India-Pakistan Nuclear Parity: Is it Feasible or Necessary?

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Since the May 1998 nuclear tests by India and subsequently by Pakistan, the one aspect that has run as a continuous thread through the voluminous written material that followed in their wake has been the question of nuclear parity. Nuclear parity is a multi-dimensional word involving aspects such as basic nuclear perceptions, doctrinal approaches, nuclear command and control (C2) systems, types of delivery systems, threshold factor and, finally, size of nuclear arsenals. To achieve complete nuclear parity would in essence signify comparability in all the multi-dimensional spheres.

Within the restricted context of India and Pakistan, it is not feasible to compare most of the above stated aspects due to their conceptual and amorphous nature. However, it is possible to compare, in general terms, the level of operating C2 systems, the level of weaponisation, and in specific terms, the numbers of delivery platforms. This logically brings up the next question, that of the necessity and desirability of seeking such parity.

Seeking comparisons in the nuclear field is an onerous task, to an extent due to the secrecy and the variables involved, and these do not affect the deterrence levels in any case. Instead, a continuous search for parity reeks of a keeping up with the Joneses syndrome, and a conventional military mindset. It neither helps in reducing the deterrence level nor in getting recourse to reducing tensions; if anything, it may only help in enhancing budgetary allocations and the arms race.

India's nuclear tests in May 1998 were subsequently followed by those conducted by Pakistan, supposedly for achieving parity with India. Thereafter the question of nuclear parity has generated voluminous written material (in India and internationally). The word parity has been used and misused innumerable times in the recent past. Its use has been more insistent while emanating from Pakistan than from India. This has been probably because of Pakistan's total obsession with trying to keep up with its Indian neighbours in almost everything, the nuclear factor being one of the most important due to Pakistan's perceptions of itself in relation to its larger neighbour, its threat perceptions and because the nuclear factor evokes a strong nationalistic fervour.

Media interest in the relative sizes of the nuclear arsenals of India and Pakistan, with a prevailing view amongst a section of analysts that Pakistan has more nuclear weapons than India, has focussed the spotlight on just one aspect-the size aspect of nuclear parity. This was probably a way to reinforce the age-old dictum that "size does matter" (especially in nuclear weapons), a feature that may not hold good in all situations, especially beyond a certain point.

Nuclear parity is a multi-dimensional concept encompassing aspects such as basic nuclear perceptions and doctrinal approaches, the nuclear command and control (C2) apparatus, the level of weaponisation, the types of delivery systems, the weapons themselves and, more importantly, their operating ambit within a technological regime level, the threshold factor and, finally, the size of the nuclear arsenal. To achieve complete nuclear parity would, in essence, signify comparability in all these spheres. This may actually be difficult to assess correctly, as some aspects are divergent and at times signify amorphous concepts that defy precise comparisons.

The aim of this article is to explore whether nuclear parity in its entire multi-hued format is feasible between the two adversarial states of India and Pakistan. Even more importantly, it examines whether such parity is necessary at all.

Basic Perceptions and Doctrinal Approaches

The very basic thought processes and approaches towards nuclearisation by India and Pakistan have been incongruent from their respective initial stages due to the prevailing atmospherics. Their perceptions of the emanating threat, and of the use and role of nuclear weapons for deterrence or warfighting are totally divergent.

Pakistan has built up its entire nuclear weapons programme on a largely mono-centric rationale. Its entire logic, that is India-centric, seeks to neutralise India's conventional military superiority.1 The impetus for a nuclear weapons programme came after a secret meeting at Multan in January 1972, called by Prime Minister Bhutto in the aftermath of Pakistan's defeat in, and its division after, the 1971 Indo-Pak conflict.2 The object of the nuclear weapons programme, as stated by former Foreign Minister Agha Shahi, was " to equalise, to compensate our military imbalance that hangs like a sword of Damocles over the head of the nation which cut our country into two in 1971".3 Another rationale for the programme that was added subsequently and later marginalised was Pakistan's ambition to be regarded as the leader of the Islamic world, possessing the so-called "Islamic Bomb".4 It has also been suggested that there existed a possibility of Prime Minister Bhutto believing that the acquisition of nuclear weapons would actually reduce the power and influence of

the military in the power structure dynamics of Pakistan, that the military had enjoyed all along.5 Whether this really was the case remains mired in controversy. However, the main and immediate reason for the May 28 and 30, 1998, Chagai Hill tests was essentially the Indian tests earlier. The sense of matching 'test for test plus one more' was evident from the tests themselves and the extreme India-centric obsession.

As an important corollary to the main and original aim of seeking to neutralise India's conventional military superiority, some Pakistani policy-makers believed that their nuclear capability also bestowed on them the option and the freedom to provide covert support to trans-border para-military operations in Kashmir. This view, which gained considerable currency in the aftermath of the May 1998 nuclear tests, was based on the belief that India would not dare to hit back with conventional arms for fear of lowering the nuclear threshold and risking a nuclear exchange. This may have been one of the main reasons which provided the impetus for the Pakistani Army General Headquarters (GHQ) indulging in the military adventurism in Kargil. But keeping in mind the resultant adverse fallout of the Kargil episode, it must be stated that this erroneous belief is rapidly losing steam amongst the more moderate factions of Pakistani nuclear policy-makers.

In sharp contrast to the Pakistani belief that their nuclear weapons would deter a large scale conventional strike from India, the Indian leaders and policy-makers privately opine that Pakistan would not strike India with nuclear weapons even if the latter was to strike with conventional weapons.6

India's quest for nuclear weapons and indeed the entire nuclear thought process has, however, been quite different from that of Pakistan and is of a much older variety. Commencing in the 1950s, with the building of the research reactor and plutonium reprocessing facility at Tarapur, till October 1964, India only thought of developing a nuclear capability that could be converted to a nuclear weapons option, in case required.7 However, with China becoming a nuclear power on October 16, 1964, the Indian establishment began to give serious thought to developing nuclear weapons and the effect of the Chinese actions on the overall security calculus. Despite this, the Indian defence minister rebuked the chairman of the Atomic Energy Commission (AEC) at a meeting, when the latter talked of producing nuclear weapons within 18 months. However, later Prime Minister Shastri did sanction the proposal of Dr. Homi Bhabha, the chairman, AEC, to investigate a "Subterranean Nuclear Explosion Project" (SNEP).8

The Pokhran I tests of 1974 were conducted due to a change in the security scenario and other internal dynamics, and were termed as a "Peaceful Nuclear Explosions" (PNEs). This had the international community in a tizzy and to many it seemed to be a halfhearted effort towards achieving a nuclear power status. There is no doubt, however, that Mrs. Gandhi developed cold feet in the light of the negative international reaction. She was afraid that she would be toppled (probably by the foreign hand she often mentioned) if she continued with the nuclear tests. This was despite the fact that the tests were conducted at the height of her popularity.9 Later, numerous attempts by India, (some publicly known and some unknown) to conduct further nuclear tests had to be withdrawn prematurely, mainly due to intense international pressure. This happened till 1998 when, with the non-proliferation noose tightening around India, it had to choose between permanent nuclear adverse asymmetry as a de facto non-nuclear weapon state or a de facto nuclear weapon state with a minimum weapon capability as an insurance against potential nuclear threats and coercion.10 India chose the latter with the Pokhran II tests that led it to cross the nuclear Rubicon and openly declare its nuclear intentions with newfound confidence.

Unlike in the case of Pakistan, India's aim in 'going nuclear' was polycentric. Capable of enhancing international prestige, the aim was also to provide a suitable deterrence vis-à-vis both China and Pakistan, as also to provide suitable insurance against any nuclear threat and coercion. That these explosions also significantly contributed to internal political dynamics, and had political utility by creating a resurgence of nationalistic fervour, should not be overlooked.

The nuclear philosophy, indeed the basic nuclear thought of any nuclear capable state has often been strongly influenced by bureaucratic forces and is a manifestation of the government's view on the role of nuclear weapons. India's nuclear strategy and weapons have, since their conception, been controlled by the political leadership along with scientists from the AEC and to an extent by the scientists of the Defence Research and Development Organisation (DRDO). This is probably one of the main reasons why India, as a mature nuclear power, perceives nuclear weapons as 'political weapons' geared more towards providing deterrence value than for actual use.

On the other hand, Pakistan's nuclear forces and strategy have been tightly controlled by the army and have been more fully incorporated into the military strategy.11 Hence, the Pakistanis view nuclear weapons as 'military weapons', more likely to be used in the battlefield rather than value them for their deterrence effect.

These differences of perception persist at the doctrinal level. While India undertook the unique task of publication of a proposed nuclear doctrine based, amongst others, on the bedrock of "no first use" (NFU) and minimum credible nuclear deterrence, Pakistan flatly refused India's proposal for signing an agreement pertaining to the NFU policy, thus, displaying a negative attitude towards an important nuclear confidence-building measure (CBM), and exposing a mindset that considers nuclear weapons as weapons of war.

The significant difference in the basic reasons for going nuclear, the basic perceptions of nuclear weapons and the associated philosophy between India and Pakistan, make comparisons difficult to undertake and parity difficult to realise.

Nuclear Command and Control (C2) Structures

Since the nuclear tests of May 1998, both countries have not only adopted very different nuclear postures but, in addition, their 'nuclear development' patterns have also been quite different. While Pakistan has been relatively 'quicker on the draw' to implement effective command systems and operating procedures aimed at a modest nuclear arsenal, paradoxically, India, on the other hand, has moved more slowly but surely in implementing a nuclear strategy aimed towards much grander atomic aspirations.12

As part of a concerted effort to prove to the world (mainly the influential, aid-doling Western world) that Pakistan can be regarded as a reliable and responsible nuclear power, numerous steps have been taken by the Pakistani government which include the quick implementation of an effective C2 system for its nuclear forces. Since the establishment of the National Command Authority (NCA) which is based within the Joint Strategic Headquarters and comprises the Employment Control Committee (ECC), Development Control Committee (DCC) and Strategic Plans Division (SPD) which acts as a secretariat, the Pakistani leader Gen. Musharraf has gone on record to state that Pakistan is a "responsible nuclear power" whose nuclear arsenal is safe from theft or rogue commanders.13 As an additional step, 'strategic organisations' like the A.Q. Khan Research Laboratories (KRL) at Kahuta, National Development Complex (NDC) and Pakistan Atomic Energy Commission (PAEC) have all been placed under the control of the NCA. Despite all these moves, a complete force structure capable of taking responsible and considered decisions on nuclear C2 is yet to develop.

In the case of India, the nuclear C2 structure has been the subject of considerable speculation. While there seems to be little doubt that the higher decision-making apparatus will have an overwhelming civilian component, the authority for the final decision will, in all likelihood, rest with the prime minister. In this context, the announcement of the office of the chief of defence staff (CDS), an appointment bestowed with the complete control of all strategic nuclear forces under the military,14 (amongst his numerous other functions), signifies the providing of the important single node inter-phase between the higher decision-making organ and the executing body. Indeed, many senior officials in the Indian government insist that as a 'responsible nuclear power' a functional C2 system already exists, though in the same breath, it is arguable that India with its doctrine based on counter-value and second strike capability, does not need to develop a Cold War reminiscent sophisticated nuclear C2 system and extensive warning network, as had been developed by the USSR and the USA. In addition, Indian officials insist that that the survivable aspect of C2 has been partially achieved through the wide dispersion of the nuclear arsenal,15 and with warheads stored separately from their delivery systems, the factor of accidental launch has been reduced. However, the fact is that a lot needs to be done in this field (which is in a fairly rudimentary state) in both countries and, hence, in their present state, can hardly be compared for the sake of parity with the additional disadvantage of the basic ideologies being incongruent.

The question of the level of weaponisation has also been the centre of considerable attention. Most of the estimates in this field have been at best speculatory and based on trends rather than specific numbers, which are obviously difficult to confirm. Contradictory statements have only added to the confusion. Generally, however, it is believed that India, due to numerous constraints like complete dependence on Indian expertise, the internal dynamics of an active democracy and considerable international pressure, not to mention sanctions, has not proceeded to develop an effective missile based deterrent as quickly as Pakistan has. This has probably been not only due to the extensive covert help of China and North Korea but also the resolute determination of Pakistan's military leadership, backed by public support.

Nuclear Weapons Arsenal and Delivery Systems

Both India and Pakistan have refused to specify the size and specifications of their conception of a "minimum nuclear deterrence"16 which is actually a strategic approach and is the core aspect affecting the size of the weapons arsenal. This has helped in retaining the concept as a dynamic strategic approach rather than an oft quoted number. Significantly, the Pakistanis with their mono-centric aim have stated that the size of the nuclear arsenal is entirely dependent on their

perception of India's nuclear force. While in the case of India, numerous factors contributing to an overall threat perception are likely to help in quantification of the nuclear arsenal. Notwithstanding this aspect, in all probability, both countries are likely to strike a skillful and continuous balance between their requirement (or wish) of having a particular size of arsenal and the ability to manufacture the same due to resource or delivery platform constraints, thus, maintaining what could be termed as a 'compromise ratio' in terms of the numbers of nuclear weapons.

Due to the thick veil of secrecy surrounding nuclear weapon production, it is indeed very difficult to estimate the size and composition of the nuclear arsenal of any country. Compounding the problem is sensational media coverage, selectively quoting various reports/intelligence sources which give widely differing figures, since they are based on different assessing variables due to the uncertainties involved.

Estimates are generally based on the quantity of unsafeguarded enriched uranium or plutonium that a country may have accumulated over the years. Since these figures are only rough estimates, they are bound to be unreliable. To give an example, there exists an uncertainty in the amount of weapon grade uranium that has been produced in Pakistan. This is due to the uncertainty involved in the number of centrifuges that are available in the country. Hence, arsenal estimates invariably vary.

On June 7, 2000, in a sensational media report, the NBC, quoting US intelligence reports, stated that Pakistan's nuclear arsenal was far bigger than India's, according to revised estimates. It added that not only did the Pakistanis have about five times more warheads than India but also that they had more accurate delivery platforms-all of which were built with Chinese help. While estimating the Pakistani arsenal to be between 25-100 (previously held estimates being in the range of 10-15), the report quoted Gen. Anthony Zinni of the US Central Command as saying, "Don't assume that Pakistani nuclear capability is inferior to the Indians". This report was picked up by various news agencies, analysed and commented upon, in both the US and the subcontinent where it was ether debunked or used by some analysts to prove a point. The Pakistanis, of course, officially stated that they had far less "modest capabilities."

Probably one of the most accurate and authoritative figures in assessing the weapon arsenals were forwarded by Prof. David Albright of the Institute for Science and International Security (ISIS), who had estimated in July 1998 that India's stockpile of weapons-grade plutonium has around 370 kg, enough to make about 74 nuclear weapons.17 In his latest papers, he has placed the stockpile of weapons grade uranium with the Pakistanis as being around 800 kg on a percentile basis instead of the previously thought 585 kg. Thus, this would give them a stockpile of between 45-95 bombs. But he estimates that since percentile is between 5-95, the figures could be in between.18

In another report entitled "Repairing the Regime: Preventing the Spread of Weapons of Mass Destruction", the ISIS, Washington, has estimated that the median value (which is midway between the smallest and largest estimates of India's stockpile of weapons grade plutonium in which the concentration of Plutonium-239 isotope is greater than 93 per cent) was about 290 kg by the end of 1998. "The report claims that India's inventory of weapons grade plutonium is derived by estimating total production in its reactors and by subtracting 'drawdowns' from nuclear testing, processing losses and civil uses." Since 290 kg is a median value, the fissile material stockpile could actually range from 200 to 400 kg.19

Bharat Karnad, on the other hand, has reported that "according to the data collected by the US Congressional Research Service, by the year 2000, India will have an annual production rate of 127 kg of unsafeguarded fissile material and an accrued total of some 1,607 kg of the same, which is sufficient to fashion 400 warheads "20

The recent annual strategic survey report of the International Institute for Strategic Studies (IISS) in its 11-page assessment of India and Pakistan, states that India has been credited with 65 nuclear warheads as against 39 for Pakistan at the end of 1999.21

Thus, we see that there is considerable variance in the figures which contribute to the size of 'arsenals in being'. This is precisely one of the main reasons why parity, even between the sizes of the nuclear arsenals is difficult to gauge, as the quoted figures by various studies become notional in character, with wide variance, in the absence of confirmed and accurate figures. Indeed, in the same breath, it is necessary to add that the sizes of the weapons arsenals per se do not matter, especially in the case of these two countries which have limited nuclear weapons. What is of more importance is the number, availability and technological level of the associated delivery systems.

As stated, Pakistan has been relatively faster in developing and deploying its missile-based deterrence than India.22 Islamabad's entire delivery systems are in a 'diad' format, which comprises land-based missiles and nuclear capable aircraft. The land-based missiles, mainly acquired from North Korea and China, are the most critical in Pakistan's scheme of delivery platforms. Thus,

Pakistan has an extensive missile programme with most of the missiles being of North Korean (for liquid fuelled missiles) or Chinese (for solid fuelled missiles) origin and, most importantly, they have been tested and proven (not necessarily in Pakistan).

It is presumed that Pakistan has acquired nuclear capable solid and liquid fuelled missiles that meet its requirement of being able to strike key Indian cities from deep inside Pakistani territory. Pakistani military officials say that the liquid fuelled Ghauri is most likely to be used for "offensive" operations, with the solid propelled Shaheen being retained for "defensive" operations.23

The Kahuta based A.Q. Khan Research Laboratories claims to have developed the liquid fuelled missile Ghauri I (Hatf-5) with a range of 1,500 km and the Ghauri II (Hatf-6) with a purported range of 2,000 km. However, the world view is that these missiles are renamed versions of the North Korean Nodong I and II medium range ballistic missiles. The Ghauri III, also in the same lineup of missiles with a range of 3,000 km, was supposedly test-fired on August 15, 2000, the Indian Independence Day.24 There exists a strong possibility, given its lineage, that this missile is actually the North Korean Taepo-dong I. Pressures from the US and the commencement of warming of relations between North Korea and the USA will keep this missile out of public view for some time to come.

Pakistan's solid fuelled missile programme is centred around the Shaheen series of missiles built by the National Development Complex (NDC). Though the country was once dependent on the solid fuelled M-11 of Chinese origin, which were stored at the Sargodha air base, it is now believed that Pakistan is capable of producing its own nuclear capable missiles. The capability to build most of the components of the Shaheen I, based on the Chinese M-9 with a range of 600 km, may be cited as a limited example. Pakistan also claims to have built the two-stage 2,500-km range Shaheen II, capable of carrying a 100-kg warhead. The claims are doubtful, especially when the director general, NDC, states that only a single successful test was required to operationalise the missile.25

With regard to aircraft as delivery systems, the F-16s are the most likely choice for nuclear delivery missions although the Mirage V or the Chinese A-5 could also be used. Reports suggest that the F-16s have practised the "toss bombing" technique used to deliver nuclear weapons. The operational condition of the aircraft is suspect due to the fact that no spares or additional aircraft have been made available from the US because of the Pressler Amendment. The exact number of modified F-16s is also unknown.26

In the Indian context, though the draft Indian Nuclear Doctrine advocates the development of "a complete triad", the nuclear delivery systems are presently in a diad format, consisting of land based missiles and nuclear capable aircraft. The sea-based deterrent, though under development, is likely to take much more time. However, unlike is adversarial neighbour, Pakistan, in the case of India, the missiles are entirely indigenously developed products under an extensive missile development programme known as the Integrated Missile Development Programme (IGMDP). This programme started in 1983 and till date has produced the Prithvi I and II, and the Agni ballistic missiles. The liquid fuelled Prithvi I missile (range 150 km) is presently operational with the army, while the Prithvi II (range 250 km) is likely to be deployed by the air force by 2001. A longer range (probably 350 km) and a navalised version of the missile named Prithvi II (Dhanush) is presently under development.27

However, none of these systems can provide an effective deterrent against the Chinese until a longer range Agni (at least Agni III with a range of 3,500 km) is operationalised. Until then, the most capable missile in the Indian stable remains the two-stage Agni II with a range of 2,500 km and a payload capacity of a 1,000 kg warhead, which according to the then Defence Minister George Fernandes, has reached the point of operational capability.28

The strategic potential that was conveyed by India on the successful launch of the geo-synchronous launch vehicle (GSLV) on April 18, 2001, was enormous. Apart from the significance that India had the potential to enter the commercial satellite market for geo-synchronous satellites (and, hence, an exclusive membership into a restricted group of countries that are able to place satellites into geo-snychronous orbit), the other strategic message that was effectively conveyed was that India is on the threshold of acquiring intercontinental ballistic missile (ICBM) technology. This which is similar, in most respects, to GSLV technology.29 Thus, with the proper impetus for research and development under an appropriate programme such as the IGMDP with the Indian Space Research Organisation (ISRO), India may acquire the ICBM missile prototypes within a few years, though it may take much longer to serial manufacture and operationalise an actual missile in that category, especially under international pressure.

India has several types of aircraft that can be used as delivery platforms for nuclear weapons although the range, payload and speed narrow down the choice to the MiG-27 (Bahadur), Mirage 2000H, Jaguar IS/IB and the Su 30 MKI. Exactly how many of these aircraft are actually nuclear capable has

neither been declared nor is it known. Of these, the Su 30 MKI version has yet to arrive in India, with a deal for it having been signed with Russia in December 2000, for purchase followed by serial production/manufacture of the aircraft at Hindustan Aeronautics Ltd. (HAL)30

That presently most of India's deterrence rests on air deliverable weapons was confirmed by the then chairman of the AEC, R. Chidambaram, who was quoted as saying that they "had been in stockpile for several years" before the May 1998 tests. Hence, the large dependence on such weapon types will have to be balanced by developing land-based (in larger numbers) and sea-based missiles at the earliest, to prevent a disbalance in favour of the not so survivable leg of the triad.

Regarding the possession of tactical nuclear weapons, since India's targetting philosophy is not premised on 'proportionate deterrence' or 'flexible response', India does not need tactical or battlefield nuclear weapons which have the disadvantages of lowering the threshold of use, the need for complex command and control, increased cost of manufacture, maintenance, storage, transportation and handling, with a greater risk of accidental or unauthorised use.31

The Nuclear Threshold Factor

The nuclear threshold is a concept that is so amorphous in nature that it is extremely difficult to codify it in precise terms even though its importance is tremendous since it signifies the actual commencement of nuclear warfighting. Probably that is the reason why the theorists, the higher-level decision-makers and the operational situational commanders, all discuss this topic with equal passion.

While it is possible to lay down certain precise guidelines in arriving at the threshold level, it is impractical to specify it in exact terms. This is due to the innumerable intangibles involved in arriving at precise answers which range from basic nuclear ideology (i.e. Pakistan under military control which sees itself as a bullied small state and perceives nuclear weapons as weapons of war, is likely to reach the level much faster than India under civilian control which sees nuclear weapons as useful for deterrence and, hence, perceives them as political weapons) to collateral damage (both perceived and actual), threat of counter-strike, effect on general population, defence forces, infrastructure, territory, various international, national and media pressures, life value factor, and numerous other aspects, including the seemingly trivial stress level and mental condition of the decision-taking authority at the opportune moment.

However, there is this most important aspect of perception: what the Pakistanis consider acceptable damage is likely to be quite a few orders of magnitude greater than what the Indian government may consider acceptable. This, in turn, would be many times higher than what the Americans might consider acceptable. Continuing along the same argument, the 'life value factor' or the value that a country attaches to the lives of its common citizens is very low in some countries; for example, "In his conversation with Jawaharlal Nehru, Chairman Mao ze Dong told him that even if 300 million Chinese perished in a nuclear war, the remaining 300 million Chinese would build a new glorious civilisation."32 However, this is probably an outdated view of a staunch Communist country, overflowing with a teeming population in the post-revolution period, a country that attached hardly any importance to human life. Now things are rather different, and, "What the Chinese considered acceptable damage in 1950, would be way above what they consider acceptable today. With greater affluence and more democracy, the level of acceptable damage will go down further. Even today, India and Pakistan are softer states in this regard than China."33

Thus, we see that the dependence of the threshold factor on innumerable and disparate variables is large. This had led this concept to defying precise codification, instead relying more on guidelines at the best. Thus, in essence, the nuclear threshold levels of India and Pakistan cannot be compared in precise terms, given this background, except for saying that one's level may be higher than the other's.

The Analysis

An analysis of the data given above reveals a few aspects. It is quite clear that from the very beginning, the very basic thought processes and approaches towards nuclearisation of India and Pakistan were incongruent. Starting much later than India, and with the India-centric aim of overcoming India's conventional superiority, Pakistan has covered a lot of ground. Using means beyond the realms of legitimacy and with considerable Chinese help, its nuclear capability has been built up enough for it to be acknowledged as a de facto nuclear power. Since most of this nuclear capability is borrowed, it seems hardly fair to compare it with India's which, though having started much earlier (also having exploded a device way back in 1974), has been much slower in its weaponisation, probably due to constraints arising out of the indigenous nature of its programme.

Apart from the differences in the reasons for going nuclear, the two countries' basic concepts of nuclear weapons is indeed totally divergent, probably because of the difference in the prevailing atmospherics. The development of India's nuclear strategy and weapons, since their conception, has taken place under the control of the highest political leadership, backed by scientists from the AEC. On the other hand, Pakistan's nuclear forces and strategy have been tightly controlled by the army and have been more fully incorporated into its military strategy. Thus, while Pakistan views these weapons as 'military weapons' meant for use in the battlefield, India perceives them as 'political weapons,' valued for their deterrence effect. Thus, the incongruent basic nuclear thought is hardly comparable and defies parity.

The same is probably the case on the doctrinal front too. While India has openly put forth its nuclear doctrine (officially still in draft form but likely to be the de facto doctrine) based, amongst others, on the bedrock of NFU and minimum credible nuclear deterrence, Pakistan has yet to do so. In addition, Pakistan has flatly refused India's proposal for signing an agreement pertaining to the NFU policy. Thus, again, betraying a total divergence of views.

On the subject of nuclear C2, Pakistan has been relatively 'quicker on the draw' to implement a command system and operating procedures aimed at a modest nuclear arsenal; India, on the other hand, has moved much more slowly but surely in implementing its nuclear strategy, aimed towards much grander atomic aspirations. These actions are indeed comparable but in general terms only, as the precise architecture of the nuclear C2 system of India is yet to be unveiled, which does not, of course, signify an absence of the structure itself.

The main aspect that holds the key to nuclear parity (or so many analysts think) is the size of the nuclear arsenal or the number of nuclear warheads. Unlike conventional forces where the level of forces can be compared one for one, according to the ORBAT (Order of Battle), with relative ease, in the case of nuclear arsenals, a comparison is more difficult. This is due to the wide range of variables involved, combined with the thick veil of secrecy surrounding the production of nuclear warheads (with knowledge restricted to a very few people compared to conventional armed forces). Indeed, this has resulted in a wide variance in the estimated figures as is evident from the figures stated earlier. In any case, for countries like India and Pakistan, with fairly small nuclear weapon arsenals, the deterrence level is unlikely to be substantially altered with a few more or less warheads. Seeking to compare the number of warheads displays a conventional mindset used to dealing with conventional weapons.

In fact, of more relevance are the estimates of the capability to deliver warheads via their associated delivery platforms rather than the actual numbers of the warheads themselves. A comparison of the delivery platforms is indeed feasible, provided that their operating level of technology and aspects such as operating range and the survivability factor are taken into account. In this context, it must be stated that while both countries presently support a diad, Pakistan has been faster in developing and deploying its missile-based deterrence than India. It is immaterial to speculate on the origins of these Pakistani missiles; the fact is that they are proven and reliable while India's indigenous missiles have yet to prove themselves fully. Undoubtedly, in the longer run, India, with its home grown missile technology, stands to gain, and this goes hand in hand with its grander aspirations, but it must be conceded that as long as Pakistan continues to get supplies of more advanced missiles and stores them up and till these missiles become obsolete, Pakistan would have an arsenal to reckon with.

On the other hand, it is not feasible to compare the all-important nuclear threshold factor. While observing the trends in the ideological make-up, it is possible to say in general terms that Pakistan will identify itself with a much lower nuclear threshold than India but it is not really possible to delineate its exact value, keeping in view the amorphous nature of this concept.

Conclusion

In conclusion, it may be stated that nuclear parity is a multi-dimensional word which involves aspects such as basic nuclear perceptions and doctrinal approaches, nuclear C2 systems, level of weaponisation, types of delivery systems and, more importantly, their operating ambit within a technological regime, threshold factor and, finally, size of the nuclear arsenal. To achieve complete nuclear parity would in essence signify comparability in all these multi-dimensional spheres.

Within the restricted context of India and Pakistan, it is not feasible to compare most of the above stated aspects for the sake of parity due to their conceptual and amorphous nature. However, it is possible to compare in general terms the level of operating C2 systems, level of weaponisation and, in specific terms, technological level and numbers of the delivery platforms. This logically brings up the next question of the necessity and desirability of seeking such comparisons. It needs to be stated that seeking comparisons in the nuclear field is difficult to an extent due to the secrecy

and the variables involved. In any case, seeking parity reeks of keeping up with the Joneses syndrome and a conventional military mindset. It neither helps in reducing the level of deterrence nor in getting recourse to reducing tensions; if anything, it may only help in enhanced budgetary allocations and indulgence in an arms race.

It must be remembered that amongst all this, the moot question is the geo-political reality of the leadership of Asia that has to be decided between China and India one day, and not between India and Pakistan. The debate for this leadership need not start now or even during the next few years. In the meantime, it is in India's interest to go on building a stable and survivable deterrence against China, quietly but surely.

NOTES

1. Sumita Kumar, "Pakistan's Nuclear Weapons Programme" in Jasjit Singh, ed., Nuclear India (New Delhi: Knowledge World, 1998), p. 157.

2. Ibid.

3. Fasahat H. Syed, ed., Nuclear Disarmament and Conventional Arms Control Including Light Weapons (Islamabad: FRIENDS, 1997) p. 421.

4. This against the background of the 1970s, when the oil rich Arab states were well aware that Israel had developed the nuclear bomb which tilted the Middle East military balance towards the latter. The dream of developing an Islamic nuclear option led countries like Saudi Arabia and Libya to financially support the Pakistani nuclear programme.

5. D.K. Palit and P.K.S. Namboodri, Pakistan's Islamic Bomb (New Delhi: Vikas, 1979) p. 17.

6. Andrew Koch, "Nuclear Friction," Jane's Defence Weekly, vol. 34, December 13, 2000, p. 22.

7. K. Subramanyam, "Indian Nuclear Policy-1964-98" in Singh, ed., n. 1, p. 26.

8. Ibid., pp. 26-27.

9. Ibid., p. 33.

10. Jasjit Singh, "Why Nuclear Weapons", in Singh, ed., n. 1, p. 25.

11. Koch, n. 6, p. 21.

12. Ibid.

13. Ibid., p. 23.

14. Manoj Joshi, "Rocky Road Ahead for India's First Ever CDS" The Times of India, May 18, 2001 in section on "Government Business", p. 1. Also see Vinod Anand, "Management of Defence: Towards An Integrated And Joint Vision", Strategic Analysis, February 2001, p. 1984, and for the latest developments, see Shishir Gupta, "Down To Brasstacks", India Today, May 28, 2001, p. 44.

15. Koch, n. 6, p. 24.

16. Ninad D. Seth, in his article "Subtle Shift in India's Nuclear Policy?", The Hindustan Times online, December 1999, has suggested, amongst other things such as triad concerns, that there has been a subtle shift in India's policy from that of minimum deterrence as suggested by the draft nuclear doctrine (and reiterated by the prime minister in Parliament) to that of "strategic restraint." However, except for the analysis of the interviews quoted in the article, there has been neither any official confirmation to this effect nor any other indication to suggest that this change has occurred.

17. Rajendra Prabhu, "US Publication Explodes Western Scientists Myth", Observer of Business and Politics, July 25, 1998, (Source: The Bulletin of Atomic Scientists, July-August 1998).

18. S. Chandrasekharan, "Nuclear Stockpile of Pakistan: A Reality Check", South Asia Analysis Group Papers, Paper No. 195 at <http/www.saag.org>

19. Ramesh Chandran, "India, Pakistan Increasing Stocks of Weapons Grade Plutonium, Enriched Uranium: Report", The Times of India, March 8, 2000.

20. Bharat Karnad, "Going Thermonuclear: Why, With What Forces, at What Cost", USI Journal, July-September 1998, p. 315.

21. As stated in "Pakistan Retains Failed N-State Image", The Times of India, May 19, 2001.

22. Koch, n. 6, p. 22; also see Rahul Datta, "Pakistan Tests Ghauri III", The Pioneer, September 24, 2000; and Aziz Haniffa, "India Still Some Way Off From Deploying Nuclear Weapons", The Economic Times, September 29, 2000.

23. Koch, n. 6.

24. Datta, n. 22.

25. Andrew Koch, "Shaheen II Details Revealed", Jane's Defence Weekly, December 13, 2000, p. 5, also see Koch, n. 6, p. 23.

26. See P.K. Ghosh "Emerging Trends in the Nuclear Triad", Strategic Analysis, May 2001, p. 263. Also see Robert S. Norris and William M. Arkin in "Tables for Nuclear Forces," SIPRI Yearbook, 2000, p. 493, and <http//www.fas.org/nuke/guide/pakistan> for "Pakistan Aircraft-Potential Special Weapons Delivery Systems."

27. A.K. Sachdev, Space Age Gladiators (New Delhi: Knowledge World, December 2000), p. 53. Also see Koch, n. 6, p. 22.

28. The solid fuelled, two stage Agni II was first tested on April 11, 1999, and then tested the second time on January 17, 2001, to coincide with the termination of the visit of Li Peng to India, probably to send a message to the Chinese. That the Agni II had reached the point of operationalisation had been stated earlier by the defence minister in the Lok Sabha on August 18, 2000. Flight testing of Agni III is yet to be carried out and is expected to commence soon.

29. Theoretically, the GSLV technology gives India the capability to fire missiles over 5,000 km range but the GSLV itself cannot be used. The solid fuelled engines have to be modified, as a cyro engine is rarely used for such missiles. Also see Raj Chengappa, "India is Now a Space Power" India Today, April 30, 2001.

30. "The Sukhoi Deal and After", The Hindu, December 30, 2000.

31. Gurmeet Kanwal "India's Nuclear Force Structure", Strategic Analysis, September 2000, p. 1041.

32. K. Subrahmanyam, "No More Hibakushas", The Economic Times, June 18, 1998.

33. Cited by General K. Sundarji, "Nuclear Deterrence Doctrine for India", Trishul, vol. 5, no. 2, December 1992, pp. 43.