Chapter II

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Pakistan embarked upon its nuclear programme in 1954. It is from 1955 that the evolution of its nuclear policy too can be traced. Zafrullah Khan, the then Foreign Minister, said in 1954 that his country had no policy on the atomic bomb.

Though President Eisenhower's peace plan and proposal for launching of the International Atomic Energy Council was welcomed in the press, "the press did not have backing of an official policy on nuclear matters".

Pakistan's nuclear developments can be studied in two phases:

1. From 1954-1971: When the official policy was to have a purely civilian programme;
2. From 1972-1986: When reprocessing as well as enrichment routes (technicalities explained later) to a weapon programme were adopted.

Phase I: 1954-1971: Civilian Nuclear Programme

In 1954 the Government College at Lahore established the High Tension and Nuclear Research Laboratory to provide research facilities to post-graduate students in physics.

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1 Dawn (Karachi), 28 April 1954.
3 department. This was the first step towards a nuclear programme. In October that year the Industry Minister announced plans to establish an atomic research body, which was intended to be a part of a new body for scientific and industrial research in the country.

Next year (1955), the Government set up a 12-member Atomic Energy Committee chaired by Dr. Nazir Ahmad for the promotion of peaceful uses of Atomic Energy in Pakistan. It was entrusted with the task of estimating the requirements of its organisation, identify personal needs, to devise a plan to survey and assess radioactive material and advise the government on any other matter pertaining to atomic research. The Committee suggested that the government should take early steps to appoint an atomic energy commission. Consequently a high-powered Atomic Energy Council was set up in March 1956 which comprised a Governing Body and a Commission. The Governing Body consisted of two ministers and two secretaries of the Central Government, besides the Chairman of the Atomic Energy Commission and the Pakistani Atomic Energy Commission (PAEC).

3 S.J. Burki, "High Tension and Nuclear Laboratory", Pakistan Quarterly (Karachi), vol. 10, no. 2, Autumn 1960, p. 115.


6 Ibid.
was to consist of six scientists. Dr. Nazir Ahmad was appointed the first Chairman. An Advisory Committee consisting of 30 scientists, doctors, industrialists, agriculturists and educationists was proposed to be set up.\footnote{Ibid., p. 16; S.B. Guha, "Pakistan's Atomic Energy Programme", \textit{IDSA Journal} (New Delhi), vol. 3, no. 1, July 1970, p. 119.}

The Pakistan Atomic Energy Commission was entrusted, by the Government, with the task of planning and developing the peaceful uses of nuclear energy with special reference to survey procurement and disposal of radioactive materials, planning and establishment of an atomic energy and nuclear research institute; installation of research and power reactors, negotiation for cooperation in the nuclear field with international atomic energy bodies to create a cadre of trained personnel and application of radio isotopes to agriculture, health and industry.\footnote{Nazir Ahmad, n. 5, pp. 16-17.}

Governed by the Pakistan Atomic Energy Commission Ordinance of 1965, and amended in 1974, the Commission is presently assigned the task of promoting peaceful uses of atomic energy in the medicine and industry and of generating electricity through nuclear power stations and the necessary research and development work in support of these functions.\footnote{\textit{Facts about Pakistan : Atomic Energy} (Islamabad : Ministry of Information and Broadcasting, n.d.), p. 1.}
A sum of Rs. 2.5 million was allocated for the year 1955-56 for research in atomic energy which was doubled for the year 1956-57. The total expenditure on research in atomic energy during the First Five Year Plan Period (1956-60) but outside the plan outlay, amounted to Rs. (P) 235 million.

The pursuit of nuclear energy and research programme was inconceivable in the absence of core of especially trained scientists, engineers and technicians. Since Pakistan did not have suitable training facilities of its own, the PAEC soon after its creation, made arrangements for training of its scientists abroad, primarily in Britain, France, Canada and the United States, in radio isotopes and reactor technology. Simultaneously the PAEC started a survey to choose a suitable research reactor from varieties available in the market. The PAEC completed this work in 1957 and it was expected that if the Commission's plans were accepted even in 1958, the research reactor would go critical by the end of 1959 or in the beginning of 1960. By that time a core of 90 or 100 scientists and engineers trained abroad in reactor technology and in different and allied fields of atomic energy would have become available to start the work on a reasonable scale. The PAEC was contemplating the setting up of an institute of nuclear


research and reactor technology on whose completion the available research facilities were to be transferred to it. The PAEC also proposed to establish four centres -- two in the then West and two in the then East Pakistan -- to promote the beneficial uses of isotopes in the field of agriculture and food preservation. It also proposed to set up eight medical centres for curing diseases like cancer.

As a member of the Baghdad Pact (since 1958 known as CENTO), Pakistan began co-operating with the Baghdad Nuclear Centre. Pakistan also took part in international conferences on the peaceful uses of atomic energy, e.g. the International Atoms for Peace Conference, Geneva (August 1955) Conference on the draft statute of International Atomic Energy Agency in which it was elected as a member of the Preparatory Commission, the Commonwealth Conference on radiation protection, the Reactor Conference held under the auspices of the Institute of Physics, London.

But the programme of PAEC could not move ahead according to the plan. This was because, to quote Nazir Ahmad, "Unfortunately at the critical stage (when the reactor was being evaluated other considerations of a non-technical nature were allowed to creep in and cloud the issue, with the result the approval of the reactor project was held up for over a

12 Nazir Ahmad, n. 5, p. 17.
He blamed "red tapism" for the delay in the Commission's work. Examination of AEC proposals, he says, by non-technical personnel who were unable to understand the problem "resulted in delays".

Kapur, however, questions this contention and blames Dr. Nazir Ahmad for the delays. "Dr Ahmad's poor administrative strategy, his lack of knowledge about research reactor, his insistence on CP 5 type of reactor rather than what was being offered by the US, caused the lack of bureaucratic support to PAEC during his chairmanship."

It is difficult to accept the explanation of Ahmad or Kapur in totality, for, conditions in Pakistan itself were such that development of nuclear programme could not have been a priority. The country was ridden with the problem of frequent changes in the government -- within a span of eleven years it had seven prime ministers. Beginning as a parliamentary democracy in 1947, the country had no constitution till 1956 and elections were not held till 1954. Serious leadership crisis ensued following the death of Jinnah and Liaquat Ali. The political leadership consisting of civil servants depended heavily on the armed forces which eventually took over

14 Ibid.
15 Ibid.
16 Kapur, n. 2, p. 42.
as Ayub Khan staged a coup d'etat in 1958. Bureaucratic delays or Ahmad's error therefore could have added to the magnitude of problems already existing, but cannot be taken as sole reasons for the delay in the programme. More significant than the rise of Ayub Khan was the rise of Zulfiquar Ali Bhutto, the main architect of Pakistan's nuclear programme. In his own words "It is due to my singular efforts that Pakistan has acquired the capacity."

Scholars have also lent support to his assertion. According to a Pakistani scholar, Akhtar Ali, "No account of Pakistan's nuclear issue may perhaps be considered complete without exposition of Mr Bhutto's contribution". Leonard Spector says, "Zulfikar Ali Bhutto was the chief architect of Pakistan nuclear policy". Kaushik and Mehrotra say that Pakistan nuclear policy "can be traced from the time Zulfikar Ali Bhutto became the member of the Government". Sinha and Subramanian say "Indeed it was Bhutto who provided a new content and direction to the nuclear programme and policies of the Government."

18 Z.A. Bhutto, If I am Assassinated (New Delhi, 1977).
21 B.M. Kaushik and O.N. Mehrotra, Pakistan's Nuclear Bomb (New Delhi, 1980), p. 34.
22 Sinha and Subramanian, n. 10, p. 32.
Kapur has challenged this, in his opinion it was under I.H. Usmani, Nazir Ahmad's successor, that PAEC emerged as the central nucleus of the nuclear decision-making in Pakistan. A winning of scientific bureaucratic - political coalition emerged consisting of Dr Usmani, Dr Abus Salam and nominally Z.A. Bhutto. Kapur says Bhutto was not serious about nuclear energy in the 60s, the other two members were motivated by need to harness nuclear energy. Kapur has carried the argument too far. While Bhutto's claims may have been exaggerated, the fact remains that it was he who gave a decisive turn to the nuclear programme when he got the exclusive executive power. In the 60s he was a senior minister and not the deciding authority. According to Akhtar Ali, he met with considerable "opposition from his colleagues in the Ministry of Finance, when he lobbied for larger appropriations for atomic energy programme".

In the estimate of the Second Five Year Plan (1961-65) Rs. (P) 46.5 million were allocated to the Atomic Energy Development Programme. The 1960-61 budget provided Rs. (P) 12.5 million for a reactor, exceeding 5.4 million the allocations made in the 59-60 budget for the same purpose. On the whole during the 8 years period beginning in 1960 the expenditure on the development of nuclear technology in West Pakistan amounted to Rs. (P) 290 million on 11 research centres excluding

23 Kapur, n. 2, pp. 54-55.
24 Akhtar Ali, n. 19, p. 43.
Rs. (P) 400 million for nuclear power plant in Karachi. The PAEC budget grew from Rs. (P) 7 million in 1960-61 to Rs. (P) 80 million in 1966-67. These figures reveal the priority of Pakistani Government to the atomic energy and growth in the activities of the PAEC.

Bhutto has claimed to have commissioned the famous American architect Edward Stone to build the Pakistan Institute of Nuclear Science and Technology at Nellore and laid its foundation. The Institute was established in 1965 to help PAEC realise its plans in education, agriculture and medicine. The Institute is country's premier national institute for research and development.

Bhutto also negotiated with USA and IAEA for the supply of a 5 MW nuclear research reactor and enriched uranium and plutonium. Ultimately US supplied a swimming pool type of research reactor which went critical in 1965 and is under IAEA safeguards, the US also supplied enriched uranium for the

25 Sinha and Subramanian, n. 10, pp. 32-33.
27 Bhutto, n. 13, p. 137.
29 Facts about Pakistan, n. 9, p. 3.
reactor which is housed in PINSTECH. The reactor uses 90 per cent enriched uranium.

Soon after India secured an atomic power reactor from Canada, Pakistan began discussions with Canada for a power reactor. In 1964 a proposal was submitted and in 1965 an agreement was signed whereby Canada agreed to sell a 137 MW heavy water reactor to Pakistan (discussed a little later). Shortly thereafter Pakistan began a programme of research in processing of ore.

Besides agreement with Canada on KANUPP, Pakistan entered into co-operation agreement with several countries in the field of nuclear technology in the 1960s. An agreement was signed with France for close co-operation. The significance of this agreement shall be seen subsequently.

Between 1964 and 1965 two agreements were arrived at between UK and Pakistan for the supply of uranium and other nuclear material for peaceful research purposes in Pakistan.

32 Nuclear News (Cricafe, USA), June 1981, p. 91.
35 Guha, n. 7, p. 122.
36 Treaty Series UN, 482, no. 7003 and 534, no. 7754.
Agreements were also signed with Spain and Italy. Meanwhile, Pakistani personnel were receiving training in the US, FRG, Canada and the Soviet Union. By 1972 the country had more than 550 qualified nuclear scientists and engineers.

PAEC established a reactor school in 1969 which has evolved into the Centre for Nuclear Studies and provides graduate courses in nuclear engineering. PAEC has also set up four research centres: Nuclear Institute for Agriculture and Biology at Lyallpur, Atomic Energy Agriculture Research Centre at Tandozam and Atomic Energy Agriculture Research Centre at Tarnab near Peshawar. Six nuclear medical centres have been set up at Karachi, Lahore, Multan, Jamshoro, Peshawar and Larkana.

The presence of uranium and other radioactive minerals had been established in the Indus river sands and of uranium in the Dera Fhazi Khan in the foothills of Sulliman Ranges at the end of 1950s and huge quantities of uranium had been recovered between 1960 and 1965 but for a decade no serious

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37 *Analysis of Six Issues*, n. 28, pp. 48-49.
38 Khalilzad, n. 33, p. 11.
41 Ibid.
effort was made in this direction. In 1965 Australian workers discovered large quantities of uranium near Gilgit in occupied Kashmir and Zirconium and Titanium in the sea coast in the then East Pakistan. Encouraged by these, the PAEC put into operation at the Atomic Minerals Centre at Lahore, a pilot plant for the extraction of uranium. A team of Czechoslovak mining experts was engaged to prepare the facility. In 1971 IAEA with the support of United Nations Development Programme began a systematic exploration of uranium in the Suleiman mountain ranges in Bagalchur area near Dera Ghazi Khan, existence of several hundred tons of uranium was indicated.

Pakistan was once again plunged into state of instability. Protests against Ayub grew rapidly with widespread agitation led by Bhutto, who had left the government by now and formed a separate party -- Pakistan People's Party. Ayub was displaced by General Yahya Khan on 25 March 1969. There was no let-up in the escalating crisis which finally led to the Indo-Pak war of 1971 and creation of a separate state of Bangladesh. It would be naive to expect any significant development in the nuclear programme during this period.

Zulfiqar Ali Bhutto became the Prime Minister of the truncated Pakistan, marking a new phase in the politics of the country in general and nuclear developments in particular.

42 Guha, n. 7, p. 120.
43 Sinha and Subramanian, n. 10, p. 35.
44 Ibid.
Pakistan's nuclear programme in its first phase 1953-71 was essentially peaceful. So was the declared official policy (details in Chapter IV). The progress had been slow to begin with but had picked up momentum after 1958, though it was again hampered in 1968 but at no stage was there any deviation from peaceful policy.

The prime reason for the peaceful programme was that leadership was not in favour of a weapons programme. "What do we need a bomb for? Pakistan is a poor country ... we can't afford it", Ayub had told Bhutto turning down latter's request for a nuclear weapon option, "we should put money into school maybe hospitals and industry". In 1965 Ayub had turned down Bhutto's plea for a Rs. 300 (P) reprocessing plant on the ground that Pakistan's economy could not bear such a heavy burden.

According to Akhtar Ali, Ayub Khan's administration was largely following economic efficiency as criterion for allocating resources.

Besides according to Dr. Usmani, Pakistan did not have the requisite infrastructure.


47 Akhtar Ali, n. 19, p. 43.

48 Weissman and Krosney, n. 45, p. 46.
As far as security considerations are concerned, Pakistan had in the early years become part of the Western alliance system, which will be discussed later.

Phase II: Nuclear Weapons Programme

In January 1972, less than two months after taking office, Bhutto convened a meeting of a group of Pakistan's top scientists in the city of Multan where he told them, "look we are going to have a bomb .... Can you give it to me?" They said they could, given the resources and facilities. "I shall find you the resources and I shall find you the facilities", he had said adding that he wanted it in three years.

The timing is significant because it counters the typical Western argument that Pakistan's quest for weapon capability was instigated by the Indian explosion in 1974.

In fact, Bhutto had said in 1969 itself. "All wars of our age have become total wars and it will have to be assumed that a war waged against Pakistan is capable of becoming a total war. It would be dangerous to plan for less and our plan should therefore include the nuclear deterrent."

While he was a minister in Ayub Khan's cabinet he had told him, "... why is it that only the western countries and

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49 Project 706: The Islamic Bomb (Panorama recorded from a BBC transmission, 18 June 1980), p. 2; Weissman and Krosney, n. 45, p. 43.

50 Ibid.

the Soviet Union can have nuclear weapons and not be questioned? And why is it that everybody takes us for granted as part of the world as it is?

Having risen to an exclusive executive power, Bhutto put into practice what he had lobbied for so many years -- acquiring the weapon capability.

To begin with Bhutto introduced changes in the organization, "reinvigorated Pakistan's nuclear establishment and authorised R & D activities". He personally took charge of atomic energy. A separate Ministry of Science, Technology and Production was set up. He replaced I.H. Usmani, PAEC Chief, with M.A. Khan as the former had opposed the development of nuclear weapons and the latter had supported it. Scientists were given complete freedom and they did not have to depend on others for either procuring the equipment or in the administrative matters. In 1973 the number of nuclear technicians undergoing training at Nellore was 40 and the number was to go on increasing given a turn-out of 100 per year.

The Canadian built KANUPP, country's first nuclear power plant, which became critical in 1971, was opened by Bhutto in

52 See Weissman and Krosney, n. 45, p. 49.
53 Akhtar Ali, n. 19, p. 46.
54 The Hindu (Madras), 21 January 1972.
55 Spector, n. 20, p. 73.
56 Nusavat (Lahore), 22 June 1979, quoted in Sinha and Subramanian, n. 10, p. 53.
57 Pakistan Times (Karachi), 23 May 1973.
1972. It is a heavy water reactor with an installed capacity of 137 MW. In the wake of termination of Canadian collaboration, Pakistan developed its own uranium and has been independently operating it since 1975. In 1979 it attained 50 per cent capability but it declined thereafter. The plant had to be shut in 1980 but was restarted in 1981, since then has been operating successfully although it has never attained 50 per cent capacity.

The Plutonium Pathway - Efforts of Acquiring the Reprocessing Plant

Pakistan is the first country in the world to make a straight purchase of the reprocessing plant. All countries before it, including India and Japan had built their own as part of their technological development.

Bhutto's plan, according to some authors, was to use the plutonium from Canadian reactor to make his first atom bomb. The advantage with Canadian reactor is that it uses fuel from natural uranium (does not need enrichment), it does not have to be shut down for refuelling and new fuel rods can be mechanically built. It produces in the used or irradiated fuel large quantity


59 See Pakistan Economist (Karachi), 21 November 1978. Brazil is also purchasing a reprocessing plant but its agreement with Germany includes associated technology, unlike Pakistan's contract with France.

60 See Weissman and Krosney, n. 45, p. 77; and Richard Pollock, "The Islamic Bomb", in Critical Mass Journal, p. 5. According to him "the plan was to deliberately divert some of the plutonium produced by the Canadian reactor into a weapons programme."
of plutonium, which is more frequently used as a nuclear explosive. What was needed, then was a way to get the plutonium out of the used reactor fuel -- a reprocessing plant and to get it, Bhutto turned to the French. Reprocessing on plutonium extraction was a French speciality and the job fell primarily on a highly specialized engineering firm called Societe Generale pour le technique Nouvelle.

According to Krosney and Weissman there are two different documents stating the date of the contract. According to one, the Pakistanis had made their first approaches to SGN in the late 1960s and the French Government had made no objection at that time to help Pakistan build a reprocessing plant. But at this time Pakistan lacked the finance to go ahead. According to the other document, aid memoirs to the French Ambassador in Islamabad dated 24 January 1975, SGN signed at least two separate contracts for the Chashma plant, the first for "basic design" -- in March 1973 and the second for "detailed design" and help in actual construction, was signed in October 1974. The SGN agreed to serve as principal engineering firm providing blueprint and specification furnishing some of the equipment, helping in

61 SGN is France's most powerful nuclear plutonium corporation. It designed and built the nation's plutonium processing centre in La Hague. SGN started as a division of France's larger private business groups, Saint Gobain Pont a Moussan. It was later incorporated separately as Saint Gobain Nuclear and finally as Societe General pour le Technique Nouvelle in 1977 with the French Atomic Energy Commission taking in 66 per cent controlling charges. The firm kept the same initials throughout. See Pollock, n. 60, p. 5.

62 Weissman and Krosney, n. 45, p. 89.
purchasing and procurement from sub-contractors and putting the plant into operation.

According to Salamat Ali also Bhutto initiated a dialogue with France in February 1973 for the purchase of a nuclear fuel reprocessing plant. However, according to Benazir Bhutto, "Reprocessing plant negotiations were initiated during the visit of Mr Z.A. Bhutto in France in 1975".

From the beginning of the negotiations, the French Atomic Energy Commission worked closely with GSN engineers and directly with Pakistani Atomic Energy Commission. The French and Pakistani officials had signed an earlier agreement on nuclear co-operation (stated earlier) which Bhutto revived when he came back to power.

After three years of "intense negotiations", the reprocessing deal was finalized. Negotiations on safeguards ended in 1975 and the International Atomic Energy Agency gave its approval on 24 February 1976. The two countries formally


64 Benazir Bhutto, Pakistan Foreign Policy (Lahore, 1979), p. 62 quoted in Akhtar Ali, n. 19, p. 44. Also see Dawn (Karachi), 23 October 1975.

65 Patriot (New Delhi), 3 July 1976. This covered various scientific exchanges such as visits by French experts to Pakistani nuclear facilities and upgrading a small US supplied research reactor at Pakistan Institute for Nuclear Science and Technology, from the original five to eight or ten thermal megawatts. The French also agreed to train as many as a hundred Pakistani technicians.

66 Bhutto, n. 18, p. 135.

signed the deal on 16 March 1976.

Pakistan undertook that none of the reprocessing equipment or the material produced shall be used for the manufacture of any nuclear weapon or to further any other military purpose for the manufacture of any other nuclear explosive device. The Pakistanis consented to submit the Chasma plant to international safeguards, including regular visits to IAEA inspectors. They also agreed that same provisions would apply to any future facility based upon the same type of reprocessing technology which was defined as any facility using the solvent extraction method. The reprocessing plant was initially estimated to cost US $150 million. It was expected to be ready by 1980 to be a part of the atomic complex being built near Chashma. In a June 1977 report the cost of reprocessing plant was estimated at US $200 million and it was surmised that the plant might ultimately cost over US $300 million. A medium sized plant, the Chashma reprocessing unit was to have a capacity between 80 and 600 tons of fuel annually. The state-


70 Times of India (New Delhi), 23 March 1976; Far Eastern Economic Review, vol. 92, no. 16, 16 April 1976, p. 56.

71 Janu (Karachi), quoted in Hindustan Times, 24 June 1977.

owned industrial units, controlled by the Board of Industrial Management were to manufacture some of the equipment for the plant.

The fact that reprocessing plant by separating fissionable plutonium from the spent reactor fuel, could facilitate Pakistan in launching on a nuclear weapon programme caused anxiety in Canada and the USA. Both the countries dismissing as untenable Pakistan's claim that the reprocessing plant was essential for it to become self-reliant in peaceful uses of nuclear technology, pressed Pakistan to cancel the deal. Pakistan refused to oblige.

Canada then suggested additional safeguards on the use of residue from the Karachi reactor which Canada supplied with fuel under the annual renewable agreement. It was not to be permitted to be used for the French plant. While these negotiations were on, Canada stopped the supply of fuel fabrication plant which it had earlier contracted to supply to Pakistan. Pakistan's failure either to call off the reprocessing plant deal or to accept full scope safeguards by the deadline of 31 December 1976 put an end to Canada-Pakistan nuclear co-operation. The fuel fabrication plant was cancelled.

73 Ibid., 22 June 1977.
74 International Herald Tribune (Paris), 12 August 1976, discussed in detail in the subsequent chapter.
75 Far Eastern Economic Review, vol. 92, no. 16, 16 April 1976, p. 56.
76 Pakistan Times, 4 January 1977; Dawn Weekly, 8 February 1977.
While the role of United States will be discussed subsequently, it will suffice here to say that Henry Kissinger visited Pakistan and France in August 1976 to put pressure on them to get the deal annulled; neither of them responded. Even when the French enacted a new legislation imposing a ban on selling the reprocessing technology, it was declared that the ban would not affect old contracts especially the contract with Pakistan. The French Foreign Minister said, "We've concluded an agreement, we'll stick to it".

After the change of government in 1977 the French Premier, Ramond Barre said, "France would carry out the contract unless Pakistan does not wish to continue with it." The new Government in Pakistan headed by General Zia-ul-Haq said the contract with France was "intact" and that there was "no change in the policy".

The French however could not sustain the policy and in September 1977 during the visit of Foreign Minister Agha Shahi, the French Foreign Minister wanted Pakistan to study a modification of fuel reprocessing so that it would not produce pure plutonium. They were now offering a co-processing plant instead of a reprocessing plant. A co-processing plant produces a mixture of uranium and plutonium oxides usable in reactors but

77 Weissman and Krosney, n. 45, p. 166.
79 Weissman and Krosney, n. 45, p. 177.
80 Ibid.
does not separate plutonium which can be used for military purposes. Rejecting the proposal Agha Shahi said, "Pakistan will not accept any change or modification in the agreement signed with France for the supply of nuclear reprocessing plant. Pakistan has adhered to all safeguards suggested by France. We are ready to discuss additional measures but we are counting on France to honour her signature.” On 20 February 1979 the French President sent a letter through a special envoy, Andre Jacomet, to Gen. Zia ul Haq. According to Jacomet, "We no more wished to construct the plant as it had been planned earlier. The plans were to be so changed so that in the factory no pure plutonium was produced." The Pakistanis refused to accept the demands and Jacomet returned to Paris with the conviction that the whole contract should be annulled. In fact a French Government committee also agreed to this decision in 1979. Thus, says, Akhtar Ali, "After a full play of controversy the agreement died without a decent funeral”.

In June 1979 the last of technicians withdrew thereby putting an end to the French co-operation in the project.

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81 Ibid., p. 181.
83 Ibid.
84 Akhtar Ali, n. 19, p. 44.
Since there have been conflicting reports about the deal, although nothing concrete has emerged. According to one of the reports, the International Chamber of Commerce and Industry has rendered a judgement on the Franco-Pakistan legal dispute over breach of contract to deliver a reprocessing plant. Though the details are not publicised, the judgement has reportedly been in favour of Pakistan. According to Akhtar Ali also there are negotiations between the two countries for "an in-kind compensation" (1000 MW LWR).

The Chashma plant has been tendered and retendered over the past year. No one turned up, "not even France and Russia".

The reprocessing plant is thus a dead letter for all practical purposes.

The French attitude has been rightly summed up by Kapur: "The French conduct in Pakistan-France nuclear relation during 73-78 indicates primacy of commercial and political considerations.

86 According to Le Pointe (Paris), 7 January 1981, p. 21 cited in Worldwide Affairs, January 1980, Pakistan has decided to go it alone and had made some purchases in Switzerland. According to The Muslim (Islamabad), 9 April 1984, the Pakistanis have sought Soviet assistance for the project. According to Nuclear News, 28 April 1985, the French Ambassador said France has not closed the chapter, selling reprocessing plant to Pakistan, a French delegation had visited Pakistan in January 1986 to discuss the reprocessing.


88 Akhtar Ali, n. 19, p. 44.

89 Ibid., p. 23.
and subordination of non-proliferation considerations. Indeed in the French thinking there was a belief that non-proliferation is inevitable."

A pilot scale reprocessing facility known as New Labs is reportedly near completion. The facility is capable of extracting plutonium from spent fuel, giving Pakistan a second route to nuclear arms. But since the reactors are under IAEA safeguard any diversion of spent fuel to unsafeguarded New Labs would be detected.

**Uranium Enrichment Path.**

It is difficult to say when exactly Pakistan decided to opt for an alternative route. According to Maulana Kausar Niazi, a former Information Minister, "It was Mr Bhutto's ploy to have the world attention focussed on enrichment route, while the efforts for the centrifuge project had been initiated, which indeed went unnoticed for a while. Mr Bhutto himself wanted to wriggle out from the purchase of the "white elephant"."

It is difficult to assess the Niazi's claim since Bhutto is no longer alive. Besides, Bhutto has not mentioned anything about the deal in his own testament. Kapur has placed them in a better perspective. He says two trends can be decisive since 1972 in

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90 Kapur, n. 2, p. 143.
91 Spector, n. 20, p. 114.
the nuclear activities of Pakistan. One is towards reprocessing (1972-5-8) and the other is away from reprocessing from 1978 onwards, after 78 it (reprocessing) had lost primacy in nuclear affairs "it was kept in a latent form as an assurance". After 1978 enrichment became the primary route, from 1975-78 both reprocessing and enrichment paths were active.

The story of adopting enrichment technology revolves around one man, Dr Abdul Qadeer Khan, Director of Engineering Research Laboratory at Kahuta.

Khan, born in Bhopal, studied Metallurgy in West Germany, the Netherlands and Germany. He entered the employment of Research Institute of URENCO - The British-Dutch-West German Uranium Enrichment Consortium at Almelo, Netherlands, between 1972 and 1975. He was able to obtain knowledge of the gas centrifuge technology there particularly when he was translating a secret German report. Khan was also able to obtain information on the names and addresses of other gas-centrifuge sub-contractors, information which he later used to obtain materials for Pakistani gas centrifuge process. After a few incidents which took place in autumn of 1975, Khan was removed from the gas centrifuge circuit at the instigation of the security officer of the Ministry of Economic Affairs. A brief enquiry that was instigated failed to show any direct connection with any intelligence activities on Khan's part. At the end of 1975

93 Kapur, n. 2, pp. 193-94.
therefore Khan was able to leave the country.

The Pakistani plan entailed setting up a pilot plant at Sihala, near Islamabad and then a bit further down the road at Kahuta village, they would build a massive industrial unit of 10,000 centrifuge units. No safeguards would apply to either Sihala or Kahuta projects, since Pakistan had not declared the existence of the facilities to the IAEA.

The Pakistanis called their new project "Project 706" and it was directly under the supervision of the Pakistan Prime Minister, Zulfikar Ali Bhutto. Military's special work organization was brought in to help the "Project 706".

The Pakistanis then went about buying the various components to different parts of Europe "through resourceful Pakistani agents in Europe with the help of European middle-men". The Pakistani Minister at the Embassy in Bonn, Ikramul Haq Khan, was the chief purchasing agents in Europe and the ministers at embassies in Brussels and Paris, S.A. Butt was responsible for PAEC purchases.

95 Panorama, BBC Serial, n. 49, p. 1 and 2.
96 Weissman and Krosney, n. 45, p. 175.
97 Panorama, n. 49, p. 1.
98 Weissman and Krosney, n. 45, p. 182.
The buying campaign began in earnest in 1976. These still unnamed Pakistanis visited the Switzerland's firm which supplied valves. The firm checked it with the Swiss Government if the export was legal. The valves were not listed in the 'trigger list' of the London Suppliers Club. The Pakistanis were impressed with this "aggressive selling" attitude and that "they upped their requirements". They approached CORA Engineering to buy a gassification and solidification unit. They were supplied with it, as it was not listed in the "Trigger List". Orders were placed with a Dutch firm Van Doorne Transmisse for the supply of 6,500 specially hardened steel tubes, despite the Dutch Government asking them to stop it. The firm supplied Pakistanis with the tubes, since the government could not invoke any regulation.

In fact none of Pakistan's secret deals would have come to light if it had not been for an industrial dispute in Britain in 1973 in Emerson, the Swindon Company. The Company was working on orders placed by Pakistan for 100 inverters and spares valued at £ 11.5 million. Someone at Emerson told Frank Allaun that these inverters were part of the "Pakistan Special Project". He raised the question in House of Commons "Was the British Government aware that Emerson Electric had supplied Pak

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99 Panorama, BBC Programme, n. 49, p. 10.
100 Weissman and Krosney, n. 45, p. 124.
101 8 Days (London), 23 June 1979, quoted in Sreedhar, n. 82, p. 20.
with a quantity of special inverters for driving ultracentrifuge in a uranium enrichment plant?" The Energy Minister, Tonny Benn, intervened and stopped an export of goods control order on shipments abroad of high frequency electric control equipment.

However, the combined output of inverters already supplied and installed were sufficient to make six to seven thermonuclear bombs.

Other companies which were believed to have helped Pakistan obtain key nuclear commodities include W. Canning Engineering in Britain; Alcom in Italy; Leybold Lenacius, Leifield and Aluminium Werken in West Germany. Interestingly, these companies have not been prosecuted, probably because the items have not been listed in nuclear control list.

On 31 October 1981, US customs agents seized 5000-pound shipment of Zirconium metal marked "mountain climbing equipment". This was meant for Pakistan's indigenous fuel-production programme. The purchaser of the material was Dr Sir Faiaz Mir, a retired Pakistani army colonel and the actual attempt to export was made by Alber A. Goldberg, head of National Tsonies Company. Both men's export privileges were revoked

102 Weissman and Krosney, n. 45, p. 127.
103 Sreedhar, n. 82, p. 20.
104 Ibid., p. 21.
"indeﬁnitely". Details of the US role in Pakistan’s nuclear programme have been taken up in Chapter III.

In June 1984, one Nazir Ahmed Vaid was arrested along with two accomplices by US custom ofﬁces for trying to smuggle 50 KN-22 krytrons (high speed electronic used in atomic weapon trigger). He was deported to Pakistan in November 1985.

In Canada Abdul Aziz Khan, a Pakistani born engineer with Canadian citizenship partly working on A.Q. Khan’s project from 1977-1980 was arrested at Montreal’s Merable Airport in August 1980 with his two accomplices who were trying to export nineteen boxes of inverters with components marked “condensers and resistors”. Nine such items had already eluded the authorities. All these were indicted for exporting inverters without license.

In West Germany, Migule, head of a ﬁrm, CBS Kalthroff GMBH was on 6 March 1985 sentenced to eight months imprisonment for illegal export of equipments to Pakistan. In the same year, the Dutch Government sentenced Leanil Silber, head of a Dutch ﬁrm, to one year term in prison for trying to export some equipment to Pakistan by mislabelling it through a ﬁrm in UAR.


108 Spector, n. 20, p. 27.

109 Ibid., p. 22.

The mastermind behind the uranium enrichment plan -- A. Q. Khan -- was sentenced to four years prison term on 14 November 1983 by the Dutch Government. However charges were dropped against him in June 1986.

As far as success to enrichment programme is concerned, Dr. A.Q. Khan announced in 1984 that Pakistan had succeeded in producing enriched uranium but did not specify the level obtained. Gen. Zia said in an interview that Pakistan had enriched uranium to 5 per cent. Senator Cranston is of the view that Pakistan has completed construction of 1000 centrifuge units at Kahuta -- enough to produce 15 kg. of highly enriched uranium annually.

Whatever may be the level, the fact remains that Pakistan is capable of enriching uranium.

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111 Khan, however, dismissed this as illegal. See interview, Nawa-i-Waqt, 10 February 1984; translated in JPRS/Nuclear Development Proliferation, 8 March 1984.


