CHAPTER II

CONCEPT OF NUCLEAR PROLIFERATION

The rapid proliferation of nuclear weapons constitutes a danger of unimaginable magnitude, which can result in complete annihilation of human civilization from the face of earth. The first successful detonation of nuclear device by the United States at Alamogordo on 16 July 1945 unveiled the gigantic secret of atomic energy which if used cautiously could be a blessing for humanity or else it could unleash catastrophe. The catastrophic aspect was highlighted when the United States dropped atomic bomb on Hiroshima and Nagasaki on 6 and 9 August 1945 respectively. ¹ The emergence of US as the only nuclear power gave rise to Cold War and promoted Soviet Union to make efforts in that direction. By 1949 the Soviet Union had succeeded in acquiring these weapons. The membership of the Nuclear Weapon States (NWS) continued to swell with the UK (1952), France (1962) and China (1964) acquiring the nuclear status. Thus, by 1964, the number of NWS had grown to five.

¹ According to a report prepared by the Mayors of Hiroshima and Nagasaki in 1976, about half a million people had died, as cited in United Nations (UN), Everyone's United Nations (New York, 1979), p. 54.
In terms of the Non-Proliferation Treaty (NPT) of 1968, the countries are divided into two categories — Nuclear Weapon States (NWS) and Non-Nuclear Weapon States (NNWS). Clause 3 of Article IX of the NPT says that 'a nuclear weapon state is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.'

A more comprehensive view of NWS and NNWS need be taken and has thus been suggested:

- **Nuclear Weapon States:** All the five nuclear weapon states — USA, USSR, UK, France, China, and perhaps South Africa which has reportedly conducted an atmospheric nuclear weapon test recently;

- A state which has conducted a peaceful nuclear explosion (PNE) but whose status is anomalous like India which is neither a non-nuclear weapon state nor a fulfledged nuclear weapon state;

- A state which has acquired nuclear weapons without conducting any nuclear tests like Israel;

- States which are described as the threshold/near nuclear weapon states which have not

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yet exploded a nuclear weapon device or a peaceful nuclear device, though they may be trying to acquire nuclear weapon capability clandestinely through long standing and extensive civil nuclear weapon programme;

— All the remaining states which do not have any nuclear capabilities are strictly speaking, the Non-Nuclear Weapon States (NNWS). 3

This classification is more accurate as the problem of nuclear proliferation has assumed serious dimensions and is not as simplistic as envisaged by Nuclear Non-Proliferation Treaty.

THE DEFINITION AND TYPOLOGY OF PROLIFERATION

A proper definition of proliferation can be had only by understanding its typology. Proliferation is of two types: vertical and horizontal. The vertical proliferation can be defined as an augmentation in number and types of nuclear weapons in the possession of NWS; whereas horizontal proliferation refers to the spread of nuclear weapons to the NNWS or latter's capability to manufacture them. 4

4  Ibid.
The dictionary meaning of the word "Proliferation" is given as to 'grow, by multiplication of elementary parts, produce cells etc.' The term "proliferation" finds its imprecise explanation as horizontal proliferation in the contemporary literature. However, according to Lefever, "the word "proliferation", borrowed from biology, means to grow by rapid production of new parts, cells, buds or offspring." Lefever's definition closely resembles to that of Oxford Dictionary. In this sense the term "proliferation" connotes both vertical and horizontal proliferation.

The term proliferation is also very akin to dissemination and dispersion. In nuclear parlance these terms denote different meanings. Martin and Young have provided an apt distinction: 'proliferation' of national nuclear forces by independent national manufacture; the dissemination of material components, knowledge and operational control from nuclear powers to offer (non-nuclear powers); and the dispersion of nuclear weapons under the control of the manufacturing power.

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However, the terms, dissemination and dispersion, constitute the part of proliferation itself as being caused by vertical proliferation or horizontal proliferation. The meaning of proliferation had been subject to exhaustive discussions by the members of the Eighteen Nation Disarmament Conference (ENDC) when it deliberated on the draft non-proliferation treaty in the mid-1960s. India, a member of the non-aligned non-nuclear countries group in the ENDC, expressed the view that all aspects of the term proliferation and not exclusively the horizontal proliferation — 'which have been variously termed as present and future proliferation or existing or further proliferation'\(^8\) should be covered by the NPT. The Indian representative further emphasised that both vertical proliferation and horizontal proliferation 'form part of a single whole and the problem cannot be dealt with by dealing with only one aspect of it. This element is essential and central to our concept of a non-proliferation treaty'.\(^9\) Similar view is expressed by V.C. Trivedi elsewhere when he says:

\[ \text{\ldots when people talk of proliferation of nuclear weapons, they forget that the problem is not merely that of dissemination of} \]

\(^8\) ENDC/PV. 370; A/CJ/PV, 1551, p. 52.
\(^9\) Ibid.
Thus India has been insisting on the inclusion of both vertical and horizontal aspects of proliferation of nuclear weapons in the NPT. However, the three main NWS — US, USSR, and UK, who pioneered the draft NPT, only emphasized on the horizontal proliferation by ignoring the plea of India and other non-aligned NNWS and thus excluded the vertical proliferation from the scope of the NPT.

Nuclear proliferation be it vertical or horizontal is extremely dangerous for the mankind. To emphasize on horizontal proliferation and ignore the vertical proliferation is not only to have a partial approach but covers mostly NNWS and appears to be only a face-saving device for the NWS.

It is the vertical proliferation portending catastrophe for the survival of humanity while even after four decades since first nuclear detonation, the horizontal proliferation

still remains only a potential threat. The over-kill capacity of the nuclear weapons in possession of the NWS is enough to wipe out the minutest part of the earth many a times. The NNWS which have acquired nuclear capability, add a controversial dimension to the entire question of nuclear non-proliferation. Hence an analytical assessment of nuclear proliferation calls for a conceptual reordering to maintain a balance between horizontal proliferation and vertical proliferation.

**Horizontal Proliferation**

In the wake of the keen interest shown by the increasing number of NNWS, majority of whom constitute developing countries, in the development of nuclear power, the civilian use of nuclear energy is being identified as horizontal proliferation. India's peaceful nuclear explosion (PNE) of 1974 has been interpreted by the Western nuclear experts as an event having opened the floodgates of proliferation, as envisaging 'second nuclear age', and as having brought forth 'proliferation-phase two' and so forth.  

The late Hedley Bull blamed India for providing a new route to nuclear proliferation and 'that of conducting an explosion and issuing a declaration that it is for peaceful purposes only while resisting requests for international inspection to authenticate the declaration'.\textsuperscript{14} William Epstein, the former Consultant on Disarmament to UN Secretary-General has expressed the view that 'the risks of proliferation have increased with the sudden surge of interest in nuclear power . . . if nuclear weapons do spread to a number of smaller countries the outlook for world survival becomes much more gloomy'.\textsuperscript{15} Epstein is also worried about the horizontal proliferation.

There exists a plethora of literature especially published in the West which is serious about the horizontal proliferation but maintains a studied silence on vertical proliferation. A brief assessment of major studies is helpful in ascertaining the current Western thinking on nuclear proliferation. A study conducted under the auspices of Ford Foundation, which is called 	extit{Ford Mitra Report} on nuclear power has concluded that the resultant impacts of proliferation of nuclear weapons

\begin{itemize}
  \item \textsuperscript{14} Hedley Bull, "Rethinking Non-Proliferation", \textit{International Affairs} (London), vol. 51, April 1975, p. 175.
\end{itemize}
'are so serious compared to the limited economic benefits of nuclear energy'.
NWS directed mainly against less developing countries so that the latter should not embark on programmes of harnessing nuclear energy for peaceful purposes. As Lewis Dunn has endeavoured to present a convincing case:

If efforts to control proliferation prove inadequate, a world of 30 or more nuclear weapon states, many locked in hostile confrontations could emerge by the late 1980s — early 1990s. Even though in isolated cases such nuclearization of regional confrontation could prove locally stabilizing, most frequently the outcome would be increased political and military competitiveness, confrontation and probably conflict. Moreover, the destructiveness of future small power nuclear wars would be significantly greater than that of either past local wars or man-made or natural disasters.21

Even a decade after Dunn's prophecy, the number of nuclear weapon states stands as it was. The nuclear proliferation has been within the NWS, in other words, there has been only the vertical proliferation. Apprehensions about the horizontal proliferation are still a distant reality.

Some Western disarmament experts, especially Albert Wohlstetter, have viewed the acquisition of nuclear technology by the developing countries exclusively for peaceful purposes, as ultimately ending up in nuclear weapons. Wohlstetter calls

horizontal proliferation as "overhang". According to him:

.. a growing and legitimate but Democlean — "overhang" of countries (are) increasingly near the making of the bombs. This "overhang" of countries is additional to those which might acquire the bomb by an overt military programme which they have not foresworn, or by cheating, or by shopping, as Libya has tried, for a finished bomb.22

He further identifies this "overhang" of countries acquiring nuclear explosives as the small or less developed countries. In the light of Albert Wohlstetter's generalized interpretation of the horizontal proliferation, one is inclined to agree with the criticism that he 'seems to make proliferation look so automatic, ipso facto, mechanistic and inevitable that any state going for nuclear power will end up with nuclear weapons.'23

A close view of the newly triggering of debate on nuclear proliferation makes one discern a deliberate attempt to dogmatize the horizontal proliferation. A paper on Nuclear Power and Nuclear Weapons Prohibitions, prepared under the auspices of the US Atlantic Council refers to two phases of horizontal proliferation:

— A country-specific-scenario of nations close to weapon capability now or the near term proliferation; and

— The long term proliferation relating to the worldwide advancement in nuclear and other industrial technologies.24

Schoettle has worked out various assumptions regarding the concept of horizontal proliferation. The prominent among them are:

— The domino effect or the chain reaction on regional adversaries and competitors;

— The irresponsible or unauthorized use of nuclear weapons by new nuclear weapon powers in the absence of proper command and control;

— Future local wars using nuclear weapons, probable escalation or catalytic war;

— Nuclear arms races; and

— The possibility of the international system being swamped by new levels of complexity in international politics.25


The new debate on nuclear proliferation has been instrumental in the coinage of new terms in the proliferation sematics. Besides the horizontal and sub-national proliferation which had been deliberated at length in the Nth country problem in the past, micro and macro proliferation, latent and suppressed proliferation, balanced proliferation and proliferation chain have been the focal points of nuclear proliferation debate.

The macro-proliferation refers to proliferation among states while micro-proliferation deals with individuals and terrorist groups which can use nuclear weapons for blackmailing. Latent and suppressed proliferation envisage nuclear options and nuclear capabilities which can be used as and when necessary. The balanced proliferation refers to a situation of reconciliation where a limited number of countries going nuclear may not cause nuclear imbalance.

26 Daniel Yergin, n. 12, p. 56.
28 Lewis Dunn, and Herman Kahn, n. 17, p. 32.
The proliferation chain pertains to a mechanistic, automatic, action reaction phenomenon. Lewis Dunn has interpreted India's PNE of 1974 that would generate a 'nuclear proliferation chain encompassing countries within South Asia, the Middle East and even Latin America.' He further makes a case for Pakistan going nuclear even by developing a crude nuclear weapon capability in response to India's peaceful nuclear explosion as a deterrent against India's 'unilateral use of nuclear weapons'.

Lewis Dunn's thesis of proliferation chain is refuted by James Dougherty who opines that 'proliferation by reaction is a phenomenon associated with pairs of conflict parties or historic rivals rather than a chain reaction involving an indefinitely long series of countries'. According to Dougherty, historic rivalry between the two countries cannot alone trigger proliferation but other factors like competition for influence, prestige consideration and possible demonstration effect also affect the decisions of the countries intending

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31 Ibid.
32 Ibid., p. 13.
to go nuclear. Though he dismisses the Dunn's theory of proliferation chain but provides the theory of "proliferation-by emulation". According to him, the acquisition of nuclear capability by a country which accords it a "newly-won-status" within the international system, 'other states, not only in the region but elsewhere in the world as well, would begin to think about proliferation-by-emulation. . .'. However, Dougherty also subscribes to the myth of horizontal proliferation.

It becomes evident from the above analysis that the Western scholars have tried to project a "Frankenstein monster" of horizontal proliferation among the developing countries thus justifying the vertical proliferation by the NWS. Simultaneously they have attempted to envisage an anti-proliferation strategy which inter alia contains a package of political incentives and technical disincentive with a view to deprive the developing countries an access to nuclear technology which these countries could harness for peaceful purposes. The Western leaders from the NWS have also expressed similar views. The then British Prime Minister, Harold Wilson

34 Ibid.
35 Ibid.
remarked as early as on 5 March 1970: 'We know that there are two forms of proliferation, vertical as well as horizontal. The countries which do not possess nuclear weapons ... have the right to expect that the nuclear weapon states will fulfill their part of the bargain.'\(^{36}\) This further substantiates the surmise that the Western scholars as well as statesmen of the NWS have been making a deliberate attempt to create the horror of horizontal proliferation, which is a distant reality while sidetracking the immediate problem of vertical proliferation.

**Vertical Proliferation**

Vertical proliferation of nuclear weapons is the real problem holding key to the future survival of humanity. The NWS, among them especially the two Super Powers, have deliberately created the myth of horizontal proliferation with an ostensible objective of diverting the world public opinion from the catastrophic dangers inherent in vertical proliferation and to retain their monopoly. On the pretext of doctrines like maintaining "delicate balance of terror" and the "stability of mutual deterrence, the Super Powers

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36 Quoted in William Epstein, *n. 15*, p. 182.
have deliberately created the myth of horizontal proliferation with an ostensible objective of diverting the world public opinion from the catastrophic dangers inherent in vertical proliferation and to retain their monopoly. On the pretext of doctrines like maintaining "delicate balance of terror" and the "stability of mutual deterrence, the Super Powers have provided a rationale for vertical proliferation — both quantitatively and qualitatively.

The conventional wisdom about vertical proliferation is that 'it is unrelated to horizontal proliferation as the overkill capacity is not to threaten NNWSs'. As Alton Frye, a leading proponent of vertical proliferation, has argued:

Some artful commentators have contended that the ongoing strategic competition between the United States and the Soviet Union, described as "vertical proliferation" justifies the decision by India and possibly other states to test nuclear explosives — "horizontal proliferation", as the jargon puts it. This is canard. The technological refinements through the Soviet and American arsenals have virtually no bearing in logic or politics on the inclinations of other states to go nuclear. Soviet and American weapons, threaten each other, not the non-nuclear states.

Alton Frye's attempt of denying any linkage between vertical proliferation and horizontal proliferation in untenable. In

reality both are inter-linked, inter-twined and one begets the other. The vertical proliferation vests NWS with such instruments of warfare with which they can continuously rely on adopting dangerous postures without any need to resort to nuclear war. This very attitude has led to the emergence of doctrines like Mutual Assured Destruction (MAD) and the Mutual Deterrence Doctrine (MDD) by the Super Powers.

The International Fuel Cycle Evaluation (INFCE), a sub-group of the International Atomic Energy Agency (IAEA) has aptly envisaged an essential relationship between the vertical and horizontal proliferation. It is not mere quantitative but qualitative — retaliatory threat.\(^\text{39}\) The linkage does not exist merely because of the threat to NNWS from the overkill capability of the Super Powers, 'but it provides the pretext for inventing a corresponding deterrence doctrine under which the proliferators (Super Powers) presumably hope to stabilize their mutually threatening postures'.\(^\text{40}\) In other words, the non-nuclear countries also presumably believe that they could deter each other only by acquiring nuclear capability, which perhaps conventional weapons could not have achieved. This belief or desire by the NNWS emanates

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\(^{40}\) T.T. Poulose, \textit{n. 3}, p. 13.
directly from the vertical proliferation. It is this very aspect of vertical proliferation that is generally ignored by the nuclear proliferation experts.

The French strategic analysts, Pierre Gallois and Andre Beaufre, have advanced certain nuclear proliferation doctrines. Pierre Gallois has advanced the case for "proportional deterrence". Andre Beaufre has advocated the theory of "nuclear poly-centrism" and "multiple deterrence". The Chinese also relied on these theories and currently many developing countries are having faith in these theories.

The case for developing countries' right to the nuclear energy has been aptly espoused by Ali Mazrui in his 1979 Reith lectures. He said that the nuclearization of the non-aligned world would mean not only using nuclear power for peaceful purposes 'but using that power to reduce the danger of East-West convulsion'. He has openly advocated the acquisition of nuclear weapons by Nigeria, black majority


government in South Africa and Zaire, besides Brazil in Latin America, and India in Asia. While advancing his rationale for African countries going nuclear, Mazrui said: 'For these three countries going nuclear would be a new initiation, an important rite of passage, a recovery of adulthood. No longer will the Great Powers (NWS) be permitted to say that such and such a weapon is not for Africans. ...' He strongly pleads for Third World going nuclear. He further adds:

... The road to military equality is first through nuclear proliferation in Third World countries and later through global de-nuclearization for everybody. African countries will not rise militarily fast enough to catch up with even the middle range northern countries; but they could rise sufficiently fast to create conditions for substantial disarmament in the world as a whole. ..."  

Ali Mazrui's above argument is valid for Asia and Latin America. There is a similar growing opinion among the strategic thinkers of the Third World about latter's going nuclear. This is the direct impact of vertical proliferation. Albert Wohlstetter's view that even the reduction of strategic nuclear weapons bears no relationship to horizontal proliferation seems untenable. Wohlstetter has remarked:

44 Ibid.
45 Ibid.
... Whatever its other advantages, the reduction of the nuclear forces of the "super powers" and of their expenditure on nuclear weapons, and a cessation by the superpowers of nuclear tests, etc., plainly do not have any direct relevance to the proscription of those activities of the states at present without nuclear weapons which, without breaking the rules, lessen the critical time needed to obtain a capacity to produce nuclear explosives.  

Wohlstetter's concept appears against reality. Arms race, whether in conventional or in nuclear fields is inter-related. The arms race among the developing countries is in fact also mainly prompted by the NWS who are major arms suppliers. In essence, the nuclear arms race constitutes an offspring of the arms race concept in toto. Thus horizontal proliferation is the by-product of vertical proliferation.

The steps so far taken by the Super Powers with regard to so-called "nuclear disarmament" have rather proved instrumental in the 'institutionalization of vertical proliferation, legitimization of the status quo of the nuclear club, and the assumption that nuclear weapons and nuclear weapon powers will not disappear ... given the necessary impetus to horizontal proliferation'.  

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46 Albert Wohlstetter, et. al., n. 22, p. 32.
47 T.T. Poulose, n. 3, p. 15.
taken to reverse the trend of vertical proliferation, the preventive steps by the NWS like non-supply of nuclear technology cannot prove instrumental in curbing the trend toward horizontal proliferation.

Despite the exaggerated apprehensions of Albert Wohlstetter regarding more and more countries turning nuclear, 48 there are people like George Quester who feel "that only a few more nations will acquire nuclear weapons in the next two or three decades. . . ." 49

Even the ardent critics of horizontal proliferation concede its inevitability and the potential that it has far future. Wohlstetter himself has thus opined: 'Despite the existence of a much rhetoric justifying their acquisition, few of the countries with the capacity to make these weapons, have done so . . . the entry rate into the category of countries possessing nuclear weapons has been low, lower than has often been predicted'. 50 Being cautious in this regard, he further adds that although there is a real chance of many

48 Albert Wohlstetter, n. 23, p. 2.
50 Albert Wohlstetter, n. 22, p. 126.
countries acquiring nuclear weapons, 'it is not certain . . . (as) there exist contradictory forces which may substantially moderate the rate of acquisition of nuclear weapons for the next decade and longer'. 51 It may further be pointed out that there are two routes to acquire nuclear control, command and communication programme: (a) for peaceful and developmental purposes through self knowhow, (b) borrowed weapon technology. Whereas India's peaceful nuclear explosion of 1974 falls in the first category. There are certain states in the second category like Israel or South Africa, which though have not made any claim are said to be in possession of nuclear technology. In any case the link between horizontal and vertical proliferation is established.

FACTORS FOR NUCLEAR DISSEMINATIONS

Nuclear proliferation, either vertical or horizontal, is equally sinful. We have seen in the preceding pages that vertical proliferation breeds horizontal proliferation. There is no denying the fact that some developing countries - India, Pakistan, Iran, Iraq, South Korea, Taiwan, Argentina, Brazil etc. have acquired the nuclear capability, though for civilian

51 Ibid., p. 127.
use, but have the potential of manufacturing nuclear weapons, in case they decide to do so. It would, therefore be worthwhile to look into the factors which have encouraged the likely proliferation of nuclear weapons. The succeeding pages present an analysis of these factors.

Security Issue

In view of vertical nuclear proliferation being the exclusive prerogative of the NWS, legitimized further by the discriminatory clauses of the NPT, the non-nuclear weapon states feel a threat to their security. The term 'security' requires a brief conceptualization before we attempt an analysis of the desire of NNWS to acquire nuclear capability. The concept of security has generally been viewed in the context of national security and even then it manifests various connotations lacking a consensual definition. Majority of strategic analysts agree that Arnold Wolfers' exposition of the concept of security, though expounded during the thick of Cold War period of early 1950s, still seems valid. According to Arnold Wolfers, the term "Security" encompasses a wide range of goals — that highly divergent policies can be interpreted as policies of security. Even though he feels

that security as concept "may not have any precise meaning at all", 53 he does not deny the potency of security in national politics.

"Security" refers to some degree, of protection of values previously acquired. As Walter Lippmann has opined: 'A nation is secure to the extent to which it is not in danger of having to sacrifice core values, if it wishes to avoid war, and is able, if challenged to maintain them by victory in such a war'. 54 This definition links security closely to a country's ability to deter an attack or defend it.

Security, as a value, has much in common with power and wealth, two other significant values in international relations. While wealth measures the amount of a nation's material possessions and power its ability to control the actions of others, security objectively measures the absence of threats to acquired values and in a subjective sense, it denotes the absence of fear that such value will be attacked. 55

53 Ibid., p. 152.
55 Wolfers, n. 52., p. 150.
Some other political scientists — Hedley Bull, Bernard Brodie, Frank Trager and Frank Simonie, have also contributed to the development of conceptual discussion on security. These authors have defined the concept of security in the context of national security. Michael Louw opines that national security 'includes traditional defence policy and also the non-military actions of a state to ensure its total capacity to survive as a political entity in order to exert influence and to carry out its internal and international objectives'. Similar definition is provided by Ian Bellany: 'Security itself is a relative freedom from war, coupled with a relatively high expectation that defeat will not be a consequence of any war that should occur'.


58 Trager and Simonie have remarked: "National security is that part of government policy having as its objective and creation of national and international political conditions favourable to the protection or extension of vital national values against existing and political adversaries".


security as 'the relative freedom from harmful threats'. From these definitions emerges the concept of national security. Most of these definitions take an absolute view of security, and a significant power orientation. It is also revealed that the concept of national security has some firm and express identifiable meaning.

Another trend emerging from these definitions is that there is no clear concept of global security. The policies designed to envisage national security are primarily conceived in the national or regional context taking into consideration the perceptible threats from a country or countries. As Lindsay has observed: "The search for perfect security (of global security) . . . defeats its own ends. Playing for safety is the most dangerous way to live." 62

In this context where each country is feeling a sense of insecurity, the desire to acquire nuclear weapons becomes inevitable. This has been the main reason of vertical proliferation of nuclear weapons. The US nuclear monopoly


during 1945-49 was regarded by Soviet Union as a challenge to the latter’s security in the wake of cold war. Within days after the Hiroshima explosion, Stalin asked the Soviet nuclear scientists to produce a Soviet atomic bomb regardless of a cost as soon as possible.63 Even after acquiring nuclear weapons in 1949, the Soviet leaders still regarded war with capitalist countries as inevitable. The Soviet leader Malankov said in early 1950s that the United States was effectively deterred from attacking the USSR despite the fact that the United States had clear nuclear superiority.64

Thus Soviet acquisition of nuclear weapons was on the pretext of security, an argument which the British, French and later Chinese advanced to justify their acquiring nuclear weapons. This has resulted in the vertical proliferation of nuclear weapons. The unabated proliferation of nuclear weapons between the two Super Powers have relegated the 'threat to each other's security' to oblivion.65

65 Weisner and York have correctly observed: "Both sides in arms race are thus confronted by the dilemma of steadily increasing military power and steadily decreasing national security. . . . The clearly predictable course of the arms
On similar grounds the threshold or near nuclear powers have argued their case and questioned the desire of NWS to retain their nuclear monopoly and deprive the NNWS of the peaceful benefits of the nuclear energy. In fact, Pakistan has justified its acquisition of nuclear capability on the pretext of "security" threat from India's PNE of 1974. In September 1965, after Western media circulated reports from New Delhi that India would shortly explode a nuclear device, there was a flutter in Pakistan media. An article published in Dawn observed:

... Since Pakistan can beat back an attack supported by the bulk of the conventional arms possessed by India, the only course open to that country is to acquire nuclear arms and keep them ready for use against Pakistan. ... If India decides to let its nuclear ambitions have free scope ... its purpose will be to blackmail its small neighbours, especially Pakistan.

The late Z.A. Bhutto, who is considered as the architect of Pakistan's nuclear policy, wrote in 1967 that India was determined to detonate a nuclear bomb and if Pakistan restricted race is a steady open spiral downward into oblivion."


"We Must Make the Bomb Too" (editorial), Dawn (Karachi), 30 September 1965.
or suspended its nuclear programme, it would enable India to blackmail Pakistan. Despite India's declared reiteration it would never use nuclear energy for military purpose and that the PNE of 18 May 1974 was part of the programme of study of peaceful uses of nuclear explosions, Pakistan has continued to have apprehensions. Pakistan's then Prime Minister, Z.A. Bhutto, in a press statement on 19 May 1974 said: "... Given the brutal fact of 18 May explosion, Pakistan cannot be expected to rest on technicalities and protocol". India has tried to set aside these fears. The then Indian Prime Minister, Mrs Indira Gandhi, in a letter to the Prime Minister of Pakistan, Z.A. Bhutto, on 22 May 1974 said: ",... I should like to assure you that we remain fully committed to our traditional policy of developing nuclear energy resources entirely for peaceful purposes". Thus despite India's positive assurances, Pakistan has sought refuge in the security argument and embarked on its massive programme of acquiring nuclear

69 For full text of Bhutto's statement, see, UN Document, CCD/422, 23 May 1974.
70 Asian Recorder, vol. 20, no. 23, 1974, p. 12033. The main aim of India's underground test explosion for peaceful purposes (PNE) was described to develop devices for a wide variety of uses covering canal excavation, underground storage, natural gas stimulation, underground mines, oil stimulation and extinguishing gas fire.
capabilities to manufacture nuclear weapons.

Argentina and Brazil, the two leading countries of Latin America which fall in the category of near-nuclear powers, regard the possession of nuclear capability essential for "security". Both Argentina and Brazil are not signatories to the Treaty of Tlatelolco \(^{71}\) signed in 1967 which prohibits the nuclear weapons in Latin America. The permanent representative of Brazil to the United Nations, S.A. Frazao, in a lecture to the Canadian Institute of International Affairs in New York said on 9 June 1972:

> If we keep nourishing the concept of an international system where considerations of naked force are paramount or, in other words, if Power, and a fortiori its nuclear expression, continue to the ultimate ratio for the organization of the inter-state system, it will be but natural and logical that every sovereign State with an already accumulated potential to do so will be seeking to enter the Club of the most privileged.\(^{72}\)

The "security" argument, has thus been the main plank to acquire nuclear capability by the NNWS. The NWS — USSR, UK, \...

\(^{71}\) For full text, see UN Treaty Series, vol. 634, no. 9068, p. 326.

France and China, have also relied on this argument in the past to justify the vertical proliferation.

**Prestige or Status Symbol**

The fact that possession of nuclear weapons or nuclear capability by a country bestows on it a prestige or status symbol of being a great power has also been instrumental in the dissemination of nuclear weapons. The development of nuclear weapons by the UK, France and China has also been partially due to this factor. The British decision to retain 'Great power status' by going nuclear was perhaps to "compensate for the loss of status as colonial empire". 73 During 1960s, when debate on nuclear weapons was at zenith, the British leader, Gaitskell had felt that British nuclear production was justifiable to avoid excessive dependence on the US. 74

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73 Alva Myrdal, *The Game of Disarmament* (New York, Pantheon Books, 1976), p. 164. There has been a saying that it is only the British nuclear status which has helped it retain its seat 'at the top table'. Kenneth Younger, *The Spectre of Nuclear Proliferation: The International Affairs* (London) vol. 42, January 1966, p. 21.

The French leaders too used the British example as justification for acquisition of nuclear weapons. The French asserted that possession of nuclear weapons was essential for it to retain its past grandeur. France's interest in nuclear weapons was as extensive as that of Great Britain. "If the Great Britain felt that its security obligations required that it possess a nuclear weapons arsenal, then France should recognize the same need and take steps to assure itself a nuclear force".

China's entry into Nuclear Club in late 1979 becomes significant in view of the contemporary geo-politics, especially the Sino-Soviet schism and ideological differences with the US. Though China officially denied that it wanted to achieve a 'super-status'. China's acquisition of nuclear weapons was motivated by its desire to attain the status of a Great power.

Among the threshold or near nuclear powers, this theory holds good especially in the case of Iraq, Pakistan, Taiwan, Brazil, Argentina etc. India, despite its proven nuclear

75 Kenneth Younger, n. 73, p. 21.


77 For details see, People of the World, Unite and Struggle for the Complete Prohibition and Thorough Destruction of Nuclear Weapons (Beijing, Foreign Languages Press, 1971).
capability and PNE of 1974, has reiterated its commitment to the peaceful uses of nuclear energy. Pakistan's quest for going nuclear seeks to be mainly motivated by its desire to emerge as the leader of the muslim world. There were about 40 muslim countries in the Middle East, Africa and South East Asia. The brisk pace of nuclearization by Pakistan can earn it the status of Great power among the muslim states.

However, Beaton and Maddox, to some extent, discount the prestige or status factor. 78 Hedley Bull has also discounted this factor. 79 But Harrison has opined that prestige or status symbol, rather than de facto military power are of great importance to non-nuclear states. 80 Even if the 'prestige' or 'status' factor leads to horizontal proliferation, the main impetus for such a move comes from the vertical proliferation.

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Peaceful Nuclear Explosions (PNEs)

A peaceful nuclear explosion (PNE) is regarded as a crucial development in nuclear technology which can keep boost the economy of a country. The PNE can be used for industrial and engineering purposes which can yield benefits of 'incalculable importance, especially to the developing countries'.

Some of the areas in which PNE can help are to break rock for mining purposes, to shatter underground rock formations of the stimulations of the gas wells and to heat deposits of oil-bearing tar sands for the recovery of oil.

The mid-1950s onwards, the United States had started evincing keen interest to study seriously the possibilities of peaceful applications of nuclear explosives. The efforts to ascertain ways of harnessing 'the force available in nuclear explosives, to help conquer nature and obtain more of her treasure' resulted in the adoption of 'Plowshare'.

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82 For details see, Edward Teller, et. al., The Constructive Uses of Nuclear Explosives (New York, 1968).
84 The term "Plowshare" was adopted to signify research and development efforts directed at the use of nuclear explosives for civil application. See G.W. Johnson and ... continued
in the United States.

The Soviet Union, after its first nuclear explosion in 1949, had also started exploring the possibility of using nuclear explosions for peaceful purposes. On 10 November 1949, the Soviet representative, Andrei Vyshinsky, told the General Assembly that his country "was using atomic energy for purposes of its own domestic economy, blowing up mountains, changing the course of rivers . . . etc." 85

However, when the second UN Conference on Peaceful Uses of Atomic Energy was held in 1958, the concept of "Plowshare" was not given much credence. But it soon won wider recognition at the third UN Conference on Peaceful Uses of Atomic Energy held in 1968 at Geneva. Johnson and Higgins have opined:

As a consequence of experience gained in design and test of nuclear explosive over the past 20 years and in view of the more recent recent assessments of potential engineering and scientific applications, there is no doubt that many useful projects can be planned for accomplishment in the near future. 86


86 G.W. Johnson and G.H. Higgins, n. 84, p. 364.
Thus the industrial and scientific potentials of the PNE attracted various countries, mostly the developing ones like India, Egypt, Brazil, Australia, Romania and many others to harness this potential for their economic development. The potential use of PNE evoked considerable interest both among the NWS as well as among the NNWS. Two recent studies done in the United States have confirmed that PNE technology exists independently of the nuclear weapon explosions. One such study is Gulf University Research Consortium of Galveston, Texas, called GURG Report, conducted under the chairmanship of F.A. Long. In the second study made by F.A. Long himself separately he mentions three distinct features of these PNE studies:

— the very high energy density, on either volume or weight basis, i.e. a. 100 kt. nuclear explosive whose size and weight can both be much less than 1/10,000 of the equivalent chemical explosive;

87 The late H.J. Bhabha, had observed that the 'atomic explosives are some 20 times cheaper and thermo-nuclear explosives more than 500 times cheaper than conventional explosives.


— comparatively cheap to chemical explosives costing no more than perhaps 1/10th and possibly considerably less than an equivalent conventional explosives; and

— the cost of nuclear explosives does not vary much with size. . . . 89

These studies have tried to distinguish between the PNE and the nuclear weapon explosion. Since the mid-1950s, the Soviet Union has made more extensive feasibility study of the PNE than the United States. According to the IAEA Bulletin, 1974-75, there are three groups of activities under the feasibility and utility of the PNE:

— Established industrial application of the PNE;

— Large-scale experiments under actual field conditions; and

— Laboratory development work and theoretical studies. 90

The IAEA Bulletin is quite optimistic that the industrial application of the PNE can be turned over to industry for


90 Ibid., p. 28.
use — in other words, PNE applications whose technical feasibility and economic utility have been proved in practice.\footnote{91}
The available literature on PNE proves that, except in the USSR, the vast potentials of PNE have not been fully explored. The \textit{GURG Report} concluded that there "is only a very low probability of any commercial utilization of peaceful nuclear explosions in the United States by 1990."\footnote{92}

In view of the potentials PNE holds for the future, it has been recognized in some of major arms control treaties like Tlatelolco Treaty, 1967 (Article XVIII), the NPT, 1970 (Article V), and the Threshold Test Ban Treaty (TTBT), 1974.

The NPT denies the non-nuclear weapon states access to "other nuclear explosive devices or control over such weapon or explosive devices directly or indirectly."\footnote{93} The provisions of Article V of the NPT, however, provide for "... under appropriate international observation and through appropriate international procedures, potential benefits from any peaceful applications of nuclear explosions will be made available to non-nuclear weapon states party to the Treaty on a non-

\footnote{91} \textit{Ibid.}
\footnote{92} Cited in T.T. Poulose, \textit{Ibid.}, p. 126.
\footnote{93} Articles I, II of the NPT, see, \textit{Appendix-I}.  

78
These provisions are contradictory to each other and the net result is that the NNWS are denied the benefits of PNE.

The IAEA has imposed no constraints on the peaceful nuclear activities of its member states while the NPT has done so. According to Paul C. Szasz, the prohibitions enjoined upon by the NPT "reach beyond those of the statute, since they ban, for non-nuclear weapon states, the acquisition, in any way, of even non-weapon nuclear explosive devices, i.e. including those designed solely for civil purposes." The NWS retain full freedom to conduct nuclear explosions for both peaceful as well as military purposes and to derive all the resultant 'spin offs' and other benefits in the realm of nuclear technology. While the NNWS are deprived of even the peaceful benefits of nuclear technology. Such a gross discrimination gives rise to some important questions. Should the access to advanced nuclear technology of applying nuclear explosions for peaceful purposes, as G.T. Seaborg, former Chairman of US AEC has remarked, "will produce enormous civil

94 Ibid.
dividends not only for ourselves (NWS) but also for the non-nuclear weapon countries,"96 be confined to the pentarchy of the NWS? Secondly, should the prerogatives and the privileges of the NWS, which already have a monopoly of nuclear weapons, be further augmented, especially in the field of nuclear science and technology, thereby creating an "obligopoly of science and technology"?97

India has all along been opposing such a discrimination towards the non-nuclear weapon states. India's views on the NPT are analysed in detail in Chapter V, hence it is sufficient here to deal briefly with India's views on the PNE.

When India detonated its first PNE on 18 May 1974, the then Indian Prime Minister, Mrs Indira Gandhi made it clear that it was done to increase India's scientific know-how. She further remarked: "For a country of India's size it is absolutely necessary that we should have as much know-how as possible because when it comes to brasstacks no country really can help to solve our problems."98

Even in the UN, India has strongly espoused the cause of developing countries to use PNE for economic development. India's

97 Statement by the Brazilian representative. UN Doc. A/C.1/PV. 1560.
98 Hindustan Times (New Delhi), 17 June 1974.
representative, V.C. Trivedi argued that while there existed full justification for preventing proliferation of nuclear weapons, it was wrongly suggested that there should be non-proliferation in science and technology. He further added that it was true that science and technology could be used for destructive purposes but "that has never been seriously used as an argument to deny the benefits of science and technology, to the developing nations." 99

Besides India, Brazil also supported the cause of developing countries especially on the question of PNE. While addressing the ENDC on 18 May 1967, the Brazilian delegate said that: nuclear energy had a vital role to play in the mobilization of resources:

We must develop and utilize it in every form, including the explosives that make possible not only great civil engineering projects but also an ever increasing variety of applications that may prove essential to speed up the progress of our peoples. To accept the self-limitation requested from us in order to secure the monopoly of the present nuclear weapon powers would amount to renouncing in advance boundless prospects in the field of peaceful activities. In fact the new discoveries and break through that continuously enrich technology cannot remain the privilege of few without establishing within the international community an improbable relationship of dependence. 100

100 UN Doc., ENDC/FV. 297, 18 May 1967.
He further said that the developing countries could use the "technological leap" to be provided by the full utilization of nuclear energy for peaceful purposes "otherwise such countries will have let the scientific revolution of our time pass them by, even before having themselves completed the cycles of industrial revolution of the nineteenth century."

India's representative, V.C. Trivedi, while endorsing the views of the representative of Brazil, firmly said: "The civil nuclear powers can tolerate a nuclear weapons apartheid but not an atomic apartheid in their economic and peaceful development." India's stand on this issue was further elaborated by the Indian representative Krishnan who told the Conference of the Non-Nuclear Weapon States that proliferation of nuclear weapons ought to be prevented but without tramelling the development of all peaceful application of nuclear energy inclusive of the technology of nuclear explosions for peaceful purposes.

India was of the view that the question of the PNE should be linked with the conclusion of a Comprehensive Test-Ban Treaty (CTBT). India mooted the idea of instituting an

101 Ibid.
102 UN Doc. ENDC/PV. 298, 23 May 1967.
international agency in the matter of PNE which could provide a solution to the problem of developing such technology on a non-discriminatory basis for the benefit of the entire mankind. 104

As the situation obtains currently, the NWS have not yet conceded right of the NNWS to the PNE. The NWS have regarded PNE as a horizontal proliferation. They want to retain the monopoly of vertical proliferation in terms of nuclear weapons as well as PNE. The foregoing analysis, however, makes it clear that though PNE could essentially result in horizontal proliferation, it can be tackled through Comprehensive Text Ban Treaty.

PROLIFERATION : IS IT TECHNICAL OR POLITICAL?

There is a divergence of opinion between the NWS and NNWS about the question whether proliferation is a technical problem or political issue. The NNWS or the developing world regard nuclear proliferation mainly as a political issue and not as a technical issue as projected by the NWS. "The will to go nuclear and the decision making about it is indeed a political process no matter at what level the technological

104 Ibid.
sophistication be." The decisions by West Germany, Canada, Sweden or Japan not to go nuclear are mainly governed by their respective political constraints despite the fact that these countries possess sophisticated nuclear technology. However, the acquisition of nuclear technology by the developing countries has been projected as a determining factor for proliferation. On the pretext of preventing nuclear proliferation, the NWS and other nuclear suppliers have adopted the policy of 'technical denials' to the developing countries.

This attitude of the nuclear power countries was also reflected at the NPT Review Conference held in May 1975. While the NNWS belonging to developing world focussed their attention on political issues of primary importance — like nuclear disarmament whereas the NWS dwelt on technical issues "such as more effective safeguards, the export policies of the supplier countries, the physical security of nuclear materials and facilities, the possibility of establishing regional or multi-national nuclear fuel cycle centres and the feasibility and problems of peaceful nuclear explosions."  

105 T.T. Poulose, n. 88, p. 132.
Because of divergence of approach the NPT Review Conference also failed to "provide any incentive to near nuclear-holdouts to give up their option to go nuclear." 107

The technical constraints have been deliberately imposed by the NWS to deprive the NNWS of the developing world the peaceful benefits of nuclear technology. Henry Kissinger in his address to the UN General Assembly in September 1974 had mooted the idea of setting up 'Regional nuclear fuel cycle centres' as a measure to stop spread of national reprocessing facilities and thus eliminate the danger of unrestrained nuclear proliferation. 108 This was perceived as a commercially viable move to meet energy requirement as well as envisage energy cooperation among the non-nuclear developing countries. Making available reprocessing facilities by the 'supplier Nations' was also proposed as an alternative to regional full cycle centres. However, these two alternatives have also been subjected to criticism. It is argued that the regional fuel cycle centres would be "commercially unmanageable, politically unrealistic and more likely to promote an increase in national reprocessing than to deter it." 109 Besides, such a move could contribute to the

107 Ibid.


spread of plutonium in the form of freshly recovered plutonium-uranium oxide fuel and could conceivably promote rather than inhibit the transfer of practical reprocessing technology.\textsuperscript{110}

The first NPT Review Conference (1975) had also observed some complex practical and organizational difficulties inherent in regional fuel cycle centres.\textsuperscript{111} These include the finding of a reliable host nation, adequate finances to support the efforts, and persuading individual countries for pooling their resources. It has been argued that "the problems that regional centres pose and the limited capacity of existing facilities to provide multinational services suggest that trading facilities is likely to continue."\textsuperscript{112}

The London Suppliers' Club being convinced that it could not do much to promote regional fuel cycle centres, had been pursuing the idea of evolving a code of conduct for exporters, not to stop the exports but to keep them under strict control.\textsuperscript{113} The Club had been working on a consensusually

\textsuperscript{110} Ibid.
\textsuperscript{111} Cited in William Epstein, \textit{n. 106}, p. 263.
\textsuperscript{113} The Suppliers Club was established in 1975. Its current membership of 15 countries include — Canada, West Germany, France, Japan, USSR, USA, UK, Belgium, Czechoslovakia, East Germany, Italy, the Netherlands, Poland, Sweden and Switzerland.
evolved 'model contract' for use in any export of nuclear facilities under which the purchaser was under obligation not to divert nuclear materials for military purposes and to accept a more stringent safeguard system. The 'model contract' supplemented it with limitations on the transfer of technology and know-how which could be used in the construction of facilities other than mentioned in a particular deal. The Brazil-West Germany tie-up, France-Pakistan deal and France-South Korea contract (which could not click), are all subject to such safeguards.114

The Suppliers Club had agreed to abide by a set of guidelines adopted in November 1975 which envisaged control over certain nuclear material, equipment and technology. These were incorporated in a 'trigger list' — because it should trigger the application of safeguards, which is a modified version of a similar list prepared by the 20-member committee called Zangger Committee. The Zangger list is incorporated in the IAEA document, INFCIRC/209.115

A recently conducted study under the auspices of the US Council on Foreign Relations has admitted that the agreement

114 Strategic Survey 1975, n. 117, p. 16.

among the developed countries having sophisticated nuclear technology not to sell sensitive nuclear technology to the developing countries seems impracticable. The study further expresses the view that the existing arrangement would be seen as an affront to the developing countries and prevent them "from achieving industrial development, economic prosperity and equality with and independence from the industrialized world." The authors of the study have recommended in place of the technological denials a regulated transfer approach which offers the potential for greater effectiveness in inhibiting proliferation and involves less cost. Another study conducted under the auspices of Ford Foundation on Energy Issues and Choices suggested a consumer supplier consensus "against the spread of national plutonium separation and uranium enrichment facilities."

The denial of nuclear technology by the NWS to NNWS even for PNE purposes is biased and unilateral action. India after its PNE of 18 May 1974 has been subject to harsher restrictions, and embargoes by the United States and Canada. The developing countries including India having been voicing their concern in this regard. At the Conference on Transfer of Nuclear

116 Ted Greenwood, et. al., n. 19, p. 93.
117 Ibid.
Technology held in Iran in April 1977, even West Germany and Japan were critical of President Carter's nuclear policy. A non-official consensus paper reflecting the view of developing countries contended that unilateral restrictions placed on nuclear technology transfer and nuclear power expansion go beyond domestic situations, affect other nations' nuclear programmes adversely and limit contractual activities. At the Washington Conference of International Nuclear Fuel Cycle Evaluation held in October 1977, India asserted that in exploring new fuel cycle alternatives, the objective should be to ensure that the benefits of sophistication should be non-discriminatory and universal and that undue restrictions or economic penalties should not be imposed on peaceful nuclear energy programmes.

Thus it emerges from the afore-mentioned analysis that the reluctance on the part of industrialized countries to transfer the sophisticated nuclear technology, to developing countries for civil nuclear programmes is nothing but a technological constraint used as a political leverage to retain their nuclear monopoly. Thus nuclear proliferation is more of a political problem than merely a technological issue.

119 International Herald Tribune (Paris), 16-17 April 1977.