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**Nuclear Issues Between
India and Pakistan:
Myths and Realities**

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Pragmatic steps toward ideal objectives



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Project on Confidence-building Measures for Regional Security

Over the last four years of foundation-funded efforts to promote confidence-building measures (CBMs) within various regions of tension, the Stimson Center has found considerable interest among governments, militaries, and non-government organizations (NGOs) in the value of negotiating and implementing CBMs. The center stresses that some security problems—such as border tension, terrorism, and fear of surprise attack or unwanted escalation—are generic in nature, although the particulars vary in each case. If suitably adapted, CBMs designed to address problems in one region may have some utility in others. The project has focused primarily on South Asia, the Middle East, and the Southern Cone of Latin America.

Our programming has five main components:

- First, we hold a series of meetings on CBMs in Washington for diplomats and military attaches from South Asia. We also have participants from the executive and legislative branches, NGOs, and foreign journalists based in Washington. Initially, these meetings provided an opportunity for westerners to explain the theory and practice of CBMs in non-directive ways. Now, most of our speakers come from the region. We ask them to present their own ideas on CBMs, which then serve as the basis of discussion.
- Second, we commission papers to stimulate thinking and problem-solving CBM approaches within regions of interest. We prefer collaborations across borders to encourage networking. Our commissions have been carried out in South Asia and the Southern Cone.
- Third, with local co-sponsorship, we convene workshops on CBMs within regions of interest, reaching key target audiences: military officers, journalists, academics, and government officials. Workshops have been held in South Asia, the Middle East, and the Southern Cone.
- Fourth, we have initiated a Visiting Fellows program, whereby talented individuals from South Asia come to Washington to conduct research and to become immersed in the theory and practice of CBMs.
- Fifth, we publish materials on CBMs and distribute them to diplomats, government officials, military officers, journalists, and academics interested in these subjects.

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Nuclear Issues Between India and Pakistan: Myths and Realities

Pervez Hoodbhoy

The famous 18th century physicist, Blaise Pascal, offered an argument for why one should believe in God. If God exists, he argued, the penalty for not believing in Him is eternal damnation. Supposing, however, that He does not actually exist, then the believer will have suffered but a light penalty: some restrictions on food and drink, abstinence in conduct, and perhaps a few other relatively minor inconveniences. Therefore, on balance, it is far better to believe than not.

This sort of logic has often been applied to the issue of nuclear deterrence. Today, a widely shared premise in India and Pakistan is that possession of nuclear weapons provides the ultimate guarantee of national security and stability. Not maintaining a nuclear capability, it is argued, amounts to dropping one's defenses and inviting annihilation. Therefore, since survival is apparently at stake, financial and other costs become insignificant.

The strong emotions generated by the nuclear issue have precluded a genuine debate—at the public level or within the higher echelons of government—on a matter which is both complex and of vital importance. Instead, nuclear hawks, both in India and Pakistan, have long held center stage with their quixotic belief that a “balance of terror” is in the best interest of both countries. Consequently, there abound a plethora of myths and false perceptions, none of which are seriously challenged. In this essay, I shall seek to explore, as a Pakistani, a number of critical issues which must be faced squarely by this nuclearized subcontinent.

First, how much security does a nuclear capability really buy? Some in Pakistan believe that it has already proved its worth in May 1990 during the “Cuban Missile Crisis” of the subcontinent. However, given the significance of the event, the lack of commentary on it is astonishing; little attempt has been made to understand its wide-ranging implications.

Second, what accounts for the linkage of national pride with the Bomb? In the international arena, big boxers must be able to pack big punches—kilotons and megatons worth. Power, prestige, and politics have thus become intertwined in the consciousness of many. How reasonable is such a linkage and how much pride should rightly be associated with the strictly technical achievement of nuclear capability?

Third, one is often confronted with the argument that nuclear weapons on the subcontinent are a reality. Therefore, goes this argument, it is better for both nations to accept this fact and expose their capabilities rather than leave them shrouded with uncertainty. The benefits of the position are frequently extolled, but what are the costs?

Fourth, if South Asia is indeed irreversibly nuclearized, then one must deal with the possibility that nuclear war can occur not only by the will of one or both parties but also through chance and accident. What are the possible mechanisms by which this could

happen? In this context, one must also ask how South Asian nuclear deterrence might be different from nuclear deterrence between the United States and USSR.

Fifth is the all-important question: What can be done to avoid nuclear conflagration in South Asia, whether by design or by accident? This is no longer an issue for the future and cannot await resolution of the fundamental disputes between the two countries. Therefore, what is needed is an India-Pakistan dialogue on nuclear issues and a set of possibly workable measures which could alleviate the dangers. What could these measures be?

Finally, what are Pakistan's nuclear choices? Caught between a rock and a hard place, Pakistan will soon have to make agonizingly difficult decisions regarding its nuclear program. As global pressure mounts for it to denuclearize, Pakistan's policy of deliberate ambiguity—which had served it so well politically and diplomatically in the past—is coming under greater stress. Therefore, we must explore new options.

Understanding May 1990

Many Pakistani believers in nuclearization cite May 1990 as the nation's first exercise of its nuclear muscle and offer it as proof of its power to deter. The truth of the matter is of secondary importance; perceptions are more important here, and the facts may never really become known. Enshrined as an article of faith is that Pakistan's threat of nuclear devastation stopped Indian aggression dead in its tracks.

How exactly the nuclear threat was communicated to India is not clear. Local and foreign commentators offer versions which differ. But the lore in Pakistan is the following.

Troops had been massed on both sides of the border following heightened tension over Kashmir. Robert Gates, the national security assistant to President Bush, rushed to Islamabad to defuse the crisis. He met President Ghulam Ishaq Khan and General Aslam Beg, one of whom said that "we are desperate enough to blow India to smithereens." Subsequently, American satellites picked up a heavily armed convoy of trucks moving out of Kahuta towards Chaklala airport, where F-16's with nuclear capable bomb-racks stood ready on the tarmac.¹ The information was conveyed to the Indians, and they backed off.

General Beg, now retired and an aspirant for high political office, has staunchly denied this version of the May 1990 events.² In an interview almost three years after the crisis, he claimed that Pakistan did not possess a usable nuclear device at that time.

1. In his essay, "On the Nuclear Edge," (*The New Yorker*, March 29, 1993, pp.56-73) Seymour Hersh makes the claim that U.S. intelligence had picked up news that General Beg had authorized technicians at Kahuta to put together nuclear weapons. Subsequently U.S. satellites picked up a convoy of trucks coming out a remote nuclear storage site in Baluchistan, and moving towards a nearby airforce base.

2. The book *Critical Mass*, by William Burrows and Robert Windrem, contains a dramatized account of the May 1990 confrontation. The book identifies the remote nuclear storage site in Baluchistan as Chagai, and claims that Pakistan possessed an implosion design for its nuclear weapons, which the Chinese tested in the mid-sixties.

Therefore his country could not have been poised to use such a weapon against India. Moreover, in his opinion, such readiness was unnecessary because Pakistan had not faced a critical or desperate situation. Furthermore, "There was a solid fear of massive retaliation from India," he recalled, "as they [the Indians] have a stockpile of more than a dozen warheads."³

General Beg could well be telling the truth, and May 1990 could have been a nuclear nonevent. Indeed, some senior officials in Pakistan and India believe that the crisis was exaggerated and that there was in fact no imminent danger of nuclear conflict. In that case, the only losers are those Pakistani journalists and political commentators who had raucously cheered a false victory.

However, what if Pakistan, sensing an Indian attack, had indeed communicated a nuclear threat in May 1990? What if the Gates and trucks-out-of-Kahuta stories were actually true? If correct, there are at least four profound implications.

First, it would have revealed weaponization. The official line taken by both India and Pakistan is that they have developed the technical capability of producing nuclear weapons. This means that enough fissile material, other components, and technical know-how exist. However, both countries claim that, by choice, they have refrained from constructing actual weapons. But if weaponization had indeed been disclosed to the U.S. intelligence community, then Pakistan surely laid itself open to application of the Pressler Amendment against it. This Amendment specifically refers to the possession of a nuclear weapon and was already in effect at the time of the crisis. By convincing the Americans that it possessed a workable nuclear weapon, Pakistan would also have prompted the United States to apply Pressler strictly. In having choked off the major source of its weapons supplies, it is far from clear whether Pakistan's alleged action was to its security benefit.

Second, and much more ominously, there now exists some possibility that the next Indo-Pakistani war will not go through the phase of conventional warfare. Hitherto, the general assumption has been that if hostilities commence, they shall do so in a controlled way and conventional weapons will be used. Unsheathing the nuclear sword would then either cause the war to stop or to escalate gradually into a nuclear one. However, if Pakistani nuclear hawks are correct in saying that Pakistan suddenly brandished the Bomb in May 1990 before a single shot had been fired, then the next war may begin and end with a horrific nuclear exchange which would destroy tens of millions of lives in both countries. In such a war India could suffer major damage to some of its population centers and key installations like dams and nuclear power stations. Pakistan, being geographically much smaller and facing a much bigger nuclear adversary, would be entirely devastated.

Third, published accounts of the "nuclear threat" in May 1990, if true, reveal the appalling possibility that Third World leaders may play with the nuclear button even when their countries' existence is not mortally threatened. This would serve to reinforce

3. General Mirza Aslam Beg, interviewed by Ikramullah, *The News*, Islamabad, Dec 3, 1992.

existing fears and prejudices against Third World nuclear powers in the international community. A trigger-happy nuclear nation, as General Beg correctly pointed out in his interview, is certain to be viewed as irresponsible. This situation is certainly not made any better by the statements of certain fundamentalists in Pakistani politics who have invoked concepts of *jihad* and *shahadat* in the context of nuclear weapons.

Fourth, it is important to understand that Pakistan's future security may be seriously compromised if indeed it did choose to exercise a nuclear threat. The nuclear sword is double-edged. On the one hand, the terror it inspires can deter a potential attack. On the other hand, this very fear can inspire a preemptive attack aimed at destroying the opponent, or at least his nuclear weapons, before they can be used. In a situation of extreme tension, there is bound to be much uncertainty and mistrust of the adversary's intentions. In all probability, quick decisions based upon incomplete information, will have to be taken. Past behavior of the adversary is likely to play an important role.

Given that Pakistan is the smaller and weaker of the two nations, it is very unlikely that it would initiate a conventional attack on India. The Indians certainly understand this. They know that Pakistan would keep open a nuclear option as a last resort against a situation in which Pakistan's armed forces were being overrun by Indian military might. On the other hand, the Indians also understand that Pakistan, because it feels insecure and threatened, may resort to desperate acts. To preempt such an act, a first strike would then become a distinct possibility. Therefore, the Indian government could use the alleged May 1990 crisis as an argument to justify an attack.

Does Nuclear Deterrence Work?

The most frequently cited example of successful deterrence is that of Europe after World War II. For example, defense analyst Edward Luttwak argues that "we have lived since 1945 without another world war precisely because rational minds extracted a durable peace from the terror of nuclear weapons."⁴ It is impossible to verify or disprove such claims. There are other possible explanations for the nonoccurrence of war: the memory of the immense destruction in World War II, the absence of a territorial conflict between the United States and the USSR, and the relative timidity of Soviet ideology. While nuclear deterrence may have contributed to stability, the case is not ironclad.

Nonetheless, it is entirely plausible that nuclear rivals are less likely to go to war against each other. Assuming that both sides make rational decisions, the onset of hostilities is likely to be delayed or may not take place at all. The "balance of terror" argument does have a certain amount of validity, even in a situation of nuclear asymmetry such as exists between India and Pakistan.

On the other hand, there is no guarantee that, even in the presence of a nuclear deterrent, conventional war will not take place. Emotional responses of leaders cannot be predicted with any degree of certainty should a major crisis occur. If war does

4. Edward N. Luttwak, "Of Bombs and Men," *Commentary*, August 1983, p.82.

commence, in all likelihood the course of events will soon cause it to escalate into a nuclear exchange.

The Iran-Iraq war provides one example where nuclear deterrence would have failed, had it become available to the adversaries during the course of a conflict. This war was a no-holds-barred conflict. Every type of weapon in the opponents' arsenals was used. Each side knew it would receive a response in kind but was undeterred. In the War of Cities, population centers were devastated by long range missiles. A missile arriving on Teheran led to a missile departing for Baghdad. Both populations experienced the horror of chemical warfare. Would they have been spared the horror of nuclear warfare?

The ability of rivals to deter each other presupposes rational behavior. Again, there is an available example where this assumption was not fulfilled: Saddam's Scud attacks on Israel were launched with the full knowledge that Israel could make Iraq a radioactive wasteland in a matter of hours. There was no military or strategic logic to these attacks; these were potentially suicidal acts motivated by desperation and fury. For the people of Iraq it was extremely fortunate that Saddam's missiles missed their mark or were intercepted before they could inflict real damage on Israel.

Bombs for Prestige?

Why do some nation-states seek nuclear weapons? The standard reply is that they feel their security is at risk, but this is obviously not the whole answer. The quest for power and prestige may be very important, perhaps even paramount. France and India provide two clear examples where nuclear weapons have been pursued primarily out of hunger for political power rather than for national security. Other countries too, including Pakistan, yearn for these instruments of mass destruction because they supposedly endow their possessors with true power.

Nuclear weapons, in a sense, are viewed by several Third World countries as a sequel to modernization; they come with "growing up," so to speak. The Indian case is perhaps the clearest demonstration of this. Nuclear weapons, with their surrounding mystique and awesome power to destroy, are glittery objects symbolizing the mastery of advanced technology. National chauvinism finds a rallying point: Build the Bomb! The Bomb means power.

The United Nations has done little to dispel this perverse view—all five permanent members of the Security Council are nuclear weapon powers. This constitutes a tacit admission that nations which command the power of mass annihilation are more important than those which do not. But the UN is way behind the times. Fortunately, the values of past decades are rapidly changing. The end of the U.S.-Soviet confrontation has created the dramatic new possibility of a world with far fewer nuclear weapons. Today, bomb worship is no longer the rage. There are excellent reasons for this.

One reason is that designing nuclear weapons has become old hat. Unquestionably, the first atomic bomb was an exceedingly brilliant, if terrible, achievement by the world's finest physicists. It required the creation of wholly new physical concepts, based on a then very newly acquired understanding of the atomic nucleus. The ensuing technological effort, the Manhattan Project, was quite unparalleled in the history of mankind for

its complexity and difficulty. Thereafter, the ability of a country to make nuclear bombs became synonymous with its technical prowess and, hence, its strength.

Today, the design of atomic weapons, while still nontrivial, is vastly simpler than it was. Basic information is freely available in technical libraries throughout the world. The theory of chain-reacting systems, data on critical masses, equations for neutron transport, the assembly-disassembly phase of an exploding device, and so on, are published. Also available are technical treatments of compression, achievement of "criticality," initiation of chain reactions, build-up of kinetic energy, and the final phases of the explosion as the pieces start to move apart. Advanced textbooks and monographs contain a staggering amount of detail which can enable reasonably competent scientists and engineers to come up with "quick and dirty" designs for nuclear explosives. Benefitting from various declassified documents in the United States, the general reader, as well as the nuclear weapon specialist, can now see cut-away drawings of weapons, photographs, and even once-classified test data. The Iraqis, it is now known, made direct use of Manhattan Project data in their program.

Nevertheless, not everyone or any nation can build its own bombs so easily. The biggest technical obstacle is the difficulty of obtaining high-grade fissile materials, uranium-235 or plutonium. Plutonium is available only as a reactor by-product, and uranium-235 occurs naturally only in a heavily diluted form. These bomb materials are presently unavailable in the international market, even though covert sales of ex-Soviet made weapons-grade materials have been alleged. A nation which wants bombs almost certainly has to produce these materials itself. But the march of time has made this immensely simpler.

Today, a variety of techniques is available for the production of fissile materials for bombs. India has chosen the reprocessing route because it has a large number of civilian reactors whose spent fuel can be used for extracting plutonium. Pakistan has opted for centrifuge technology. Iraq had an extensive calutron program based on an electromagnetic separation method, which is still in the process of being destroyed under international supervision. Still more modern and effective methods are now available, and isotope separation by lasers is just around the corner.

None of these processes is trivially acquired or developed. Even today, substantial amounts of resources and engineering ingenuity are required to make any of these methods actually work. It would be folly and ignorance, however, to think of nuclear weapons development as being at the cutting edge of science or technology. Nuclear weapon designers are no longer considered to be among the giants of science today.

That bomb making is easier today than ever is evident. Presently more than a dozen Third World countries with quite marginal technological infrastructures and no standing in the world of high science can develop the rudiments of a nuclear weapons program. No scientific genius is needed; good engineering competence, dedication, and hard work will suffice. The principal requirements are a sufficient degree of motivation and adequate funds. Pakistan has proved this point extremely well.

Threatened by the Indian nuclear explosion of 1974, and fearing attack from a much stronger and aggressive neighbor, Pakistan set about establishing its own program. By heavily concentrating its limited scientific energies, Pakistan was able to build up a fairly

sophisticated nuclear establishment that is disproportionately large relative to other areas of scientific endeavor in the country. This is not a minor achievement for a country with a per-capita GNP of \$400 per year, a 74 percent illiteracy rate, and an educational system among the poorest in quality anywhere in the world.

Whatever security benefits or liabilities nuclear weapons may bring to Pakistan or other countries, in the present world they have irretrievably lost their old political clout and have been stripped of much of their mystique. With further passage of time, they will inevitably come to be viewed much as chemical and biological weapons are seen today—as nasty and brutish means of mass annihilation, not as technical marvels.

Proof of the impending delinkage of international prestige from nuclear capability becomes evident upon examining the pecking order of nations today. Compare nonnuclear Japan with its giant neighbor, nuclear China. Which of the two exercises greater power in world affairs? Which is respected and courted more by other nations? Finally, which offers a higher quality of life and opportunities to its citizens? Within Europe, one can similarly compare nuclear Britain with nonnuclear Germany.

No one doubts the ability of Japan, or other nonnuclear industrialized countries, to develop a full-fledged nuclear arsenal in a very short period of time if they should so desire. Unlike the crude, unreliable, and bulky weapons which countries like India and Pakistan are capable of developing, these would be slick, high-tech, state-of-the-art marvels. But such weapons would not add one iota to the well-being of these countries. On the contrary, they would exchange some degree of their prosperity for a whole range of dilemmas that would render them much less secure.

Nevertheless, old ways of thinking die hard. Many on the subcontinent continue to rely upon the Bomb to endow respectability and status. In India, the message of the dawn of a new age has been lost, and India is pursuing nuclearization for prestige with unabated vigor. Indian militarism is on the rise and is being fueled by the emergence of a new political culture in Delhi based on an alliance among the Congress elites, the bureaucracy, the military establishment, and a rising national bourgeoisie. The rise of Hindu chauvinism, most recently demonstrated in Ayodhya, has led to a preoccupation with achieving great-power status. Following rapid military expansion after 1978, India now looks to nuclear weapons to project its military might far beyond its borders.

While India may succeed in setting itself up as a fearsome regional power, this will not make it the great power it aspires to be. Great powers, after all, are not so easily made. The masses of India, whose ignorance the Indian elite would like to ignore, are drowning in a sea of poverty. Religious, ethnic, and tribal conflicts exact their dreadful toll, and the blackest forms of human misery stalk this land. No hope exists for the abandoned pavement dwellers of Indian cities, whose number runs into tens of millions, or for their generations to come. Bombs are indeed a curious way to seek greatness.

The pride factor exists in Pakistan too, although to a somewhat lesser extent. There is a strong belief that the Bomb would elevate Pakistan's image among Muslim countries. Some cherish the fond hope that oil money will pour into the country once Pakistan explicitly demonstrates its nuclear capability through a test explosion. There is, however, not the slightest reason to believe that with or without nuclear capability Pakistan will thereby become less disadvantaged in its relations to Arab countries. Pakistani workers

in Saudi Arabia and the Gulf States will continue to receive shoddy treatment and be looked down upon. Pakistan's political leaders will continue to make humble pilgrimages, as they do now, and supplicate Arab sheikhs for aid.

The Overt-Covert Debate

Let India and Pakistan both become nuclear weapon states openly and without reservations. They are both mature nations which need no counseling on their international responsibilities and conduct.⁵

—General K.M Arif

This statement by the retired Pakistani general K.M. Arif could equally well have been written by his Indian counterpart, retired general K.S. Sundarji, or by numerous other Indians and Pakistanis. There is indeed a curious meeting of minds, quite independent of the side to which they belong, between nuclear hawks committed to the "balance of terror" argument.

General Arif's argument requires that the Pakistani government shed its position of "calculated ambiguity" and, instead, openly declare possession of nuclear weapons. In part, General Arif's position comes from alarm at the aggressive pace of Indian militarization, particularly the continuing development of the Agni missile. But, this view also results from anger that the United States has chosen to severely penalize Pakistan while effectively acquiescing to a much bigger Indian nuclear weapons program.

This pressure from nuclear hawks like Generals Arif and Beg to overtly nuclearize must be resisted, as it has been in the past, even though Pakistan's anxiety and anger have genuine cause. Rational conduct requires that the consequences of going overt be clearly thought out. This is critically important because such a decision may be essentially irreversible. Once a country goes nuclear, pulling back may be impossible.

Of the damages that Pakistan could suffer, the certain loss of economic and military aid from the West and Japan is a relatively small matter, even though it has received the most attention. Much more serious, but never openly discussed, are the consequences for Pakistan's national security.

It is therefore crucial to examine the five main arguments offered by advocates of Pakistan's nuclearization. First, they argue, declaring the Bomb is unlikely to have any major effect because the Indians are likely to have cheated anyway and most probably already possess nuclear weapons. Second, a declaration of nuclearization will lead to a freezing of the status quo through the existence of a credible and stable mutual deterrent. Third, even a few Pakistani bombs can constitute a "minimal deterrence," which will cause military competition to vanish. Fourth, the cost of a credible nuclear deterrent is

5. General K.M. Arif, *The Globe*, Islamabad, March 1990, p.13.

affordable. Fifth, a nuclear deterrent will allow Pakistan to make up for the superiority of Indian conventional forces.

These arguments are apparently logical and carry force. But they must be weighed against even stronger counterarguments. First, the current need to keep nuclear activities covert imposes very severe constraints on weapons development, the size of arsenals, and means of delivery. This has meant that the pace of nuclearization, both Indian and Pakistani, has been slower than it would otherwise be. This factor should not be dismissed, particularly insofar as it rules out full-scale atomic testing. Keeping bomb development covert means that only "zero yield" and nonnuclear testing is possible. These tests, while crucial, are not sufficient if one wishes to develop fission weapons which are physically small, have high yield, and are reliable.

A nuclear testing ban is a far more important issue for India than for Pakistan, as is evident from the doublespeak adopted by Indian hawks complaining about the nuclear issue. On the one hand, test bans make the mating of nuclear warheads to the Prithvi and Agni ballistic missiles difficult and perhaps impossible, because missiles require a fairly miniaturized warhead capable of sustaining huge accelerations. In addition, it makes very difficult India's development of the far more complicated hydrogen fusion bomb or the miniaturized tritium-boosted bomb.

There is little doubt that India's huge nuclear establishment is awaiting a Pakistani move. *The Bulletin of the Atomic Scientists*, quoting a 1985 German intelligence document, writes that the Bhabha Atomic Research Agency's job was to ensure that "within two months of a Pakistani nuclear test, the second Indian nuclear test should be carried out. Such an Indian test should simultaneously be used for the development of a fusion explosion."⁶

Second, the declaration of overt nuclear status by one country is likely to have consequences which nuclear hawks have religiously avoided discussing. Although a plausible argument can be made that mutual nuclearization will serve as a deterrent, such arrangements are mere statements of belief and do not preclude instantaneous response, nor do they guarantee that such a deterrent would be stable.

To make the discussion more precise, one could define a deterrent system as stable if it incorporates sufficient checks and balances to prevent a nuclear war on the basis of false or inadequate information, accident, or unauthorized command. Stability is crucial because nuclear deterrence cannot tolerate a single failure or mistake. The issue of false information is an exceptionally serious one. In the U.S.-USSR deterrence system, extensive early warning networks, both space- and ground-based, were needed to detect missile launches. Despite relatively long flight times of 20-30 minutes, the networks remained severely stressed and generated false attack messages. The existence of redundant and multiple safeguards prevented accidental war, but the margin was not comfortable.

6. *Bulletin of the Atomic Scientists*, June 1989, p.20.

Indian-Pakistani deterrence will not enjoy the luxuries of the U.S.-USSR case. With contiguous borders, a flight time of 5-8 minutes, and no space-based, early warning systems available, much less data will be available to make reasoned judgments. Hence the temptation would be to adopt a Launch On Warning (LOW) strategy.

In this scenario, the mere assumption that a nuclear attack is imminent would precipitate a preemptive attack. Pakistan would probably be forced to opt for this hair-trigger strategy, as it has no capacity to absorb an Indian first-strike and then respond. But this knowledge would in turn make the Indians nervous since crisis misperceptions have a way of feeding and enlarging themselves and mutual nervousness might cause one or the other adversary to strike first for no good reason.

Third, the assumption underlying "minimal deterrence"—that the game ends once a country has made a few fission bombs and declared them—is highly suspect. With security assured, one can then go on vacation. Consequently, "minimal deterrence" assumes there is no constant drive towards bigger or more effective weapon systems, or any need to talk about second-strike capability—the ability to strike the enemy after absorbing the damage sustained in the initial nuclear attack.

The superpower experience, however, provides the antithesis to this argument. From the day that the United States tested the first fission bomb in 1945, the story has been one of constant escalation. In rapid succession there followed the jet bomber, fusion bomb, nuclear artillery, ICBM, SLBM, supersonic bomber, MIRVed warheads, and so on. Each new development, almost invariably pioneered by the United States, was followed a few years later by the Soviets until, in 1991, the Soviet Union collapsed from sheer exhaustion.

This example is not enough to discourage hardened hawks like General Sundarji or like-minded Pakistanis. In the course of a lengthy thesis, Sundarji approvingly quotes Bernard Brodie as saying that "Weapons that do not have to fight their like do not become useless because of the advent of newer and superior types."⁷

This makes little sense in the nuclear context. Even a nuclear deterrent comprising a handful of bombs will require continuously dealing with the enemy's new countermeasures, upgrading the means of delivery, developing ever more sophisticated surveillance systems, and modernizing the nuclear command and control system. Whereas initially there may be a fair chance of penetrating enemy defenses, in later stages the nuclear arsenal will have to be greatly increased in size and made more sophisticated to compensate for diminishing penetration factors. Therefore, what may start out as "minimal" is likely to become anything but that with the passage of a few years.

There is a curious line of argument which ought to be mentioned here. It goes like this: Nuclear escalation will not, as it did with the United States and the USSR, occur on the subcontinent because South Asians have a special psyche—they are less greedy

7. Bernard Brodie, *War and Politics*, (New York: MacMillan Publishers) quoted in K.S. Sundarji, "Strategy in the Age of Nuclear Deterrence and its Application to Developing Countries," June 21, 1984. (unpublished work)

and would be satisfied once they achieved a simple deterrent. This hopelessly naive belief, which defies military logic, is based on an inverted form of racism—that we are somehow different and better than the rest of the world.

Fourth is the issue of costs. There is a line of reasoning that if India or Pakistan go overtly nuclear, then they would be able to cut defense spending and concentrate on social priorities. This logic relies on the fact that atomic weapons give “more bang for the buck.” In the 1960s, the U.S. Atomic Energy Commission estimated the cost of a 100KT bomb at only \$460,000. This works out to only one quarter of one cent per pound, whereas chemical explosives cost more than 25 cents per pound.

The catch, of course, is that this figure comprises just the manufacturing cost and ignores the billions of dollars put into setting up the huge infrastructure needed for research and development of nuclear weapons. No figures are available for Pakistan, but Iraq has reportedly spent 5-10 billion dollars in its efforts to produce nuclear weapons. India, because of its large civilian nuclear program, is able to hide a good fraction of its weapons development costs. Nonetheless, some rough estimates have been made by certain Indian defense analysts.

Bhabhani Sen Gupta, for example, writes, “If the first-generation nuclear deterrent we talked about would cost less than 4 percent (Rs 5000 crores) of a year’s GNP in 1981 terms, the second generation of improved deterrent would cost a little under 8 percent of the 1991 GNP. This is affordable.” What constitutes “affordable” can be endlessly debated, but the Indian government apparently cannot provide the most minimal needs to the street dwellers of Bombay and Calcutta, a quarter of the cities’ total population. Resources diverted away from the social sector feed an increasingly voracious military-industrial complex.

Finally, to expect that nuclear weapons can credibly substitute for conventional weapons once their existence has been openly declared is unwarranted. It is difficult to imagine that there would be any reduction of spending on conventional arms or a reduction of the size of the Pakistani military. Like the Indian military, the Pakistani armed forces are heavily involved in matters of internal security and in border skirmishes, which require visible demonstrations of military might.

As in Europe, Pakistan and India will be unable to substitute their conventional force for a nuclear one. The European experience provides a clear example of a massive nuclear force possessed by both sides that had to be backed up with a huge amount of airpower, seapower, armor, and infantry. In this case, conventional arms were considered quite credible and thus indispensable because there was a much smaller area of destruction involved.

If India and Pakistan should convert the presently vague and existentialist nuclear threat into something palpable and poised for use, the two rival countries would be irreversibly driven by the force of logic and circumstances into a situation whose gravity nuclear hawks either do not realize, or do not wish to discuss.

To conclude, if Pakistan were to lead India in declaring the Bomb, its security would be damaged and it would be rendered vulnerable to any and every kind of attack. But Pakistan’s subsequent insecurity will not work to India’s advantage; a nuclear Pakistan

will surely pose a grave threat to it. Therefore, India should stop trying to push Pakistan over the brink even if it sees some temporary advantage in doing so.

On the other hand, if India declares nuclearization first, Pakistan would be inevitably dragged into responding to the extent that it can. It would have to make the best out of a bad situation. But whichever government takes the first step, it will be justly reviled by the world for having put a billion people under the nuclear sword and, in the process, making both its adversary and itself more insecure than ever before.

Nuclear War by Accident

“Neither India nor Pakistan wanted to go to war, but we could have easily gone to war.”

—General Zia-ul-Haq

General Zia-ul-Haq's remark, made soon after the crisis precipitated by India's Brass Tacks exercises along the Pakistani border in 1986, shows that an unwanted or accidental war between the two countries is not outside the realm of possibility. That such a war could perhaps lead to a catastrophic nuclear exchange is a fearsome thought.

Fortunately, at the present time this may be fairly improbable. Although India and Pakistan have repeatedly stated that they have the capability to build nuclear weapons, both countries also insist that they have refrained from weaponization. Except for a small but vociferous lobby calling for bombs to be immediately deployed, most people appear to be quite satisfied that their country's capability is sufficient to deter the other side without an explicit demonstration. Therefore, if indeed neither country has readily operational weapons, then these may be relatively safe times.

But it is also possible that either or both countries have already secretly stockpiled nuclear weapons. Or that at some time in the future a declaration of weaponization by one state will be made, followed by a similar declaration by the other. An unwanted nuclear war then becomes a possibility.

How Could Accidental War Occur?

The most likely setting for a nuclear holocaust arises out of an existing crisis, such as the Kashmir dispute. Assuming that Pakistan and India are both nuclear armed states, they will be constantly watching and monitoring each other's activities. At a time when tensions are particularly high, each side will live in fear of a decapitating nuclear strike that could wipe out military or governmental centers of power. Thus, to attack before being attacked becomes dangerously tempting. In such a situation, fear and misperceptions about the adversary's intentions could precipitate an unwanted confrontation.

Clearly, this is a situation which has been encountered before. The United States and the USSR had an eye to eye confrontation for the major part of the Cold War. In this nuclear competition, billions of dollars were spent on acquiring the most sophisticated forms of intelligence gathering by satellites, aircraft, ships, and submarines. The data was then analyzed using computers equipped with artificial intelligence programs. This

enabled both sides to know each others level of readiness for combat. If such an elaborate command and control system had not existed, a doomsday nuclear confrontation might well have occurred out of fear or suspicion.

For India and Pakistan this has clear implications. It would be folly to weaponize without developing an adequate command and control system. Moreover, this system should be protected so as to survive even a nuclear blast in the vicinity; i.e., be protected against the electromagnetic pulse which accompanies a nuclear blast and destroys all normal telecommunications. Without this safeguard, either country would be like a blind and deaf giant twirling a nuclear truncheon, a threat to itself as much as to the other.

But then many worrisome and nagging questions arise: Would India or Pakistan be willing, or be able, to invest massively in command and control? Although a simple comparison of weapons platforms would imply that the command and control requirements for India or Pakistan are less demanding than they were for the United States and the former Soviet Union, they are in some ways more challenging. For example, missile flight times for subcontinental trajectories are only 5-8 minutes as compared to 20-30 minutes for intercontinental ones. In this time, a decision will have to be made as to whether the alarm is genuine and whether the missiles are nuclear-armed. In the absence of accurate information, the only alternative is the dangerously unstable LOW policy.

A second kind of danger arises from the possibility of unauthorized use of nuclear weapons by a single individual (a pilot or field commander) or by a small, fringe group whose ideology does not represent that of the mainstream "enemy." Regardless, any such misunderstanding could initiate nuclear war, and the chances for this would be much higher in a preexisting state of tensions such as during military exercises or a conventional war.

There are other possibilities that could initiate an accidental Indo-Pak nuclear war: Disenfranchised subnational groups within either country could somehow acquire access to a nuclear device, or a nuclear detonation could occur in the crash of an aircraft on one's own soil, and so on. Explosive dumps have often blown up for unexplained causes; one such explosion rained death and devastation on the cities of Rawalpindi and Islamabad a few years ago. The explosion of a nuclear device would be immeasurably more serious. The natural assumption would be that the device belonged to the other side. Even if the device actually belonged to one's own side, a government fearful of public reaction may not want to admit it. In some circumstances, retaliation might be more likely than investigation.

It is mathematically impossible to reduce the probability of accidental war to zero. The real question is: What can be done to decrease the risk?

The Second Best Option: Confidence-building

It is a canonical truth that peace can only come about if the cause of conflict is removed. In the Indo-Pak context, this requires a resolution to the Kashmir dispute that takes into account the wishes of the people of Kashmir as well as the legitimate security interests of India and Pakistan. Today this seems a distant prospect. The chance of yet another confrontation more disastrous than the last two appears closer. The urgency of

the situation demands that one ask what partial measures, as opposed to a comprehensive peace settlement, might serve to inhibit war.

At a minimum, preventing a crisis in Pakistani-Indian relations from possibly escalating into a nuclear war requires that both countries soberly consider establishment of regular contacts at the highest level to deal with nuclear issues. What is needed is an institutionalized basis for exchanging and communicating information with the intent to reassure each other that a military attack is not about to begin, or that an ongoing conflict is not about to be escalated to a higher dimension. Since the need for this would be greatest in times of crisis, such contacts should not be made conditional on whatever state of relations exist. Pakistan and India don't have to be friends to talk. But talking may be critically important for mutual survival. This was something that the United States and USSR had recognized when they signed the "Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War" at a time of continuous confrontation and competition.

There is much that needs to be discussed in such high-level meetings. First, there may be routine military activities—such as troop or aircraft movements during exercises or missile testing—which could be misinterpreted by the other side as a preparation for attack. For example, the requisition of a large number of rail cars in 1986 by the Indian Army to support military exercises set off alarm bells in Pakistan because a similar mobilization had occurred in 1971. Meetings between the militaries could allay false suspicions.

Second, such meetings would be vitally important for establishing a truly operational "nuclear hot-line" between Islamabad and Delhi, perhaps on the pattern of the Washington-Kremlin one. This should be exclusively reserved for use in times of a potential nuclear crisis. Although the basic idea would probably be acceptable to both sides, there are an enormous number of details to be worked out. How, for example, should the identity of individuals using the hot-line be authenticated? What technical means should be adopted to ensure that the hot-line never fails to function? What protocols need to be established so that the line is used only to forestall nuclear action and not to transmit threats? How may the psychological impediments to use of the hot-line—such as the fear of appearing fearful or nervous—be dealt with?

Third, procedures for dealing with nuclear accidents, an unexplained nuclear explosion, or thefts of nuclear materials should be discussed. For example, the reported theft of some kilograms of highly enriched uranium from the Bhabha Atomic Research Center, if correct, is of grave concern to both countries.

Perhaps the greatest obstacle to bilateral nuclear contacts is the myth that nuclear secrecy enhances security. In actual fact, nuclear transparency is the key to survival. The reason for this is clear: Unreasonable secrecy leads to suspicion, and suspicion can lead to unpredictable or paranoid reactions by the adversary. Therefore, both countries benefit by permitting the other a "peek" into its secrets. Thus, the recent exchange between India and Pakistan of updated lists of nuclear installations should be welcomed. But this does not go far enough. Much more is needed.

Safer Bombs

An unsafeguarded nuclear weapon can, in principle, be detonated by an unauthorized individual or by several kinds of accident. Given the drastic implications of such scenarios, we cannot overemphasize the tremendous amount of energy and effort that has gone into constructing Permissive Action Links (PALs), the elaborate electronic and mechanical safety catches installed on U.S. and Soviet nuclear weapons. While no weapon can ever be totally safeguarded against misuse or sabotage, PALs certainly have made them safer.

Before 1958, U.S. nuclear weapons were reportedly unprotected against unauthorized use. Only two special keys had to be inserted into a bomb to ready it for use. Soon it was realized that this was extremely unsafe and, in the 1960s, a massive effort was launched to ensure that a bomb would never explode without authentic instructions from the highest authority.

Modern PALs installed on nuclear devices are impressive. The most recent can detect if the device has been stolen and moved to an unauthorized place and can even sense efforts at sabotage. They feature combination locks that monitor attempted access and make the device permanently inoperable if attempts exceed a predetermined limit. In a similar vein, some PALs are "environmentally sensitive" and will not permit a bomb to explode unless it attains a certain acceleration.

An additional benefit of PALs is that they can increase the degree of civilian control over nuclear weapons. Presuming that the ultimate launch authority in India or Pakistan is the elected government and not the military, no nuclear weapon can be activated unless a secret code has been received from the president or prime minister. This veto power may be vitally important in preventing a holocaust.

One can therefore argue that the United States should make the general principle underlying PALs available to India and Pakistan once the existence of assembled nuclear weapons has been determined. However, because the mechanisms are very weapon-specific, these principles should be sufficiently general so that they make existing weapons safer but do not reveal how to make them better.

Safer bombs will also require new kinds of high explosives. In recent years, there has been much discussion of the so-called "One Point Safety," a strategy which attempts to forestall a nuclear bomb from being ignited even if the surrounding explosive is detonated. During the last decade scientists came to the conclusion that there is a fair chance that a nuclear weapon could detonate in the event of fire or ordinary explosion even if it had not been readied for use. This could happen, for example, if a bomber were to crash in one's own territory.

To prevent this kind of catastrophe, new types of conventional explosives called Insensitive High Explosives (IHEs) have been created. This is the result of very intensive research and development, and one could argue that this technology should be made available to both countries.

The best PAL and the best guarantee of One Point Safety is, of course, a disassembled nuclear weapon. If India and Pakistan refrain from assembling bombs, there will be no need for these complicated measures. But if bombs are assembled then several critical questions will arise. Would either country be willing, or able, to invest in the tremendous amount of research needed to make its bombs safe for itself? Or, since there would be total secrecy in such matters, would there be a strong temptation to cut corners?

Taming Ballistic Missiles

Intermediate-range ballistic missiles (IRBMs) are the single most destabilizing element in the India-Pakistan confrontation. With flight times of only a few minutes, there is virtually no prospect of an effective defense against them. Carried on mobile launchers and propelled by solid fueled boosters requiring little preparation time, missiles can carry out a sneak attack much more easily than manned aircraft. India has a sophisticated IRBM program that includes the Agni, with a range of 1500-2500 km, and the Prithvi, with a range of 150-350 km. The latter has been repeatedly tested and plans are reportedly under way for its deployment by the end of 1994. Pakistan has sought to counter this development principally through import of the Chinese M-11 missile, which corresponds roughly to the Prithvi. Pakistan's indigenously developed missiles are as yet in a relatively primitive stage.

Although the accuracy of the Prithvi's and the M11's guidance system is a secret, in all probability these missiles are inaccurate to at least several hundred yards. This means that their utility, when armed with conventional warheads, would not be for precise attacks on military targets but, instead, for attacks on cities and population centers. They are, therefore, weapons of terror.

A still more ominous possibility is the use of IRBM's as delivery vehicles for nuclear warheads, for which accuracy is not critical. India or Pakistan have presumably not yet developed the technology of mating warheads to missiles, but this next development could be just a matter of time. Because a nuclear armed missile cannot be distinguished externally from a conventionally armed one, the deployment of any missile could be viewed with great alarm by the other side.

Nor can the highly destabilizing effect of IRBMs be offset by their having moved out of range of an adversary's cities. The problem here is that they could be quietly moved back for a sneak attack. Further, with the Agni, every point in Pakistan—and far beyond—falls within its range. The conclusion is obvious: There must be a regional accord involving China, India, and Pakistan that serves to cap IRBM deployments and hopefully to reverse them.

Options for Pakistan

Pakistan's nuclearization continues to be driven by the need to match the relentless pace of India's conventional and nuclear militarization, and derives support from the domestic political environment. But, on the other hand, stronger brakes are being applied by an international community increasingly more hostile to nuclear weapons in general and fearful of a South Asian conflagration. Furthermore, it is becoming increasingly clear that Pakistan's fairly limited technological capability limits its ability to keep pace with

India. A rational assessment of Pakistan's nuclear choices must be based on a consideration of these four factors:

The speed of Indian militarization has been repeatedly underscored by tests of the Prithvi missile and the announcement of India's intent to deploy the missile in 1994. In 1989, with the successful launch of the Agni missile, India joined an exclusive club hitherto dominated by the world's five technological and military giants—the United States, USSR, France, China, and Israel. India's armaments industry is the largest in the Third World in terms of product diversity, research and development, and value and volume of production. India has become a producer of diverse equipment and weapons, especially aircraft and ships, and now intermediate-range ballistic missiles.

India's ability to produce nuclear weapons rapidly in large numbers is not doubted by anyone. But India seems to be awaiting an opportune time and has maintained a yes-and-no nuclear posture. Noting India's desire for big power status, Bhabhani Sen Gupta states that "If India goes nuclear—it may be in the 1990s—it will do so as a credible nuclear power befitting its self-image and its international and regional power. That will be only when India has developed a respectable satellite launching capability, acquired the capability of launching IRBMs and of building sophisticated warheads and carriers as well as surveillance systems."⁸ He concludes that India will not join the "junior club of small nuclear powers" but will wait to crash directly into the big time.⁹

Domestic politics in Pakistan also push that nation towards nuclearization. Since 1988, the nuclear issue has been used by both the incumbent governments and the opposition as a stick with which to beat one another. Each has sought to establish its patriotic credentials by accusing the other of damaging Pakistan's security shield through accommodation on the nuclear issue. Although India's growing military might is a genuine source of worry, the heavy military expenditure (36 percent of the current budget) deemed necessary to counter this threat has led Pakistan to neglect important social priorities.

Both the challenge of Indian militarization and popular domestic sentiment for the Bomb drive Pakistan along the nuclear road, but formidable obstacles lie ahead. Global pressures to denuclearize, particularly from the United States, continue to mount. No longer a frontline proxy warrior against communism, Pakistan has been virtually abandoned by its decades-old ally. For all the brave talk about self-reliance, the fact remains that the cutoff of military supplies authorized by the Pressler Amendment has gravely weakened Pakistan's ability to defend itself. A good fraction of the Navy will be lost as ships leased from the United States are returned. In spite of having paid for them, Pakistan will not receive additional units of its most advanced fighter, the F-16, from the United States.

The U.S. is not alone in its firm stand on proliferation but has been joined by Japan and Western Europe. Proliferation has become a bad word almost everywhere. Since the

8. Bhabhani Sen Gupta, quoted in *Dawn*, 2 July 1991, p.11.

9. *Ibid.*

fall of the Soviet Union, there has been a major global move towards denuclearization. U.S. and Russian nuclear arsenals will soon be one-eighth the size they were at the peak of the Cold War. Further, three proliferant states—Argentina, Brazil, and South Africa—have formally renounced nuclear arms and have agreed to full safeguards.

But in diametric opposition to these global trends, three states stand out as veritable bastions of nuclear proliferation: Israel, India, and Pakistan. The penalties, however, have less impact on the strongest than on the weakest. Pakistan, being far more susceptible to external pressure because of its economic and military dependencies, has suffered much more than India.

Limited technological capability also sets fundamental constraints on Pakistan's efforts to match Indian advances in high-tech weaponry. While Pakistan, like India, is capable of making nuclear weapons, such weapons would probably be few in number, crude in design and manufacture, rather large in size, and not altogether reliable. Explosive-yield boosting, miniaturization, PALs, and other sophisticated measures are unlikely for Pakistan.

Much more importantly, Pakistan is not in a position to match India's development of IRBM technology or contest it in the field of satellite surveillance. These will be decisively important elements in all future military strategies, including those relying on nuclear weapons as a last resort. Thus, while a full-fledged nuclear race would be bad for both countries, Pakistan would stand to lose far more. It is therefore in Pakistan's interest to go out of its way to prevent such a race from occurring.

Given this fairly grim situation, what course of action would maximize Pakistan's security? Go overtly nuclear? Maintain nuclear ambiguity as far as possible? Or follow the path of Argentina and Brazil?

The first course—overt deployment of a nuclear deterrent—would be the ultimate folly. It would be like manna from heaven for the Indian defense establishment because a Pakistani declaration of nuclearization would sanction a no-holds-barred game where India would enjoy all the advantages. Released from all constraints, India could immediately weaponize and develop thermonuclear and artillery bombs, accelerate its IRBM and space satellite programs, start work on submarine-launched missiles, develop nuclear command centers, and aim for second strike-capability. Meanwhile its rival, while still a threat because of the few crude weapons in its possession, would be screwed to the wall by an angry world and threatened by internal collapse as it seeks to raise defense expenditure.

The third route—which amounts to unilateral nuclear disarmament by Pakistan—is both impractical and unwise at a stage where India shows no signs that it would reciprocate the action. While it would be in the interests of both India and Pakistan to renounce instruments of mass annihilation, it is also true that Pakistani proposals for a nuclear-free zone and a five-nation conference have met scornful rejection by India, which has accused Pakistan of "propaganda ploys" and playing to the world gallery.

This leaves only the second option: continuation of Pakistan's policy of deliberate nuclear ambiguity in the form of "Yes, we have it, no we don't." But what worked in the 1980s is not working in the 1990s. The real question is: what will? To answer this

question, it is important to recognize that Pakistan has, in diplomatic terms, played the nuclear game with great astuteness. But it must learn to play still better. Its proposals for a regional solution have put India on the spot. New Delhi has been unable to dispel the impression that it is merely stonewalling and resisting every reasonable Pakistani move.

Pakistan must once again seize the diplomatic initiative, which has been so important to it. But it can do so only if it is perceived by the international community as being sincere in working towards nuclear accommodation with India. Therefore, it will be necessary for Pakistan to take some form of meaningful unilateral action. This action could, for example, be a declaration that it will freeze the production of enriched uranium for a period of 18 months and will refrain from conducting a nuclear test during this period. If India responds positively, the freeze would be extended. If not, Pakistan would reserve the right to revert to its former position.

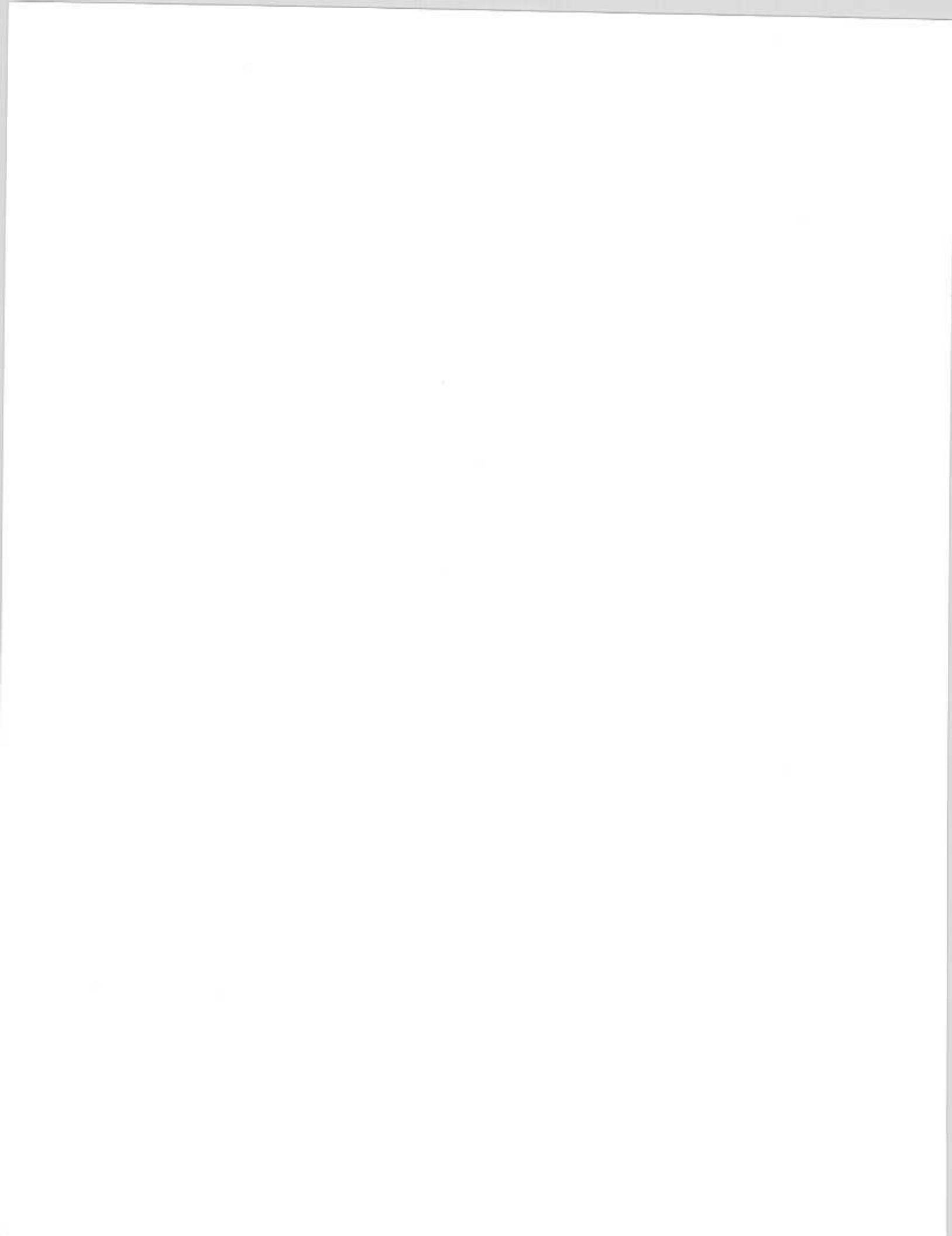
Together with this initiative, Pakistan could work to assuage concerns that it seeks to export nuclear weapons technology to other countries in the region. By agreeing to the inspection of all nuclear exports and pledging not to transfer nuclear weapons related information, it would show itself to be a responsible country genuinely concerned with limiting the spread of nuclear weapons. Pakistan's security interests would not be harmed by these declarations.

What could the possible outcomes of such a move be? If India responds by stopping plutonium production, then this would be an important victory for peace in South Asia. This could lead to more effective steps toward denuclearization. But more likely, this will not happen. India's imperatives for nuclearization go beyond the need to match Pakistan; it dreams of grander things. Some slowing down of its nuclear program may be all that might occur.

The real bonus would be reaped in diplomatic and political terms. Pakistan's initiative would have clearly demonstrated its desire to halt a nuclear race on the subcontinent, even at some cost to itself. The economic, political, and military pressures on it would be substantially lessened. India, on the other hand, would stand out as rejectionist, or be forced to the bargaining table.

It is important to assess the costs, military and diplomatic, inveighing against the proposed initiative. The obvious objection is that freezing enriched uranium production for as long as 18 months will affect Pakistan's nuclear defense capability in relation to India's, especially since India has a much bigger stock of fissile materials. But, in fact, given existing stockpiles, the nuclear asymmetry would not be greatly enhanced beyond what it is at present. Further, at least at the present time, both nations use the veiled threat of nuclear weapons to deter each other. This relies on some diffuse meaning of "nuclear capability"; real numbers are presently not the major issue.

Another objection could be that any unilateral initiative by Pakistan would give the impression of weakness. Conversely, one might question whether sticking to one's old position is really a sign of strength or just a reaction to being cornered. The cards are now stacked against Pakistan; it is up to the shrewdness of its policy planners to make the best of a bad situation.



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