

Viewpoint

India's Nuclear Doctrine: Confused Ambitions

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India's five nuclear tests in May 1998 were ostensibly impelled by security considerations. Prime Minister Vajpayee's letter to President Clinton after the event stated:

We have an overt nuclear weapon state on our borders, a state which committed armed aggression against India in 1962.... [T]hat country has materially helped another neighbor of ours to become a covert nuclear weapons state. At the hands of this bitter neighbor we have suffered three aggressions in the last 50 years. And for the last 10 years we have been the victim of unremitting terrorism and militancy sponsored by it in several parts of our country....¹

India thus identified China and Pakistan as the security reasons compelling it to test nuclear devices. Later, Indian Defence Minister George Fernandes added US deployments in Diego Garcia to these reasons,² suggesting that India perceived an all-azimuth nuclear threat.

However, despite such claims, non-security factors clearly played a role. The Atlantic Council rightly attributed the decision to domestic political developments:

...the decision was more grounded in domestic political imperatives and a desire for great power

status rather than the result of a careful, comprehensive analysis of the security environment and longer-term consequences. The timing of the tests related to concerns that India could not hold together indefinitely the aging teams of nuclear scientists and engineers who created the bombs. And the government apparently judged that any resulting sanctions would be limited and short term.³

The ideological predilections of the Hindu fundamentalist Bharatiya Janata Party (BJP) government, founded on convictions that state power equates with military power and nuclear weapons, also informed India's decision.⁴ In addition, the defense and nuclear scientists were anxious to prove their post-Pokharan I (as India's 1974 nuclear test was known) weapon designs developed by computer simulation and laboratory tests. Actual tests were crucial to perfect the thermonuclear and sub-kiloton devices they had designed.⁵ Several motives, therefore, impelled the tests; security concerns were not cardinal to this decision.

In the global arena, the Indian and Pakistani nuclear tests challenged the international nuclear regime that had encrusted into a five-power structure. That regime had overcome earlier attempts by Sweden, South Korea, and

Taiwan to achieve nuclear status. More recently, nuclear aspirants like South Africa, Argentina, and Brazil had bridled their nuclear ambitions.⁶ Belarus, Kazakhstan, and Ukraine were cajoled into joining the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Only Israel, India, and Pakistan have resisted being coerced into this regime. The India-Pakistan nuclear tests unfroze the regime and its established power structure, creating a radically new situation.

As part of its efforts to shift India's nuclear weapon status from ambiguous to overt, the BJP government asked a group of advisors to make recommendations on nuclear posture and strategy. It would be tempting to suggest that clearly recognizable international and/or domestic forces shaped the contours of the draft nuclear doctrine that this group framed following India's nuclear tests, and to believe that this doctrine was intended to deter nuclear threats to India's national security. Nothing could be further from the truth. As observed above, a medley of security and non-security motives influenced the BJP government's dramatic decision to conduct nuclear tests. This inchoate vision also informed the structure of the draft nuclear doctrine; it was ostensibly intended to deal with an all-azimuth threat. However, I would argue that the substance of the doctrine was largely influenced by the periodic declarations of the government on nuclear issues and the identifiable views of the members comprising the National Security Advisory Board (NSAB). No overarching vision, therefore, informed the nuclear doctrine's contours. Instead, it was partly designed to allay international apprehensions that India had no definable strategic objectives that informed its nuclear tests and required India to proceed beyond its earlier stated nuclear policy premised on strategic ambiguity.

This viewpoint examines the draft nuclear doctrine and highlights its basic flaws. It first examines the administrative processes and influences by which it was developed. It will also address the question of whether the nuclear doctrine is official government policy or only a draft document for discussion purposes. It then provides a context for the doctrine by reviewing India's nuclear security situation and the technical capabilities established by its 1998 nuclear tests. After commenting on how the tests and the draft doctrine actually reduced India's security, the viewpoint dissects specific flaws in the doctrine. Its weaknesses are apparent from its general features that seek, almost self-consciously, to distinguish the Indian nuclear doctrine from its Western counterparts. However, that attempt fails,

and the doctrine falls back on the general tenets of nuclear strategy and policy that have evolved over the several decades of the nuclear era. This viewpoint then critiques the draft doctrine from a strategic and arms control perspective. It concludes with a discussion of the unresolved dilemmas either raised in the draft, such as contradictory positions on no-first-use and credible minimum deterrence, or ignored, such as the enormous cost of the proposed triad of nuclear forces.

DRAFTING THE NUCLEAR DOCTRINE

The origins of India's nuclear doctrine can be traced to the BJP's election manifesto, issued before the March 1998 general elections, which first brought the BJP into power for a brief 13-day period. It promised that the BJP, if elected, would establish a National Security Council to "undertake India's first-ever Strategic Defence Review to study and analyze the security environment and make appropriate recommendations...[and to r]e-evaluate the country's nuclear policy and exercise the option to induct nuclear weapons."⁷ This ambition was reiterated in the BJP's "National Agenda for Governance."⁸

The nuclear tests were conducted before the National Security Council undertook the Strategic Defence Review; in consequence, the nuclear doctrine was drawn up without the security environment being analyzed to estimate the nuclear threat to India's security. Government apologists have used a legal quibble to argue that a plain reading of the Election Manifesto makes clear that establishing the National Security Council and conducting the nuclear tests were two independent activities mentioned therein.

The process of establishing the National Security Council and drawing up the nuclear doctrine can now be described.⁹ The thinking in this regard is traceable to 1987, and considerable activity occurred at that time. It was appreciated that a National Security Council in a parliamentary democracy would need to be structured differently from one in a presidential system of government. The basic problems related to its structure, the position of the National Security Adviser, and the question of whether it would be a statutory or advisory body. After the BJP government assumed power for the second time in March 1998, a three-man Task Force was appointed to advise on constituting the Council.¹⁰ It interviewed several persons and submitted its report by the end of June.¹¹

This report was not acted upon till the end of November. What accounts for this five-month delay? Establish-

ing the National Security Council to undertake the Strategic Defence Review was accorded low priority after the nuclear tests since they were a *fait accompli*. Also, Pakistan had conducted its nuclear tests in response, the Kashmir problem remained unresolved, and South Asia was seen to have become a “nuclear flashpoint.” Thus, the NSC was designed to assuage global concerns that, despite conducting its nuclear tests, India had no institutional framework to evaluate security threats or evolve a nuclear doctrine; greater clarity was thus needed to avert the nuclear danger.

The nuclear doctrine was finalized some nine months later after another general election had been called. This was largely designed for acquiring electoral advantage. At that time, I noted: “Nation-in-danger and the BJP’s especial concern with national security are its main election planks; hence, announcement of the nuclear doctrine at this time is wholly in character.... The country is also being beseeched to discuss the nuclear doctrine; this is designed to lure the national debate into the security arena to cash in on the mood of patriotism that Kargil has stirred up.”¹²

In line with existing institutional processes, the NSC was to be headed by the prime minister and included not only the ministers for defense, home, external affairs, and finance, but also the deputy chairman of the Planning Commission (Jaswant Singh at that time). A three-tier structure evolved.¹³ This included a Strategic Policy Group comprised of civilian and military officials, and a 22-member NSAB consisting of former civil (eight) and military (five) officials, academics (four), scientists (three), and journalists (two) “with expertise in Foreign Affairs, External Security, Defence, Strategic Analysis, Economics, Science and Technology, Internal Security and Armed Forces.” A revamped Joint Intelligence Committee (JIC) would provide the Secretariat for the Council (the JIC existed previously but had become irrelevant over the years). One trenchant observer noted:

The report of the task force on national security has been thrown into the waste paper basket. No new National Security Council secretariat has been set up.... The essence of the task force recommendations is the independent secretariat and back-up expert structures. The present structure combines the two posts of secretary to the Prime Minister and national security adviser. Both are full-time jobs....¹⁴

Five aspects of the NSC’s structure influenced framing of the nuclear doctrine.

- First, the principal secretary to the prime minister (Brajesh Mishra) was chosen to be the national security adviser; this ensured that he could not be effectively involved in the framing of the nuclear doctrine because of his other onerous pre-occupations.
- Second, inclusion of the deputy chairman of the Planning Commission in the National Security Council highlighted the balancing act undertaken by the prime minister to satisfy the moderates and extremists in the BJP. As one reporter noted: “Too much power has been concentrated in the hands of Principal Secretary Brajesh Mishra and Planning Commission Deputy Chairman Jaswant Singh, both of whom are also involved in a turf war.”¹⁵ Mishra represented the extremists and Singh the moderates; both are close to Vajpayee. This ensured that the NSC followed a confused trajectory.
- Third, the Strategic Policy Group comprised serving officials; they were included on the basis of their appointments, not any special expertise in strategic issues. These busy persons had neither the time nor the inclination to delve into intricate security issues, and were hardly likely to be concerned with the intricacies of a nuclear doctrine.
- Fourth, it was inevitable that the NSAB would gain ascendancy in this milieu; significantly, its members were airing their views in newspapers and on television networks. The NSAB’s convenor, K. Subrahmanyam, has consistently advocated the case for India’s going nuclear. Some 19 of the NSAB’s 22 members were known to be bomb enthusiasts. Their personal inclinations were reflected in the nuclear doctrine.
- Fifth, it was ensured that the NSAB members would also advocate the nuclear policies enunciated by the government because they were encouraged to write and speak in its support. Some of them were also sent abroad to promote the government’s views; this ensured that the nuclear doctrine fully incorporated the declared official policy.

The NSAB was formed in mid-December 1998 and commenced deliberations shortly thereafter, although it gained momentum some months later. It bears reiteration that its primary responsibility was the drawing up of the “first-ever” strategic defense review, not the nuclear doctrine. Five sub-groups of the NSAB were constituted to deal with issues relating to nuclear, internal, external, technological, and economic security. The nuclear sub-group

drafted the nuclear doctrine. Given the time constraints, each member was asked to prepare a sub-theme paper; these were consolidated after discussions and placed before the full Board for approval. The NSAB accepted the sub-group report on the nuclear doctrine without much debate. The result was a consensus document that was released by the national security adviser at a press meeting on August 17, 1999, i.e., after the Kargil conflict, and before the impending general elections. Unsurprisingly, it lacked focus, since it had to incorporate every viewpoint expressed in the sub-group. While bearing in mind the government's enunciated nuclear policy, the group was a disparate collection. One analyst described the members as ranging "from those of the red brigade to Uncle Toms, from champions of thermo-nuclear-based deterrence to those advocating tactical weapons, from peaceniks to proclaimed hawks."¹⁶ (The number of NSAB members has since been reduced to make it more compact and cohesive by eliminating its more vociferous and disruptive members.¹⁷) One critic stated: "Its [the nuclear doctrine's] only virtue is that nothing in it went very strongly against the sentiment of any member of the NSAB and conversely all members could identify themselves with some portions of it."¹⁸ The National Security Council accepted the NSAB Report, and the nuclear doctrine was announced without change or comment.¹⁹

SUMMARY OF THE DRAFT DOCTRINE

The draft nuclear doctrine begins with a preamble. This first highlights the threat of nuclear weapons, inadequacies of the NPT, and the inattention by the nuclear weapon powers to nuclear disarmament. It then proceeds to express India's commitment to a peaceful and equitable international order while retaining its autonomy in strategic decisionmaking. The preamble finally notes that the nuclear doctrine "outlines the broad principles for the development, deployment and employment of India's nuclear forces."

An "Objectives" section follows the preamble; it stresses India's need for effective, credible, nuclear deterrence along with adequate retaliatory capability should deterrence fail. The nuclear forces required would be structured to meet these parameters, but possess a dynamic character to allow for unforeseeable developments. A commitment to a no-first-use policy is made before noting that deterrence requires survivable operational forces; a robust command and control system; effective intelligence and early warning capabilities; and the will to use nuclear weapons.

The subsequent sections make clear that the nuclear forces would be premised on a triad (land-, sea- and air-based weapons); they would assure credible retaliatory capabilities by remaining survivable in all circumstances. Command and control would vest in the Indian prime minister; unity of command over dual-capable delivery systems would be maintained; survivability of effective command, control, communications, computing, intelligence and information (C4I2) systems would be ensured; and early warning/communication assets would be established that could be space-based. Finally, safety, security, and disaster control measures would be established; research and development (R&D) would remain unconstrained; but India's commitment to nuclear disarmament and arms control would remain undiminished.

The several confusions in this nuclear doctrine are evident; but attention should be drawn to two glaring anomalies. First, while a no-first-use policy has been enunciated, a good part of the draft nuclear doctrine concerns itself with nuclear war fighting. Second, despite the goal of nuclear disarmament being lauded, the need to establish a triad has also been emphasized.

The release of the draft nuclear doctrine before finalizing the Strategic Defence Review was universally condemned. Indeed, a member of the NSAB itself noted that: "Instead of placing the report [of the NSAB] before the Strategic Planning Group and the National Security Council it was made public just two weeks before the national elections."²⁰ The opposition parties picked up this refrain, indicting the promulgation of the draft nuclear doctrine as transparently designed to gain electoral advantage. Specifically, it was

widely regarded as a motivated exercise to bolster the image of the rulers, the Prime Minister in particular. ...[T]his image seemed to fit in well with Pokharan II... Image-builders obviously believed that there could not have been a better way of reminding the people of the action that had done India proud than by releasing the draft of the nuclear doctrine.²¹

A DRAFT DOCTRINE OR OFFICIAL POLICY?

Was the nuclear doctrine as released a final official document or a draft subject to revision? The document's initial release entailed some ambiguity. The National Security Adviser Brajesh Mishra and Convenor of the National Security Advisory Board K. Subrahmanyam presided jointly at its release ceremony,²² where Mishra implied

official adoption was just a matter of time. The national security adviser noted “that this is a draft proposed by the NSAB and has not yet been approved by the Government,” but immediately added: “That will have to wait until after the general elections.”²³

Foreign Minister Jaswant Singh authoritatively declared its true status some three months later. Answering a question about whether it was India’s official nuclear doctrine, he replied:

The National Security Advisory Board is a group of non-official strategic experts and analysts. It was tasked by the National Security Council to prepare a number of papers, including one on a possible ‘Indian Nuclear Doctrine.’ This it prepared and submitted to the National Security Adviser, also releasing it publicly for a larger debate. That debate is now under way. It is thus not a policy document of the Government of India.²⁴

Ironically, this disclaimer did not encourage debate on the nuclear doctrine in India; instead the debate petered out.

However, this comment attracted much apprehension abroad and criticism within the country. A moderate Pakistani commentator, Iqbal Masud, noted: “The saner elements in the Indian media have described the doctrine as a product of the BJP-appointed hawkish elements of Indian cognoscenti as members of the National Security Advisory Board.” But Masud further observed that “with the articulation of a ‘doctrine’ the world will be forced to recognize India as a nuclear weapons state. A mere discussion of the doctrine by world nations will be tantamount to such recognition.” Many editorials within India were also critical.²⁵

INDIA’S NUCLEAR SECURITY SITUATION

The nuclear doctrine rests on the assumption that India will proceed beyond the ambiguities of a nuclear posture premised on “non-weaponized” deterrence to one based on weaponizing and deploying its nuclear weapons. It, therefore, accepts the inevitability of a nuclearized India. Thus, it would be appropriate to question the assumption that India’s nuclear tests and subsequent enunciation of its draft nuclear doctrine have enhanced, rather than prejudiced, its national security.

Undoubtedly “a bitter resentment obtains in India with the discriminatory/selective non-proliferation policies that have been pursued by the United States. As, for example,

the US’s tolerance of Pakistan’s nuclear quest, China’s blatant proliferation activities, and Sino-Pak collusion in the nuclear and missile spheres.”²⁶ The pragmatic reasoning that the nuclear tests cannot be reversed is true, but the value of proceeding further is by no means established. Indeed, the ineluctable truth intrudes here that India’s security has worsened rather than improved after Pokharan II. It led Pakistan, inevitably, to conduct its own nuclear tests in Chagai; this has added an unstable dimension to the Indo-Pak nuclear standoff. The Chagai tests strengthened Pakistani beliefs in the ability of its deterrent to intimidate India from using its superior conventional forces to intimidate Pakistan, and inspired Pakistan to undertake its feckless Kargil adventure. Thus Pokharan II, by a convoluted turn of events, effectively neutralized India’s advantage of a larger economy that could sustain more powerful conventional forces.

Indo-Pak relations have been adversarial since the countries became independent, but they deteriorated sharply after the nuclear tests, with each country periodically hurling nuclear threats at the other.²⁷ Sino-Indian relations had been showing signs of a slow improvement over the previous decade but also deteriorated precipitately after the Pokharan tests and the Indian prime minister’s designation of China as India’s major cause of nuclear insecurity.²⁸ Moreover, the Sino-Pakistani linkage, established before the bilateral test series, has now solidified into a nuclear axis, with mounting evidence of cooperation between the two countries in the nuclear and missile areas.²⁹

In this milieu, international apprehension and criticism greeted India’s promulgation of its nuclear doctrine, despite its intended objective to achieve transparency. Unsurprisingly, Pakistan was critical of the doctrine as “shattering the hopes for restraint.” Its Foreign Minister Sartaj Aziz decried the no-first-use declaration as “designed to gain [India’s] acceptance as a nuclear weapons state and to justify the acquisition of a massive nuclear arsenal as a second-strike capability.”³⁰ China’s reactions were muted, but its official spokesman urged India to renounce its nuclear weapons program and desist from deploying the Agni-II ballistic missile. Further, “India should implement the UN Security Council resolution 1172 in earnest and comprehensively.”³¹ Among other things, the resolution would require India and Pakistan to sign the Comprehensive Test Ban Treaty (CTBT), refrain from deploying nuclear weapons, and cease developing ballistic missiles capable of delivering nuclear weapons. It could be reasonably anticipated that China would expand and

re-deploy its nuclear assets to meet the perceived threat from India to its southern border.

Indo-US relations also deteriorated after India's nuclear tests. The tests have undoubtedly led to an intense diplomatic engagement between the two countries. Despite considerable media hype inspired by official optimism, profound areas of disagreement remain between the two countries, notably in the nonproliferation area.³² By way of official reaction, the US State Department spokesman insisted that the possession of nuclear weapons and missiles, embedded in the nuclear doctrine, would provide less and not more security to India and Pakistan. He stated:

We don't think it is in the national interest or the security interest of these countries to develop a nuclear weapon capability, to develop an elaborate doctrine, and then to encourage an arms race by both India and Pakistan. We think at the end of that process the security of India and Pakistan will be worse off for both of them if they move off in that direction.³³

Washington also found the NSAB document "far from encouraging. We find it a document that describes the Indian desire to develop a nuclear arsenal and that is something that we think is not in the security interests of India, the subcontinent or the USA or the world."³⁴ India's efforts to persuade the G-8 countries to remove all the sanctions imposed on India after the nuclear tests have also failed so far. While the World Bank is now willing to consider loans for projects beyond those related to basic human needs on a case-by-case basis,³⁵ restrictions on funding by international financial institutions still continue.

This point needs reiteration: India's nuclear tests have not added to but detracted from India's national security. Its enunciation of an ambitious nuclear doctrine at garrulous length has further aggravated this situation. There is another aspect of this issue that has not been sufficiently articulated. India's major security problems lie in areas like terrorism and small arms proliferation that are taking a daily toll of lives. The problems of human security are also gaining significance. By elevating the salience of nuclear weapons in the national debate, attention has cleverly been diverted from the real problems afflicting Indian security.

INDIA'S NUCLEAR CAPABILITIES

The nuclear capabilities established by India through its five nuclear tests now require analysis, as they have a

seminal bearing on the nuclear doctrine. The official statement issued after Pokharan II reported:

The three tests conducted on May 11, 1998 were with a fission device with a yield of about 12 kt, a thermonuclear device with a yield of about 43 kt and a sub-Kilo tonne device. All three devices were detonated simultaneously.... On May 13, 1998 two more sub-Kilo tonne tests were carried out. These devices were also detonated simultaneously. The yield of the sub-Kilo tonne devices were in the range of 0.2 to 0.6 kt.³⁶

The official statement made two more assertions. First, it mentioned that one of the Defence Research Development Organization (DRDO) laboratories had the task of "weaponizing" proven designs. This activity involved design, testing, and production of advanced detonators and ruggedized high-volt trigger systems, interface engineering, systems engineering, and systems integration to military specifications. Three other laboratories had made contributions in aerodynamics, arming, fusing, safety interlocks, flight trials, etc. The DRDO had, further, conducted a series of trials and achieved the necessary operations clearances.³⁷

Second, it claimed that the five tests conducted "have provided critical data for the validation of our capability in the design of nuclear weapons of different yield for different applications and different delivery systems. These tests have significantly enhanced our capability in computer simulation of new designs and taken us to the stage of sub-critical experiments in the future, if considered necessary."³⁸ These assertions suggest that more tests are unnecessary.

The three tests on May 11 were performed simultaneously to mask their seismic signals; this made it harder for outsiders to calculate their yields. The problem with this misplaced discretion is that it has laid the Indian defense and nuclear scientists open to the charge of data manipulation. The opaque language used in their statement, moreover, raises crucial issues regarding India's precise nuclear capabilities after these tests. Four questions must be addressed.

First, has a true thermonuclear capability been demonstrated? Or was only a boosted fission device exploded? This issue remains in controversy. It is believed that a boosted fission device triggered the thermonuclear device.³⁹ But serious doubts remain about whether India

could design a first thermonuclear device with a low (around 45-kt) yield. Opinions vary within the scientific community. The primary interest in designing a low-yield thermonuclear weapon could be to write its computer code, "at least the critical part related to radiation (X-ray) driven compression of the secondary...."⁴⁰ (The key datum for evaluating the seismic signals of the 1998 tests is the yield of the Pokharan I test in 1974; estimates for that test vary from 13 kt to eight kt and even lower.⁴¹) Indian scientists favor the higher figure, which greatly skews the yield calculations of the Pokharan II tests. It has also been argued that the purported thermonuclear test had failed since the fusion process did not proceed to completion.⁴² In the absence of publicly available radiochemical data after analysis of fission-fusion products from the test site, this issue remains unresolved.

Whether or not a thermonuclear device was tested has basic implications for establishing a triad of nuclear forces, as envisaged by the nuclear doctrine. From the perspective of Indian bomb advocates, the advantages of thermonuclear weapons are many.⁴³ They are attractive from a purely military perspective since they use less fissile material, are compact in size, and have improved safety features.⁴⁴ Since they possess immense destructive power, missile inaccuracies become unimportant. The absence of thermonuclear weapons requires reliance on fission and boosted fission weapons; this would inadequately serve India's goal of establishing a deterrent of relevance vis-à-vis China.

Second, the scientists have claimed that one of the sub-kiloton tests used reactor-grade plutonium. Whether this was an experiment or intended to generate data for designing tactical and boosted fission weapons is uncertain.⁴⁵ The CANDU-type reactors that largely comprise India's atomic energy and research programs are known to produce a lower percentage of undesirable plutonium-238 (Pu-238) in the spent fuel. Ensuring lower burn-up in their operation could also explain this result. That India can use reactor-grade plutonium and/or spent fuel with a Pu-238 admixture has great significance, since it implies that India could easily augment its weapons-grade plutonium stocks and enlarge its nuclear inventory.

Third, the scientists' claims that the three sub-kiloton tests have "taken us to the stage of sub-critical experiments" raise serious doubts. Sub-critical tests, by definition, need to operate below criticality to generate data for future tests. But sub-kiloton tests, also by definition, function above criticality, which does not permit data genera-

tion. In any case, three sub-kiloton tests are insufficient to provide the requisite information to develop new designs. Thus, "while a capability for computer simulation of basic workable weapon designs is not inconceivable after these five tests, the claim of being able to carry out SCTs [sub-critical tests] would seem to be an overstatement...."⁴⁶ More field tests would be required to develop new weapons designs or manufacture more efficient weapons based on proven designs.

Fourth, by the summer of 1994, according to an Indian official: "Designs for air- and missile-deliverable fission weapons had been completed and their various components extensively tested. In all probability India also had the capability to assemble boosted-fission weapons."⁴⁷ This is corroborated by another account reporting that in May 1994, a Mirage-2000 aircraft was used to flight-test and explode "the core assembly [of a gravity bomb] with a dummy warhead."⁴⁸ The prime minister announced the development of an extended-range Agni missile to the Indian Parliament in December 1998.⁴⁹ This version of the Agni was to be "based on the state-of-the-art technologies developed indigenously."⁵⁰ The successful missile delivery of a warhead was achieved in April 1999 when the Agni-II missile was flight-tested. Apparently, "The bomb team had secretly mounted on its warhead, a nuclear weapon assembly system minus the plutonium core to test whether all the systems including the safety locks would work."⁵¹ The entire system worked as planned. If these accounts are true, India has already established the capability to weaponize its nuclear weapons in an air-deliverable or missile mode.

What direction will the future development of Indian nuclear weaponry take? The nuclear doctrine says clearly that India requires a triad of nuclear forces. The air-based leg would be premised ultimately on a mix of Mirage-2000 and Su-30 MKI aircraft with mid-air refueling capabilities being acquired; the ground-based leg would be based on Agni-II and longer-range missiles; while the sea-based leg would derive from an indigenously manufactured nuclear submarine carrying nuclear missiles.⁵²

CRITIQUE OF GENERAL FEATURES OF THE DRAFT DOCTRINE

The foregoing description of the nuclear capabilities currently available to India after its tests permits an analysis of its nuclear doctrine. Clearly India's nuclear doctrine evolved as a post-test phenomenon. Little formal analysis had been done before the tests. This is unsurprising.

Strategic thought likewise developed in the nuclear weapon states only in the wake of technological innovations.

The drafters made a valiant attempt to stress the unique character of the nuclear doctrine, and to show that it was “as different from the Western doctrines as chalk is from cheese”;⁵³ consequently, alternate language was used to the extent of sounding lugubrious. For instance, the draft doctrine recommends an ability to shift from “peacetime deployment to fully employable forces in the shortest possible time” (Clause 3.2), which implies that India should adopt a “launch-on-attack,” and not a “launch-on-warning” nuclear posture. A capacity to “endure repetitive attrition attempts” (Clause 4.3(i)) is also commended, which signifies an ability to survive “multiple attacks.” Such contrived attempts to derive an indigenous nuclear philosophy fail to appreciate the reality that nuclear weapons impose an inexorable global logic of their own that is unaffected by local phraseology.

Consequently, claims that Indian nuclear plans are “not a copy of western doctrines because they do not subscribe to war fighting as the West did, they do not involve delegation of powers and they rule out first use”⁵⁴ are overstatements. Anyway, seminal changes have since occurred in global thinking about nuclear weapons, such as the belief that nuclear wars cannot be won and must never be fought, meaning that no country has a declared war-fighting strategy. Moreover, in real-life situations the delegation of control over nuclear weapons may become unavoidable, for example, in the case of nuclear weapon-armed submarines. Besides, the record shows that the weaker adversary has strong incentives not to accept a no-first-use policy.

Three other elements of the draft Indian nuclear doctrine need to be critiqued. First, it contains patent confusions. For example, the objective of India’s nuclear forces is declared to be deterring the use and threat of use of nuclear weapons “by any State or entity against India and its forces” (Clause 2.4). There is a global apprehension about “entities,” a euphemism for terrorists, gaining possession of fissile materials or, even, nuclear weapons. How could an “entity” be deterred without threatening or attacking the country where it is located? The doctrine is silent on this problem.

Second, the subject of costs is not addressed; yet the doctrine notes the need for a “triad of aircraft, mobile land-based missiles and sea-based assets” (Clause 3.1); an “effective command, control, communications, computing,

intelligence and information (C4I2) system” (Clause 5.4); and “space based and other assets...to provide early warning, communications, damage/detonation assessment” (Clause 5.5). None of this will come cheap. Such cost estimations as have been attempted in India only relate to direct costs, not the indirect costs of international sanctions that would be re-imposed on India and further widened should it weaponize and deploy its nuclear arsenal.

The nuclear doctrine specifies: “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” (Clause 2.7). This policy stems from the traditional assumption that because nuclear weapons are weapons of last resort, conventional forces should be strengthened and modernized to contain the conflict at the non-nuclear level; thus the need for threatening or using nuclear weapons would be eschewed. During the Cold War years, the North Atlantic Treaty Organization (NATO) and Warsaw Pact forces were continuously modernized on this assumption, while the nuclear arms race proceeded briskly at another level. India seems embarked on this same route with a 28 percent increase in the defense budget this year; its procurement plans now simply embody the wish list of the three services. The nuclear doctrine has wisely avoided this minefield by addressing the costs of the nuclear assets it has recommended.

Third, instances of unconscious humor appear in the document. An “appropriate disaster control system capable of handling the unique requirements of potential incidents involving nuclear weapons and materials” (Clause 6.3) is proposed. Given the many accidents India has had in the atomic energy sector,⁵⁵ this counsel is not exactly reassuring. It also observes that deterrence requires, apart from its hardware components, “the will to employ nuclear forces and weapons” (Clause 2.6(e)). The government certainly possesses this qualification as evidenced by the belligerent statements its leaders issued immediately after the nuclear tests. These statements led to a sharp reaction from the United States; the US State Department spokesman censured India for “foolishly and dangerously increasing tension with its neighbors and [being] indifferent to world opinion. We call upon India to exercise great caution in its statements and actions at this particularly sensitive time, with emotions running high.”⁵⁶

Proceeding further, several attempts have been made to encapsulate the major provisions of the nuclear doctrine within a basic framework. Its main pillars are “no-

first-use, credible minimum deterrence and civilian control.” But it would be useful to paraphrase its key elements, as identified by Foreign Minister Jaswant Singh:⁵⁷

1. India would maintain a credible, but minimum nuclear deterrent;
2. India would continue its moratorium on underground nuclear testing, but would pursue computer simulation and sub-critical tests, if necessary;
3. An extended-range Agni missile would be developed and flight tested in a non-provocative and transparent manner;
4. In pursuance of its no-first-use declaration India would not use nuclear weapons against non-nuclear states;
5. A deployment posture would be adopted that ensures the survivability of its (nuclear) assets;
6. India would not engage in any arms race; and
7. India’s commitment to global nuclear disarmament remains undiluted.

Many of these key elements of the nuclear doctrine found mention in the prime minister’s statement to Parliament several months before this document was finalized.⁵⁸ At that time, Vajpayee expressed India’s commitment to a credible, minimum, nuclear deterrent; India’s willingness to enter the CTBT, join the fissile material cut-off treaty (FMCT) negotiations, tighten export control regulations regarding sensitive technologies, and adopt a no-first-use policy; and India’s determination to develop an extended range Agni missile, not accept restraints on R&D programs, and work towards the elimination of nuclear weapons within a time-bound framework. The common features between this statement and the draft nuclear doctrine are too many to be purely coincidental.

THE NUCLEAR DOCTRINE FROM STRATEGIC AND ARMS CONTROL PERSPECTIVES

The key elements of the nuclear doctrine can now be analyzed from the strategic and arms control perspectives.

The Triad of Nuclear Forces

The document declares: “India’s nuclear forces will be effective, enduring, diverse, flexible and responsive (sic)... These forces will be based on a triad of aircraft, mobile land-based missiles and sea-based assets” (Clause 3.1). Later, the foreign minister clarified that, although Western countries perceive nuclear missiles on submarines as

the most survivable nuclear assets, it was “premature to talk of an Indian ‘triad.’ R&D programs will certainly continue, aimed at enhancing survivability and thus, credibility, but decisions on production, deployment and employment (sic) will be taken on the basis of [other] factors.... [J]ust as parity is not essential for deterrence, neither is a triad a prerequisite for credibility.”⁵⁹ Constructing an indigenous nuclear missile-armed nuclear submarine will take a decade or more; hence the triad issue is currently being downplayed, but represents the ultimate ambition of the government. The obsession with nuclear missile-armed submarines is explicable because the navy also wants nuclear arms; as elsewhere, force structuring is really a product of inter-service rivalries and the efforts made by the political executive to satisfy them.

Apart from the question of costs discussed above, more nuclear and missile tests would be unavoidable if a triad were to be established. This issue gains salience because India declared a moratorium on nuclear testing immediately after conducting its tests in May 1998; this pledge was reiterated in the Lahore Declaration with Pakistan.⁶⁰ Consequently, to establish a triad, especially one relevant to China, India would be required to abandon its moratorium on nuclear tests. The nuclear doctrine is silent on how to resolve this dilemma.

Command and Control Arrangements

An entire section of the doctrine is devoted to command and control arrangements. In summary, release authority has been vested in the prime minister or his “designated successor(s)”; the survivability and responsiveness of these arrangements have been stressed; the need for an integrated operational plan recognized; the unity of command emphasized; the ability to operate in a nuclear-biological-chemical (NBC) environment commended; and the necessity for space-based and other assets highlighted (Clauses 5.1 to 5.6). However, the vital question as to who shall have control over the weapons in peacetime is not mentioned. Currently, the nuclear weapons are in the physical possession of the nuclear establishment. This arrangement is likely to continue without the weapons being transferred to the armed forces unless they are to be used; the armed forces deeply resent this arrangement. Furthermore, the nuclear doctrine visualizes the need for “sea-based assets,” but does not address the knotty C4I2 issues involved in deploying nuclear missile-armed nuclear submarines.

No-First-Use Philosophy

The nuclear doctrine makes clear that, “India will not be the first to initiate a nuclear strike, but will respond with punitive retaliation should deterrence fail” (Clause 2.4). The doctrine also 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” (Clause 2.5). This expresses a classical no-first-use pledge. The non-use pledge vis-à-vis non-nuclear states sets out the same position as taken by other nuclear weapon states. But, the distinction made between non-nuclear states and such countries aligned with nuclear weapon states is incomprehensible. Would India include Germany and Japan among the states it could threaten/use nuclear weapons against since they are aligned with the United States? No clarification has been issued thus far on this curious distinction. India’s commitment to adopting a no-first-use policy in the nuclear doctrine is absolute; it stems from the governing philosophy that “India sees them [nuclear weapons] only as strategic weapons, whose role is to deter their use by an adversary.”⁶¹ Consequently, they are not intended for war fighting. This policy is questionable from both political and military perspectives.

First, the nuclear doctrine desires an “assured capability to shift from peacetime deployment to fully employable forces in the shortest possible time” (Clause 3.2). Thus, the nuclear forces would need to remain on alert, which is inconsistent with a no-first-use posture. This deployment posture also contradicts India’s proposal to the United Nations that the nuclear forces of the nuclear weapon powers be maintained on a de-alerted basis.⁶²

Second, Pakistan, as the weaker conventionally armed power, has not reciprocated India’s gesture. Indeed, influential Pakistani experts noted:

A no-first-use nuclear posture could invite aggression. Faced with the prospect of destruction at the hands of an aggressor with superior conventional forces, a victim cannot forswear retaliation with any means at its disposal. That would make nonsense of the concept of nuclear deterrence.⁶³

Notably, India has not accepted China’s pledge in the 1996 Sino-Indian Agreement on confidence-building measures; that agreement states that neither side would “use its military capability against the other side.” Indeed, despite this pledge, India conducted its nuclear tests in part,

the government said, to counter the Chinese nuclear threat. The no-first-use declaration, therefore, is unlikely to impress Pakistan, is basically redundant vis-à-vis China, and is irrelevant against India’s non-nuclear neighbors. What strategic value does it possess then?

Third, the military problems with a no-first-use pledge are readily apparent. In the Indo-Pak context, value targets can be reached in minutes by fighter-bombers or missiles. Who launched the first strike and who retaliated may never be known, or be of any consequence in a nuclear conflict.

Fourth, a more serious problem arises from India’s no-first-use pledge; India must be prepared to absorb multiple strikes before launching its retaliatory forces. Indeed, the nuclear doctrine recognizes the likelihood of “repetitive attrition attempts.” Could it be ensured that command and control arrangements would remain intact in the event of a multiple attack? Specifically, would communications from the national command to storage centers for nuclear warheads and delivery systems remain unaffected? Would extensive pre-delegation of launch authority become necessary in emergency situations to ensure that the retaliatory attack occurs?

Given all of these unanswered questions, it is possible to conclude that mention of India’s no-first-use pledge in the nuclear doctrine only makes a political statement; it will not be taken seriously by anyone abroad or in India.

Credible Minimum Deterrent

The centerpiece of India’s nuclear doctrine is its devotion to credible minimum nuclear deterrence; this would provide assured retaliatory capabilities to inflict “unacceptable damage” on the aggressor. The doctrine states: “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” (Clause 2.3). Survivability, therefore, is the key to defining the contours of the minimum deterrent; thus, the need for nuclear-propelled submarines has been pressed because they constitute the most survivable nuclear force.⁶⁴ Argued differently, “The minimality (sic) of the arsenal is related to its survivability and hence the need for a strategic triad including sea-based systems.”⁶⁵

The contradiction of establishing a minimum deterrent with maximum credibility has not occurred to official circles, but this anomaly will present itself when

weaponization and deployment decisions are taken. The United States recognizes this. Strobe Talbott noted in an interview that the draft nuclear doctrine “was suggestive of a certain range of options.... [W]hat we are looking for is not ‘fixity’ but more clarity that India’s projected path is consistent with what Indian leaders have told us—India does not seek an open-ended arms competition, but only the minimum necessary to ensure Indian security.”⁶⁶ That clarity is unlikely to be provided.

The concept of credible minimum deterrence has been imbued with almost mystical qualities in India as its major contribution to strategic thought, particularly since it challenges the conventional wisdom that led to the deployment of hugely redundant stockpiles by the superpowers. Indian officials have carefully avoided quantification of the Indian credible minimum deterrent because it is a “dynamic concept”: “the question is only one of adequacy that is credible and thus defines our ‘minimum.’”⁶⁷ Figures debated among New Delhi’s strategists estimate the minimum deterrent to range between 60 to 150 nuclear weapons, depending on fertile imagination in choosing targets for destruction.⁶⁸

Since India adds the concept of minimum deterrence with maximum credibility (which also provides for assured survivability of the nuclear force) to a no-first-use policy, it should have no use for tactical weapons or a counterforce strategy. Instead, it would rely on a counter-city strategy and the deterrence inherent in the threat of assured destruction. Proceeding further, its targeting policy would perforce have to focus on large military centers, but more essentially on cities. Apart from the moral abhorrence of targeting non-combatant civilian populations, a counter-city strategy contradicts India’s earlier proposals to Pakistan for extending their existing bilateral agreement to spare nuclear facilities and installations to include also major economic and population centers.⁶⁹ These dilemmas underlying the credible minimum nuclear deterrent posture could come under further strain for at least three more reasons:

- First, having conceded the need for a triad, the government would be pressured by the armed forces to increase the size and strategic reach of the nuclear inventory. The size of the nuclear weapon-armed nuclear submarines fleet, for instance, cannot be restricted to one—at least four would be required if at least two boats are to remain on station during an emergency. Arguably, a “dyad” of aircraft and mobile land-based missiles could suffice, but the need for long-range missiles

with intercontinental reach and cruise missiles would surface in time. The trajectory of technology must be recognized and this suggests that the nuclear/defense bureaucracies would fuel the qualitative nuclear arms race. This has implications for the size and cost of the minimum deterrent.

- Second, the smaller the minimum deterrent force, the greater the problem with ensuring its survival from external attacks and internal sabotage. Dispersal of the warheads and delivery systems over several storage centers compounds the difficulties of ensuring fail-safe communications. The solution of deploying mobile forces seems elegant, but only adds to command and control problems. These difficulties would be aggravated in a nuclear conflict, when the electro-magnetic pulse produced by nuclear detonations would disrupt normal communications. The twin requirements of credibility and dispersal skew the argument in favor of a much larger numbers of nuclear weapons than strictly warranted by a minimum nuclear deterrent posture.

- Third, once actual deployments take place, considerations of sufficiency, rather than adherence to minimum numbers, would become more important. This is inevitable in a Sino-Indo-Pak three-party scenario, because the augmenting of nuclear forces in quantitative or qualitative terms by one party would influence the other’s decisions. Indian efforts to establish an anti-missile missile system, for example, could encourage its adversaries to increase their nuclear forces, leading to a familiar action-reaction phenomenon and a three-way arms race.

CONCLUSIONS

India’s draft nuclear doctrine was partly designed to assuage international apprehensions that it had no overarching theory to justify its nuclear tests, but largely to derive electoral advantage for the ruling BJP government. The hurried manner in which the NSAB drew up the nuclear doctrine and the strenuous efforts to finalize a consensus document ensured that the result would abound in contradictions. However, it succeeds in incorporating the government’s articulated nuclear policy. It has been designated as a discussion document, intended for eliciting public views; ironically, this designation ensured its disappearance from the national debate. But the contentious issues raised by and essential infirmities within the nuclear doctrine, regarding concepts such as no-first-use and credible minimum nuclear deterrence, require satis-

factory answers from the government as they have significance for future decisions on weaponizing and deploying India's nuclear weapons.

Of equal significance are the silences in the nuclear doctrine. Some are obvious, like the question of costs. Also, the nuclear doctrine lacks a strategic framework. Two more crucial issues find no mention as well in the nuclear doctrine. First, would nuclear weapons be used or threatened to be used to deter conventional attacks or attacks with chemical and biological weapons? Second, the possibility of a conjoint nuclear threat or attack by Pakistan and China has not been considered. A corollary to this possibility is that attack vectors can be visualized from the Northern Territories-Aksaichin sectors that disguise the identity of the aggressor. What would be India's response to such a contingency?

The nuclear doctrine can also be examined within the contours of the Hobson's choice that now confronts India. India can conduct more nuclear and missile tests to weaponize and deploy its nuclear weapons, but this would have to be undertaken in the teeth of international opposition, and in defiance of Security Council Resolution 1172 of June 6, 1998 which, *inter alia*, calls upon India to observe restraint in going further down the nuclear path.⁷⁰ The other option before India is to negotiate a compromise with the P-5 and G-8 countries within the extended Indo-US Jaswant Singh-Strobe Talbott talks on the "benchmarks" set down by the United States. These exhort India and Pakistan to "conduct no further nuclear tests; sign and ratify the Comprehensive Test Ban Treaty immediately; refrain from deploying nuclear weapons and missile systems; participate constructively in the negotiations towards a fissile material cut-off treaty; formalize existing policies not to export weapons of mass destruction and missile technology or equipment; and resume a direct dialogue to address the root causes of tension between them, including Kashmir."⁷¹ The major difficulty here stems from the "benchmark" calling for India not to weaponize and deploy its nuclear weapons. Not doing so, however, would seriously question the rationale of India's nuclear tests. Obviously, either choice would be difficult.

India enunciated its nuclear doctrine, ostensibly to elicit public opinion, before proceeding to weaponize and deploy its nuclear weapons. This exercise has had the wholly unintended effect of riveting the international community's attention on India's ambitious, though confused, nuclear aspirations and the internal political compulsions that encouraged the BJP-led coalition government to conduct

nuclear tests. The same factors would, in all probability, influence its decision to proceed further on the nuclear path. India's nuclear doctrine could only be operationalized if and when that process takes place. Cost factors, however, would be a major dissuasive consideration. Besides direct costs (which also embody significant opportunity costs), there are very substantial indirect costs involved; they include the likelihood of sanctions being continued and extended, apart from the assistance from international funding institutions being prejudiced.

The debate on India's hastily drawn up and announced nuclear doctrine is currently dormant. There is nothing to suggest that the government will present a revised nuclear doctrine for public scrutiny at the present juncture. If and when that should occur, the unresolved issues described in this viewpoint would need to be reviewed again.

¹ Prime Minister Vajpayee's letter to President Clinton, which leaked to the press, may be seen in *Hindu* (New Delhi), May 14, 1998.

² Statement attributed to Indian Defence Minister George Fernandes, and cited in The Atlantic Council of the United States, "Managing Nuclear Arms Competition in South Asia: Work the Problem, Don't Fight It!" *Bulletin IX*, No. 5, July 30, 1998, p. 2.

³ *Ibid.*, p. 1.

⁴ According to the *Vedas* (Hindu religious texts), every person possesses vast sources of kinetic energy that can be tapped to understand the true purpose of existence. Nations also possess such energy, and they need to channel their sources of inner strength. The BJP government achieved this via the nuclear tests. See, Raj Chengappa, *Weapons of Peace: The Secret Story of India's Quest to be a Nuclear Power* (New Delhi: HarperCollins Publishers India, 2000), pp. 35-36.

⁵ P.R. Chari, "As the Dust Settles," *IPCS Newsletter*, July 1998, p. 2.

⁶ The phrase is a reference to Mitchell Reiss, *Bridled Ambitions* (Washington, DC: Woodrow Wilson Center Press, 1995).

⁷ "BJP Election Manifesto: Our National Security" is available on the BJP website, <<http://bjp.org/manifes/chap8.htm>>.

⁸ "National Agenda for Governance," BJP website, <<http://bjp.org/nagenda.htm>>.

⁹ The facts set out in this section are based on my personal knowledge from working in the Ministry of Defence and conversations with persons functioning within the NSC apparatus.

¹⁰ "Task force set up for National Security Council," *Hindu*, April 11, 1998.

¹¹ "Establishment of NSC mooted: K.C.Pant panel," *Hindustan Times*, June 26, 1998.

¹² P.R. Chari, "The Nuclear Doctrine," *IPCS Newsletter*, September 1999, p. 4. The Kargil conflict (May-July 1999) was highlighted by the BJP as a great military and diplomatic victory over Pakistan; that it was occasioned by an abysmal intelligence failure was glossed over.

¹³ The composition, structure and objectives of the National Security Council may be seen at <<http://www.ipcs.org/new/nsc.htm>>.

¹⁴ K. Subrahmanyam, "New Set-up Leaves Much to be Desired," *Times of India* (New Delhi), September 20, 1998. Later, K. Subrahmanyam joined this set-up as Convenor of the NSAB.

- ¹⁵ Swapan Dasgupta, "BJP: Mandate Betrayed," *India Today*, November 30, 1998, p. 22.
- ¹⁶ Savita Pande, "It's a Bit of Hogwash, This Doctrine," *Indian Express*, August 30, 1999.
- ¹⁷ "Government Prunes Security Advisory Panel," *Indian Express*, June 2, 2000.
- ¹⁸ G. Balachandran, "India's Nuclear Doctrine," *IPCS Newsletter*, September 1999, p. 5.
- ¹⁹ The text of the Indian Nuclear Doctrine, released on August 17, 1999, is available at <<http://www.meadev.gov.in/govt/indnucl.htm>>.
- ²⁰ Brahma Chellaney, "Understanding US Ire," *Hindustan Times*, August 25, 1999.
- ²¹ K.K. Katyal, "A Motivated Exercise," *Hindu*, August 23, 1999.
- ²² See "Create Credible N-Arsenal," *Hindu*, August 18, 1999.
- ²³ "Opening Remarks by National Security Adviser Mr. Brajesh Mishra at the Release of the Draft Indian Nuclear Doctrine," August 17, 1999, <<http://www.meadev.gov.in/govt/opstm-indnucl.htm>>.
- ²⁴ See Jaswant Singh interview with C. Raja Mohan, "India not to engage in an n-arms race: Jaswant," *Hindu*, November 29, 1999. [Hereafter "Jaswant Singh interview"].
- ²⁵ Iqbal Masud, "In Light of India's Nuclear Doctrine," *Dawn* (Karachi), October 5, 1999; "Deter the Hawks," *Hindustan Times*, August 19, 1999; "Doctrine and Deterrence: The Nuclear Policy Only Raises Suspicions," *Indian Express*, August 19, 1999; "A Nuclear Doctrine," *Hindu*, August 19, 1999; "Impact of Nuclear Doctrine," *Hindustan Times*, August 21, 1999.
- ²⁶ P.R. Chari, "Pokharan II: Why??" *IPCS Newsletter*, May 1998 (Special Issue), p. 5.
- ²⁷ See, for example, Home Minister Advani's declaration immediately after India's nuclear tests that this "decisive step to become a nuclear weapon state has brought a qualitatively new stage in Indo-Pak relations, particularly in finding a lasting solution to the Kashmir problem." "Roll Back Proxy War, Pakistan Told," *Hindu*, May 19, 1998. During the Kargil conflict Pakistan's Foreign Secretary warned that Islamabad could use "any weapon" in its arsenal to defend the country's territorial integrity. *Hindu*, June 1, 1999.
- ²⁸ *Hindu*, May 14, 1998.
- ²⁹ The *New York Times*, for instance, reported that China has continued to help Pakistan's efforts to build a long-range missile that could potentially carry nuclear weapons. Beijing had also stepped up the shipment of "specialty steels, guidance systems and technical expertise" to assist Pakistan's nuclear missile program. "China Helping Pakistan to Build Long-Range Missile," *Hindu*, July 3, 2000, and "Chinese Aid to Pakistan Nuke Plan May Affect US Trade Bill," *Hindu*, July 3, 2000.
- ³⁰ "Pakistan Threatens to Enhance N-Capability," *Times of India*, September 24, 1999. This was stated by the then Foreign Minister Sartaj Aziz before the UN General Assembly.
- ³¹ "India Erring, Say USA and China," *Statesman*, August 19, 1999. UN Security Council resolution 1172 of June 6, 1998 requires, *inter alia*, that India and Pakistan sign the CTBT and "refrain from weaponisation or from the deployment of nuclear weapons, to cease development of ballistic missiles capable of delivering nuclear weapons and any further production of fissile material for nuclear weapons,"
- ³² P.R. Chari, "Indo-US Relations," *Hindu*, June 21, 2000.
- ³³ "Nuclear Deterrent Move Unwise: US," *Hindu*, August 19, 1999.
- ³⁴ "India Planning N-Arsenal, Says Pakistan," *Statesman*, August 20, 1999.
- ³⁵ "World Bank Okays \$744 m Loans for 5 Projects," *The Hindustan Times*, April 27, 2000.
- ³⁶ "Joint Statement by the Chairman of the Atomic Energy Commission & the Scientific Adviser to the Defence Minister," *Hindu*, May 18, 1998.
- ³⁷ *Ibid*.
- ³⁸ *Ibid*.
- ³⁹ P.K. Iyengar, "In Testing Times: Repercussions of Signing the CTBT," *Times of India*, February 10, 2000.
- ⁴⁰ R. Ramachandran, "Pokharan II: The Scientific Dimensions," in Amitabh Mattoo, ed., *India's Nuclear Deterrent: Pokharan II and Beyond* (New Delhi: Har-Anand Publications Pvt. Ltd., 1999), p. 49.
- ⁴¹ George Perkovich, *India's Nuclear Bomb: The Impact on Nuclear Proliferation* (Berkeley: University of California Press, 1999), pp. 426-427.
- ⁴² *Ibid*.
- ⁴³ A persuasive argument for India going thermonuclear is made by Bharat Karnad, "A Thermonuclear Deterrent," in Amitabh Mattoo, ed., *India's Nuclear Deterrent: Pokharan II and Beyond* (New Delhi: Har-Anand Publications Pvt. Ltd., 1999).
- ⁴⁴ US Senate, Committee on Foreign Relations, Richard Garwin, "Testimony in Support of the Comprehensive Test Ban Treaty," October 7, 1999, <<http://www.fas.org.rlg>>.
- ⁴⁵ Ramachandran, "Pokharan II: The Scientific Dimensions," p. 50; and Perkovich, *India's Nuclear Bomb*, pp. 428-430.
- ⁴⁶ Ramachandran, "Pokharan II: The Scientific Dimensions," p. 54.
- ⁴⁷ Perkovich, *The Indian Bomb*, p. 23, based on an interview with an Indian official.
- ⁴⁸ Chengappa, *Weapons of Peace*, pp. 383-384.
- ⁴⁹ Prime Minister's Statement in Parliament, "Bilateral talks with the United States," December 15, 1998, <www.meadev.gov.in>.
- ⁵⁰ Government of India, Ministry of Defence, *Annual Report 1998-99*, p. 55.
- ⁵¹ Chengappa, *Weapons of Peace*, p. 436.
- ⁵² There are several technical problems associated with the development of a SLBM-equipped SSBN in India. The most optimistic estimates of when it could enter the lists is 2010.
- ⁵³ K. Subrahmanyam, "A Credible Deterrent," *Times of India*, October 4, 1999.
- ⁵⁴ *Ibid*.
- ⁵⁵ Problems have included the collapse during construction of a containment dome at Kaiga, a serious fire at Narora, exposure of 350 workers at Tarapur to radiation exceeding five rems, leaks from pipes in waste storage facilities, and exposure to tritium in Rajasthan. Praful Bidwai, "Nuclear Meltdown: Fueling Fears over Foreign Entry," *Times of India*, February 28, 1997.
- ⁵⁶ "U.S. takes exception to Advani's remarks," *Hindu*, May 21, 1998.
- ⁵⁷ The preceding encapsulation is from Subrahmanyam, "A Credible Deterrent." The more detailed list is from the Jaswant Singh interview.
- ⁵⁸ Prime Minister's Statement in Parliament, "Bilateral Talks With The United States," December 15, 1998, <www.meadev.gov.in>.
- ⁵⁹ Jaswant Singh interview.
- ⁶⁰ Text of the Lahore Declaration, the Joint Statement issued on that occasion and the Memorandum of Understanding, in *Hindu*, February 22, 1999.
- ⁶¹ Jaswant Singh interview.
- ⁶² Cf. Statement by Mr. Sharad Pawar at the General Debate of the First Committee to the United Nations, October 14, 1998.
- ⁶³ Agha Shahi, Zulfiqar Ali Khan, and Abdul Sattar, "Securing Nuclear Peace," *The News (Islamabad)*, October 5, 1999. These three authors are very influential in Pakistan (Abdul Sattar became the foreign minister shortly after this appeared); thus, this lengthy article is widely believed to set forth Pakistan's semi-official response to India's nuclear doctrine.
- ⁶⁴ "India Must Have Survivable N-Arsenal," *Hindu*, April 30, 2000. These sentiments were expressed by the National Security Adviser, Brajesh Mishra, while releasing a book on India's nuclear strategy in the navy house (the official residence of the Chief of Naval Staff).
- ⁶⁵ Subrahmanyam, "A Credible Deterrent."
- ⁶⁶ "We are For a Qualitatively Better Relationship with India," *Hindu*, January 14, 2000.
- ⁶⁷ Jaswant Singh interview.
- ⁶⁸ See General K. Sundarji, *Blind Men of Hindoostan: Indo-Pak Nuclear War* (New Delhi: UBS Publishers, 1993), p. 67; Brigadier Vijai K. Nair, *Nuclear India* (New Delhi: Lancer International), Table 9.9, p. 189; and estimates by K. Subrahmanyam cited in Perkovich, *India's Nuclear Bomb*, pp. 274 and 327. With the opening created by the May 1998 tests, some strategists even advocate going beyond a minimal deterrent. For example, Karnad ("A Thermonuclear Deterrent") calls for a force of 1,000 weapons.
- ⁶⁹ India expressed this proposal in a "non-paper." A factual account of the "non-paper" exchange process is available in USIS Official Text, *Third Report to Congress: Update on Progress Toward Regional Non-Proliferation in South Asia*, April 19, 1994, pp. 8-10.
- ⁷⁰ Text of Security Council Resolution, in *IPCS Newsletter*, November 1998, pp. 6-7.
- ⁷¹ "[Assistant Secretary of State for South Asian Affairs Karl] Inderfurth 7/13 Senate Statement on India, Pakistan," USIS Official Text, July 14, 1998, p. 5.