The decade of the 1990s witnessed the dramatic emergence of Pakistan’s nuclear weaponisation programme that had begun in 1960's. It would have been logical to expect that a missile delivery programme for its nuclear weapons would be conducted concurrently. However, the outlines of an integrated Pakistani missile development plan began to appear only in the 1980s, though experimentation with sound ranging rockets had begun in the earlier decade.

Pakistan’s missile programme is termed as dramatic because in a short span commencing in 1991 this country has demonstrated the development of a long range potent missile arsenal with nuclear warhead capabilities. When measured against Pakistan’s technological expertise, industrial infrastructure and hi-tech R&D capabilities, it becomes obvious that Pakistan’s missile arsenal has come into being with total external assistance and aid.
Strategically, at the turn of the millennium, Pakistan can justifiably boast that not only has it offset India’s overwhelming conventional superiority by its nuclear weaponisation, but also has outstripped India’s missile development programmes which have proceeded slowly both due to domestic and external restraints.

**Pakistan Missile Development /Acquisition Programme - The Stimulus**

Multiple stimuli existed for Pakistan to go into over-drive for an accelerated missile development and acquisition programme. The decade of the 1990’s could better be termed as a ‘Pakistan missile acquisition decade’ rather than a development one. There were more acquisitions than development.

Pakistan was impelled by the following stimuli, when contemporary developments are analysed:

* Pakistan had achieved nuclear weapons capability by 1987, but its only means of delivery were aircraft, basically the US-F16s.

* United States embargo on F-16 deliveries as a result of Pressler Amendment rendered Pakistan’s nuclear weapons capability vulnerable.

* Ballistic missiles had emerged as more potently destructive weapons and cost-effective options by 1990-91. This was evident from the Iran-Iraq war of the 1980s, the war in Afghanistan and the Gulf War.

* China, by, now had emerged as a source of ready supply of ballistic missiles for the Islamic world.

* Pakistan’s strategic nexus with China enabled an easy and assured access for build-up of Pakistan’s missile arsenal as it was for Pakistan’s nuclear weaponisation with Chinese help.
The stage was thus propitiously set for build-up of Pakistan’s missile arsenal. Unlike its struggle to acquire wherewithal for nuclear weapons production, Pakistan faced no problem in missile acquisition or production.

**Pakistan’s Missile Development and Acquisition Philosophy**

Strategically, Pakistan was aware that in terms of a missile build-up, it was running against time. Pakistan had nuclear weapons, but with aircraft delivery capability only. Aircraft had limitations both in terms of range of delivery of nuclear weapons and so also penetration of India’s air-defence systems. Pakistan was also sensitive to the indigenous development of India’s integrated missile development programme. India’s programme was slow but potent and threatening for Pakistan.

Pakistan’s missile build-up philosophy, therefore, differed markedly from India’s. Analysis of events, indicate that Pakistan’s missile build-up philosophy was grounded on the following guidelines:

* Speed was the uppermost imperative in terms of build-up of Pakistan’s missile arsenal

* Direct off-the-shelf acquisition of missiles for Pak arsenal was Priority I requirement.
* Indigenous Pakistani missile development programme was Priority II. Or, at best, to proceed concurrently.

* The indigenous Pakistani missile development and production programme should not waste time on indigenous R&D. It should follow a dual-track path:

Track I

Assembly of imported missiles in Pakistan from what at best could be termed as SKDs (semi knocked down) kits and CKDs (completely knocked down) kits.

Track II

Indigenous fabrication of above missiles sub-systems and propellants in a graduated manner. Track I would enable a quantitative jump in indigenous Pakistan’s missile production expertise.

The above philosophy finds reflection in Pakistan’s missile arsenal, both in terms of composition and capabilities.

**Pakistan’s Missile Arsenal: Composition and Capabilities**

Pakistan’s missile arsenal when discussed in the media or in academic publications tends to get listed as one long list. Further, Pakistan’s deception measures in relation to its missile arsenal tends to confuse analysts by giving HATF serial numbers to
subsequent developments. This is aimed at both for passing off latest acquisitions as indigenous and confounding analysts.

For a more orderly analysis of Pakistan’s missile arsenal and also in terms of range, propulsions systems and capabilities the Pakistani arsenal needs to be viewed in the following groupings:

* HATF series
* GHAURI series
* SHAHEEN series
* M-11 (direct imports from China)

The following table lists capabilities and characteristics

### PAKISTAN'S MISSILE ARSENAL: Composition, Capabilities and Characteristics

<table>
<thead>
<tr>
<th>Missile</th>
<th>Year of Testing/Acquisition</th>
<th>Range in km</th>
<th>Warhead Weight in Kg</th>
<th>Propulsion Stages Propellant</th>
<th>Origin</th>
<th>Deployment Status</th>
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<tbody>
<tr>
<td>Missile Series</td>
<td>Propellant</td>
<td>Pakistan Development/Fabrication</td>
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<td>HATF 1A</td>
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<td>HATF II</td>
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Notes:
1. Deployment Status: D = Development  O = Operational  S= Storage  T- Tested
2. HATF II is said to be an indigenous version of China M-11 missile.
3. GHAURI series are reported to be direct acquisitions from DPRK, off-the-shelf, but given Pakistani names. PRC facilitated this. Indigenous versions of GHAURI when fabricated would hold Chinese command and control systems.
4. GHAURI II has inputs from China's CSS-2 and also from Saudi Arabia.
5. SHAHEEN I is reported to be the Pakistani version of M-9 (China)

The groupings of Pakistani missile arsenal analysed thus also finds reflection in terms of distribution of development and fabrication within Pakistan, which is as follows:
In terms of analysis of missiles by ranges as per international classification standards the Pakistani missiles can be categorised as under:

* **SRBM** - HATF series, SHAHEEN 1 and M-11
* **MRBM** - GHAURI series
* **IRBM** - SHAHEEN II

Note: In terms of US classification system both GHAURI and SHAHEEN series are IRBMs

Thus Pakistan in a short span has been able to build up its missile targeting capabilities to IRBM ranges.

**Pakistan’s Missile Targeting Strategy**

Pakistani missile targeting strategies can be analysed from the above groupings in terms of ranges and characteristics. From a deductive analysis, the targeting strategy in terms of the different series appears to be as under. (See Map)
Note:
1. All ranges shown are maximum ranges claimed by Pakistan
2. Pakistan long range missiles cover all of India's metropolitan cities.
3. Pakistan's main strategic interest is likely to be Mumbai and Peninsular India in which lie most of India's sensitive installations and infrastructure.
* HATF Series - HATF series formed the initial component of the Pakistani missile arsenal. It was also planned as a counter to India’s Prithvi missile. Besides the nuclear capability of HATF II and III, in the conventional mode it was designed as an offensive weapon to knock off Indian armour concentrations. In the defensive mode, it would be used in dual roles to destroy Indian bridge-heads in Pakistani territory. Its chief use could be said to be along Pakistani borders with India, both inside and outside.

* GHAURI series - With its extended range, the GHAURI series could effectively reach virtually the whole of India but it seems that the strategic targeting of this missile would be more towards Mumbai and Peninsular India in which lie India’s most sensitive installations. GHAURI is a mobile system and could be used for counter-value-strikes. Pakistan claims that GHAURI can carry nuclear, chemical and anti-tank warheads.

* SHAHEEN series - SHAHEEN II unveiled on Pakistan Day Parade this year (March 23, 2000) is Pakistan’s answer to India’s Agni II. It has as an all India coverage, but can be said to have Mumbai and Peninsular India as the main target. With its ground mobility and solid state propellant systems it should logically form the backbone of Pakistani nuclear deterrent. With mobility comes survivability and therefore the SHAHEEN II could impart to Pakistan a second strike capability in the future.

The above is a broad analysis of Pakistani’s missile targeting strategy. Detailed analysis is outside the scope of this paper. Suffice it to say, that other than large scale population centres of Uttar Pradesh and Bihar in North India heartland there are no lucrative or counter-value targets for Pakistan. In the past analysts have carried out checks on the Indian Muslim population concentrations in North India and came to the conclusion that because of high proportion of Indian Muslim population in these urban centres, Pakistan would be unlikely to target them. However in a recent interview on BBC, General Pervez Musharraf, the military ruler of Pakistan, when questioned on this aspect, first hesitated to answer and when pressed by the British interviewer stated to the effect that nothing is precluded, if Pakistan’s supreme national interests are in jeopardy i.e. Indian Muslims are dispensable

Future Perspectives
In terms of future perspectives, the following can be said about Pakistan’s missile build-up:

* Pakistan’s missile force would form the main delivery system for its nuclear weapons.
* Pakistan’s emphasis on a “credible minimum deterrent” would call for matching responses to India’s missile developments in terms of ranges and payloads. This would imply that the GHAURI and SHAHEEN series would receive priorities in terms of range and payload modifications.
* Pakistani SRBMs and MRBMs priorities would be more to build up numbers to withstand both conventional and nuclear attrition.
* In terms of ICBM capability, Pakistan would definitely aspire for it, but a host of factors are stacked against her. Even China, Pakistan’s nuclear weapons and missiles benefactor would hesitate to impart ICBM capability to Pakistan, for strategic reasons.

Despite the dismal state of Pakistan’s economy, her nuclear weapons and missiles build-up programmes have never stood impeded. China for strategic reasons and oil-rich Middle East countries for Islamic solidarity reasons have provided the wherewithal and finances. Substantial amounts of drug money also stands ploughed into these programmes by the Pakistani military.

In terms of future perspectives, it can be said that Pakistan’s missile build-up would continue unabated.

Conclusion

Pakistan’s missile build-up all along has been India-centric. Unlike India, which has to take the China threat into consideration,
Pakistan has the luxury to focus its entire missile build-up on Indian developments.

Strategically, Pakistan has today not only offset India’s overwhelming conventional military superiority by its nuclear weaponisation but also acquired a missile force which in terms of speed of acquisition outstrips India’s pace of development of missiles. China prominently and DPRK by proxy have significantly contributed to Pakistan’s missile build-up. China has even provided a complete plant in 1995 to produce M-11 nuclear capable M-11 missiles and their variants in Pakistan. China has persistently defied international non-proliferation norms and US pressures against Chinese proliferation of WMD’s in Pakistan. No indicators are available to suggest that China would desist in future too. China’s South Asian policy objective to strategically destabilise India would continue unabated, despite protestations to the contrary.

India has no political or military options to limit Pakistan’s nuclear weaponisation and missile build-up. Pakistan can only be limited by India imposing an economically unaffordable counter-buildup in these fields- uneconomical for Pakistan and her benefactors too. Needless to say that this is an imperative if peace and stability have to prevail in South Asia.

26.9.2000
Links