Taking Stock of Pakistan's Artillery

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The role of the artillery was to establish fire superiority in the battlefield in such a way that the enemy is not able to intervene in the operations of the army and also cannot strategise his own operations effectively. Artillery does this by destroying or neutralising enemy ground or air weapons, causing casualties in the enemy's troops and thereby, reducing their zeal to fight. It is almost impossible for any country to fight a war without the support of artillery. Pakistan's artillery comprises self-propelled artillery, multi-launch rocket systems, and towed artillery. Much has been written in India about India's artillery system, but we have somehow failed to look into our enemy's artillery system.

The training establishment of artillery officers of Pakistan is co-located with other training institutions like the School of Armour and Mechanised Warfare, Military College of Engineering, School of Army Service Corps, and Pakistan Air Force Academy. A noteworthy difference with India is that the training establishments are in different places, like the School of Artillery is in Deolali, the training establishments for mechanised infantry and armour are located in Ahmednagar, while the infantry training establishment is in Mhow. Hence, for Pakistan, the command systems are situated close to each other, while for India they are located at a distance from each other.

Tracing History

Pakistan's artillery is an offset of, first, the Royal Artillery and then the Royal Indian Artillery and, finally, the Royal Pakistan Artillery post independence. On partition, the British Indian Army was divided between India and Pakistan on the basis of the population ratio of the two countries which was 64 percent for India and 36 percent for Pakistan.[1] Pakistan's artillery was the first artillery formation

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in South Asia. This was not unusual. Given the history of firepower used by the Islamic states like Turkey and by the Mughals in the past, it was but natural for Pakistan to give importance to firepower. Pakistan's Army was further organised into 1x armoured brigade, 9xinfantry brigades, 3xartillery groups.[2] Finally, after the national Constitution of Pakistan, came into being on March 23, 1956, it was decided that the name would be changed to Regiment of Artillery. [3] Pakistan undoubtedly inherited some of the most problematic areas in terms of defence. Pakistan's North-West Frontier Province (NWFP) was tension prone right from the beginning. Also, right from its inception, Pakistan had strategised an anti-Indian military doctrine.

In 1954, Pakistan signed a mutual defence agreement with the United States. Under this, Pakistan received a grant of US $650 million from the United States, and $55 million in cash. It received Patton tanks and the latest variety of artillery guns. [4] During the Soviet invasion of Afghanistan, the United States had agreed to provide $3.2 billion as economic and military aid in 1981. This was given to Pakistan to secure itself against the growing threats from Afghanistan. But this aid was used cleverly by Pakistan to enhance its conventional capability against India. Pakistan believed that if a superpower like the Soviet Union could be challenged in Afghanistan, then India could be challenged quite easily. According to Stephen P Cohen, India and Pakistan are like a divorced couple forced to live in the same house.[5] Internal readjustments in Pakistan had led not to its "integration and consolidation" but instead to "break up what its creator had termed," before it was created, as a "moth-eaten" country.[6] In 1948 and 1965, the Regiment of Artillery was at its nascent stage of development. In 1965, the Pakistan Army had slowed down the advance of the Indian forces towards Lahore via Burki. It is said that there was a strong artillery presence in the shape of two regiments, one each of field and medium guns, and a battery of 8-inch heavy guns.[7] The artillery was able to fire more than 2,000 shells in 30 minutes. However, though for the first three days Pakistan managed to rely on artillery fire to keep the Indian forces away in Burki, later on, the Indian brigade attacks (4 Sikh and 16 Punjab) were successful in driving the Pakistani forces out of Burki.[8] It is said that the artillery could have done an even better job for Pakistan but faced limitations due to lack of headquarters (HQ) to coordinate fire.

In 1971, at Jessore, the 107 Brigade consisted of the 55 Field Regiment Artillery, while the 53 Field Regiment was in Comilla. In the area south of the Ganges and west of the Meghna, 24 Field Regiment was deployed, later replaced by 49 Field Regiment and 55 Field Regiment.[9] Other regiments included 53

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Field Regiment, 83 Mortar Battery and 88 Mortar Battery. 23 Field Regiment, 117 Mortar Battery, 211 Mortar Battery were in Rajshahi. At Sulemanke, the 105 Independent Brigade Group had 76 Field and 237 Medium Battery under its command. In Phase I and Phase II, 6FF and 7 Punjab had received artillery support to keep their Indian enemy at bay. However, since artillery support had to be given to 7 Punjab, in Phase 3, 18 Baluch did not receive any artillery support. 7 Field, 79 Field and 65 Medium of 18 Division moved forward to the edge of the desert a night before they were to fight in order to reduce the difficulties.[10] However, the Indian Army's artillery strength was superior to that of Pakistan. Pakistan possessed 800 field artillery guns as opposed to 2,500 field artillery guns by India and 300 medium artillery guns as opposed to 400 medium artillery guns by India.[11] During Operation Brass Tacks, two artillery divisions had taken part in what Pakistan called Zarb-e- Momin.[12] During the Kargil War, on May 9, 1999, Pakistan's artillery achieved a "direct hit" on the Indian ammunition dump in Kargil which went up in smoke.[13] During the period 1997 to 1998, Pakistan Occupied Kashmir (PoK) experienced heavy artillery firing in the region. [14]Heavy artillery was used to fire at the Shia majority town of Kargil. On June 6, there was heavy artillery firing from Pakistan's side in Poonch, Nowshera and Naugam regions. After the Indian Army had recaptured the posts, they recovered 12 mortars (80 and 120mm) and three 105mm howitzers without barrels.[15] However, heavy artillery firing, including mortars by Pakistan, caused the bulk of casualties for India. 80, 62, 232 (Pak) Brigades were all provided artillery fire support and eighteen artillery batteries also provided fire support.[16] Pakistan had put its first line of infantry and artillery on mountain tops thereby gaining an advantageous position in the conflict. Pakistan's artillery units were inducted in the Force Command Northern Area (FCNA) during heavy exchange of fire from July to September 1998.[17] For the Indian Army, it was a laborious task to climb the mountains to fight the battle. However, victory was achieved by India due to the gallant effort of the artillery, infantry and the Indian Air Force. The gunners of the Indian artillery fired their guns in the direct firing role by employing multi-barrel rocket launchers like the Grad right under the noses of the Pakistani artillery observation posts.

Current Growth Trends

At present, Pakistan's artillery has 9 Corps Brigade and 5 Brigades. From the 1970s to 1980s, there has not been any credible artillery procurement by the Pakistan Army.[18] From 1990-2007, Pakistan had acquired large calibre artillery systems like the 130mm guns and 122mm howitzers and also 155mm towed guns.[19] Post Kargil War, there was no immediate increment in the artillery arsenal, though there was a major increase in main battle tanks from 2,120[20] tanks in 1998-99 to 2,320 tanks in 1999-2000.[21] According to the *Military Balance*, 2010, Pakistan had more than 4,291 pieces of artillery equipment which was the same as in 2007 and 2008. This included 260 self-propelled peices of equipment, 1,629 towed equipment, multi-rocket launch systems, and 2,350 mortars.[22] In contrast, India had around 11,300 pieces of equipment in 2008.[23] In 2010, the *Military Balance* reported the total number to be 11,258. In 2011, Pakistan's artillery had witnessed an increase in equipment with the number going up to 4,521.[24] On the other hand, India's artillery equipment reduced to around 10,758 but is still way ahead of Pakistan's arsenal. India has been giving more importance to towed artillery while Pakistan has laid emphasis on self-propelled artillery. Self-propelled artillery provides a better advantage in a nuclear biological chemical (NBC) battlefield than towed artillery. There has been an increase in self-propelled artillery with the total number going up to 490 and also an increase in the total number of multi-rocket launch systems to a total of 52.[25] However, for mountain warfare, towed artillery would be the best option. Pakistan is reported to be the third largest global market in the artillery modernisation programme.[26]

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Excess Defence Articles

Under the US Foreign Military Financing (FMF) programme, the M109 A-5 155mm howitzers were acquired by Pakistan in 2009. The US FMF programme has enabled Pakistan to procure artillery systems from the United States at

fairly discounted prices. The weapons have been procured using both Pakistani national funds and FMF.[27] However, Pakistan is more concerned about using its field artillery for counter-terrorism operations in order to bring about stability in the state. This is claimed to give Pakistan an edge over India's artillery systems. Pakistan has been "steadily modernising" its artillery.[28] Brian Cloughley has confirmed that the Pakistan Army has been modernising its artillery in order to successfully enhance its mechanised formations. India has taken this threat seriously and has been planning to procure the 400 towed 155mm howitzers and 144 ultra light howitzers.[29]

Shoot and Scoot

Pakistan's M110 was acquired from the US as it had proved to be successful for the US during the Vietnam War. It is strange that the M110 still finds a place in the Pakistan Army in spite of the latest precision guided munitions and launch smart projectiles. These provide general artillery support to ground troops and also support to armoured columns and are highly mobile and manoeuvrable. Apart from providing general support, they also enable counter battery fire and suppression of enemy air defence systems. The most noteworthy feature of Pakistan's artillery is the 155mm howitzers. The M109 A2/A4/A5 (155mm) howitzers are suitable for both 'beyond line of sight' and 'line of sight engagements' and provide artillery fire support. Pakistan also has Type 54 self-propelled field artillery which is also acquired from China.

Multi-Launch Rocket Systems

Pakistan also possesses the A-100, a Chinese multi-launch rocket system (MLRS) which is similar to the Russian 9K-58 Smerch. This could attack ground targets like airfields, command centres, radar stations, artillery or missile batteries, locations where troops are concentrated and other targets of military importance. The latest version of the A-100 is the AR1A in which Pakistan had taken keen interest and had procured some for trials. This version is called the A-100E in Pakistan and is of improved accuracy. This was purchased in response to India's purchase of the 9A52-2T Smerch from Russia. The WS-1B was developed by China and is a long range artillery rocket weapon. It is the advanced version of the Chinese WS-1 which is in operation in the army of the People's Republic of China. This system helps to bridge the gap between a conventional self-propelled artillery system and surface-to-surface tactical missiles. It could have both offensive and defensive roles and could be deployed against targets which are deep beyond the

enemy lines. These include military bases, massed armoured divisions, missile launch site, airports, airstrips, harbours and military industrial bases. Like India's indigenous PINAKA multi-barrel rocket launcher (MBRL), it has been reported that Pakistan possesses an indigenous MBRL, the KRL-21, designed by the Kahuta Research Laboratories, which is equipped with a global positioning system (GPS). The same has also been transferred by Pakistan to the Bangladesh Army.

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Towed Artillery

The M115 is a heavy artillery weapon that uses 203mm ammunition. It was used during World War II, the Korean War and Vietnam War by the US and was in service with the US Army for a long time. Pakistan's M-115 was procured under the Foreign Military Fund. The gun is capable of firing nuclear rounds. However, the M115 has a limitation in that the nuclear round yield exceeded the range of weapon. The Panter is a successful towed artillery weapon which was successfully reversed engineered by Turkey and was acquired by Pakistan. This acquirement of defence equipment by Pakistan was a further step towards strengthening political and defence relations with Turkey. At present, the system is being manufactured in Pakistan's Heavy Industries, Taxila. The M198 is capable of providing fire support in both direct and indirect fire capacities which could be destructive, suppressive and protective. It was used extensively during the Persian Gulf War. The ammunition fired has a separate projectile and propellant and can be loaded with many propellant bags. These are air transportable by aircraft and also by heavy lift helicopters. A maximum of four rounds of fire rate may be achieved or two rounds of firing in a sustained firing mode with this towed howitzer. Pakistan also uses the M114 medium howitzers.

However, the Type 59 I is now being slowly replaced by the GM-45s. The M-56 is a pack howitzer which is developed to meet the requirements of modern lightweight howitzers. Since these are lightweight howitzers, they can be used for direct fire. They can be fitted in helicopters when dismantled. Pakistan also possesses the 85mm T-56 towed artillery. The 12 mm D30 can be used against enemy artillery, tanks and mechanised assets.

Nuclear Artillery?

It is possible that Pakistan could nuclearise its multi-rocket launch systems or self-propelled artillery and, thus, make limited warfare susceptible to nuclear warfare. The likely places where Pakistan could use its nuclear weapons could be the Rajasthan border or in the Rann of Kutch region. Though Kashmir remains a nuclear flashpoint, there would be less chances of Pakistan using its nuclear artillery in the Kashmir region. This is because Kashmir is the bargaining factor for Pakistan, and destruction of Kashmir by use of nuclear weapons would mean Pakistan losing its bargaining factor. However, the use of nuclear artillery in areas like the Kargil, Dras and Batalik sectors is possible. Nuclear artillery could enable Pakistan to destroy the counter-force targets of India which would be more advantageous during a conflict than to destroy counter-value targets. This could be further elaborated on the basis of the Quranic concepts of warfare according to which the targets should be such, which when struck, would deprive the enemy of his weapons or combat strength in case it is not possible to aim at his vulnerable points.[30] The Quranic concept of military strategy highlights the importance "to prepare oneself for war to the utmost in the order to strike terror into hearts of the enemies, known or hidden".[31] Artillery plays an important part, thus, in enabling the Pakistan Army to uphold the above strategy.

India's Cold Start doctrine could initiate Pakistan in implementing a strategy that could destabilise the Cold Start doctrine. This could include increase in tactical nuclear weapons, and artillery would play an important role as Pakistan would surely want to launch its offensives at the right time, given its 'offensive defence' strategy. Pakistan's Nasr missile, with a 60-km range, is a two-tube adaptation of a multi-launch rocket system and is capable of carrying nuclear weapons. It is reported to be Pakistan's response to India's Cold Start doctrine. The nuclear-equipped Nasr systems, anywhere close to the front lines, will also pose the classical "use them or lose them" dilemma. They may be sucked into conventional war-fighting and start the nuclear escalation spiral, if easily available.[32]

Defence by Denial

The School of Army Air Defence in Karachi trains the Pakistan Army on anti-aircraft artillery. Pakistan's air defence was merged with its artillery and named 5 Heavy Anticraft and 6 Light Anti-Aircraft Regiments and the former was the most technically sophisticated unit of its time.[33] They played an important role in Pakistan's conflict with India. The first Five-Year Development Plans

from 1984-89 laid stress on modernisation, modification, reorganisation and indigenisation of the air defence artillery. From 1989-91, importance was given to low altitude air defence systems radars, RBS-70 missiles, Giraffe radars, and 35mm Oerlikon gun system along with Sky Guard radars. At present, Pakistan's air defence forces are protected by air defence artillery which includes the Oerlikon GDF-005 35mm and the Bofors 40mm guns.

Fighting Low-Intensity Conflicts

Pakistan has had skirmishes with not only India, but also Afghanistan. Post 2001, Pakistan's security had been threatened by the activities of Al Qaeda in Afghanistan and in the border tribal areas of Pakistan. Pakistan had used long range artillery weapons in eastern Kunar and Nuristan provinces. Even border towns like Khost, and Nangarhar and Kunar regions have also witnessed artillery shelling which has killed and wounded many Afghans. Iran is also a constant threat to Pakistan as it is believed to sponsor terrorism in Balochistan. Pakistan's conventional weapons have to be modernised in order to be able to counter these threats. An advantage of attacking the insurgents or enemy with the help of artillery is that it can take the enemy by surprise, ill prepared for retaliation. However, it must be noted that only in Phase III of the counter-insurgency operations could artillery play an important part. Heavy artillery in counter-insurgency operations was used to destroy suspected terrorist hideouts. However, due to lack of adequate infantry support, it failed to dislodge the militants but caused large scale collateral damage which alienated the tribal population even further in the Federally Administered Tribal Areas (FATA) regions.[34]

Recommendations for the Indian Army

Pakistan might be way behind India in terms of the quantity of its artillery arsenal. However, it is slowly yet steadily modernising its artillery to gain a qualitative advantage. It is a matter of time as Pakistan tries to induct the WS 2 from China, which would have a range of 350 km and could be armed with more accurate rocket systems. Over the past few years, Turkey has been modernising its artillery systems. With its growing relations with Turkey, Pakistan could be interested in Turkey's artillery systems, especially in the multi-barrel rocket launcher systems. A good quality weapon locating system could also be inducted by Pakistan. Pakistan could be interested in the excalibur precision guided extended range projectile which could enable it to acquire a 24X7 precision-guided capability

and have a good circular error probability.

Should deterrence fail, both India and Pakistan could expect to fight their next conflict in the mountains. With Pakistan showing interest in improved Chinese MLRS, suppressing the enemy and destroying its ground and air weapons, causing casualties, and thereby breaking its will to fight could become easier. Counter-bombardment and counter-mortar could be enabled with an effective artillery system. The Indian Army also needs to take into consideration the fact that the next war would not be like Kargil. Pakistan has learnt from its mistakes and is modernising its air force at a steady pace, with help from China. Upgraded versions of the F-16s and the JF-17s would enable the army to be well supported by these aircraft. Hence, unlike in Kargil, where Pakistan had not used its air force to a large extent, and where the Indian Air Force gave considerable support to the Indian Army, the next war could witness the Pakistan Army being well supported by the Pakistan Air Force.

India's air defence artillery is in a state of obsolescence. Hence, if modernisation does not take place for India's artillery, many of the defensive tasks would have to be undertaken by the air-to-air missiles of the Indian Air Force. The Indian Army must realise that air defence artillery needs to be modernised because in case the air-to-air missiles of the Indian Air Force fail to destroy the aircraft, the final job would lie in the hands of a gunner. However, modernisation of Pakistan's artillery and armour could have a positive side too. Pakistan's 'first strike' policy of nuclear weapons is due to its inferiority in conventional arms as compared to those of India. In case Pakistan equals India's conventional power, the chances of a first strike with nuclear weapons from Pakistan's side would be reduced.

Under this programme, modernisation of the Pakistan Army, like that of its air force and navy, is on the agenda. This programme would aim to address the limitations in doctrines, training and shortages in equipment. Standardising the infantry and artillery equipment would, hence, be a major necessity. The procurement of 155mm artillery equipment and sophisticated MLRS is sheer proof of the fact that Pakistan has realised that its artillery needs to be equipped with the best equipment.

Notes

1. RSN Singh, *The Military Factor in Pakistan* (New Delhi: Lancer Publishers, 2008).
2. Ibid.

3. More information available at www.pakistanarmy.gov.pk/AWPReview/TextContent.aspx?pId=21&rnd=450
4. Singh, n. 1.
5. Views expressed by Jasjit Singh, "Man on Horseback: An Introduction," in Shalini Chawla, *Pakistan's Military and Its Strategy* (New Delhi: Knowledge World, 2009).
6. Ibid.
7. Brian Cloughley, *A History of the Pakistan Army: Wars and Insurrections* (New York: Oxford University Press, 2006).
8. Ibid.
9. Shaukat Riza, *The Pakistan Army 1966-1971* (New Delhi: Natraj Publishers, 1977).
10. Ibid.
11. Cloughley, n. 7.
12. Muhammad Aslam Khan Niazi, "India Toying With Dangerous Cold Start War Doctrine: Analysis," *World Security Network*, October 29, 2011.
13. Gurmeet Kanwal, "Pakistan's Military Defeat," in Jasjit Singh (ed.), *Kargil 1999: Pakistan's Fourth War for Kashmir* (New Delhi: Knowledge World, 1999).
14. Observations made by the Kargil Review Committee Report, as quoted by Ashok Kalyan Verma in, *Kargil, Blood on the Snow: Tactical Victory, Strategic Failure – A Critical Analysis of the War* (New Delhi: Manohar Publishers, 2002).
15. Ibid.
16. Ibid.
17. More details on the 1999 Kargil conflict, available at www.globalsecurity.org/military/world/war/kargil-99.htm
18. According to estimates based on the Stockholm International Peace Research Institute (SIPRI), *Arms Transfer to the Third World, 1971-1985* (Oxford: Oxford University Press, 1987).
19. Ibid.
20. "Central and South Asia," *Military Balance 1998-1999*, (London: Oxford University Press).
21. Ibid., *Military Balance,* 1999-2000.
22. Ibid., *Military Balance,* 2010.
23. Ibid., *Military Balance,* 2008.
24. Ibid., *Military Balance,* 2011.
25. Ibid.
26. For more on this, see "Future Artillery 2012," available at www.future_artillery.com
27. Susan B Epstein and K Alan Kronstadt, "Pakistan: US Foreign Assistance," US Congressional Research Service Report, July 28, 2011.

28. Gurmeet Kanwal's remarks in "India Artillery Upgrade Stuck, Pak Gets Howitzers from the US," *The Indian Express*, August 25, 2009.
29. Neelam Mathews, "India Readies Howitzer Trials," *Aviation Week*, March 15, 2010.
30. SK Malik, *The Quranic Concept of War* (New Delhi: Himalayan Books, 1986).
31. Ibid.
32. Rodney W Jones, "Pakistan's Nuclear Poker Bet," *Foreign Policy*, May 27, 2011.
33. For more on Pakistan's Army Air Defence, see www.pakistanarmy.gov.pk/AWPReview
34. Gurmeet Kanwal, "Losing Ground: Pakistan Army Strategy in FATA and NWFP," *IPCS Issue Brief*, No. 84, November 2008.