



# Heidelberg Papers in South Asian and Comparative Politics

## India's Nuclear Doctrine: Context and Constraints

by

Mohammed B. Alam

Working Paper No. 11

October 2002

South Asia Institute  
Department of Political Science  
University of Heidelberg



# India's Nuclear Doctrine: Context and Constraints

MOHAMMED B. ALAM

*Miyazaki International College, Japan<sup>1</sup>*

## ABSTRACT

Ever since India achieved independence in 1947, its response to global nuclear non-proliferation measures has been a dominant theme in the country's overall evolution of nuclear policy. However, India conducted a nuclear test in 1974, which it termed a 'peaceful nuclear explosion' and in 1998, India conducted a full-scale nuclear test and subsequently claimed to have attained nuclear capability.

The purpose of this article is to critically evaluate key elements of India's draft nuclear doctrine. The draft was presented to the Prime Minister and the Cabinet in August 1999 and released later for public debate by the National Security Advisory Board.

## INTRODUCTION

The nuclear doctrine of India was perhaps the first of its kind among the known nuclear weapon states of the world, and India prepared the draft nuclear doctrine document before obtaining capability mentioned in it. Since August 1999, when the doctrine was pronounced by India's national security advisor, the document had not been put before any parliamentary committees or been given a formal title. It was not clear whether the doctrine as presented was a set of recommendations or just simply a set of formulations based on reasoned judgement made by a select group of India's leading academics, bureaucrats, diplomats mostly based in the New Delhi's power corridor.

---

<sup>1</sup> Dr. Mohammed B. Alam is Professor of History and Political Science, Miyazaki International College, Japan. An earlier version of this article was presented at the 17th European Conference on Modern South Asian Conference, University of Heidelberg, Germany, September 9-14, 2002. (E-Mail: malam@miyazaki-mic.ac.jp).

The precise timing of the release of the DND (Draft Nuclear Doctrine) has raised eyebrows due to the fact that, in August 1999, the Vajpayee government was in a caretaker capacity having lost its majority in the lower house of Indian parliament. A new election had already been called for October 1999. Some might argue that the draft doctrine was released to the media to bolster Bharatiya Janata Party's electoral advantage. It might also be suggested that the nuclear doctrine was formulated only to formalize BJP's nuclear policy declared after the nuclear tests conducted in May 1998. Yet, another view might be that it was to legitimise India's nuclear weapons through the formulation of Draft Nuclear Doctrine arising out of "the reciprocal fear of surprise attack" on the part of political leaders, military planners and strategic analysts in India<sup>2</sup>. Perhaps a succinct view was put forth this way. "The bomb has many fathers. The Congress conceived it, the United Front nurtured it, The BJP delivered. Let us not give the obstetrician any more credit than is due."<sup>3</sup>

#### DEBATE ON DETERRENCE

When the draft document was released, it included statements within the purview of deterrence by stating that India would not conduct more nuclear tests, join the Comprehensive Test Ban Treaty with some modifications, enter negotiations to stop fissile materials production without conditions. It was also proclaimed by India's official spokesperson of pursuing a 'no-first use' policy vis-à-vis non-nuclear weapon states and, finally, establish a 'credible, minimum nuclear deterrent.'

One of India's leading defence analysts, C. Raja Mohan, was quite forthright in articulating India's rationale for going for series of the nuclear tests in the summer of 1998:

India has taken too long to come to terms with the nuclear revolution and its impact on world affairs. However, the technology underlying the atomic revolution is 50 years old, and a continuing obsession with it will prevent India from making crucial investments and policy decisions on the new revolution in military affairs. The dramatic advances in information and communication technologies and their application to warfare will increasingly determine the locus of military power in the coming century. Worship of the old nuclear gods and the reluctance to pay attention to the impact of (information technology) on the conduct of future wars will put India back in the position of global irrelevance with or without nuclear weapons... Nuclear weapons are certainly important. In addition, India's decision to

---

<sup>2</sup> Vanaik, Achin; "India's Draft Nuclear Doctrine-A Doctrine," *The Online Archives*, available at <http://www.tni.org/archives/vanaik/critique.htm>. See, also, Schelling, Thomas C; *The Strategy of Conflict*, New York, Oxford University Press, 1963, pp. 207-229.

<sup>3</sup> Prakash, A. S. "All were Party to the nuclear gatecrash," *The Pioneer*, Chandigarh, India, May 25, 1998.

acquire them was long overdue. Nevertheless, in the flush of becoming an atomic power, India could easily overstate the significance of nuclear weapons. They can only serve a limited purpose for India-of preventing the use or threat of use of nuclear weapons by its adversaries against it. There is little else that nuclear weapons can do ... Even the most sophisticated and expansive nuclear arsenal will not propel India into the ranks of great powers. Mindless obsession with nuclear weapon will instead push India down the ruinous path that the Soviet Union went. Having acquired an insurance policy through nuclear weapons, India must now pursue the arduous domestic agenda of economic modernization, political reform, and social advancement ... The productive economic and political engagement of the world must remain the bedrock of nuclear India's diplomacy. A paranoid reading of external threats to security and an over-determination of the role of nuclear weapons in national strategy will drive India into a needless confrontation with most nations and undermine New Delhi's efforts to expand its regional influence and global standing.<sup>4</sup>

It echoes Prime Minister Vajpayee's statement made in the Indian Parliament that "India does not intend to use these weapons for aggression or for making threats against any country, these are weapons of self-defence, to ensure that India is not subjected to nuclear threats or coercion."<sup>5</sup>

The defence establishment of India also supported this notion of the absoluteness of nuclear weapons when Raja Ramanna, one of the early pioneers of India's Atomic Energy Commission concurred with Bernard Brodie's work published in 1946 a year after the atomic explosion in Hiroshima and Nagasaki as well as with Glenn Snyder's 1961 seminal piece on deterrence.<sup>6</sup> According to Raja Ramanna:

Since the end of the Second World war, the problem of security has become aggravated because of two reasons: military power has become synonymous with technological and industrial power, and new developments in technology have brought the situation to a state where weapons of destruction have not merely been improving in potency in some linear manner, but a fundamental change in overall capability has taken place. Besides being assisted by automaton, never dreamt of before, some of them have reached the status of what is known as "ultimate" weapons, i.e.; their individual destructive power

---

<sup>4</sup> C. Raja Mohan; "Beyond the Nuclear Obsession," *The Hindu*, Chennai, India, November 25, 1999.

<sup>5</sup> See, *The Times of India*, New Delhi, India May 28, 1998. Also, see, Ashley J. Tellis; *India's Emerging Nuclear Posture*, Santa Monica: CA, Rand Corporation, 2001, p. 266.

<sup>6</sup> Brodie, Bernard; *The Absolute Weapon: Atomic Power and World Order*, New York, Harcourt Brace, 1946. Also, see, Snyder, Glenn; *Deterrence and Defense*; Princeton, Princeton University Press, 1961.

is more than what the world can bear. The “ultimate” weapon has the power of destroying vast areas of the earth and making them uninhabitable in a matter of a few seconds. In spite of this, the “ultimate” nature of modern weapons does not by itself seem sufficient for countries to give up further development of more efficient weapons. Greater effort is being put on defence research and the testing of weapons continues as before. In some countries the burden of deterrence has messed up not only their entire economic structures, but even their very integrity as nations.<sup>7</sup>

Unlike China, which has made clear its policy of ‘negative security assurances’ in respect to non-nuclear countries and adherence to ‘no first use’ except using the nuclear weapons within its territory against an adversary, India has yet to formulate a coherent policy in this regard.<sup>8</sup>

The three broad segments among nuclear analysts, namely, the ‘rejectionists, the pragmatists, and the maximalists’ are of the opinion that nuclear issues have not been articulated adequately in the draft nuclear doctrine.<sup>9</sup> It leaves open to question whether it considers the notion of “logic of non-proliferation”<sup>10</sup> to be preponderant in security considerations meaning a clear advantage in pursuing a proactive policy toward non-proliferation regime, or, whether or not India should rely on the “logic of deterrence”.<sup>11</sup> The latter suggests that proliferation has stabilizing effects and nuclear weapons could and would deter war between India and an adversary having functional utilities. Similarly, some scholars find merit in the “existential deterrence”<sup>12</sup> involving the 1990 near nuclear flash point between India and Pakistan which envisaged both of the countries to convert their covert nuclear weapon program rapidly in to actual weapons. In July of 1999, in the aftermath of

<sup>7</sup> Raja Ramanna; “Security, Deterrence, and the Future,” *Journal of the United Services Institution of India*, 122:509, July-September 1992.

<sup>8</sup> “China Denies Posing Threat to India, Calls for Dialogue,” *The Times of India*, New Delhi, India, March 22, 1999. See, also, Singh, Swaran; “China’s Nuclear Weapons and Doctrine,” *Nuclear India*, New Delhi, Knowledge World, in association with Institute of Defense Studies and Analyses, 1998, p. 152.

<sup>9</sup> See, Kanti Bajpai; “The Great Indian Debate,” *The Hindu*, Chennai, India, November 12, 1999.

<sup>10</sup> See, Dunn, Lewis A; *Controlling the Bomb*, New Haven, Connecticut, Yale University Press, 1982; Sagan, Scott; “The Perils of Proliferation: Organization Theory, Deterrence Theory, and the Spread of Nuclear Weapons,” *International Security*, Vol. 18, No. 4, Spring 1994, pp. 83-99.

<sup>11</sup> See, Waltz, Kenneth; “The Spread of Nuclear Weapons: More may Be Better,” *Adelphi Papers*, No. 171, *London: International Institute of Strategic Studies*, 1981; Weltman, John; “Managing Nuclear Multi-polarity,” *International Security*, Vol. 6, No. 3, Winter 1981/82, pp. 182-194.

<sup>12</sup> Hagerty, Devin T; “Nuclear Deterrence in South Asia: the 1990 Indo-Pakistani Crisis,” *International Security*, Vol. 20, No. 3, Winter 1995. See, also, Hersh, Seymour M; “On the Nuclear Edge,” *New Yorker*, March 29, 1993, pp. 56-73. McGeorge Bundy, “Existential Deterrence and its Consequences,” in Douglas MacLean (ed.) *The Security Gamble: Deterrence Dilemmas in the Nuclear Age*, Totowa: NJ, Rowman and Allanheld, 1984, Trachtenberg, Marc; “The Influence of Nuclear Weapons in the Cuban Missile Crisis,” *International Security*, 10:1, Summer 1985, p. 139.

the Kargil crisis, as the recently declassified papers suggest, both India and Pakistan were eye ball to eye ball with Pakistan having already decided to raise the stake to the nuclear level in order to force India to back down from the strategic forward positions in Kargil and its adjoining areas.<sup>13</sup> Yet, the dominant view has been towards a general definition of deterrence that looks at the situation in which “one side (the defender) threatens the other side (the challenger) with some form of punitive retaliation if the other side takes certain action”.<sup>14</sup> It can also be argued that in case of nuclear asymmetry, deterrence can be resorted to in the face of nuclear blackmail and hegemony and possible use of the nuclear arsenals by the other side.<sup>15</sup>

The opinion among the Indian elite was sharply divided in the assessment of the viability of going in for nuclear weapon capability. The elite in the economic affairs believed that “supporting nuclear weaponization undercuts the prospects for growth and investment.”<sup>16</sup> In contrast, those in the political and strategic establishment argued that “India’s size and capabilities allowed it to pursue further nuclearization with minimal damage to the prospects for continued growth.”<sup>17</sup>

Long time India watchers find it ironic that India, the land of Gandhi, Mahavira, Mother Teresa, Buddha (as a matter of fact, the nuclear tests that India conducted in May 1998 was code named BUDDHA IS SMILING) which espoused the cause of non-violence in its long history of over five thousand years, chose to shun its often-stated goals of global disarmament in favour of going nuclear in the summer of 1998. That India decided to use the permanent extension of the Nuclear Non-Proliferation Treaty in May 1995 as a rationale for joining the nuclear weapon states only diluted its stand at various international forums which strive for a genuine non-nuclear world. (1.1. Draft Doctrine).

As if to provide a rationale for the shift in India’s policy on nuclear issues, Mr. Jaswant Singh, a leading member of BJP and India’s then External Affairs Minister and current Finance Minister, said in a parliamentary debate held on December 15, 1998, “Look at it as a crowded railway compartment. When you are trying to come into it, your perspective is one. When you are in it, you want the rules that will keep you in and keep the others out.”<sup>18</sup>

<sup>13</sup> “Musharraf brought region to the brink of nuclear war,” *The Times of India*, New Delhi, India, May 16, 2002. Also, see, Reidel, Bruce; “American Diplomacy and the 1999 Kargil Summit at the Blair House,” *Policy Paper Series*, 2002, *Center for the Advancement Study of India*, University of Pennsylvania.

<sup>14</sup> Morgan, Patrick M; *Deterrence: A Conceptual Analysis*, 2nd ed, Beverly Hills, California, Sage Publications, 1983, p. 30.

<sup>15</sup> K. Subrahmanyam, “Nuclear Policy: Arms control and Military Cooperation,” *Paper presented at the Carnegie Endowment of international Peace - India International Center Conference on India and the United States after the Cold War*, New Delhi, March 7-9, 1993, p. 7.

<sup>16</sup> Ghosh, Jayati; “The Bomb and the Economy,” *Frontline*, Chennai, India, May 8-11, 1999.

<sup>17</sup> Karnad, Bharat; “Going Thermo-Nuclear: Why, with What Forces, at What Cost,” pp. 327-330. *Journal of the United Services Institutions of India*, 127:533, July-September 1998.

<sup>18</sup> Ram, N; “Dreaming India’s Nuclear Future,” *Frontline*, Chennai, India, Issue 18, August 28-September 10, 1999, available at <http://www.frontlineonline.com/fl1618/16180210.htm>.

It is to be remembered, however, that under the Indian political system, it is the Prime Minister who has the ultimate say in major policy matter such as on the crucial nuclear issue. “The actual policy choices are determined by the autonomous interests of the Prime Minister in office, who while taking into account the preferences of the strategic enclaves, the political elite, and various political parties have generally been acutely sensitive to the impact of the nuclear issue on economic development and foreign relations precisely because these variables must affect the living conditions of the large voting populace and, by implication, the political survival of the politician.”<sup>19</sup>

## COST FACTOR

India now has a nuclear capability. However, it is doubtful that India can maintain overall economic advance in the face of the stupendous costs involved in researching and developing a nuclear program (1.2. Draft Doctrine). Although it is difficult to make an accurate prediction of likely expenditures for both ongoing and planned expansion of India’s nuclear program, one study quotes a figure of between 15 and 150 billion US dollars for achieving a minimum deterrence capability assuming India does maintain 30-50 bombs.<sup>20</sup> If India decides to increase the number to 400 or more, the costs will be even more prohibitive. To put it within a comparative perspective, the United States nuclear program has cost an excess of 5.5 trillion dollars and India’s neighbour to the north, China, has spent over 100 billion dollars. For a country such as India, where over 30 percent of the people live below the poverty line and the per capita income is \$382 (1998 estimate), the exorbitant costs may be too high for the country’s limited resources. Instead of enhancing peace, stability and security, a disproportionate level of expenditures on nuclear weapons may have the opposite effect of bringing more instability and insecurity.

Politically, too, India’s overall security in the South Asian region may be less stable today and headed towards “ugly stability” with the acquisition of nuclear weapons than with the overwhelming conventional forces which India has had since independence. Also, in the coalition-based Indian politics of today, it is more than likely that one or more constituents of India’s government may play the nuclear card close to its chest purely for political gains and considerations. As the leading partner of the ruling NDA government in New Delhi, BJP is also under increasing pressure to raise the nuclear rhetoric and Pakistan baiting due to number of internal developments such as attack on India’s Parliament in December 2002, bombing of Kashmir state secretariat in October 2001, BJP losing every state election in 2001 and the upsurge of violence in the Hindi heartland of Gujarat.<sup>21</sup> On a societal level, too, in a country which John Kenneth Galbraith termed the world’s only “functioning anarchy”, the unstable political environment and the staggering economic cost of a nuclear program is likely to trigger more social unrest and

---

<sup>19</sup> Tellis, Ashley; *Ibid.*, p. 106.

<sup>20</sup> Vanaik, Achin; *Ibid.*

<sup>21</sup> *The Japan Times*, Editorial, May 23, 2002.

turbulence along caste and religious lines, and thus may offset any gains India might have in terms of enhanced status.

#### OTHER AMBIGUITIES

The draft doctrine also mentions the notion of entity, which in the strategic literature implies “non-state actors” (2.4. Draft Doctrine) and more plainly, “terrorists”. With the break down of the old Soviet Union, there is a growing fear in intelligence circles that terrorists and some rogue elements in and around the South Asian region may acquire fissile materials. If so, can India go after these entities, for example, against remnants of former Taleban and Al Qaeda forces of Afghanistan as well as other foreign mercenaries and Pakistan based mujahideen outfits such as, Hizbullah, Lashkar-i-Toiba and Jaish-i-Mohammed who are believed by Indian intelligence officials to have crossed over to Pakistan occupied Kashmir valley along the Line of Control and even termed as “freedom fighters” by forces supporting autonomy for the people of Indian occupied Kashmir? There needs to be some clarity in this regard in the draft document.

In 2.5 of the draft nuclear doctrine, the document states, “India will not resort to the use or threat of use of nuclear weapons against states which do not possess nuclear weapons, or are not aligned with nuclear weapon powers.”(See Appendix)

Does this imply that “India could conceivably use its nuclear weapons against countries such as Japan and Germany, who are aligned or receive security cover from the United States either through bilateral treaty or through NATO?”<sup>22</sup>

Even with an overwhelming conventional superiority in its armed forces, India has had a series of low intensity conflicts with its neighbours, China and Pakistan, with some glaring examples such as in Aksai Chin in the Ladakh region and Kargil along the Line of Control in the Kashmir valley as was witnessed in the summer of 1999. The introduction of nuclear weapons along with maintaining a strong, viable conventional force will have an enormous cost which India can ill afford.

India at the present time has only land to air ballistic missiles such as Agni, Prithvi and Dhanaush that can deliver a 20-kilotonne device. With some additional technical prowess, India may also be able to deploy a nuclear device from a MIG, Mirage or Jaguar aircraft that are under its Air Force’s domain. On Pakistan’s side, it can use Abdali, Ghauri, and Ghaznavi and fit it with nuclear capable missiles aiming at Indian targets. India cannot retaliate effectively against its adversaries when it does not have mobile launchers, or hardened silos, nor submarine based nuclear weapon storage. The Strategic Air Command’s requirement to keep some of its aircrafts on nuclear alert at all times as does the United States is yet to be implemented. The only decision that has been made so far indicates that:

- (a) India’s nuclear command would be in place by March 2003.
- (b) The Strategic Nuclear Command will be commanded by the Indian Air Force and based at Thiruvanthapuram.

---

<sup>22</sup> Chari, P. R; “The BJP’s Nuclear Doctrine,” *The Deccan Herald*, Hyderabad, India, August 27, 1999, p. 6.



- (c) A large proportion of the SNC's air and sea-based assets will eventually be based on the Andaman and Nicobar island in the Bay of Bengal, the headquarters of India's first tri-service command established in October 2001.
- (d) Indian Air Force to be given pre-eminent strike capability, and sole control of India's nuclear assets.
- (e) Indian Army to be put in charge of Strategic Rocket regiment to operate the indigenously produced Agni-II Intermediate range ballistic missiles that started series production in June 2001.<sup>23</sup>

Even the United States, which originated the concept of 'massive retaliation' in the early 1950s shifted to a more 'flexible response' and 'mutual assured destruction' strategies in 1960s and 1970s. US defence policy went through further transformation during the Reagan years from the 'deployment of cruise missiles' to the 'Strategic Defence Initiative' in the 1980s. Under President George W. Bush Jr. who assumed office in January 2001, the United States has made the National Missile Defence (NMD) program as its major policy plank. With India's limited resources and in the absence of any tactical weapons, it is doubtful that it can have a sound nuclear mechanism in place in the immediate near future. In order to maintain 'strategic balance' Pakistan taking note of India's overwhelming superiority in conventional arms and manpower may be tempted to go in for a first strike option. Pakistan is very likely to exercise this option to counter India should the latter pose a serious threat to Pakistan's territorial integrity leading to its dismemberment and further fragmentation.<sup>24</sup> In this context, it is worth mentioning the comments made by General Khalid Kidwai, Head of the Strategic Plan Division of the Pakistan's Army.

Nuclear weapons are aimed solely at India. In case, deterrence fails, they will be used, if,

- (a) India attacks Pakistan and conquers a large part of its territory (space threshold)
- (b) India destroys a large part either of its land or air forces (military threshold)
- (c) India proceeds to the economic strangling of Pakistan (economic threshold)

---

<sup>23</sup> "India's Nuclear Command to be in place," *The Times of India*, New Delhi, India, May 23, 2002.

<sup>24</sup> Lieutenant General Sardar Lodhi, F.S; (Retd; Pakistan Army). "Pakistan's Nuclear Doctrine," *Pakistan Defense Journal*, 1999. See, also, Brigadier Ismat, Saeed; (Retd; Pakistan Army), "Strategy for Total Defense: A Conceptual Nuclear Doctrine," *Pakistan Defense Journal*, March 2000.

(d) India pushes Pakistan into political destabilization or creates a large internal subversion in Pakistan (domestic destabilization).<sup>25</sup>

Even limited war, in conventional sense, between India and Pakistan can lead to nuclear conflict. Four factors can turn any conventional conflict, however, 'limited' in nature, in to acquiring a nuclear dimension.<sup>26</sup>

(a) The politico-military objectives which India considers limited, might be considered unlimited and unacceptable by Pakistan. Islamabad plans to use nuclear weapons in the event of a deep military offensive by India. How 'deep' would be deep enough for India to obtain its objective, and how 'deep' would be too much for Pakistan, is unclear and will always remain so. Issue of extent of loss of territory, image, and legitimacy are important.'

(b) Pakistan's military has shown a greater inclination towards a possible use of nuclear weapon. In Pakistan, nuclear command and control are exclusively in the hands of the military.

(c) In the case of India and Pakistan, inadequate command and control structures, deficient early warning arrangements and perceptions about a doubtful capacity to launch a retaliatory "second strike" send mixed signals which enhance the risk of a nuclear exchange

(d) A possible reappraisal of India's operational doctrine following the nuclear tests can further encourage Pakistan to take recourse to atomic weapons.

It is not clear in the document whether "launch-on-warning" will be followed. Does it mean India will endure repeated nuclear attacks before it retaliates in a way unacceptable to the aggressor in the belief that the threat of massive retaliation will deter the attacker? (2.7. Draft Doctrine). But then, from a logical point of view, will there be anything left to defend after a first massive nuclear attack on India and whether the adversary will misperceive and miscalculate in the absence of any dialogue? Also, there are no identified 'red lines', the crossing of which would trigger a nuclear conflict between India and Pakistan.

Hawks in India think they can manage a limited war with Pakistan without either side resorting to nuclear arms. Pakistan's hard liners believe that demonstrating the will to use nuclear weapons is important in containing an Indian threat. If the hawks on both sides carry out their threats, India could start a limited conventional war, and Pakistan would take it to the nuclear stage.<sup>27</sup>

The 'hot line' that was restarted among the leaders at the highest level in both Islamabad and New Delhi following a 20-year gap in 1997 is in disuse now.

<sup>25</sup> See, Albright, David; "Securing Pakistan's Nuclear Weapons Complex," October 2001, [www.isis-online/publications/terrorism/stanleypaper.html](http://www.isis-online/publications/terrorism/stanleypaper.html). Also, see, Landau Network. <http://www.mi.infn.it/~landnet> and [cotta@mi.infn.it](mailto:cotta@mi.infn.it).

<sup>26</sup> "Limited war between India, Pakistan can lead to nuclear conflict," *The Hindu*, Chennai, India, May 26, 2002.

<sup>27</sup> "Deterrence, did someone say?," *Indian Express*, New Delhi, India, June 11, 2002.

According to Pervaiz Hoodbhoy, Professor of Physics at the Quaid-e-Azam University in Islamabad, Pakistan:

Should a nuclear war occur, it may well be that the order is not given by the Chief Executive or the Prime Minister or whoever. That decision may be taken by a Brigadier, who will decide whether you and I live or die. Any missiles fired by India or Pakistan would take four to eight minutes to hit its target. This means both countries are prepared to launch a nuclear strike on the basis of a warning. In a few hundred seconds, the credibility of the warning must be gauged. Is it the blip on the radar screen really a missile? If so, is it, likely to be carrying a nuclear warhead? An alert must then be flashed to the strategic command centre. And, if necessary, a launch order transmitted to the missile site.<sup>28</sup>

If Pakistan perceives that it will be going downhill in a conventional conflict, it may use nuclear weapons to deter India. Pakistan's minister for Railways and Communications, Javed Ashraf Qazi's comments are quite telling in this regard:

Pak will not hesitate to use nukes against India. If it ever comes to annihilation of Pakistan, than what is this damned nuclear option for, we will use against the enemy. If Indians destroy most of us, we too will annihilate parts of the adversary. If Pakistan is being destroyed through conventional means, we will destroy them by using the nuclear option [...] as they say if I am going down the ditch, I will also take my enemy with me.<sup>29</sup>

## ISSUE OF CREDIBILITY

How can an adversary know what is credible. (4.1 & 4.3. Draft Doctrine)? Supposing the adversary is in an irrational state or does not believe in rational thinking or discourse. It may very well tolerate massive destruction of all its major cities with the belief that it will be able to knock out at least one major Indian city either in a first attack or in a retaliatory attack. Will that be acceptable to Indian political leaders? It goes back to the central element of DND (Draft Nuclear Doctrine), which is "Credible, Minimum Deterrence". What is credible may not be minimal and India may have to adopt maximalist position in order to maintain minimum deterrence. Also, by the same logic, deterrence will fail by coaxing the adversary to take advantage of India's minimum nuclear deterrence policy and inflict a nuclear attack on India which India's adversary may think to be acceptable and tolerable on India's part. Deterrence should be credible otherwise it cannot

---

<sup>28</sup> "Finger on nuclear button is not Musharraf's," *The Daily Telegraph*, London, June 7, 2002.

<sup>29</sup> "Pakistan will not hesitate to use nukes against India," *rediff.com*, May 23, 2002.

deter. What is credible to one leader at the top of the chain of command might not be so for a commander who is in actual operational level. Deterrence is after all a mind game. As per India's defence equation with Pakistan, the dilemma is obvious. If India submits to Pakistan's irrationality, it risks being blackmailed into inaction. If India chooses to call the bluff, it invites a pre-emptive strike by Pakistan.<sup>30</sup> Without going into specifics, Mr. K. Subrahmanyam, a leading member of the India's National Security Advisory Board, which authored India's Draft Nuclear Doctrine, has argued for one hundred and fifty nuclear warheads for an effective Indian deterrent against Pakistan and China.<sup>31</sup> General K. Sundarji, India's former Army Chief of Staff, however, has opined that India needed a minimum of 20 nuclear weapons of 20 kilotons each to deter a small country such as Pakistan and about 50 such weapons to provide a credible nuclear deterrence against a large country such as China.<sup>32</sup>

The concept of nuclear deterrence was first evolved by US Joint Chiefs of Staff who argued that the 'threat of the use of atomic bombs would be a great deterrent to any aggressor which might be considering embarking upon an atomic war.' Moreover, 'minimal' deterrence might not be achieved, when it has been stated in the draft doctrine that it is India's intent to develop nuclear weapons based on a 'triad of aircraft, mobile based missiles and sea-based assets.' (3.1. Draft Doctrine). The annual report (2000-2001) of India's Department of Atomic Energy has not stated what the 'minimum' is in terms of research, development and manufacturing of nuclear weapons as determined by India's nuclear policy.

## INDIA'S CHAIN OF COMMAND

Under India's constitutional system, the prime minister is the head of government and the president is the head of state. It is also mentioned in India's constitution that it is the duty of the president to aid and advice the prime minister and the cabinet. In a nuclear stand off, who advises whom, to what degree and to what consequence? (5.1. Draft Doctrine)

Also, unlike in the American system, where there is a clear chain of command should the president be incapacitated due to death, resignation or impeachment, there is no such provision in the existing Indian constitution other than following the official protocol in order of precedence. There is also the danger of conflict between the civilian and military units battling over control of nuclear button. While India's air force feels it has the capability to deliver nuclear weapons, the navy feels the ultimate nuclear decision making in the operational arena belongs to it as it had both maritime and aviation roles.<sup>33</sup> Belatedly, the government of India

<sup>30</sup> "Desperate Pak ready to nuke India," *The Times of India*, New Delhi, India, May 20, 2002. Also, see, Landesman, Peter; *The Atlantic Monthly*, March 2002.

<sup>31</sup> Proliferation News and Resources, Carnegie Endowment for International Peace, available at: <http://www.ceip.org/files/nonprolif/templates/articles.asp?NewsID=125> .

<sup>32</sup> Kamath, P.M; "Indian Nuclear Strategy: A Perspective for 2020," available at <http://www.idsa-india.org/an-mar9-9.html>.

<sup>33</sup> "Three Services Squabble Over Nuclear Button," May 16, 2001, available at <http://www.thenewspapertoday.com/india/inside.phtml?News-ID=13976> .

is experimenting with the idea of creating a cabinet sub-committee on national security matter as well as a chief of defence staff in order to provide a single point of military advice to the government. What is also needed is to create a tri-service strategic forces command for maintaining functional control over the nuclear weapons and related matters such as surveillance, early warning, intelligence, targeting, damage assessment system, etc.

An ideational system for India must include:

- (a) enunciate nuclear deterrence doctrine
- (b) continue development of testing doctrine, methodology, and staff
- (c) articulate war termination concepts
- (d) acquiring supporting infrastructures such as intelligence and warning system, meteorological system, secure communications network, physical command and control infrastructure, damage assessment system, develop procedural system such as posture negative control system, national command authority, civil-military coordination arrangements, nuclear planning structure.<sup>34</sup>

India's nuclear doctrine also claims that "space based and other assets shall be created to provide early warning" (5.6. Draft Doctrine). Apart from the stupendous costs and technical challenges needed to develop such assets, the proximity of Pakistan and China will make nuclear early warning almost meaningless. Once launched, missiles would take somewhere between 4 to 8 minutes to fly to Delhi, India's capital. This is too short a time to determine "early warning". One can compare this period with the 20-30 minute flight time in the case of ICBM, flying from Russia to the United States or vice versa which allows a greater window of manoeuvrability to check signal and other technical systems. Even with the sophisticated early warning system, it is known that between 1972 and 1984, the US early warning system showed over 20,000 false alarms of a missile attack. Over 1,000 of them were considered serious enough for bombers and missiles to be placed on alert. In the Indian case, a crisis of similar nature might lead to a nuclear launch.<sup>35</sup>

The doctrine states (6.1. Draft Doctrine) explicitly that unauthorized access or use of nuclear weapons will not take place. What happens if the Prime Minister or the designated successor(s) and the entire communication systems are wiped out in a first strike? Who controls the nuclear button? Will it be political operatives in the Prime Minister's office or the field commander in actual charge of the nuclear weapons or the civilian bureaucracy? How will the coordination in policy formulation and rapid response mechanism be maintained in the National Security Council that was formed in the aftermath of the 1998 nuclear test by the BJP led

---

<sup>34</sup> See, Dean Wilkening and Kenneth Watman; *Nuclear Deterrence in a Regional Context*, MR-500-A/AF, Santa Monica; ca, Rand Corporation, 1994, pp. 1-30. Also, see, Tellis, Ashley; *Ibid*, p. 220.

<sup>35</sup> Ramana, M. V; "A Recipe for Disaster," *The Hindu*, Chennai, India, September 9, 1999, p. 6.

government? Would it be possible for a lower ranked officer to launch a weapon without authorization in the atmosphere of mixed signals and/or political vacuum emanating from New Delhi? Also, in a surprise first attack by the other side, could India retaliate with rapid, punitive response when some of the missiles may be submarine-based or in mobile launchers status and which require safe and secured communication lines? India would also need “a massive investment in surveillance and target acquisition infrastructure by way of satellite, aerial reconnaissance and human intelligence” which it clearly lacks at this juncture due to its limited resources to do so.<sup>36</sup>

The open-ended assertion (6.3. Draft Doctrine) that an appropriate disaster control system shall be developed to deal with potential accidents is open to criticism. Given India’s extremely dismal record in disaster management from the super cyclone of 1999 in Orissa to the earthquake in Gujarat, it is indeed doubtful if India, at the present time, has anything even close to the capabilities of managing a nuclear disaster, should it occur either from a nuclear first strike or from a retaliatory strike by the adversary.

In a report published by Britain based NEW SCIENTISTS, it was reported that a massive loss of men and materials would occur should a nuclear exchange take place between India and Pakistan. As per this report:

“at least 3 million people would be killed and another 1.4 million severely injured. Based on 10 Hiroshima type bombs: 5 in India (Bangalore, Mumbai, Kolkata, New Delhi, Chennai) and 5 in Pakistan (Karachi, Lahore, Faisalabad, Islamabad, Rawalpindi). India side: 1.7 million dead and 900,000 injured. And, Pakistan side; 1.2 million dead and 600,000 injured. If the bomb explodes on the ground instead of in the air, resulting radioactive dust could kill more people. Due to prevailing winds from west to east, India would incur more casualties than Pakistan. This is just ten bombs, which is 1/10<sup>th</sup> of estimated nuclear bomb both countries believed to have possessed.”<sup>37</sup>

Another report provided even a scarier picture:

Nuclear exchange could kill up to 12 million people at one stroke plus injury up to 7 million. Even a so-called ‘limited war’ would have cataclysmic effect overhauling hospitals across Asia and requiring vast foreign assistance to battle radioactive contamination, famine and disease. More deaths would occur later caused by urban firestones, ignited by the heat of a nuclear exchange, deaths from longer term radiation, or the disease and starvation expected to spread.<sup>38</sup>

<sup>36</sup> Kanwal, Gurmeet; “India’s Nuclear Doctrine and Policy,” available at <http://www.idsa-india.org/an-feb1-01.html>.

<sup>37</sup> See, “India-Pakistan nuclear war would kill at least three million: Study”, May 25, 2002, <http://www.sify.com>.

<sup>38</sup> “The Day After in India, Pak: 12 million dead,” *Indian Express*, New Delhi, India, May 28, 2002.

## PRESENT CAPABILITIES

At the present time, India's nuclear delivery system consists of assault aviation French Mirage 200 H fighters, which will be supplemented by Russian Sukhoi SU-30 MIC multi role fighters, along with a limited number of Prithi-I and II short-range ballistic missiles as well as Agni and Dhanaush medium range ballistic missiles.<sup>39</sup> While none of the nuclear delivery systems it possesses is capable of providing deterrence against China, India has been developing a long range ICBM version of Agni with a range of 5,000 km in early 2001 and 12,000 km by 2003 to fill the vacuum. Jane Intelligence Review's report published in March 26, 2001, has stated that Pakistan, India's traditional adversary, has nearly completed development of a solid fuel missile that could strike key Indian cities from deep within Pakistan territory through Ghauri-series of liquid propelled missiles in an offensive operation and Shaheen-series weapons as defensive measures.

On May 24, 2002, Pakistan also tested Ghauri missiles with a range of 1,500 kilometres (1,000 miles) that can hit most populous cities of Northern, Central and Western India. Pakistan has also established the nuclear command authority and the Pakistan nuclear regulatory authority to bring coordination in its nuclear program.

## CONCLUDING OBSERVATIONS

In the present environment, with India having its draft nuclear doctrine widely circulated in the aftermath of the nuclear blasts in May 1998, some people may voice support for India to sign CTBT in order to see the entire gamut economic sanctions and other restrictions imposed upon India lifted. Countries such as the United States very much hope that India will comply with CTBT and abide by other international safeguards. In the United States itself, there has been a growing support in favour of ratification of CTBT after the US Senate voted against it in October 1999.<sup>40</sup> However, the basic rationale for India not signing the CTBT still remains. India's concern was conveyed on 20 June, 1996, when the Indian representative rejected the text presented by the Chairman at the Conference on Disarmament:

The CTBT that we see emerging [...] (is) not the CTBT India envisaged in 1954. This cannot be the CTBT that India can be expected to accept [...] Our capacities is demonstrated but, as a matter of policy, we exercise restraint. Countries around us continue their weapon program, either openly or in a clandestine manner. In such an environment, India cannot accept any restraints on its capability, if other countries remain unwilling to accept the obligation to eliminate their nuclear weapons. Such a treaty is not conceived as a measure towards universal nuclear disarmament and is not in India's national

<sup>39</sup> *Indian Express*, New Delhi, March 26, 2001, p. 4.

<sup>40</sup> Shalikasvili, John M; "The Test Ban Solution," *The Washington Post*, January 6, 2001.

security interest. India, therefore, cannot subscribe to it in its present form.<sup>41</sup>

Unless the situation at the international and regional level changes drastically, this may very well be India's position for the foreseeable future. The escalating situation in Kashmir, the bone of contention between India and Pakistan since 1947, may yet provide a flash point and may induce both countries to come to a negotiating table and to opt for nuclear deterrence and quick implementation of 'enforceable and verifiable' confidence building measures which may include simultaneous signing of CTBT and other international safeguards.

Pakistan's General Pervez Musharraf's visit to India in July 14-16, 2001 provided a window of opportunity to bring India and Pakistan closer to some kind of negotiated settlement on the Kashmir, CTBT and other related issues. However domestic constraints in both India and Pakistan prevented Mr. Vajpayee and Mr. Musharraf in making more tangible progress on confidence building measures beyond what the two countries agreed in 1988 that included not to attack each other's nuclear facilities, establish a hotline between the two nation's general headquarters and work towards a "strategic restraint regime."<sup>42</sup> Similarly, a mutually agreed formula between India proposed no-first use of nuclear weapons and Pakistan proposed non-aggression pact and in declaring South Asia as a nuclear weapon free zone can also be pursued by interested parties. Another measure that can be tried is a concerted effort on the part of the permanent members of the UN Security Council to act as honest facilitators "to help in ushering a common, strategic dialogue and language on arms control in South Asia"<sup>43</sup> and foster open communications among the parties concerned. But then, the concept of nuclear deterrence for two South Asian rival countries with deep rooted historical animosities and regional ambitions may be an uphill task unlike the case of the United States and former Soviet Union during the Cold War years that stayed broadly within the perimeter of deterrence. Even in the case of US and the Soviet Union, they almost came to the brink of nuclear war on more than one occasion including the now famous Cuban missile crisis of 1962.

It is fair to surmise that neither India nor Pakistan has developed an acceptable command and control system of their newfound nuclear arsenals at this time. Nor have any concrete contingency plans been envisaged for the day after as other declared nuclear powers have done. Even a preliminary study of basic nuclear risk reduction measures (NRRM) in the four key areas of potential risks such as miscalculation, unauthorized use, accidents and panic behaviour as proposed by members of an influential peace group, MIND (Movement in India for Nuclear

---

<sup>41</sup> Statement by Ambassador Ms. Ghose, Arundhati; Conference on Disarmament, Document CD/PV .740, Geneva, 20 June 1996.

<sup>42</sup> Statement by Ambassador Akram, Munir; Pakistan in the Conference on Disarmament, August 19, 1999, available at <http://www3.itu.int/pakistan/CD-Indian%20Nuclear%20Doctrine-19%20August%201999.htm>.

<sup>43</sup> Available at <http://news.indya.com/newshtml/india1506nuke.htm>. "India, Pakistan shouldn't get nuclear recognition," *A Report from the Stanley Foundation*, Iowa.



Disarmament), are yet to be initiated by either India or Pakistan.<sup>44</sup> It may be that the real choice before the international community is not to treat India and Pakistan's nuclear tests as an isolated regional problem but rather to commence serious negotiations to draft a treaty for limiting nuclear warheads at its absolute minimum level within a set time. It will be counterproductive if the international community resorts to unilateralism such as the plans made by the current US president George W. Bush with the National Missile Defence program and selective morality on the part of the Big Five nuclear weapon states in maintaining the existing status quo of nuclear powers prior to India and Pakistan's explosion and not work towards a genuine nuclear arms control agreement. Although US and Russian leaders have shown willingness to drastically cut their nuclear arsenals to a historic 2,000 warhead, START III is yet to pick up the right momentum. According to Ashley J. Tellis, a Rand corporation analyst:

Several critical impediments are still there in the arena of global nuclear reform, despite all the other beneficial developments that have occurred on the aftermath of the Cold War. For example, neither Russia nor the small nuclear powers, the United Kingdom and France, appear willing to contemplate reductions in nuclear capabilities as part of some larger process that will eventually culminate in nuclear abolition. Even US has demurred about carrying nuclear arms reduction to its logical terminus, preferring instead to pursue a "lead and hedge" policy well into the future.<sup>45</sup>

In this context, India's view for a genuine nuclear reduction sounds credible and plausible. "Indian government called all nuclear weapon states to join with it in opening early negotiations for a nuclear weapons convention so that these weapons can be dealt with in a global, non-discriminatory framework as other weapons of mass destruction have been dealt with in the past. While it appears self serving, coming as it did on the heels of the 1998 nuclear tests, it is certainly consistent with India's past proposals and represented a continuation of traditional Indian policy which has always held out the threat of overt nuclearization so long as the global nuclear order remained unreformed."<sup>46</sup> Perhaps that day is not far off when all the nuclear weapon states can sit together and work towards a genuine new world order based on a reasonable nuclear arms reduction package in commensurate with the defined national interests of individual nation states.

---

<sup>44</sup> "N-Risk reduction measures proposed for India, Pak," *The Hindu*, Chennai, India, June 19, 2002.

<sup>45</sup> See, Tellis, Ashley; *Ibid*, p.240, Also, see, Stuart Croft and Phil Williams, "The United Kingdom," and Klaus Schubert, "France," in Regina Cowen Karp (ed.) *Security with Nuclear Weapons?*, Oxford: UK, Oxford University Press, 1991, pp. 145-188.

<sup>46</sup> Burns, John F; "India calls for talks on New Treaty limiting nuclear arms," *The New York Times*, June 1, 1998.

APPENDIX: INDIA'S NUCLEAR DRAFT DOCTRINE<sup>47</sup>

## PREAMBLE

**1.1.** The use of nuclear weapons in particular as well as other weapons of mass destruction constitutes the gravest threat to humanity and to peace and stability in the international system. Unlike the other two categories of weapons of mass destruction, biological and chemical weapons which have been outlawed by international treaties, nuclear weapons remain instruments for national and collective security, the possession of which on a selective basis has been sought to be legitimised through permanent extension of the nuclear Non-Proliferation Treaty in May 1995. Nuclear weapon states have asserted that they will continue to rely on nuclear weapons, with some of them adopting policies to use them even in a non-nuclear context. These developments amount to virtual abandonment of nuclear disarmament. This is a serious setback to the struggle of the international community to abolish weapons of mass destruction.

**1.2.** India's primary objective is to achieve economic, political, social, scientific and technological development within a peaceful and democratic framework. This requires an environment of durable peace and insurance against potential risks to peace and stability. It will be India's endeavour to proceed towards this overall objective in cooperation with the global democratic trends and to play a constructive role in advancing the international system toward a just, peaceful and equitable order.

**1.3.** Autonomy of decision making in the developmental process and in strategic matters is an inalienable democratic right of the Indian people. India will strenuously guard this right in a world where nuclear weapons for a select few are sought to be legitimised for an indefinite future, and where there is growing complexity and frequency in the use of force for political purposes.

**1.4.** India's security is an integral component of its development process. India continuously aims at promoting an ever-expanding area of peace and stability around it so that development priorities can be pursued without disruption.

**1.5.** However, the very existence of offensive doctrines pertaining to the first use of nuclear weapons and the insistence of some nuclear weapon states on the legitimacy of their use even against non-nuclear weapon countries constitute a threat to peace, stability and sovereignty of states.

**1.6.** This document outlines the broad principles for the development, deployment and employment of India's nuclear forces. Details of policy and strategy concerning force structures, deployment and employment of nuclear forces will flow from this framework and will be laid down separately and kept under constant review.

---

<sup>47</sup> Draft Report of National Security Advisory on Indian Nuclear Doctrine, August 17, 1999 available at: [http://www.indianembassy.org/policy/CTBT/nuclear\\_doctrine\\_aug\\_17\\_1999.html](http://www.indianembassy.org/policy/CTBT/nuclear_doctrine_aug_17_1999.html).

## OBJECTIVES

**2.1.** In the absence of global nuclear disarmament India's strategic interests require effective, credible nuclear deterrence and adequate retaliatory capability should deterrence fail. This is consistent with the United Nations Charter, which sanctions the right of self-defence.

**2.2.** The requirements of deterrence should be carefully weighed in the design of Indian nuclear forces and in the strategy to provide for a level of capability consistent with maximum credibility, survivability, effectiveness, safety and security.

**2.3.** India shall pursue a doctrine of credible minimum nuclear deterrence. In this policy of "retaliation only," the survivability of our arsenal is critical. This is a dynamic concept related to the strategic environment, technological imperatives and the needs of national security. The actual size, components, deployment and employment of nuclear forces will be decided in the light of these factors. India's peacetime posture aims at convincing any potential aggressor that:

**a.** any threat of use of nuclear weapons against India shall involve measures to counter the threat; and

**b.** any nuclear attack on India and its forces shall result in punitive retaliation with nuclear weapons to inflict damage unacceptable to the aggressor.

**2.4.** The fundamental purpose of Indian nuclear weapons is to deter the use and threat of use of nuclear weapons by any state or entity against India and its forces. India will not be the first to initiate a nuclear strike, but will respond with punitive retaliation should deterrence fail.

**2.5.** India will not resort to the use or threat of use of nuclear weapons against states which do not possess nuclear weapons, or are not aligned with nuclear weapon powers.

**2.6.** Deterrence requires that India maintain:

**a.** sufficient, survivable and operationally prepared nuclear forces.

**b.** robust command and control system.

**c.** effective intelligence and early warning capabilities.

**d.** comprehensive planning and training for operations in line with the strategy, and

**e.** the will to employ nuclear forces and weapons.

**2.7.** Highly effective conventional military capabilities shall be maintained to raise the threshold of outbreak both of conventional military conflict as well as that of threat or use of nuclear weapons.

## NUCLEAR FORCES

**3.1.** India's nuclear forces will be effective, enduring, diverse, flexible, and responsive to the requirements in accordance with the concept of credible minimum deterrence. These forces will be based on a triad of aircraft, mobile land-based missiles and sea-based assets in keeping with the objectives outlined above.

Survivability of the forces will be enhanced by a combination of multiple redundant systems, mobility, dispersion and deception.

**3.2.** The doctrine envisages assured capability to shift from peacetime deployment to fully employable forces in the shortest possible time, and the ability to retaliate effectively even in a case of significant degradation by hostile strikes.

## CREDIBILITY AND SURVIVABILITY

The following principles are central to India's nuclear deterrent:

**4.1. Credibility:** Any adversary must know that India can and will retaliate with sufficient nuclear weapons to inflict destruction and punishment that the aggressor will find unacceptable if nuclear weapons are used against India and its forces.

**4.2. Effectiveness:** the efficacy of India's nuclear deterrent be maximized through synergy among all elements involving reliability, timeliness, accuracy and weight of the attack.

**4.3. Survivability:**

**a.** India's nuclear forces and their command and control shall be organized for very high survivability against surprise attacks and for rapid punitive response. They shall be designed and deployed to ensure survival against a first strike and to endure repetitive attrition attempts with adequate retaliatory capabilities for a punishing strike, which would be unacceptable to the aggressor.

**b.** Procedures for the continuity of nuclear command and control shall ensure a continuing capability to effectively employ nuclear weapons.

## COMMAND AND CONTROL

**5.1.** Nuclear weapons shall be tightly controlled and released for use at the highest political level. The authority to release nuclear weapons for use resides in the person of the Prime Minister of India, or his designated successor(s).

**5.2.** An effective and survivable command and control system with requisite flexibility and responsiveness shall be in place. An integrated operational plan, or a series of sequential plans, predicated on strategic objectives and a targeting policy shall form part of the system.

**5.3.** For effective employment, the unity of command and control of nuclear forces including dual capable delivery systems shall be ensured.

**5.4.** The survivability of the nuclear arsenal and effective command, control, communications, computing, intelligence and information (C412) systems shall be assured.

**5.5.** The Indian defence forces shall be in a position to execute operations in an NBC environment with minimal degradation.

**5.6.** Space based and other assets shall be created to provide early warning, communications, damage/detonation assessment.

## SECURITY AND SAFETY

**6.1.** Security: Extraordinary precautions shall be taken to ensure that nuclear weapons, their manufacture, transportation and storage are fully guarded against possible theft, loss, sabotage, damage or unauthorized access or use.

**6.2.** Safety is an absolute requirement and tamper-proof procedure and systems shall be instituted to ensure that unauthorized or inadvertent activation/use of nuclear weapons does not take place and risks of accident are avoided.

**6.3.** Disaster Control: India shall develop an appropriate disaster control system capable of handling the unique requirements of potential incidents involving nuclear weapons and materials.

## RESEARCH AND DEVELOPMENT

**7.1.** India should step up efforts in research and development to keep up with technological advances in this field.

**7.2.** While India is committed to maintain the deployment of a deterrent which is both minimum and credible, it will not accept any restraints on building its R&D capability.

## DISARMAMENT AND ARMS CONTROL

**8.1.** Global, verifiable and non-discriminatory nuclear disarmament is a national security objective. India shall continue its efforts to achieve the goal of a nuclear weapon-free world at an early date.

**8.2.** Since no-first use of nuclear weapons is India's basic commitment, every effort shall be made to persuade other states possessing nuclear weapons to join an international treaty banning first use.

**8.3.** Having provided unqualified negative security assurances, India shall work for internationally binding unconditional negative security assurances by nuclear weapon states to non-nuclear weapon states.

**8.4.** Nuclear arms control measures shall be sought as part of national security policy to reduce potential threats and to protect our own capability and its effectiveness.

**8.5.** In view of the very high destructive potential of nuclear weapons, appropriate nuclear risk reduction and confidence building measures shall be sought, negotiated and instituted

## BIBLIOGRAPHY

- Alagappa, Muthiah (ed.). 1998. *Asian Security Practice*. Stanford; Stanford University Press.
- Alam, Mohammed B. 1995. *Essays on Nuclear Proliferation*. New Delhi: Vikas Publishing House.
- Alam, Mohammed B. 1988. *India's Nuclear Policy*. New Delhi: Mittal Publications.
- Albright, David. 1998. *India and Pakistan's Fissile Material and Nuclear Weapons Inventory*. Washington, DC: Institute of Science and International Security.
- Arnett, Eric (ed.). 1997. *Military Capacity and the Risks of War*. Oxford: Oxford University Press.
- Babbage, Ross and Sandy Gordon (eds.). 1992. *India's Strategic Future: Regional State or Global Power?* New York: St. Martin's Press.
- Bailey, Kathleen C. (ed.). 1994. *Weapons of Mass Destruction: Cost Versus Benefits*. New Delhi; Manohar Publishers.
- Bajpai, Kanti. 2000. "India's Nuclear Posture After Pokhran II", *International Studies*, 37: 4.
- Ball, Desmond, and Jeffrey Richelson (eds.). 1986. *Strategic Nuclear Targeting*. New York: Cornell University Press.
- Banerjee, Dipankar (ed.). 1994. *Security in the New World Order*. New Delhi. Institute for Defence Studies and Analyses.
- Blair, Bruce G. 1993. *The Logic of Accidental Nuclear War*. Washington, DC: Brookings Institution.
- Carlton, D., and C. Schaerf (eds.). 1989. *Perspectives on the Arms Race*. London: Macmillan.
- Cohen, Stephen P. (ed.). 1991. *Nuclear Proliferation in South Asia*. Boulder: Westview Press.
- Dunn, Lewis A. 1982. *Controlling the Bomb: Nuclear Proliferation in the 1980s*. New Haven: Yale University Press.
- Freedman, Lawrence. 1981. *The Evolution of Nuclear Strategy*. New York: St. Martin's Press.
- Gordon, Sandy. 1995. *India's Rise to Power*. New York; St. Martin's Press.
- Hagerty, Devin. 1998. *The Consequences of Nuclear Proliferation: Lessons for South Asia*. Cambridge: MIT Press.
- Jain, B.M. 1994. *Nuclear Politics in South Asia*. New Delhi: Rawat Publications.
- Jervis, Robert. 1976. *Perception and Misperception in International Politics*. Princeton: Princeton University Press.
- Joeck, Neil. 1997. *Maintaining Nuclear Stability in South Asia*. London: IISS.
- Kalam, A.P.J and Y.S.Rajan. 1998. *India: 2020*. New Delhi: Viking Publications.
- Kissinger, Henry. 1957. *Nuclear Weapons and Foreign Policy*. New York: Harper and Brothers.
- Lawrence, Robert M., and Joel Larus. 1974. *Nuclear Proliferation: Phase II*. Lawrence; University Press of Kansas.

- Morgan, Patrick. 1983. *Deterrence: A Conceptual Analysis*. Beverly Hills: California.
- Overholt, William H. (ed.). 1977. *Asia's Nuclear Future*. Boulder: Westview Press.
- Paul, T. V. 2000. *Power versus Prudence: Why Nations Forgo Nuclear Weapons*. Montreal: McGill-Queens University Press.
- Perkovich, George. 1999. *India's Nuclear Bomb*. Berkeley: University of California Press.
- Regina, Cowen Karp (ed.). 1991. *Security with Nuclear Weapons*. Oxford: Oxford University Press.
- Rosen, Stephen Peter. 1996. *Societies and Military Power*. Ithaca: Cornell University Press.
- Sagan, Scott D., and Kenneth N. Waltz. 1995. *The Spread of Nuclear Weapons*. New York: W. W. Norton.
- Schelling, Thomas. 1963. *The Strategy of Conflict*. New York: Oxford University Press.
- Sharma, Dharendra. 1983. *India's Nuclear Estate*. New Delhi: Lancers Publishers.
- Singh, Sampooran. 1971. *India and the Nuclear Bomb*. New Delhi: S.Chand Publishers.
- Snyder, Glenn. 1961. *Deterrence and Defense*. Princeton: Princeton University Press.
- Subrahmanyam, K. (ed.) 1986. *India and the Nuclear Challenge*. New Delhi: Lancer International.
- Sundarji, K. 1995. *Blind men of Hindoostan*. New Delhi: UBS Publishers.
- Sur, Serge (ed.). 1993. *Nuclear Deterrence: Problems and Perspectives in the 1990s*. New York: UNIDIR.
- Tellis, Ashley 2001. *India's Emerging Nuclear Posture*. Santa Monica: Rand Corporation.
- Thomas, Raju G.C. (ed.). 1998. *The Nuclear Non-Proliferation Regime*. New York: St. Martin's Press.
- Thomas, Raju G.C. and Amit Gupta (eds.). 2000. *India's Nuclear Security*. Boulder: Lynne Rienner Publishers.
- Tsipis, Kosta. 1983. *Arsenal*. New York: Simon and Schuster.
- Wiseman, Geoffrey, and Gregory Treverton. 1998. *Dealing With the Nuclear Dilemma in South Asia*. Los Angeles: Pacific Council on International Policy.