because of the Kargil crisis. The CD is attempting to resolve the most pressing concerns

in eight working groups, building upon past agreements and treaties. The CD topics that the two countries have agreed to address through working groups are:

- Peace and security including CBMs
- Jammu and Kashmir
- Siachen Glacier
- Wullar Barrage/Tulbul Navigation Project
- Sir Creek Maritime Boundary
- Terrorism and drug trafficking
- Economic and commercial cooperation
- Promotion of friendly exchanges in various fields.

Appendix A provides a brief description of those topics whose titles are not self-explanatory.

The issues being addressed are not directly interlinked. Therefore progress on one is not necessarily tied with progress on another. While most of the issues included in the CD are specific and focused, the issue of *Peace and Security including CBMs* is wide ranging and broad based. The issues of Kashmir, Siachen, and Sir Creek (that are related to territorial disputes) could well be described as sub-issues of the same.

2.3 Assessment of the Composite Dialogue

Despite the fact that both India and Pakistani are genuinely interested in pursuing the CD and the fact that a significant number of meetings have already been held, substantial progress has yet to occur. This is not to say, however, that no progress has been made on any of the issues. Appendix B summarizes activity in each of the eight topical working groups. Using a scale of 1–10 with one representing minimum progress and ten depicting maximum, the current state of progress of the negotiations on each issue can be depicted as shown in Figure 3.

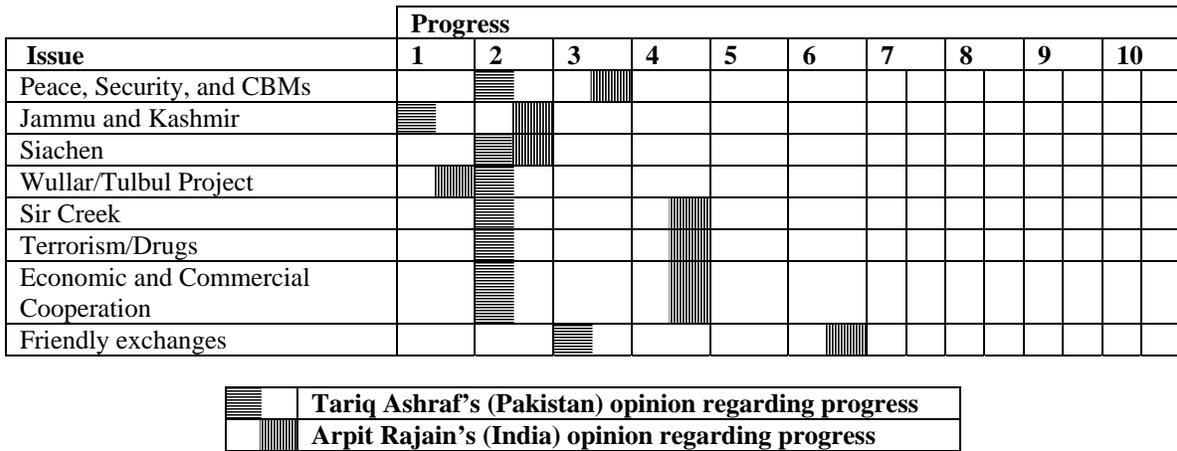


Figure 3: Progress on various issues in the CD

Several themes emerge from our analysis of the progress achieved so far in the CD:

- Both Ashraf and Rajain have fairly divergent views on the degree of progress that has been achieved during the negotiations held so far on the issues included in the CD.
- Neither of the two authors thinks that any significant progress has been made in any of the eight issues. Rajain rates friendly exchanges the highest at 6.
- Progress in the CD remains a function of the dynamic political-strategic environment, which in turn is affected by several variables. Relations could change drastically if there were a shock to the system.
- Ashraf emerges as being the pessimist out of the two while Rajain exhibits significantly more optimism.
- Only on one issue do both Ashraf and Rajain have a similar assessment of the progress achieved so far (Issue 3: Siachen).

Among all of the issues addressed in the CD, it is the issue of *Peace and Security including CBMs* that involves nuclear stability. The issues of Jammu and Kashmir and the Siachen glacier have a major bearing on the possibility of conventional military conflict; so, indirectly, these two issues are also linked to the issue of nuclear stability (as a conventional conflict once started could escalate into a conflict with a nuclear dimension).

Consequently, this paper focuses only on the CD topic of *Peace and Security including CBMs*. India and Pakistan have held a series of meetings on possible nuclear CBMs. These CBMs could include a role for an opacity/transparency strategy. These meetings involved experts and the Foreign Secretaries of both countries. Appendix C provides the joint statements issued after the most recent meetings.

In the next chapter, we analyze the forces affecting future bilateral relations and the prospect for cooperation. We used the technique of building scenarios of future India-Pakistan relations to identify the desired conditions associated with strategic stability.

3. A Future View of India-Pakistan Relations and Strategic Stability

3.1 Scenario Building for Insight into Future Trends

Scenario development and analysis is a thinking technique used very effectively by Peter Schwartz, one of several founders of the Global Business Networks (GBN).¹⁴ The scenario development process was implemented extensively by Royal Dutch Shell in the 1980s, as company leaders were trying to address the problem of decision making for long-term, expensive capital investments under conditions of high uncertainty in the oil industry. It is best applied as a group elicitation and brainstorming technique.

The scenario development process is a purely qualitative method for structuring thinking about the future. Groups of decision makers and/or analysts are led by a skilled facilitator in identifying major drivers for the future of the domain in which decisions must be made. Drivers that can be identified and analyzed with a high level of certainty are excluded from the discussion (e.g., demographic trends). Discussants focus on drivers that are more uncertain and difficult to quantify or predict, but that can be identified as major trends towards change. These trends are used to create a two-axis grid that bounds four quadrants for further discussion and exploration.

3.2 Defining Criteria for Future India-Pakistan Relations

We selected two prime defining criteria related to the structure of future Indian and Pakistani governments and their behavior toward each other. The four determinants were used to construct scenarios associated with the *Peace and Security including CBMs* CD topic. The determinants are 1) whether the future Indian and Pakistani governments are likely to be dominated by extremist religious elements or by moderate and secular forces; and 2) whether future relations are likely to be shaped by competition or whether elements of cooperation are going to influence India-Pakistan relations.

Based on these determinants, we created a coordinate grid with moderation and extremism along one axis, and cooperation and competition along another. The two sets of axes then create four quadrants that can be typified in four sets: 1) extremism and competition; 2) extremism and cooperation; 3) moderation and competition; 4) moderation and cooperation. Figure 4 graphically depicts the two axes and the four quadrants.

¹⁴ Peter Schwartz, *Art of the Long View*, (New York: Doubleday, 1991).

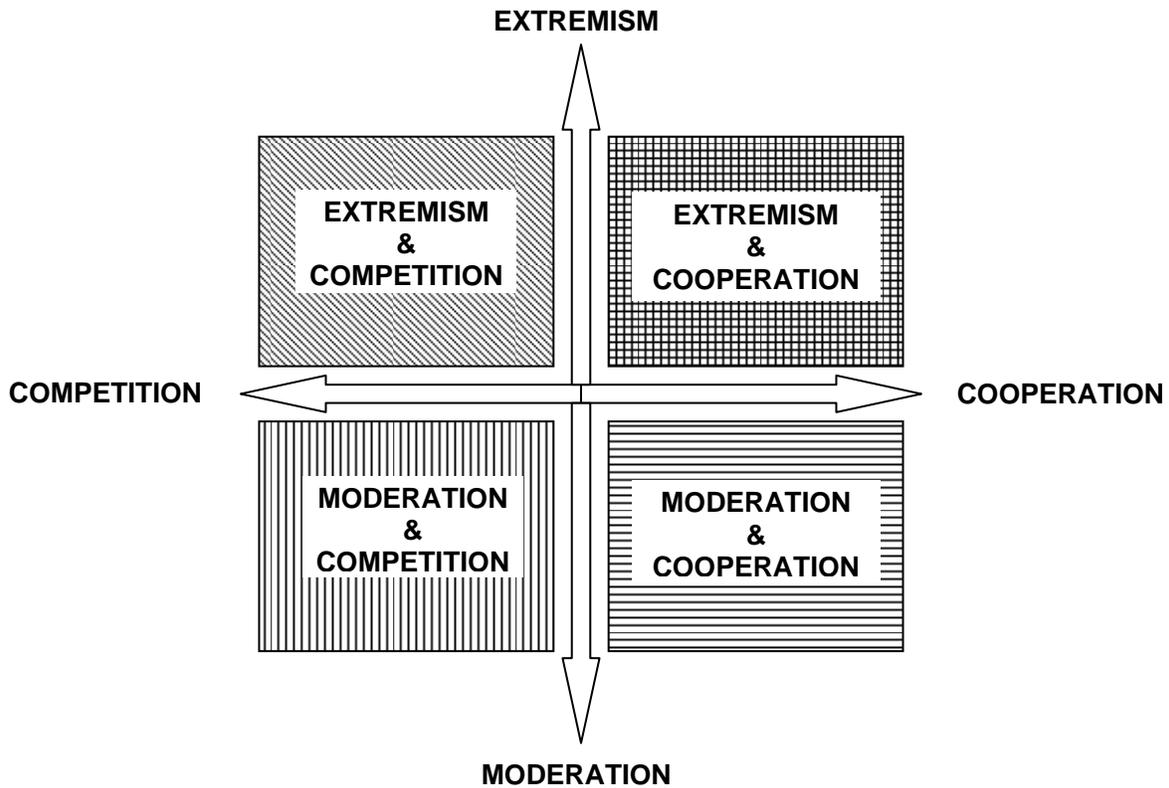


Figure 4: Scenario Determinants and Possible Scenarios

We describe each of these determinants below:

Extremism: Islamist political parties control Pakistan’s national government, and similar Hindu-dominated political parties are in power in India. We anticipate that this possible future will involve frequent sectarian and communal violence in both countries.

Moderation: A moderate and liberal government is in power in Pakistan, and a moderate and secular government in India. There is greater religious harmony in both countries.

Competition: The two countries view each other as interacting in a zero-sum game, where gain on one’s own objectives can only come through loss for the other. Each particularly tries to project greater power in military and economic spheres with each other as well as other states.

Cooperation: Progress on the CD improves trust and paves the way for a relationship between India and Pakistan that involves reciprocity to friendly overtures made by the other. The two countries begin to work to resolve disputes through peaceful means and compromise.

3.3 Focal Areas in the ‘Peace and Security including CBMs’ topic

We used the four scenarios to assess likely progress in the key CD topic of *Peace and Security including CBMs*. To do this, we first listed focal areas that should be considered and possible outcomes within the context of each scenario. The focal areas we selected are:

- Nuclear doctrine and operations
- Nuclear command and control
- Nuclear stockpile
- Nuclear delivery/defensive systems
- Conventional force balance

For each of the four scenarios we have defined, we describe the expected conditions for each of these focal areas. The scenario of extremism and competition involves the most dangerous behaviors by India and Pakistan, and there is little expected progress on resolving contentious issues. The scenario of moderation and cooperation imagines a far more benign future. The other two scenarios are bracketed by these two extremes.

3.4 Descriptions of Expected Focal Area Conditions for Each Scenario

From the perspective of India-Pakistan relations, the two scenarios that include “extremism” as one of the determining attributes could be described as negative scenarios. In contrast, the ones that incorporate “moderation” as a determinant could be considered as positive or constructive scenarios that represent a comparatively more optimistic outlook for the CD.

3.4.1 Extremism and Competition Scenario

This is the most difficult from the point of view of incorporating an element of transparency in India-Pakistan relations. The expected conditions of the defined focal areas and the possible results for each in the Extremism and Competition scenario are described in Table 2.

Table 2. Extremism and Competition Scenario

Focal Area	Expected Condition	Effect on Stability
<i>Nuclear doctrine and operations</i>	<ul style="list-style-type: none"> India reconsiders no-first-use pledge 	Nuclear thresholds lowered
<i>Nuclear command and control</i>	<ul style="list-style-type: none"> Reduced military role in Pakistan's nuclear command and control infrastructure; ascendancy of extremist (civilian and military) elements 	Decreased mutual confidence
<i>Nuclear stockpile</i>	<ul style="list-style-type: none"> Both countries undertake new series of nuclear tests Both countries competitively increase numbers of nuclear weapons India and Pakistan develop and deploy a nuclear triad, i.e., nuclear weapons at sea India develops and deploys thermonuclear weapons while Pakistan accelerates efforts to develop these weapons 	Nuclear arms race
<i>Nuclear delivery/defensive systems</i>	<ul style="list-style-type: none"> India deploys missile defenses Both countries conduct missile tests, improve missile capabilities, and increase inventories Both countries acquire new strike aircraft 	Increased nuclear instability, nuclear arms race, and lowering of Pakistan's nuclear threshold
<i>Conventional force posture</i>	<ul style="list-style-type: none"> Conventional force imbalance increases Both countries seek qualitative improvements in their forces Inclusion of limited conventional conflict below nuclear threshold in military doctrines 	Lowering of Pakistan's nuclear threshold and increased chances of limited non-nuclear conflict

3.4.2 Extremism and Cooperation Scenario

The situation is better in this scenario than in the previous scenario. In this case, while both India and Pakistan are likely to further harden their respective stances on key issues, they might be amenable to some improvement of relations on the peripheral issues that bedevil their bilateral relations. The expected conditions of the defined focal areas and the possible results for each in the Extremism and Cooperation scenario are described in Table 3.

Table 3. Extremism and Cooperation Scenario

Focal Area	Expected Condition	Effect on Stability
<i>Nuclear doctrine and operations</i>	<ul style="list-style-type: none"> India maintains no-first-use pledge 	Nuclear thresholds maintained
<i>Nuclear command and control</i>	<ul style="list-style-type: none"> Reduced military role in Pakistan’s nuclear command and control infrastructure; ascendancy of extremist elements 	Decreased mutual confidence
<i>Nuclear stockpile</i>	<ul style="list-style-type: none"> Continued moratorium on nuclear tests Both countries increase numbers of nuclear weapons but at a slower pace than in the extremism and competition scenario India and Pakistan research a nuclear triad, i.e., nuclear weapons at sea India and Pakistan research thermonuclear weapons 	Nuclear weapons development continues at a controlled pace
<i>Nuclear delivery/defensive systems</i>	<ul style="list-style-type: none"> India begins development of missile defenses Both countries conduct missile tests, improve missile capabilities, and increase inventories but at a slower pace than in the extremism and competition scenario Both countries acquire new strike aircraft 	Increased emphasis on conventional military operations with minimum credible nuclear deterrence potential being maintained
<i>Conventional force posture</i>	<ul style="list-style-type: none"> Conventional force imbalance remains at status quo Both countries slowly make qualitative improvements in their forces No inclusion of limited conventional conflict below nuclear threshold in military doctrine 	Reduced chances of non-nuclear limited conflict

3.4.3 Moderation and Competition Scenario

This scenario envisages both India and Pakistan being governed by moderate and liberal regimes but they are competitive in political and economic spheres. The expected conditions of the defined focal areas and the possible results for each in the Moderation and Competition scenario are described in Table 4.

Table 4. Moderation and Competition Scenario

Focal Area	Expected Condition	Effect on Stability
<i>Nuclear doctrine and operations</i>	<ul style="list-style-type: none"> • India maintains no-first-use pledge 	Nuclear thresholds maintained
<i>Nuclear command and control</i>	<ul style="list-style-type: none"> • Military maintains control of Pakistan's nuclear command and control apparatus with some liberal civilian oversight 	Mutual confidence stays the same as today
<i>Nuclear stockpile</i>	<ul style="list-style-type: none"> • Continued moratorium on nuclear tests • Both countries maintain current growth rates of nuclear weapon stockpiles • India and Pakistan develop but do not deploy a nuclear triad, i.e., nuclear weapons at sea • India develops but does not deploy thermonuclear weapons while Pakistan continues efforts to develop these 	Nuclear weapons development continues at a controlled pace
<i>Nuclear delivery/defensive systems</i>	<ul style="list-style-type: none"> • India researches missile defenses • Both countries conduct missile tests to maintain current forces • Both countries acquire new strike aircraft 	Increased emphasis on conventional military operations with minimum credible nuclear deterrence being maintained and existing nuclear arsenal being upgraded
<i>Conventional force posture</i>	<ul style="list-style-type: none"> • Conventional force imbalance does not increase • Both countries slowly make qualitative improvements in their forces • No inclusion of limited conventional conflict below nuclear threshold in military doctrines 	Reduced chances of non-nuclear limited conflict

3.4.4 Moderation and Cooperation Scenario

This is the most positive of the four scenarios and offers the most potential for incorporating transparency in India-Pakistan relations. The expected conditions of the defined focal areas and the possible results for each in the Moderation and Cooperation scenario are described in Table 5.

Table 5. Moderation and Cooperation Scenario

Focal Area	Expected Condition	Effect on Stability
<i>Nuclear doctrine and operations</i>	India maintains no-first-use pledge, and Pakistan actively considers a similar pledge	Nuclear thresholds raised
<i>Nuclear command and control</i>	Increased liberal civilian involvement in Pakistan's nuclear command and control structures; ascendancy of moderate elements	Increased mutual confidence
<i>Nuclear stockpile</i>	<ul style="list-style-type: none"> • Continued moratorium on nuclear tests • Both countries freeze their existing numbers of nuclear weapons, with stockpiling of fissile materials • India and Pakistan cease research and development of a nuclear triad, i.e., nuclear weapons at sea • India and Pakistan cease thermonuclear weapon research and development 	Nuclear weapons development continues at a controlled pace
<i>Nuclear delivery/defensive systems</i>	<ul style="list-style-type: none"> • India researches missile defenses • The two countries limit missile tests, and enter into a missile restraint regime • Both countries acquire new strike aircraft at a slow delivery schedule 	Increased emphasis on conventional military operations with minimum credible nuclear deterrence potential being maintained, and with existing nuclear arsenal being upgraded
<i>Conventional force posture</i>	<ul style="list-style-type: none"> • Conventional force imbalance remains at status quo • Both countries slowly make qualitative improvements in their forces • No contemplation of limited conventional conflict below nuclear threshold in military doctrine • A non-offensive and in-depth deployment of army strike elements 	Reduced chances of non-nuclear limited conflict

3.5 Moving Toward Strategic Stability

The expected conditions and possible results listed for each focal area under each scenario form the basis for developing a strategy to increase stability through the proper mix of transparency and opacity. In the next chapter, we will examine possible actions for implementing the appropriate level of transparency within the CD topic *Peace and Security including CBMs*.

4. Options for Using Transparency in Achieving Strategic Stability

4.1 Introduction

In Chapter 3, we defined four scenarios in terms of expected conditions in the CD topic *Peace and Security including CBMs*. This chapter suggests a range of Indian and Pakistani transparency/opacity actions that could help stabilize the expected conditions resulting from the scenarios.

For each scenario, we have selected for further analysis a subset of the expected conditions that we presented in Chapter 3. In several scenarios, some of the expected conditions are similar, and so need not be discussed repeatedly. Our selection criteria are also based on what we believe is the relative importance of stabilizing the selected condition compared with stabilizing other conditions that describe the pertinent scenario. Finally, we also select conditions for analysis based on the likelihood of progress in information sharing; if little progress can be expected, the conditions are not selected for detailed analysis.

In the two scenarios with moderate governments, we can postulate greater progress on a range of contentious issues. Therefore, for these two scenarios, we select a wide range of expected conditions that could be stabilized through information-sharing actions. For the two scenarios with extremist governments, we postulate far more limited progress. For these two scenarios we select just one condition each. Table 6 provides a list of the conditions selected for each scenario.

The information-sharing (or not sharing) actions that we suggest could be implemented either as unilateral declarations, or more formal and binding treaties and agreements. For the *Extremism and Competition* scenario, formal agreements related to specific information-sharing actions will not be possible. All that can be expected is that the two sides make unilateral declarations. Also, in the *Extremism and Cooperation* scenario, formal agreements may not be possible. However, each side could make declarations, and additional data and information could be provided to lend credence to the declarations. In the *Moderation and Competition* scenario, formal agreements with limited verification measures are possible. In the *Moderation and Cooperation* scenario, formal agreements can be reached. The agreements have comprehensive provisions to verify the information being shared.

Table 6. Conditions Selected for Analysis for Various Scenarios

Scenario	Expected conditions selected for analysis
<i>Extremism-Competition</i>	<ul style="list-style-type: none"> • India reconsiders its no-first-use pledge
<i>Extremism-Cooperation</i>	<ul style="list-style-type: none"> • Reduced military role in Pakistan’s nuclear command and control infrastructure; ascendancy of extremist (civilian and military) elements
<i>Moderation-Competition</i>	<ul style="list-style-type: none"> • Continued moratorium on nuclear tests • Both countries maintain current growth rates of nuclear weapon stockpiles • India and Pakistan develop but do not deploy a nuclear triad, i.e., nuclear weapons at sea • India develops but does not deploy thermonuclear weapons while Pakistan continues efforts to develop these
<i>Moderation-Cooperation</i>	<ul style="list-style-type: none"> • India researches missile defenses • The two countries limit missile tests and enter into a missile restraint regime • Both countries acquire new strike aircraft at a slow delivery schedule • Conventional force imbalance remains at status quo • Both countries slowly make qualitative improvements in their forces • No contemplation of limited conventional conflict below nuclear threshold in military doctrine • A non-offensive deployment of army strike elements

For each of the expected conditions that we analyze, we present potential actions grouped on the basis of the four pillars for strategic stability that we presented in Chapter 1: *potential, capability, intent, and resolve*. For each scenario, and for each condition selected, we present actions involving information sharing. We identify the type of information that should not be shared and be kept opaque. We also present the modalities that will allow the implementation of the actions we suggest. These modalities are grouped in terms of *political, procedural, or technological* actions.

4.2 Scenario 1: Extremism and Competition

Condition Analyzed: India Reconsiders Its No-First-Use Pledge

This condition’s effect on stability has been postulated as *nuclear thresholds lowered*. As both countries will be moving towards a first-use posture, ensuring that deterrence will hold in a crisis becomes increasingly important.

Potential

As both countries have extremist governments and are in a state of competition, it will be important for each to establish for the other that their nuclear potential remains intact in order to maintain deterrence. This will require demonstrating that their nuclear weapons technology base is intact and there are requisite mechanisms in place for continuity. This demonstration could involve unilateral declarations, and/or the unilateral/bilateral sharing of information.

Establishing that each side's nuclear potential remains intact increases deterrence, as neither side perceives a new advantage through the apparent degradation of the other's potential.

If any degradation in potential has actually occurred, this information should be kept opaque. A perceived weakness in one could motivate coercive actions by the other.

Capability

For the case of competitive, extremist governments, it is important to establish one's strengths, and share enough information on capabilities (weapons and delivery systems) and survivability in order to deter the adversary. Excessive sharing of information, however, could drive an arms race. Therefore, information on sophisticated systems and future acquisition plans should remain opaque.

Information sharing could involve unilateral declarations, and/or the bilateral sharing of information.

Intent

Each side should make clear its intent to use nuclear weapons only in a defensive mode. This is a measure that leads to increased stability, as the perceived threat of a preemptive strike is lessened. However, if "red" lines are present that, if crossed, will necessitate a nuclear response, they should remain unclear. Too much clarity on this subject could tempt the adversary to undertake conventional military actions under the nuclear threshold, with the risk of a breakthrough to uncontrolled escalation to a nuclear level. Information on a country's intent could be made clear through official interactions by the foreign ministries.

Resolve

Extremist governments should expect the other country to have the resolve to carry out retaliatory strikes. Reiterating this in declarations and bilateral negotiations would be stabilizing. However, the rhetoric must be measured and not be overly hysterical (as has sometimes been the case in the past). There is no need to be opaque on this subject. For an adversary to be deterred, resolve has to be made totally transparent.

Table 7. Scenario: Extremism and Competition
 Condition Analyzed: India Reconsidering its No-First-Use Pledge

Purpose: Raise the nuclear threshold by increasing transparency in <u>Capability</u> and <u>Intent</u>		
Information to be shared	Modalities	Information to be kept opaque
Establish for each other that nuclear potential remains unchanged.	<u>Political</u> : Make unilateral declarations (formal treaties are unlikely between extremist governments) <u>Procedural</u> : None <u>Technological</u> : None	Do not share information on any degradation in potential.

4.3 Scenario 2: Extremism and Cooperation

Condition Analyzed: Reduced Military Role in Pakistan’s Nuclear Command and Control Infrastructure; Ascendancy of Extremist (Civilian and Military) Elements

The effect of this condition on stability has been postulated as creating *decreased mutual confidence* between India and Pakistan. Given the rise of extremist elements in each country, it will be important for each to reassure the other that there is a robust and reliable command and control system with internal checks and balances to counter the potential for unauthorized use.

Potential

Similar to the steps suggested for the condition discussed in Section 4.1.1, demonstrating that there is no degradation in potential is important when extremist governments are in power in both countries. The steps to be taken are the same as those presented in Section 4.1.1.

Capability

Extremist governments are concerned that the other side may not have adequate control over its nuclear weapons. Establishing improved technologies for control and sharing some information on their implementation could provide reassurance. To enhance their capabilities in nuclear weapons safety and control of authorization for use, India and Pakistan should implement the following technologies:

- Equipment pertaining to the robustness and security of the nuclear communications network
- Use-control technology to ensure that only the authorized individuals in both countries can order a launch
- Personnel reliability mechanisms to screen the personnel who are actively involved in their respective nuclear hierarchies.

Information announcing the establishment of these programs and qualitative descriptions of technologies used should be shared. Information that might compromise the security of the command and control networks or otherwise create vulnerabilities should not be shared.

Intent

Both the countries should continue to formalize their respective nuclear command and control structures, ensuring that these are broad-based and include civilian leadership as well as representation from the nuclear scientific community. These structures should then be declared and described generally. Geographical and technical descriptions, however, could lead to the potential for pre-emptive first strikes.

Resolve

Resolve in this section is similar to that in Section 4.1.1 for the *Extremism-Competition* scenario. A hotline between the heads of state (that takes precedence over all others) is useful to provide information that demonstrates resolve during a crisis.¹⁵ At this time, the two countries have agreed to a hotline between the Foreign Secretaries to discuss nuclear-related crises, and are in the process of establishing it. A hotline between the Directors General of Military Operations of the armies of the two countries already exists. Communication from multiple, and potentially contradictory, sources presents an unfocused view of resolve.

¹⁵ While there have been numerous instances when the two heads of state have spoken to each other, a pattern that emerges is that at times of crisis, rhetorical diplomacy through media has more often than not ensured hardened stances and less frequent dialogues.

Table 8. Scenario: Extremism and Cooperation

Condition Analyzed: “Reduced military role in Pakistan’s nuclear command and control infrastructure; ascendancy of extremist (civilian and military) elements”

Purpose: To qualitatively describe the <u>Capability</u> , each side has to control its nuclear forces		
Information to be shared	Modalities	Information to be kept opaque
Establish that a robust command and control structure exists and that unauthorized elements cannot control nuclear forces.	<p><u>Political</u>: Establish a hotline between heads of state.</p> <p><u>Procedural</u>: Information announcing the establishment of the checks on the command and control capabilities and qualitative descriptions of technologies used should be shared.</p> <p><u>Technological</u>:</p> <ul style="list-style-type: none"> (1) Implementation of use-control technologies to ensure that only authorized individuals can authorize a launch (2) The hotline between heads of state that takes precedence over all other official communication links during crises 	Information that might compromise the security of the command and control networks, or otherwise create vulnerabilities should not be shared.

4.4 Scenario 3: Moderation and Competition

Conditions Analyzed: All Conditions Associated with the “Nuclear Stockpile” Focal Area

The conditions that we analyze for the scenario of *Moderation-Competition* are those associated with the focal area of “Nuclear stockpile.” These (as listed in Table 4) are:

- Continued moratorium on nuclear tests
- Both countries maintain current growth rates of nuclear weapon stockpiles
- India and Pakistan develop but do not deploy a nuclear triad
- India develops, but does not deploy, thermonuclear weapons while Pakistan continues efforts to develop them.

These conditions’ effects on stability are that *nuclear weapons development continues at a moderate growth rate.*

Potential

The development of a nuclear triad (i.e. nuclear weapons at sea), and the development of thermonuclear weapons relate to Potential. Unilateral declarations disavowing the deployment of sea-based nuclear weapons, and disavowing the deployment of thermonuclear weapons would be stabilizing. A regime to verify these declarations would likely involve intrusive monitoring and would not likely be acceptable even with moderate governments. Information on the capabilities of the weapons being developed could drive an arms race and should not be shared.

Capability

In this scenario, we have postulated that the two countries would continue a moratorium on new nuclear tests. The two moderate governments could formalize an agreement to ban nuclear tests. This agreement could involve establishing monitoring stations and related actions. The following could be transparency actions:

- Create and link seismic monitoring stations in one's or the other's territory to monitor test sites
- Share geologic information at test sites to better interpret seismic signals
- Conduct reciprocal site visits.

Monitoring and/or sharing information about radionuclides may reveal the characteristics of facility operations and should not be shared.

Intent

Moderate governments must demonstrate their intent for domestic, political purposes to prevent the impression that they are weak and indecisive.

In this scenario, we have postulated that the growth rates of each country's nuclear weapons stockpile will not increase. This policy decision should be shared, because it reinforces the commitment of each side to possessing a minimum deterrent. Specifics on fissile material stocks and production rates should not be shared to avoid creating perceptions that might foster an arms race.

Resolve

Moderate governments will need to make their resolve as clear as possible to the other. There is not reason to be opaque in this topic, but it should not be done in a provocative manner.

Table 9. Scenario: Moderation and Competition

Conditions Analyzed: All conditions associated with the nuclear stockpile focal area

Purpose: <u>Capability</u> of each side stays at current levels to avoid an arms race.		
Information to be shared	Modalities	Information to be kept opaque
Disavow the deployment of sea-based nuclear weapons and thermonuclear weapons.	<u>Political</u> : Unilateral declarations could be made. <u>Procedural</u> : None. <u>Technological</u> : None.	Information on the capabilities of the weapons being developed would not be shared. Sharing such information could drive an arm's race.
Purpose: Demonstrate that <u>Capability</u> is not increasing		
Information to be shared	Modalities	Information to be kept opaque
Formalize an agreement to ban nuclear tests.	<u>Political</u> : A formal agreement could be signed. <u>Procedural</u> : Reciprocal site visits. <u>Technological</u> : Create and link seismic monitoring stations in one's or the other's territory to monitor test sites. Share national geologic information (including at test sites) to better interpret seismic signals.	The monitoring stations should not include the capabilities to test for specific radionuclides.
Purpose: Clarify that <u>Intent</u> is defensive		
Information to be shared	Modalities	Information to be kept opaque
State that the growth rates of nuclear weapons stockpiles will be kept low.	<u>Political</u> : Unilateral declarations could be made. <u>Procedural</u> : None. <u>Technological</u> : None.	Specifics on fissile material stocks and production rates should not be shared.

4.5 Scenario 4: Moderation and Cooperation

Conditions Analyzed: All Conditions Associated with the Focal Areas of “Nuclear Delivery/Defensive Systems” and “Conventional Force Posture”

The conditions that we analyze for the scenario of *Moderation-Cooperation* are those associated with the focal areas of *nuclear delivery/defensive systems* and *conventional force posture*. These conditions are:

- India researches missile defenses
- The two countries limit missile tests and enter into a missile restraint regime
- Both countries acquire new strike aircraft at a slow delivery schedule
- Conventional force imbalance remains at status quo
- Both countries seek qualitative improvements in their forces slowly
- There is no contemplation of limited conventional conflict below nuclear threshold in military doctrine
- Both countries engage in non-offensive deployment of army strike elements.

The effects on stability of these conditions have been postulated as follows:

- *Increased emphasis on conventional military operations with minimum credible nuclear deterrence being maintained, but with the existing nuclear arsenal being upgraded*
- *Reduced chances of non-nuclear limited conflict.*

Potential

Currently Indian doctrinal thinking is leaning towards a doctrine called “cold start.” In this doctrine, eight or so integrated battle groups involving the Air Force, Army, and Navy, if needed, would deploy rapidly to conduct high intensity operations. Strike corps might be moved to forward locations during peacetime so as to facilitate their being brought into action quickly. Transparency in the Potential for conventional warfare should demonstrate that the deployment of strike corps is not offensive. This could be achieved by pre-announcing major activities and hosting on-site visits by the other side. Other information would not be shared. Any movement of these Corps within a zone of 50 km from the border on either side must be intimated to the other well in advance, even if such moves are for exercise purposes. In sectors where recognizable ground features are available, these might be stipulated as no-cross lines for the strategic army formations.

Capability

The two sides could selectively limit their military capability in a number of ways:

- Take steps to increase the time required to activate nuclear weapons and their delivery systems
- Formalize an agreement to limit missile tests
- Agree not to deploy missile defense systems, although continuing research on their function

- Balance conventional military forces using an agreement based on the Conventional Forces in Europe agreements.

Intent

The sharing of strategic doctrines and thinking through official defense white papers could help demonstrate national intent in raising the nuclear thresholds. Red lines should not be specified because a certain measure of ambiguity will remain a restraining factor for both countries.

Resolve

As for the previous moderate government scenario, each side should make its resolve clear but avoid provocative rhetoric.

Purpose: Limit the Capability of each side

Table 10. Moderation and Cooperation

Conditions Analyzed: All conditions associated with the Focal Areas of “Nuclear Delivery/Defensive Systems” and “Coventional Force Posture”

Purpose: Reduce the risks of conventional conflict by stabilizing the <u>Potential</u> of each country’s military forces		
Information to be shared	Modalities	Information to be kept opaque
Describe non-offensive postures for conventional forces.	<u>Political</u> : Reaffirm steps to reduce the risks of conventional conflict. <u>Procedural</u> : Pakistan’s two and India’s three strike corps could be based a significant distance from the border (e.g., 100 km) during peacetime.	Do not share doctrines, operational plans, facility descriptions, communications and equipment capabilities because this information could create vulnerabilities.
Purpose: Reassure the other that the <u>Intent</u> of troop movements in border areas is benign		
Information to be shared	Modalities	Information to be kept opaque
Share information that assists each side calibrate their national systems used to monitor troop movements.	<u>Technological</u> : Both sides should procure ground-based or balloon-borne ground surveillance radar systems that have the capability of scanning up to 100 km inside the other country’s territory.	Do not share information on the detection limits of the monitoring systems.

Purpose: Clarify that the <u>Intent</u> of each side is defensive		
Information to be shared	Modalities	Information to be kept opaque
Share strategic doctrines on conventional conflict and threat perceptions.	<u>Political</u> : None. <u>Procedural</u> : Share strategic defense plan white papers including missile defense plans.	Maintain enough ambiguity on red lines (nuclear thresholds) to deter limited conventional conflict.
Purpose: Clarify that the <u>Intent</u> of each side is defensive		
Information to be shared	Modalities	Information to be kept opaque
Report border crossing incidents and national efforts to restrain them.	<u>Political</u> : Certain unilateral steps, such as the partial redeployment of troops from the Kashmir valley. <u>Procedural</u> : Reports from border monitoring systems could be shared at the sector level. <u>Technological</u> : Share reports from border monitoring sensors and security barriers in Kashmir. ¹⁶	Do not describe details of border monitoring systems, such as locations of sensors, and sensor capabilities.
Purpose: Limit the <u>Capability</u> of each side so that nuclear thresholds are raised		
Information to be shared	Modalities	Information to be kept opaque
Share qualitative information describing nuclear postures.	<u>Political</u> : Reaffirm commitment to raise nuclear thresholds. <u>Procedural</u> : Store warheads away from delivery systems. Do not deploy missiles in ready-to-launch condition. Limit zones of deployment for mobile missiles.	Do not provide sufficient information on missiles and warhead locations to enable a pre-emptive strike.

¹⁶ The Indian author has observed that electrified fences and sensors have improved security and reduced cross-border infiltration across Punjab and Rajasthan.

Table 10 (Continued): Scenario: Moderation and Cooperation
 Conditions Analyzed: All conditions associated with the Focal Areas of “Nuclear Delivery/ Defensive Systems” and “Conventional Force Posture”

Purpose: Limit the <u>Capability</u> of each side’s missile forces		
Information to be shared	Modalities	Information to be kept opaque
<p>Provide advance notification of missile tests.</p> <p>Cap and declare numbers of missiles by type.</p>	<p><u>Political</u>: Conclude a treaty on prior notification of missile tests. Formalize agreements restraining missile deployment.</p> <p><u>Procedural</u>: Limit missile tests. To reassure Pakistan that a missile defense system would not be deployed by India, the two countries could include theater missile defense missiles in missile testing restrictions. Eliminate certain classes of missile systems.</p> <p><u>Technological</u>: None.</p>	<p>Do not share sufficient data on missile systems, such as basing locations, that the other side may seek to exploit vulnerabilities.</p>
<p>Provide information on existing conventional force strengths as well as planned growth rates.</p>	<p><u>Political</u>: Enter into an agreement on limiting conventional forces. The agreement could lay down specific limits on the quantities of various weapon systems such as combat aircraft, tanks, artillery pieces, armored vehicles, etc. The agreement would also limit the geographical locations where the weapon systems are based.</p> <p><u>Procedural</u>: The agreement would allow for on-site inspections, with a specified number of these being challenge inspections.</p>	<p>During on-site inspections, shroud sensitive equipment and restrict certain areas of the base being inspected. While doing so, reassure the inspecting party that the restricted areas and shrouded equipment do not conceal a violation of the agreement.</p>

5. Conclusions

All nations seek stability. The quest for stability is incorporated into their regional, global, political, military, and economic policies. These policies involve sharing some information about plans, intentions, capability, and resolve. There is a distinction in national policy between information that is shared (transparency) and not shared (opacity). Nations use different balances of opacity and transparency in their foreign relations. North Korea, for example, shares virtually no information about its strategic intentions. In contrast, the nations of the European Union tend to share a great deal of information about their plans and policies.

This study is an investigation of why nations choose or do not choose to share strategic information. Theoretical concepts from the political science and international relations literature are summarized with the goal of transitioning these concepts to the realm of tangible practicality within the context of the relationship between India and Pakistan.

India and Pakistan are perhaps the best example of both the problem and potential of achieving the right balance of opacity and transparency in national policy. Mutual lack of trust is a chronic dilemma. Since independence, India and Pakistan have sought, but failed, to achieve a stable and lasting bilateral relationship. Bilateral relations have varied from high optimism to tense military confrontation. The introduction of nuclear weapons makes this cycle even more dangerous. The recent thaw in bilateral relations and the establishment of the CD, however, are encouraging signs and present a window of opportunity which, if grasped, could contribute to significantly improved conditions in both countries.

India's and Pakistan's quest for stability is a journey that could take multiple paths. We defined the beginning of the journey to stability by assessing the current conditions in the ongoing CD. We then defined desired end states for the *Peace and Security including CBMs* CD topic, with an emphasis on nuclear CBMs. To focus our efforts on defining the role of transparency and the balance with opacity, we defined four future scenarios to characterize representative strategic/military/political conditions. These scenarios helped frame the realm of possibilities and enabled us to formulate modalities to achieve the desired end states.

Modalities can be political (e.g., declarations), procedural (e.g., advance notice of certain military activities), or technologically based (e.g., seismic monitoring of the nuclear test moratorium). For some end states, the same modality can be used in all four scenarios; in others a modality may be feasible with only one or two. In yet others, the same basic modality can be used in all scenarios if implemented in somewhat different ways.

National policy makers need options. This study, the first of this type of which the authors are aware, defines the context for implementing a balanced strategy of opacity and transparency to achieve India-Pakistan strategic stability. It defines practical and, we believe, achievable modalities under a number of political circumstances. The research

team sincerely believes that if the concepts and policy options presented in this report were pursued and implemented, South Asia would be on its way to a more peaceful and prosperous future. We recognize that not all these recommendations can be implemented right away and that a significant amount of discussion, negotiation, and planning needs to be done at the working group level of the CD or other bilateral forum.

South Asia will continue to provide theoretical and policy challenges for both academics and officials. The region must break the optimism/pessimism cycle of relations by achieving a basic minimum level of stability. With political will this is possible.

Appendix A

Elaborated Description of Select Topics in the Composite Dialogue Process

Jammu and Kashmir

Almost five hundred and sixty-five kingdoms existed within British India, usually called Princely States. When the British vacated India and Pakistan in 1947, and the two countries came into being through a partition of British India, the rulers of the Princely States had a choice to accede to either union. The ruler of the state of Jammu and Kashmir, Hari Singh, offered a standstill agreement instead, and vacillated between joining either India or Pakistan. Hari Singh was a Hindu, while a majority of his subjects were Muslim. An invasion by irregular and regular forces from Pakistan in 1948, and the subsequent hasty accession by Hari Singh to India, led to the first India-Pakistan war. The war ended with a cease-fire agreement brokered by the UN on January 1, 1949 that left India controlling about two-thirds of the disputed territory and Pakistan the remainder.

The territory was divided by a Cease-Fire Line (CFL). The UN had proposed that a plebiscite be held to determine the wishes of the people of the state, as to whether they wished to join India or Pakistan, once Pakistani forces withdrew from the territory they occupied. Neither the withdrawal of forces nor the plebiscite has occurred. In 1965, India and Pakistan again fought a brief war over the region then returned to the 1949 CFL. The 1971 war, in which India intervened in a civil war between East and West Pakistan that led to the creation of Bangladesh, also involved fighting in Kashmir. After this war, the CFL in Kashmir came to be called the Line of Control. The Pakistani and Indian armies continued to face each other across this line and sporadic, limited exchanges of firing and shelling continued. A tenuous, year-old cease-fire now exists along this line. In the 1990's an insurgency started in the Indian-administered portion of Jammu and Kashmir. India accuses Pakistan of fomenting and supporting this "terrorist-led" insurgency with weapons, finances, training, and manpower; meanwhile Pakistan says that it only provides moral and political support to the "freedom movement" in Indian-occupied Kashmir. The two sides are now attempting to resolve this issue through negotiations.

Siachen Glacier

"The northern extreme boundary between India and Pakistan lies along the Saltoro mountain range in an area named for its most prominent feature, the Siachen Glacier. Since 1984, the two nations have battled over a 2,500-square-km triangle of contested territory. The dispute arose over differing interpretations of a provision of the 1949 cease-fire, as well as the subsequent 1972 Simla agreement, which left a portion of the cease-fire line undefined. The boundary was delineated only to map coordinate NJ9842 and vaguely referenced the direction from there as "thence north to the glaciers"—leaving a distance of about 65 kilometers un-demarcated and disputed, but untouched. Differences arose when in 1984 Indian troops occupied the watershed line along the Saltoro range northwesterly from NJ9842. Conflict erupted and has remained for over 20

years with Pakistani troops holding positions across from Indian troops. Pakistan claims a northeasterly line to the Karakoram pass from NJ9842 towards the Chinese border.”¹⁷

Wullar Barrage/Tulbul Navigation Project

Pakistan has objected to India constructing a barrage near Wullar Lake in Jammu and Kashmir, because it could obstruct the flow of waters allocated to Pakistan under the Indus Water Treaty. India’s position is that the barrage is meant for the temporary storage of water to be released to maintain sufficient water levels for river boat navigation downstream during the lean season between October and February.

Sir Creek

Sir Creek is a tidal creek that forms the last part of India’s and Pakistan’s land border at the coast. India claims that the boundary lies along the middle of the creek, while Pakistan says the border should lie along the eastern bank of the creek. The inability to define the border at the coastline also prevents a complete demarcation of the maritime boundary between the two countries.

¹⁷ Shirin Tahir-Kheli and Kent L. Biringer, *Reducing Risk in South Asia: Managing India - Pakistan Tensions*, SAND98-0505/2., Albuquerque, NM: Sandia National Laboratories. 2001

Appendix B

Summary of Current Status of Composite Dialog Working Groups

A summary of the present situation including the results of the Foreign Ministers meeting in Islamabad in February 2005 is given below:

- Parallel working groups on **conventional** and **nuclear CBMs** were revived in the summer of 2004. In the nuclear sub-group, nuclear doctrine and security concepts, commitment to undertake measures to reducing risk of accidental or unauthorized use of nuclear weapons, and a consultative mechanism for implementation review were discussed. In addition, the establishment of a hotline between the Foreign Secretaries was agreed upon. The two sides also reaffirmed their commitment to their existing moratoria on the testing of nuclear weapons. A missile test launch notification treaty was also discussed. Expert-level talks on nuclear CBMs were again held in December 2004 in which it was agreed to create a favorable environment for the operationalization of the nuclear CBMs agreed to earlier.
- Negotiations are still going on for resolving the **Kashmir dispute**. Both the sides discussed the Kashmir issue during June 2004 and agreed to continue their “sustained and serious” dialogue to find a peaceful, negotiated, and “final” settlement of the issue. In February 2005 they agreed to start a bus service from Srinagar (capital of Indian Administered Kashmir) to Muzaffarabad (capital of Pakistan Administered Kashmir). This bus service has begun from April 2005. A set of Kashmir-specific proposals on transport links, trade, cultural cooperation, tourism, environment, and people-to-people contacts has also been made.
- On the **Siachen Glacier** issue, negotiations have progressed from discussions between the two Foreign Secretaries to Defense Secretaries. There was a meeting of the Defense Secretaries in August 2004 to discuss the Siachen issue.
- On the **Wular Barrage/Tulbul Navigation** project nine rounds of talks have been held until now. Both the countries have reaffirmed the Indus Waters Treaty, and have agreed to negotiate the issue further.
- On **Sir Creek**, a Joint Survey of the boundary pillars in the horizontal segment of the international boundary started in January 2005.
- On the issue of **terrorism and drug trafficking**, the two countries have stated their “determination to combat terrorism and the need for its complete elimination” and that they “agreed to work towards an MOU to institutionalize cooperation in information sharing between the Narcotics Control Authorities of the two countries and designate nodal officials in their respective High Commissions to liaise on drug control issues.”
- On the **economic and commercial cooperation issues** there have been several initiatives including (a) establishing a Committee of Experts to consider issues related to trade, (b) conducting a meeting between railway authorities on the Munnabao–Khokhrapar rail link, (c) adding a new category of Tourist Visa between the two countries and promoting group tourism, and (d) creating a Bombay-Karachi ferry service, which is being talked about in unofficial quarters

but is likely many years away. The two sides have also discussed opening of the Attari trade route, resumption of shipping services, and the supply of petroleum products to Pakistan. Talks on the Iran-Pakistan-India gas pipeline have also begun to progress.

- In the **promotion of friendly exchanges in various fields**, the two sides have been discussing various issues including promotion of investment in joint ventures and cultural exchanges. Cricket matches between the two countries have also restarted.

Appendix C

Joint India-Pakistan Statements on the Composite Dialog

December 2004 Joint Statement on the meeting between the Foreign Secretaries of India and Pakistan

1. The Foreign Secretaries of Pakistan and India met in Islamabad on 27–28 December 2004 to review overall progress, commence the next round of the CD and discuss the issues of Peace and Security including CBMs, and Jammu and Kashmir. Foreign Secretary of Pakistan Mr. Riaz H. Khokhar, led the Pakistan delegation while the Indian delegation was led by Foreign Secretary Mr. Shyam Saran. The talks were held in a frank, cordial, and constructive atmosphere.
2. Recalling the solemn and categorical reassurance contained in the Joint Press Statement of 6th January, they expressed their determination to carry the process forward.
3. On the issue of Peace and Security including CBMs, the two Foreign Secretaries, reviewed the progress made during the meetings of Experts on Nuclear and Conventional CBMs. Building upon the existing contacts between DG MOs, they agreed to promote regular contacts at the local level at designated places and explore further CBMs along the international boundary and the LoC. They discussed and narrowed further their differences on the draft agreement on pre-notification of flight testing of ballistic missiles, and agreed to work towards its early finalization.
4. Both sides discussed the issue of Jammu and Kashmir and agreed to carry forward the process in the light of the Joint Statement issued after the meeting between President of Pakistan General Pervez Musharraf and Prime Minister of India Dr. Manmohan Singh in New York on September 24, 2004.
5. The meetings on the other six subjects under the CD, i.e. Siachen, Wullar Barrage/Tulbul Navigation Project, Sir Creek, Terrorism & Drug Trafficking, Economic & Commercial Cooperation, and Promotion of Friendly Exchanges in Various Fields would be held on mutually agreed dates between April and June 2005.
6. The two sides also agreed that technical meetings including the Joint Study Group on Trade matters headed by the Commerce Secretaries, Indian Coast Guards and Pakistan Maritime Agency, Pakistan Rangers and Border Security Force of India, Expert level dialogue on Nuclear and Conventional CBMs, technical level meeting on bus service between/through Amritsar and Lahore, and the meeting between the Narcotics Control Authorities would be held between January and June 2005.
7. They also discussed issues related to apprehended fishermen, civilian prisoners, and missing defence personnel. It was agreed that:

- (i) Immediate notification would be provided to the respective High Commissions through the Foreign Ministries of arrested Pakistani/Indian nationals;
- (ii) Consular access would be provided within three months of apprehension;
- (iii) Repatriation would be done immediately after completion of sentence and nationality verification;
- (iv) A mechanism would be introduced for early repatriation, without sentencing of inadvertent crossers;
- (v) A similar mechanism would be established for early release, without sentencing of those under 16 apprehended by either side.

8. The Foreign Secretaries of the two countries would meet in New Delhi to review the overall progress in the CD in July-August 2005.

9. The Foreign Ministers and the Prime Ministers of the two countries would meet during the SAARC Summit in Dhaka in January 2005. The External Affairs Minister of India Mr. K. Natwar Singh would visit Islamabad in February 2005 for bilateral discussions.

10. The Foreign Secretary of India called on Prime Minister Shaukat Aziz and Foreign Minister Khurshid M. Kasuri of Pakistan during the course of his visit to Islamabad.

Islamabad
28 December 2004

**December 2004 Joint Statement on the Second Round of India-Pakistan
Expert Level talks on Nuclear CBMs**

15/12/2004

In accordance with the agreement between the Foreign Ministers of Pakistan and India in September 2004, the second round of the Expert Level talks on Nuclear Confidence Building Measures was held in Islamabad on 14–15 December 2004. The Indian delegation was led by Ms. Meera Shankar, Additional Secretary (UN), Ministry of External Affairs. The Pakistan delegation was led by Mr. Tariq Osman Hyder, Additional Secretary (UN&EC), Ministry of Foreign Affairs. The visiting Indian delegation called on the Foreign Minister of Pakistan Mr. Khurshid M. Kasuri.

2. The two sides held discussions in a cordial and constructive atmosphere, in the framework of the Lahore MoU of 1999 and the Joint Statement of 20 June 2004. Both sides reiterated their desire to keep working towards elaboration and implementation of Nuclear CBMs, within the agreed framework.

3. Detailed consultations were also held on the early operationalization of the decisions taken during the last round of Expert Level talks on Nuclear CBMs held in New Delhi on 19–20 June 2004, especially on the upgrade of the existing hotline between the DGMOs, and the establishment of a dedicated and secure hotline between the two Foreign Secretaries. These measures are intended to prevent misunderstanding and reduce risks relevant to nuclear issues.

4. Both sides agreed the future periodic Expert Level talks on Nuclear CBMs would discuss, review, and monitor the implementation of Nuclear CBMs as called for by the Lahore MoU of 1999.

5. They also agreed to report the progress made in the present round of the talks to the respective Foreign Secretaries, who are scheduled to meet on 27–28 December 2004, and decide on the date and venue of the next Expert Level meeting on Nuclear CBMs.

Islamabad
December 15, 2004

About the Authors:

Air Commodore Tariq Ashraf is a fighter pilot by profession and has served in the Pakistan Air Force since 1973. He has been deployed on the Faculty of the Pakistan National Defence College in Islamabad since April 2003 and is concurrently enrolled for MPhil classes in Defence and Strategic Studies at the Quaid-i-Azam University in Islamabad with a plan to continue this into a PhD.

He has authored one book, *Aerospace Power: The Emerging Strategic Dimension (2002)*, and has contributed over 60 articles and papers to various journals of repute in Pakistan and abroad. He holds a Masters in Defence and Strategic Studies and is a graduate of the RAF Advanced Staff Course from UK and Pakistan's National Defence Course. In addition to his varied command, staff, and operational assignments, he has also served as Pakistan's Defense Attaché to Indonesia, Singapore, Australia, and South Korea from 1995–1998.

Arpit Rajain is a Senior Policy Analyst at the New Delhi office of the Centre for Global Studies, Mumbai. Prior to joining the Centre, he was a Research Fellow at the ORF Institute of Security Studies, New Delhi. He has also worked at the Institute of Peace and Conflict Studies (IPCS), New Delhi, on WMD issues for six years and been part of projects with the Ministry of External Affairs and the Office of the Integrated Defence Staff, Government of India.

He has previously co-edited *Nuclear Stability in Southern Asia (2003)*, *Biological Weapons: Issues and Threats (2003)*, and *Working Towards a Verification Protocol for Biological Weapons (2001)*. He has also published more than 55 research papers on WMD issues in reputed journals, as chapters in edited volumes, as issue briefs, and as monographs, as well as more than 75 articles in newspapers/websites in India and abroad.