CHAPTER - IV

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Zulfiqar Ali Bhutto was the founder of Pakistan’s Nuclear Program, initially as Minister for Fuel, Power and Natural Resources, and later as President and Prime Minister; which earned him to give the title by his own people as Quaid-e-Awam (Leder of the People). Pakistan’s nuclear program was launched in earnest shortly after the loss of East Pakistan in the 1971 war with India, when Bhutto initiated a program to develop nuclear weapons with a meeting of physicists and engineers at Multan in January 1972. In 1974 India successfully tested a nuclear “device”. Momentum for the program was provided by this Indian nuclear test operation, called the ‘Smiling Buddha’. Bhutto reacted strongly to this test and said Pakistan must develop its own “nuclear capability”. Regarding the program he said;

“We will defend our country using any means necessary and build a nuclear capability second to none. We will eat grass for 1000 years, if we have to, but we will get there.”

In fact, Pakistan’s emphasis on opacity and its rejection of a no-first use doctrine reflects its concerns about conventional inferiority vis-à-vis India. Nuclear opacity and nuclear weapons capability are regarded as means of deterring conventional war. Senior officials have implied that Pakistan could resort to nuclear use in the event of an Indian attack, conventional or nuclear, on
its territory. However, Pakistan refuses to officially define its nuclear threshold even as it rejects nuclear first use. While a nuclear no first use policy was a luxury for Pakistan, a participant pointed out India would likely reverse its no-first use posture during a military conflict. In any case India has already revised that policy to cover other unconventional attacks by weapons of mass destruction on Indian troops within or outside Indian territory.²

Pakistan’s nuclear program is based primarily on highly enriched uranium (HEU), which is produced at the A.Q. Khan Research Laboratory at Kahuta, a gas centrifuge uranium enrichment facility. The Kahuta facility has been in use since the early 1980s. By the early 1990s, Kahuta had an estimated 3,000 centrifuges in operation, and Pakistan continued its pursuit expanded uranium enrichment capabilities.³

In the 1990s Pakistan began to pursue plutonium production capabilities. With Chinese assistance, Pakistan built the 40 MWt (megawatt thermal) Khusab research reactor at Joharabad, and in April 1998, Pakistan announced that the reactor was operational. According to public statement made by US officials, this un safeguarded heavy water reactor can produce up to 8 to 10 kilograms of plutonium per year. According the Wikipedia’s plutonium article this is sufficient for one nuclear weapon. The reactor could also produce tritium if it were loaded with lithium-6, although this is unnecessary for weapons purposes because modern nuclear weapon designs use Li6 directly. According to J. Cirincione of Carnegie Endowment for International Peace,
Khusab’s plutonium production capacity could allow Pakistan to develop lighter nuclear warheads that warheads that would be easier to deliver with ballistic missile.

Plutonium separation reportedly takes place at the New Labs reprocessing plant next to Pakistan’s Institute of Nuclear Science and Technology (Pinstech) in Rawalpindi and at the larger Chasma nuclear power plant, neither of which are subject to IAEA inspection.  

The Natural Resources Defense Council (NRDC) estimates that Pakistan has built 24-48 HEU-based nuclear warheads with HEU reserves for 30-52 additional warheads. The US Navy Center for Contemporary Conflict that Pakistan possesses between a low of 35 and a high of 95 nuclear warheads, with a median of 60.

Pakistan’s nuclear warheads are based on an implosion design that uses a solid core of highly enriched uranium and requires an estimated 15-20kg of material per warhead. The NRDC also thinks that Pakistan has also produced a small but unknown quantity of weapons trade plutonium, which is sufficient for an estimated 3-5 nuclear weapons per annum based on the estimation of 5kg of plutonium per warhead. Pakistan also claims that the fissile cores are stored separately from the other non-nuclear explosive packages, which Islamabad says, can be put together rather quickly.

In the past, the People’s Republic of China played a major role in the development of Pakistan’s nuclear infrastructure, especially when increasingly stringent export controls in western
countries made it difficult for Pakistan to acquire materials and technology elsewhere. According to a 2001. Department of Defense report, China has supplied Pakistan with nuclear materials and expertise and has provided critical assistance in the construction of Pakistan’s nuclear facilities.  

As a result of the meeting, the program was initiated by Bhutto himself. He enacted a long-standing personal agenda executed at the earliest opportunity he had. A proper study of this program thus must trace the history of Zulfiqar Ali Bhutto himself, and his developing interest in the nuclear option for Pakistan.

By that time Pakistan had already initiated a national nuclear program a relatively early date, though later than India. The Pakistan Atomic Energy Commission (PAEC) was set up in 1956 so that it could participate in the Atoms for Peace program announced by the Eisenhower administration, but development was slow in its early years.  

Things began to pick up in 1960. The nuclear program acquired a new patron- the Minister of Mineral and Natural Resources, named Zulfikar Ali Bhutto. In 1960 Dr. Ishrat H. Usmani was appointed Chairman of the PAEC. Usmani would be responsible for setting in motion many of the critical programs and institutions that would later give Pakistan nuclear weapons. Usmani started Pinstech (full name variously given as the Pakistan Institute of Nuclear Sciences and Technology, and the Pakistan Institute of Science and Technology) and the Karachi Nuclear Power Point. One of Usmani’s most momentous achievement is said to be the training program under which
brilliant young Pakistanis were selected and sent for training abroad. Between 1960 and 1967 some six hundred were selected of whom 106 eventually returned with doctorate degrees. Also in 1960 the US gave Pakistan a $350,000 grant to help prepare Pakistan for its first research reactor which the United States agreed to supply two years later. This reactor, a 5 MW high-water research reactor known as the Pakistan Atomic Research Reactor (PARR-I), began operating in 1965 at Pinstech in Nilore.

In 1963 Bhutto became Foreign Minister, carrying his interest in nuclear capabilities into office with him. He watched with growing concern as China moved closer to nuclear capability, and in response India's domestic rhetoric on the subject grew more bellicose.

Bhutto elaborated his views on anti-colonialism and the future of Pakistan in his book The Myth of Independence, finished in 1967 and published in 1969. One of the themes of the book was the necessity for Pakistan to acquire nuclear weapons to be able to stand against the industrialized states, and against a nuclear armed India.

But Bhutto did not have the means to put his views into practice then. That would have to wait until he became Prime Minister, which he became on 20 December 1971, 3 days after the end of the Bangladesh War.

The 1971 war had been a crushing defeat for Pakistan, which had lost more than half its population. Despite the close
relationship with China that had developed over the previous
decade, Chinese support for Pakistan during the most extreme
crisis of Pakistan’s existence came to nought. China failed to
provide any significant assistance for Pakistan, such as applying
pressure on India’s border.

Bhutto had been concerned with India’s pursuit of the “nuclear
option” for several years, and this was the first opportunity he
had to put his declaration of 1965 into effect. A key motivation
for this program was concern over India’s well known progress
toward having its own nuclear option, and the public declarations
by key leaders in India that they must acquire nuclear arms.

Years later, after India’s 1974 nuclear test, when Pakistan’s
nuclear program became public knowledge persistent attempts
were made to paint the weapons program as a response to the
test. It was a response to India’s developing nuclear challenge,
but not to the Pokhran test per se. To the extent that it was a
response to a specific event, it was a response to India’s
conventional arms superiority as manifested in its victory during
the Bangladesh War.

The Bangladesh War also helped create a relationship between
Pakistan and the Democratic People’s Republic of Korea (DPRK) or “North Korea” which would later help Pakistan
considerably in acquiring delivery systems for its nuclear arsenal
in the 90s.

During mid-1971 Bhutto approached North Korea in an effort to
obtain critically needed weapons. An agreement was quickly
reached and on 18 September 1971 the first arms shipment
from the DPRK arrived in Karachi. On 9 November 1972, only one day after withdrawing from SEATO, Pakistan announced that it was establishing formal diplomatic relations with the DPRK. Military assistance to Pakistan continued through the later 1970s, with the DPRK providing artillery, multiple rocket launchers, ammunition, and a variety of spare parts.

India’s first nuclear test, known variously as “Smiling Budha”, the PNE (for “Peaceful Nuclear Explosive”), and most recently Pokhran-I, occurred on 18 May 1974. It provided an additional stimulus to the Pakistani weapons program, which had made little headway up to that point. Bhutto increased the funding for the program after the Indian test, but since arrangements to secure lavish funding had been underway for more than a year this would have occurred anyway. One consequence of test was ironically to hamper Pakistan’s program as the test sharply escalated international attention to proliferation and led to increased restrictions on nuclear exports to all nations, not just India. Over the next three years, these restrictions would change the entire course of the Pakistani nuclear program.¹⁰

Pakistani work on weapons design began ever before the start of work on uranium enrichment, under the auspices of the PAEC. In March 1974, Munir Ahmad Khan called a meeting to initiate work on an atomic bomb. Among those attending the meeting were of Hafeez Qureshi, head of the Radiation and Isotope Applications Division (RIAD) at Pinstech, Dr. Abdus Salam, then Adviser for Science and Technology to the Government of Pakistan and Dr. Riaz-ud-Din, Member (Technical), PAEC. The PAEC Chairman informed Qureshi that
he was to work on a project of national importance with another expert, Dr. Zaman Sheikh, then working with the Defence Science and Technology Organization (DESTO). The word “bomb” was never used in the meeting but qureshi exactly understood the objective. Their task would be to develop the design of a weapons implosion system.  

Pakistan has laid down scenarios under which it may use nuclear weapons as a last resort – if its survival is threatened by India not only military but by strangling its economy or stopping access to shared water resources, says a new report by Italian nuclear physicists who visited the country recently. 

Pakistan has the capability to make both plutonium and highly enriched uranium (HEU), or “fissile materials,” for nuclear weapons. Its main uranium enrichment facilities are at the A.Q. Khan Research Laboratories at Kahuta. Pakistan also has another newer enrichment facility near Wah that the US government calls the Godwal uranium enrichment plant. It may have other production scale facilities. Pakistan also operates smaller enrichment facilities, including the Sihala and Golra ultracent.

Pakistan possesses a capability to make weapons. Pakistan operates the Khushab reactor, which is estimated to generate about 50 megawatts of power, large enough to produce plutonium for few nuclear weapons per year. Separation of the plutonium is reported to occur at New Labs at Rawalpindi, located near Islamabad. This plant, next to the Pakistan Institute
of Nuclear Science and Technology (Pinestech), is large enough to handle all the irradiated fuel from the Khushab reactor.\textsuperscript{13}

General Zia-ul-Haq rose to power in the 1977 military coup. It was during his 11 year tenure that Pakistan became a nuclear power and defined a coherent nuclear strategy.

There was a widespread recognition that nuclear were Pakistan’s only viable deterrence against an Indian conventional onslaught. Some strategists even urged the recapture of Kashmir under a nuclear umbrella. Zia became committed to the nuclear option as a last resort instrument to save Pakistan “with whole world against him,” an argument made by Agha Shahi, then the Foreign Minister.

Moreover, Zia saw in the acquisition of nuclear weapons a key instrument to break Pakistan’s isolation and transform it into the leader of the rejuvenating Muslim World. In July 1978 he outlined his perception: “China, India, the USSR, and Israel in the Middle East posses the atomic arm. No Muslim country has any. If Pakistan had such a weapons, it would reinforce the power of the Muslim World.”\textsuperscript{14}

Pakistan had nuclear weapons potential in 1987, and operational nuclear weapons since 1988. At first, Pakistan stuck with Zia’s doctrine of relying on nuclear weapons as the last resort key to Pakistan’s survival against India and the USSR. However, at the same time, Zia-ul-Haq’s pan-Islamic world view was expressed in the willingness to facilitate and expedite other Islamic, primarily Iran’s, nuclear weapons program, but not at the expense of, or as part of, Pakistan’s own strategic weapons
programs. It was through its close cooperation with Iran, that Pakistan also assisted other radical states including Libya and North Korea.

Soon afterwards, Pakistan began a game of brinkmanship through the escalation of border clashes in the Siachen Glacier area and in Kashmir. Pakistani active support for the Islamist insurgency in Kashmir increased markedly. The near-war appearance of a major Indian military exercise not far from the Pakistani border startled and Pakistani High Command, reminding them of the possibility of massive Indian reaction to the Pakistani provocations. At the same time, the border clashes and the insertion of terrorists into Indian Kashmir continued to escalate.

Islamabad then decided to prevent an Indian retaliation by invoking the nuclear card. As tension grew and war seemed inevitable, Pakistan hastily assembled at least one nuclear weapons during the nose-to-nose confrontation with India in 1990. This led to a hasty intervention by the US and other Western powers, pressuring both New Delhi and Islamabad not to escalate their confrontation. The new Pakistani nuclear strategy proved successful. Thus, the crisis of 1990 was a watershed event in Pakistan’s national strategy. Nuclear weapons were no longer considered merely a trip-wire of last resort in case of a major invasion of the country, nuclear weapons now became a key to Islamabad’s assertive strategy of escalation of the struggle in Kashmir under a nuclear umbrella restraining Indian retaliation.\(^\text{15}\)
In 1991, Islamabad considered the New World Order advocated by the US, and especially in the call for non-proliferation, a strategic threat to its independence. “The New World Order does not allow any country in the Third World except the American surrogates to possess nuclear weapons. “Fully aware that no single country can confront the US on its own, Islamabad stressed the growing significance of nuclear and military cooperation with other radicals as a profound issues of confrontation with the US. Islamabad acknowledged that “the People’s Republic of China and North Korea have been... supplying Iran, Pakistan and other Muslim countries with medium-range missiles and nuclear technology for peaceful purpose.” This cooperation now served as the source of strength for Islamabad defiance against US pressures, for any alternative would be detrimental to the future of Islam. “If Pakistan surrenders before the Americans now with respect to the nuclear programme, there will be no limit for such a surrender; because the Americans endeavor to demolish Pakistan’s military power and make her a banana republic so that the Muslim World should be enslaved by the US-imposed world order.”

It was in the context of strategic perception that the Pakistani military nuclear capabilities were finally admitted officially. On 21 October 1991, Pakistan, for long a known yet not acknowledged nuclear power, crossed the line and created a precedent. In a Karachi meeting, Dr. Abdul Qadeer Khan, the father of the Pakistani bomb, officially acknowledged that Pakistan was a nuclear power. “It is a fact that Pakistan has become a nuclear power and is at present concentrating on manufacturing
sophisticated arms to fulfill its requirements, “Dr. Khan stated.
Subsequently, the nuclear factor has become a clear and critical
factor in the Pakistani national strategy, especially vis-à-vis India
and the US.\(^\text{16}\) Despite several halfhearted and not convincing denials by senior
Pakistani officials that Pakistan has nuclear weapons, in early
1995 the extent of the Pakistani military nuclear effort and
capabilities were being clarified. By now, 1994-95, Pakistan had
between 15 and 25 nuclear weapons, each about 20kt strong.
Some of these weapons are fully operational and the rest stored
in parts. Some of these disassembled nuclear weapons would
require only several hours of assembly to become fully
operational.

These weapons are small enough for delivery by Pakistan’s
known platforms – F-16 fighter-bombers and M-11 ballistic
missile. The main storage and maintenance site of the Pakistani
nuclear weapons, particularly the weapons at a ‘screwdriver
level.’ Is located at the ordnance complex in Wah—a top secret
and exceptionally guarded facility, Pakistan’s final assembly and
arming, forward operational storage, and weapons loading
installations and located in the Chagai air Base. The Pakistanis
also maintain a forward weapons’ storage site at Sargodha Air
Base or air deliverable weapons. However, it is not clear
whether operational weapons are being kept there permanently.

Further more, the Pakistani weapons production infrastructure
reached maturity. In early 1995, the annual production capacity
was estimated at between six and twelve nuclear weapons, each about 20 kt strong.\textsuperscript{17}

Further more, Pakistan is running an elaborate program of acquisition of nuclear materials and technologies via the Russian, especially Chechen, Mafiya. Presently, these widespread acquisition efforts from western and eastern Europe, as well as the former Soviet Union, already, contribute to shortcuts, acceleration, and expediting of the emergence of a second generation of Pakistani nuclear weapons. Their main contribution, however, is in the development of a solid production capacity for the Pakistani advanced nuclear weapons in the next decade.

Meanwhile, the nuclear strategy of Mrs. Bhutto’s Pakistan was being refined and better defined. Islamabad was now convinced that only nuclear deterrence can prevent an Indian offensive from defeating the Pakistani Army. In June 1995, sources close to Mrs. Bhutto stressed the centrality of the nuclear component to Pakistan’s overall war-fighting capabilities: “Only in the presence of a nuclear deterrent can the Pakistani Army feel strong and stable. Confronting India with conventional weapons, especially when these weapons have been provided by a superpower like the United States, would not only be difficult, but would be tantamount to inviting danger as well.”

Presently, Pakistan’s highest priority is the acquisition of the latest aircraft the PRC can offer. The first program is the swift acquisition of FC-1 fighters as replacement not only or the ageing F-6s and F-7s, but also for the F-16s in fighter missions.
A joint Chinese-Pakistani program, the FC-1 is primarily a high performance fighter. Islamabad believes that having large numbers of FC-1s in service will free the remaining F-16s deep strike missions, including with nuclear weapons should the need arise. The FC-1 is expected to become operational before 2000.\(^\text{18}\)

Nuclear optimists support opacity on the grounds that declared thresholds and redlines undermine operational flexibility and increase nuclear risks during crises. Proponents of opacity also argued that transparency only works in the absence of conflict and with at least a semblance of communications between nuclear adversaries. Absent these preconditions, as in the case of India and Pakistan, transparency can be counterproductive. In any case, nuclear doctrines are often misleading and at variance with operational plans. By keeping deterrence vague and by avoiding explication of red lines, Pakistan can also avoid a nuclear arms race with India and keep its weapons un-deployed. This nuclear restraint, reflected in Pakistan’s policy of minimum nuclear deterrence, has helped to buttress nuclear crisis stability in South Asia. \(^\text{19}\)

In fact, Pakistan’s emphasis on opacity and its rejection of a no-first use doctrine reflects its concerns about conventional inferiority vis-à-vis India. Nuclear opacity and nuclear weapons capability are regarded as means of deterring conventional war. Senior officials have implied that Pakistan could resort to nuclear use in the event of an Indian attack, conventional or nuclear, on its territory. However, Pakistan refuses to officially define its nuclear threshold even as it rejects nuclear first use. While a
nuclear no first use policy was a luxury for Pakistan, a participant pointed out India would likely reverse its no-first use posture during a military conflict. In any case India has already revised that policy to cover other unconventional attacks by weapons of mass destruction on Indian troops within or outside Indian territory.  

Pakistan does not abide by a no-first use doctrine, as evidenced by President Pervez Musharraf’s statement in May, 2002. Musharraf that and Pakistan did not want a conflict with India but that if it came to war between the nuclear armed rivals, he would “respond with full might.” These statements were interpreted to mean that if pressed by an overwhelming conventional attack from India, Pakistan might use its nuclear weapons. Aside from these public declarations, Pakistan has not issued an official nuclear doctrine. There has also been criticism of Pakistan’s nuclear doctrine which gives rise to ambiguity and that they were too eager to use the nuclear option in the Kargil War when the Pakistan Army was facing a stern challenge due to loss of posts and personnel.  

The organization authorized to make decisions about Pakistan’s nuclear posturing in the National Command Authority (NCA) established in February 2000. The NCA is composed of two committees that advise President Musharraf on the development and employment of nuclear weapons; it is also responsible for wartime command and control. In 2001, Pakistan further consolidated its nuclear infrastructure by placing the Khan Research Laboratories and the Pakistan Atomic Research
Corporation under the control of one Nuclear Defense Complex.  

Concerns were also voiced that the post-11 September international environment has adversely affected nuclear deterrence in South Asia, both in terms of the evolution of terrorism and the ways in which India reacts and mobilizes its forces. Regardless of divergent assessments of nuclear deterrence stability, there was consensus that India-Pakistan crises could keep on recurring because of the linkage between political disputes and military strategies. Divergent Indian and Pakistani policies towards Kashmir and attempts to challenge the status quo increase the risk of war. Nuclear capability is here to stay in South Asia, said a participant, but its is embedded in and must be detached from India and Pakistan’s political relationship. If Pakistan continues with its efforts to compel India to negotiate on Kashmir through sub-conventional warfare, increasing costs might compel India to respond militarily. Indian and Pakistani attitudes towards nuclear weapons are maturing, noted another, but they don’t have the luxury of a long maturation process to ensure that nuclear weapons are never used. A more optimistic participant believed that nuclear weapons capabilities might have made conflict resolution more difficult, but nuclear deterrence has facilitated conflict prevention.

Indian and Pakistani officials have repeatedly assured the international community that their nuclear assets are not threatened because of secure command and control systems and foolproof safeguards of fissile materials and warheads.
While many participants expressed concerns about accidental or inadvertent use, they also believed that existing nuclear safeguards and Material Protection Control and Accounting (MPC and A) could adequately protect India and Pakistan’s nuclear assets. Hence, they resisted suggestions that Pakistan and India adopt a broader, cooperative approach to threat reduction. Apart from cooperation in best practices, these suggestions included a bilateral India-Pakistan dialogue on nuclear risk reduction; utilizing IAEA practices in civilian facilities under full-scope safeguards and transferring that knowledge to military installations; learning from precedents, particularly in the Russian-US context; and benefiting from non-intrusive measures such as transfers of security technologies through turn-key kits, as in the case of the US-Russian relationship. US supplied kits are installed by Russia, eliminating the need for physical intrusion by the US government, companies and experts. Some exchanges of best safeguard practices are already underway with the US. These include track two activities such as visits to US facilities like the Cooperative Monitoring Center at Sandia National Laboratories.  

Some participants defended the robustness of Pakistani command and control. Since a National Command and Control authority was well in place, they argued, the dangers of accidental, unauthorized, or inadvertent use were minimal. However, even nuclear optimists admitted that false warning and panic launchings could pose a threat, particularly at time of crises. Deterrence stability will be ensured, said participant, if both sides are reasonably sure that their nuclear assets are
survivable; if they do not use them as instruments of coercion; and if they do not panic in case of a false alarm. The importance of non-deployment, knowledge of mutual capabilities and effective signaling of intentions, particularly during crises, were added to this list of nuclear ‘dos’. Others, however, warned that poor intelligence and weak, insecure command and control structures and centralized command increased pressures for dispersal and delegation to commanders in the field, and hence heightened risks of unauthorized or inadvertent use. While there was unanimity about the importance of good intelligence to prevent war by miscalculation, a participant advocated a technical dialogue between India and Pakistan warning about the poor quality of intelligence.  

India and Pakistan were warned that their nuclear weapons do not ensure security since they have little grounds for confidence in their first strike capability; they were reminded of the nuclear risks that the United States and the Soviet Union confronted during the height of the Cold War, and that the US and Russia still face such risks despite technologically superior nuclear risk reduction mechanisms and procedures. The importance of pursuing the goal of nuclear disarmament through Article VI of the NPT was also emphasized in response to a comment that a South Asian nuclear rollback was not in the cards. An alternative proposal to the NPT regime was presented. Under the aegis of the UN Security Council, all nuclear weapons states would commit themselves to a time-bound process of nuclear disarmament; non-nuclear states would not be permitted to acquire nuclear weapons; failure to comply would result in
inspections; and a failure to comply would be countered by UN Security Council authorized use of force.
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