



Pakistan's Nuclear Triad Approach vs. The Classical Triad Concept

Briefing Paper
September 2017

© 2017, **CommandEleven**. All rights reserved.

For more information about receiving this, or other **CommandEleven** analysis documents, please visit <http://www.commandeleven.com/>.

REPORT AUTHORS

"Pakistan Nuclear Triad Approach vs. The Classical Triad Concept" was researched, compiled and written by **Ahmad Ibrahim**, Contributing Analyst.

ABOUT **COMMANDELEVEN**

CommandEleven is a research organization focused on Pakistan's national security aspects and enhancing global understanding and collaboration opportunities for the nation.

Founded in 2015, **CommandEleven** provides situational awareness to facilitate a better understanding of the key dynamics that effect Pakistan from a national security perspective, especially in relation to terrorism, insurgencies and extremism.

CommandEleven seeks to inform and guide public policy and decision makers in government, business and military through a rigorous program of publications, conferences, digital medias, policy briefings and recommendations.

Visit <http://commandeleven.com> for more information or contact info@commandeleven.com.

Back during Cold War, Nuclear weapon became enigma for being Great power, a status of quality for any state and an absolute guarantee for its security. But developing nuclear weapon is one thing; successfully delivering it to its target is another. In World War times the prime mode of carrying out strike missions was air force which relied on long range strategic bombers to carry out bombing missions under the air cover of agile fighter air crafts. These strategic bombers were prone to enemy air crafts as well as anti-air craft fire. For delivering an expensive & destructive tool like nuclear bomb, air superiority was crucial which in several cases was not possible to achieve due to symmetric nature of conflict after rise of Soviet Union. During cold war, advancement in Ballistic Missile technology revolutionized the nuclear domain. It introduced a land based credible & safe delivery mode to nuke hostile targets without risking lives of pilots. The addition of Land Based Nuclear Strike Capability along-side Air based nuclear strike capability introduced the Term Biad.

In mean time, more & better Strategic Bombers were also developed along-side Intercontinental Missiles (ICBMs). In Soviet-European strategic theater, the ground based nuclear launch sites & dedicated strategic squadrons of air forces of smaller nations like United Kingdom & France were prone to preemptive strikes from Soviet Union. The lack of strategic depth of European nations and idea of survivability from first wave of nuclear strikes further diverged the delivery mechanism of nuclear weapons. States were in consideration to develop nuclear delivery mechanism which could survive in first nuclear strike and provide assured second-strike capability for maintaining deterrence. Though concepts like hardened missile silos and under-ground tunnel & bunkers for holding and operating strategic bomber fleet were developed, along-side concept of mobility was also applied where instead of fixed missile silos, mobile launch vehicles called Transporter Erector Launcher (TEL) were used to carry and launch nuclear missile. Idea was to bring increment in chances of survivability of strategic assets from enemy first counter [force strategic strike](#). These concepts do work for geographically large states like Soviet Union and United States but had limited application for small European states. Hence assured second strike capability concept came into existence which was more precise than concept of second-strike capability.

As a result, Sea Launched Ballistic Missiles were developed which were carried with in nuclear powered ballistic submarines (SSBN). These submarines theoretically had no need to refuel thus could stay submerged for very long duration of time & could travel around the Globe undetected. This unique feature gave birth to idea of Assured Second Strike Capability and also introduced a new term called Nuclear Triad. Nuclear Triad is the capability of a nuclear state to launch nuclear strike from land, air and sea. Land attack can be launched through cruise & ballistic missiles; air strike is conducted through Air Launched Cruise Missile (ALCM) or Gravity Bomb with nuclear payload; submarines in sea can utilize either Sea Launched Ballistic Missile (SLBM) or Sea Launched Cruise Missile (SLCM) for nuclear attack role. Though Surface vessels like destroyers can also be updated for carrying nuclear capable missiles but it is not a preferable way as unlike submarine, surface ships are more prone to enemy attack. This advance combination of Land, Air & Sea based nuclear strike capabilities once achieved by Nuclear armed state is considered to complete the Nuclear Triad of that state & with evolving threat environment it was considered crucial for [keeping up deterrence among the hostile nations](#).

The strategic environment of South Asia revolves around threat perceptions of India and Pakistan alongside China in region. Pakistan considers India as its prime rival and have conventional & nuclear doctrines formed from Indian threat perspective. India on the other hand enjoys conventional superiority over Pakistan but faces nuclear lag. Plus, Indian threat perception also includes China which is superior both in terms of conventional and non-conventional powers. The dual nature of threat has forced India to explore similar options which were once followed by competitors of cold war, i.e. InterContinental Ballistic Missiles (ICBM: Agni 5) for dealing with China specific threat, Medium & Short range Ballistic missiles (MRBM/SRBM Agni/Prithvi series) for countering Pakistan specific threat, arming Nuclear Powered Ballistic Subs (SSBN) with Submarine launched Ballistic Missiles (SLBM: K4,K15) for assured second strike & raising dedicated fighter squadrons (Su30MKI) utilizing air launched cruise missile (ALCM: Brahmos) for stand-off nuclear air strike. This combination of variety of nuclear capable missile arsenal will allow India to deter both its hostile neighbors in near future threat build up.

Pakistan response, in lieu of its economic limitations & source constraints, is different. Just like India, Pakistan is also willing to complete its nuclear triad which will be unique in its form as it will be purely India specific. Pakistan has variety of Land based Ballistic missiles of varying range, have Multiple Independent Re Entry Capable Missile (Ababeel) for rendering Indian Ballistic Missiles Defense shield useless and operates Babur 1&2 as nuclear capable cruise missile but there is still significant disadvantage on Pakistan side. It lacks strategic depth which puts its ground based strategic assets at risk of Indian pre-emptive counter force strike. For flexible targeting, Pakistan developed Ra'ad Air Launched Cruise Missile (ALCM) and later Ra'ad 2, giving Pakistan Air Force capability to conduct nuclear strike at stand-off range (Raad: 350km range, Raad2: 550km range). However, the formation of sea based assured second-strike capability was needed and this need is in phase of completion by development of Babur 3 Sea Launched Cruise Missile (SLCM). The naval platform which will be used to carry Babur 3 is yet to be known to public. But military experts have made several speculations, like recent Pak China agreement of 8 S20 Diesel Electric Submarines equipped with Air Independent Propulsion System or upgraded Khalid class SSK in current arsenal could be the platform for strike. These subs will likely have capability to carry and fire torpedo based Babur3 ALCM for nuclear strike as no submarine with Vertical Launch System for cruise missile is in development phase. To how much extent Pakistan will equip its subs with ALCM and is there any nuclear submarine in pipeline of development from Pakistan side, these questions are yet to be known and there is no solid evidence available to confirm or deny such claims.

The review of topic of Nuclear Triad indicates that most of the research work was done during the cold war era with USSR-NATO threat environment in focus. Now times have changed since threat & technology both have evolved. Thus, the basics of this concept are needed to be redefined according to changing dynamics of modern threat perceptions and power balance. Evolution in all three legs or pillars of Triad can be compared with respect to time scale as

LAND BASED STRATEGIC STRIKE

During cold war, the prime objective of USA & USSR land based ballistic assets was to strike the main land of adversary. As both states are geographically distinct apart, presences of Inter-Continental Ballistic Missiles (ICBM) in strategic command was crucial. This resulted in development of series of ICBMs from both sides which in later developments were MIRV capable for dealing with Ballistic Missile Defense systems deployed by both sides. Second domain of land-based strike force was composed of Tactical Nuclear Weapons (TNWs) which were deployed in European-Soviet theatre to counter over whelming conventional invasion forces. TNWs were never included in land leg of Nuclear Triad however ICBMs were as they were assured way of delivering nuclear payload from long range and formulated the core of nuclear policies & doctrinal postures.

In South Asian context, both Pakistan & India are neighbors and this geographic reality greatly increases the scope of land based nuclear weapons. In Indo Pak strategic puzzle, Battlefield Nuclear Missiles (BFNM), Short Range Ballistic Missiles (SRBM), Medium Range Ballistic Missiles (MRBM) and even Ground Launched Cruise Missiles (GLCM) can also be included in Land leg of nuclear triad. Pakistan by deploying Shaheen 3, a Medium Range Missile with range 2750km, has covered by entire India geographically. In this regard Shaheen 3 is performing same job as ICBM despite of being a MRBM. Since Pakistan prime focus of nuclear doctrine is India, thus it irons out the requirement of developing ICBM from Pakistan side.

When examining Indo-Pak land based nuclear posture, eminent focus is given to concepts like Cold Start Doctrine (CSD), Full Spectrum Credible Deterrence (FSCD), Ballistic Missile Defense (BMD) and MIRV prowess (Ababeel) which all are included in land-based domain of Nuclear Triad of Contemporary South Asian Strategic environment. This indicates that development of nuclear triad in South Asia has further diversified this concept as it points out how a nuclear state may have Nuclear triad against one adversary and may not in case of another.

AIR LAUNCHED STRATEGIC STRIKE

Air was the primary medium for nuclear strike in early times of nuclear evolution. After development of Ballistic weapons, dependency on long range strategic bombers was reduced but still it remained part of nuclear biad. Strategic bombers developed by USA, UK, USSR and China all carried nuclear bombs & air launched cruise missiles (ALCM) for nuclear strike role. Since in past, Jet fighters were not technically advance & nuclear weapons were not smart enough to be carried by jet fighter, the area of attention was limited to long range strike bomber fleet. But, with evolution in technology, nuclear states particularly in European-Soviet theatre introduced jet fighters with capability to conduct nuclear strike. The super-sonic speed, high agility & low radar cross section contributed to shift focus from heavy Strategic bombers to light & fast jet fighters.

Both India and Pakistan lack heavy strategic bomber fleet right now. There is simply no justification & reasoning for either side to pursue one for strike missions as bombers on ground are prime targets of first wave of strike and vulnerable to attack. Both India and Pakistan thus focused on fighter jet plat forms for carrying and delivering nuclear payload from stand-off range. For India, the answer relied on upgraded Su30MKI which can carry Brahmos ALCM in central hard point with range of 290km. Pakistan developed Ra'ad

ALCM with 350km range and later Ra'ad 2 with 550km range that can be carried via Mirage IIR1 and Jf17A/B air crafts. The development of advance ALCM from both sides points out the short coming in classical nuclear triad concept which focused on strategic bombers only. In South Asian contemporary war theatre, it's wise to include the combination of Jet Fighters & ALCM as second dedicated domain of nuclear triad.

SEA BASED NUCLEAR STRIKE

In classical concept of nuclear triad, the combo of Nuclear-Powered Ballistic Submarine (SSBN) and Sea Launched Ballistic Missiles (SLBM) is regarded as third and perhaps most secure leg of nuclear triad as it provides assured second-strike capability. This concept is adopted and operationalized by all nuclear powers which developed sea based nuclear strike capability. The strategic environment of United States demands a hegemonic control over the Globe as a result USA operates 18 Ohio class SSBN each armed with 24 Trident IID5 SLBM. United Kingdom operates 4 Vanguard class SSBN each armed with 16 Trident IID5 SLBM. France operates 4 Triomphant class SSBN each armed with 16 M45/51 SLBM. Russia operates almost 7 SSBN while China operates 5 SSBN which constitute their assured second-strike capability. India followed the same route by development of K15 & K4 SLBM program and its integration in Arahant class SSBN. All above states followed up the classical approach towards completion of [sea borne domain of nuclear triad](#).

Pakistan case on the other hand is unique, which have India centric strategic posture and have no attention of power projection out-side its area of influence. Recent successful testing of Babur 3 is indication that Pakistan will rely on nuclear tipped cruise missiles instead of ballistic missiles for sea borne nuclear strike. Islamabad recent purchase of 8 S20 Diesel Electric AIP subs from Beijing as per experts is speculated to be the plat form which will carry Babur 3. This new concept is limited in area of influence but is cheap & efficient as far as specific target is concerned. This is what justifies why Pakistan & Israel have followed this new path instead of going towards classical route of sea based second strike capability. Though United States developed & deployed Regulus SLCM back in 60s but it was withdrawn after a short time and primary reliance for sea launch strike was given to SLBMs.

To conclude, it's worth noting that both Pakistan and India are in development phase of nuclear triad and both have yet to achieve operational three-dimensional nuclear strike capabilities. In comparison of classical nuclear triad, concept of South Asian nuclear triad particularly that of Pakistan is more diverse as it is linked in contemporary times and is likely to introduce new domains in already existing literature work. Nuclear Triad, once operational in South Asia will bring rapid changes in deterrence stability in the region which in worse cases might bring conflict provided that one state fails to follow up the arms race & developmental pace of nuclear weapons in South Asian context. The comparative study of nuclear triad of India and Pakistan will provide vast understanding about strategic environment, threat perception, doctrinal posture, developmental plans, policy making process and its short term and long-term impact on other regional and Global disciplines of life.

ABOUT THE AUTHOR

Ahmad Ibrahim is a contributing analyst to CommandEleven on military strategy, tactics and operations. He is currently completing his MPhil in Strategic Studies from National Defense University in Islamabad.

ABOUT COMMANDELEVEN

CommandEleven is a research organization focused on Pakistan's national security aspects and enhancing global understanding and collaboration opportunities for the nation.

Founded in 2015, CommandEleven provides situational awareness to facilitate a better understanding of the key dynamics that effect Pakistan from a national security perspective, especially in relation to terrorism, insurgencies and extremism.

CommandEleven seeks to inform and guide public policy and decision makers in government, business and military through a rigorous program of publications, conferences, digital medias, policy briefings and recommendations.

Visit <http://commandeleven.com> for more information or contact info@commandeleven.com.