IMPACT OF TECHNOLOGICAL ADVANCEMENTS ON THE CONDUCT OF FUTURE WARS IN SOUTH ASIA

Seema Gul
Department of Political Science,
University of Peshawar,
Peshawar, Khyber Paktunkhwa, Pakistan.
seema.ghani86@gmail.com

Umair Khan
Graduate
from The University of Edinburgh,
Scotland.
imomairk@gmail.com

Shahid Iqbal
Centre for Disaster Preparedness and Management,
University of Peshawar,
Khyber Pakhtunkhwa, Pakistan
shahidiqbalkhan@uop.edu.pk

Abstract:

Speaking of Geo-Politics broadly, it is the conflict of ideas and interests among major powers of the world. When human being lives together, conflict is unavoidable, but the scope of all-out war is relative. English economist Lord Keynes said: "the inevitable never happens. It is unexpected always." Albert Einstein noted "as long as sovereign nations possess great power, war is inevitable."

This paper examines the degree of theoretical and practical technological advancement in the conduct of warfare during 20th century. Yet the events of conflict happened in late 20th century has given us a reason to forecast the changes through which the warfare may pass in early 21st century accordingly. The paper also quantifies the influence of technology on warfare 20th century and how technological advancement is likely to affect warfare in future especially in South Asia.

Although technology is constantly advancing, particularly in a world where extensive scientific and engineering research and development is being carried out. This paper analyses South Asian security dimensions considering Pakistan and India major respondents of study and assessing the changes in conduct of warfare influenced by technological advancement in different dimensions. It concludes the argument with the implications of technological advancement for Pakistan and its response to India taking

National Security into account.

Theoretical Framework of War and Conduct

The warfare had never been remained out of the domains of eminent military genius be it Sun Tzu, Carl Von Clausewitz, Napoleon or Liddell Hart. The principles of war fighting devised by them still hold grounds in modern warfare. Theoretical framework of war and conduct defines what war is and how it should be fought, not only fought but won.

Sun Tzu wrote in favour of achieving victories with minimal bloodshed and short battles, avoiding long campaigns and enemy strength with deception and agility. His main argument was to subdue the enemy and to win through savvy and skill rather than use of brutal force. Liddell Hart advocated better manoeuvring and deception in the battlefield, and asserted to avoid pitched balance against already prepared defences.(Hanlon, 2011)

Clausewitz coined the term 'fog of war' to describe unpredictability and confusion of the battlefield. Modern warfare requires Dominant Battle Space Knowledge (DBK) to describe future combat environment and deploying principles of war. (Michael, 2000) Command, Control, Communication and Computers (C4) and Intelligence, Surveillance and Reconnaissance (ISR) provide beforehand knowledge regarding battle field or operation area be it offensive or defensive and thanks to guided missiles, precision strike capabilities and stealth features which have transformed the conduct of warfare.

These capabilities are built in an anarchic world where no system of regularity exists. What Morgenthau, a realist philosopher, has proposed, gaining power is the only way to get the best of the world. It obligate the nations to develop and maintain capable military potential to face any aggression from hostile country. Offensive realists firmly believe that economic and political ends cannot be achieved without backing of strong military power which immensely driven by technology in today's world. On the contrary, Idealists suggests human beings to control their desires, benefit others even at the cost of own benefits.(Khan, 2013) States do cooperate with each other in developing and introducing new technologies, but the end use of military technology is none other than battlefield.

Evolution of Warfare: Industrialization

The Industrial revolution had incredible impacts on the conduct of warfare in 19th century. The magnitude and scope of war had dramatically changed after industrialization. The historians are of the view that American Civil War was the first manifestation of modern warfare influenced by industrialization and technological advancement. (Zapotoczny, 2006) American Civil War observed the demise of traditional mode of warfare and invention of new weapons with more destruction and affectivity.

3.1. *Impacts of Industrialization on Warfare*

In order to understand the impacts of industrialization on warfare, one must understand what drastic changes 19th century had passed through in context of advancement in industry, science, and technology. The 1st half of 19th century observed long period of peace in Europe with a focus on industrial expansion and mass production. This mass production made the inception of weapons possible with high accuracy, effective firepower and long range. Thus latter half of 19th century was torn with strife for more resources to feed their respective mass production industry. (Zapotoczny, 2006)

The steamship, railroad and telegraph further enhanced connectivity which in turn brought conflicts for states in Europe. Thus, warfare observed drastic changes amid growing size of armies, mobilization, more thanks to rifles, machine guns and breach loading weapons that made war more destructive than ever it was. The military logistics had become the part of warfare as railway could move troops 15 times fast than marching speed, thus maintenance of supply lines and reinforcement became easy. (Zapotoczny, 2006)

3.2 Warfare Deployed in two WWs

The technology used in WW I operations was advanced but more complicated than before which made war a story of improvements and perfection of previous weapons. Transport was gradually motorized, logistics became more large and complex, communication was faster and above all railway was most efficient communication and mobilization tool for armies during and after the WWI. The machine gun was the devastating weapon that could only be responded by relative firepower or more effective artillery. But the great artillery barrages of the war solved nothing because massing effective artillery to a single position was time consuming and thus was vulnerable to coming attacks. The use of weapons at hand introduc*ed Trench Warfare* during WW I. With the passage of time, the spell of machine gun was shattered by an armoured car in ending phase of WWI and restored the offensiveness on both sides. Finally, WW I changed the political dynamics of the world resulted in Communist revolution in Russia, Fascist in Italy and Nazi in Germany and Pacifism of western democracies on the other hand. Thus technology continued to evolve and stage was set for another war. (Zapotoczny, 2006)

Latter years saw the greater innovation in warfare with the induction of tanks, airplanes and submarines in militaries. During WW II, armoured forces had played an important role as the Germans did best and effective use of armoured forces in Poland 1939 and France 1941under *Blitzkrieg* tactics. German army assigned each panzer army its own air force element that in combine attacks pushed the allied forces back to the English Channel, Dunkirk. This was the first expression of air land battle in history of warfare. (Bolte, 2015)

3.3 Nuclear Era & Cold War

Claude Fohlen once stated, "The industrial revolution is a continuing phenomenon which is going on in front of our eye. We must recognize that the process once launched knows no limits." (Bolte, 2015) In the result of Post WW II political setting, Cold War started between two major powers, the USA and USSR, being pioneer Nuclear Weapon States. Their conflict was driven by ideology, obsessed with nuclear weapons and overwhelmed with arms race. In the wake of Cold War, USA established its long-range strategic missile force, provided with *Jupiter and Thor* Intermediate Range Ballistic Missiles (IRBM) and *Atlas and Titan* Intercontinental Ballistic Missiles (ICBM) thus the USA maintained technological supremacy but Soviet Union responded by carrying out different relatively capable missile tests. (Swift, 2009)

Arms race and technological advancement took dramatic shape in 1957 when Soviets launched first artificial satellite *Sputnik* in space, paves the road for space warfare in future. This shocked the Americans because they were not used to be surprised by the Soviets. (Swift, 2009) The world saw famous Mutual Assured Doctrine (MAD), a brainchild of technological advancement chiefly.

4 The security Dynamics of South Asia

The security dynamics of South Asia inextricably associated to power politics between India and Pakistan as both are key states in the region. The South Asia comprises India at the centre surrounded by Pakistan, Nepal, Bhutan and Bangladesh. It has been characterized by the dynamic interplay of security, economy and diplomatic factors reinforcing each other due to complex territorial claims and religious extremism. (Venkataraman , 2021)

4.1 *Strategic Culture of South Asia*

The strategic culture of a nation or region is derived from its history, political culture, geography and it represents the pattern of behaviour and aggregation of the public attitudes. This representation is depicted in decisions of their political elite, military establishment and finally the public opinion. To determine the strategic thoughts and policies of India and Pakistan is uphill task because both of the states neither had written documents nor a strategic thought in any institutional structure until 1998, when they did nuclear tests. Interestingly, this is not the case for other nuclear weapons state as they have spell out their strategic thoughts. (Das, 2009)

Along with Islam, strategic culture of Pakistan is influenced by Indian centric insecurities, acquisition of weapons to raise the cost of war against India, allocation of resources to defence and alliance building, being the major factors in strategic evaluation. (Das, 2009) The power politics in South Asia revolves around nuclear weapons with relation to global nuclear order. South Asia is perceived as a nuclear flash point in the world due to longstanding unresolved disputes and wars fought to resolve them between India and Pakistan. This will for sure ensures relevance of South Asia

to global politics in decades to come. (Hoodbhoy , 2013)

4.2 Changing Nature of Warfare

The nature of warfare has been changing day by day since the WW II ended. The Cold War era is a clear exposition of the invention of technologies placing missile programs capable of carrying nuclear war heads above all. The military history observed Persian Gulf Wars of 1991 in the light of spectacular performance of US high technology weapons that dramatically changed the nature of future warfare. The fast pace of innovation in modern computer industry has enabled modern militaries to develop more high technology weapons to neutralize enemy forces. Many of the military analysts are of the view that the world is on the threshold of Revolution in Military Affairs (RMA) having passed through the war fighting like Blitzkrieg, aircraft carriers, large scale amphibious and airborne assault, nuclear weapons, ballistic missiles, strategic bombing, and submarine launched missiles. (Hanlon, 2011) In a time to come, there would be a great focus on integrated command structure, real time surveillance, electronic and cyber capabilities. The spread of asymmetric capabilities like unmanned aerial vehicles, robotics, and guided missiles could drastically change the dynamic nature of warfare. (Singh, 2010)

The transformation of military involves the development of rapidly deployable, fully integrated joint forces, capable of working with air and sea forces to strike adversary swiftly and with devastating effects. Thus military transformation has led modern armies to focus on capabilities based approach rather than threat based approach. (Sloan, 2008)

4.3. ***Transformation of Land warfare***

The land warfare is characterized with superior mobility and utility of forces in real time action. Since WW II, land warfare has been observing immense transformation in weaponry, firepower, sophistication, accuracy along with night vision capabilities has made warfare more reactive. The beauty of land warfare is the armoured vehicles i.e. tanks are being modernized worldwide and have and have wide scope of application in conflicting environment of South Asia between India and Pakistan. The weight of tanks has reduced with an increase in per hour speed, capable of night vision, laser range finder along with stabilized turrets so as to fire accurately even while on move. The armour of tanks is so designed to survive severe blow and continue to move in battle field in diverse environment application. (Hanlon, 2011) Armoured units are used to add fire power as force multipliers in ground offensive operations due to their speed. Light armoured vehicles are being developed keeping in view the Low Intensity Conflicts (LIC) but in all-out war, they may become vulnerable due to massive fire power.

Where armoured vehicles are getting modern and devastating, anti-armour weapons are getting better too. The latest portable anti-tank weapons are designed to attack from a tank's to armour or sub-munitions fired by artillery i.e. Sense and Destroy Armour Munitions (SADARM). Anti-tank

rockets like RPGs or missiles can neutralize the tank if attacked from right angle and close range especially in porous security environment of South Asia. In modern times, tanks like Al Khalid should be equipped with Active Protection System (APS) to discredit anti-tank missile or RPG attack. (Osman, 2015)

Al-khalid is main battle field tank (MBT) used by Pakistan while Pakistan is likely to deploy more modern Chinese built Type-59, Type-69, and Type-85 tanks, as well as Ukrainian T-80UDs, Soviet era T-54s and T-55s to maintain long border defences. (Aguilar, 2011) In addition to it, due to global reach of air power, western powers are not much conscious about building tanks but South Asia, a diverse region in environment and terrain would observe advancement in land warfare capabilities added by air support in close combats.

4.4. *Transformation of Air warfare*

Since the WW II, air power has dominated the battle fields either as a supporting agent for struggle on land or decisive role especially after the role of strategic bombing and air space domination. South Asia has had the history of nerve testing air battle couple of times and air force is considered a great force multiplier and decisive factor. Economic restraints and lack of technological base, India and Pakistan, both have been obliged to major powers for their fighter jets acquisition since their inception. The emerging geopolitical setting and new trends of warfare have dragged both to invest in Research & Development as per their capacity though still looking abroad.

Recently, PAF operates JF-17, different variants F-16, 3rd generation Mirage as primary war machines loaded with diverse arsenal capable of ground and air strikes supported by AWACS, SAAB 2000, Y8-AEW for ISR. (Pike, 2021) JF-17 is a lightweight, single-engine, multirole combat aircraft, powered by a Russian-designed-but-Chinese-built Klimov RD-93 (a RD-33 derivative) turbofan, capable of reaching a top speed of Mach 1.6. The aircraft allegedly has an operational range of around 1,200 kilometres (745 miles) remains at the top in PAF and its numbers and generation would be extended. (Gady, 2016)

While on the other hand, Indian Air Force operates Hawk, Mig-21, Mig-27, Mig-29, Jaguar, Mirage 2000, Su-30MKI and Tejas, and Rafale. (Bronk, 2017) The 36 Rafael swing-role fighters are being procured directly from France which will certainly help to meet India's air defence requirements, but it is too small a number for defending its vast airspace. Furthermore, the Rafael will be the only remotely credible type operated by the IAF for an airborne nuclear delivery mission against Chinese and even eventually Pakistani air defences in the years to come. (Bronk, 2017)

4.5. *Transformation of Naval warfare*

In South Asia, naval transformation and modernization have been ambitiously pursued by neighbours India and Pakistan, both assisting by the US and China respectively. Due to intersection

of interests of major powers, Indian Ocean Region (IOR) has become war prone. Where Pakistan and India share hostile land border and yet they share maritime boundaries, a cross road of geopolitical interests.

After 1971, Indo-Pak war, Pakistan navy resorted to acquire modern naval weaponry that could meet new maritime challenges of Pakistan. In next thirty years, Pakistan acquired 12-SLAUGHTER class attack FPBs, 4 HUNAIN class attack craft and 4 HUCHWAN class hydro foil crafts, 6 ex-US GEARING class vessels, long-range anti-ship missile and its maritime reconnaissance capabilities. Pakistan too acquired eight Brooke and Garcia-class frigates from US Navy, ex-RN LEANDER class frigates and builds indigenously a large patrol craft PNS LARKANA. (Pike, 2021)

Pakistan is set to acquire six of eight S-20 variants of the Type-039A/Type-041 submarines, four Improved F-22P frigates equipped with advanced sensors and weaponry HQ-17 surface-to-air missile and six Type-022 Hubei stealth catamaran missile boats, to be built by Pakistan's state-owned shipbuilder Karachi Shipyard and Engineering Works (KSEW). (Ansari, 2017)

Accordingly, India has commissioned Chakra class nuclear power submarine that she leased from Russia and indigenously built SSBN INS Arihant class, provided India an upper hand in IOR wherein it stands conventionally superior as well. Anti-Submarine Warfare (ASW) also plays an escalating role where submarines are operating that pose serious threats to either side due to the close proximity of borders.

South Asia and Conduct of Future Warfare

The future of warfare is intense in South Asia because of its geography and demography. Conventional forces backed by nuclear forces are evolving day by day according to evolution of threat perception i.e Low Intensity Conflict and High Intensity Conflict as both exist in place in a form or another. Expectedly, future ware would more quick and at the same time, costly, in all areas.

5.1. Information & Cyber Warfare

Sun Tzu, a Chinese military strategist, was of the view that information regarding battlefield was not received by intutions or by the God but by the people specially trained for observing and understanding the enemy and his thinking behaviour very closely. (Giles, 2001) Precisely, it can be stated as "the capability to deny the enemy, his ability to wage war by depriving him of his will and capability to fight against you." (Forno, 1999)

The broader utility of Information Warfare has engulfed almost everything into its sphere because of modern Information Technology. In addition, Strategic warfare has been integrated with Information Warfare and it is because the information regarding strategic assets and sites of states is of the survival concern for them and thus, they are subjected to misinformation and propaganda in

developing countries like Pakistan. Earlier, Command and Control system was solely designed and set up for entertaining needs of strategic level of warfare but now, information and strategy has been linked with each other. (Molander , 1996) It developed the notion of Strategic information warfare which is an integration of Information warfare and Strategic Warfare. Their inter-relationship further paves the way for cyber security, a major concerning area in South Asia.

The rapidly growing technology and daily increasing user base have created more vulnerability for society and more significance for militaries.(Dilipraj, 2015) The espionage and surveillance scams, hacking attempts on vital databases for retrieving data and fully integrated communication and command & control suggests its lethality without any physical damage. In a time to come, information and cyber domains of security will dominate at strategic and sub strategic levels. Pakistan and India has had the history of doing hacking attacks on each other's official databases and conveying verbal threats of destroying each other.

5.2. Role of Space and Satellites

In modern times, space has gained a crucial space in military planning and space assets are being integrated with existing military hardware for military planning amid ever changing nature of warfare. Wars are fought with ground forces guided by space assets such as Global Positioning System (GPS) floating thousands of kilometres above. Space satellites guide long range precision missiles, stealth fighters with precision ammunition, communication with subsurface vehicles i.e. submarines, Unmanned Armed Vehicles and real time imageries. The military use of satellites has become detrimental for modern militaries during peace and war time, both.

In South Asia, satellite technology is evolving but being used by both, India and Pakistan. During peace time, space assets provide real time information and movement around borders via Communication, Command, Control, Computers and Intelligence (C4I) systems. In addition to it, they play following roles: (Imtiaz, 2008)

- 3D functions (Deployment, Dispersal and Disposition)
- Identifying Threats
- Identifying the Decoys and Camouflage
- Use of GIS (Geographical Information Systems)
- Centralized Command and Control
- Integration of Communication, Earth Resource Satellites and Aerial platforms
- Militarizing the Space

In South Asia, space technology is evolving with the passage of time. The recent test of Agni-V ICBM with 5000 km rage by India expressed the motivation of military use of space because the guidance system of missile requires accurate information regarding target can only be provided by space satellites. Indian space program also aids their BMD system for tracking and intercepting coming

missile with reliability. (Khan, 2013)

In respond, the Research and Development (R&D) carried out by Pakistan could not go beyond to an extent mainly due to financial constraints, limited technical experts, weak scientific support and mainly because of global technological "denial approach through arms embargoes and multifaceted sanctions". (Jaspal, 2005) PAKSAT-IR, first indigenously build satellite by Pakistan with Chinese support was launched in 2011 which is being used for commercial use of telecommunication.

In the 19th meeting of National Command Authority, Pakistan Space Vision 2040 was announced aimed at "bringing the benefits of the full spectrum of space technology" (Khan, 2013) For Pakistan, it is the need of the hour to deploy early warning satellites, navigation satellites, reconnaissance means for being aware of Indian hostilities. In foreseeable future, sooner or later, south Asia would be a contesting region in space faring nations. Pakistan, chiefly, will sustain its credibility of nuclear deterrence to solidify its defences. (Khan, 2013)

5.3. Command, Control, Communication, Computers and Intelligence

Modern warfare is attributed with real time information and battle field surveillance, robust command and control, high accuracy of target hits and sophisticated communication means. Apart from space or outer space satellites, battle field equipment has also revolutionized and conventional warfare is characterized with features discussed above, chiefly know as battle field surveillance systems.

Pakistan Army is also using a wide range of sensors, radars and integrated equipment in battlefield. There is a need of satellite system capable of photographic and live reconnaissance and early warning satellites in order to ensure effective intelligence and early warning system. In a bid to securitize nuclear deterrent forces, robust command and Control system has been established and it is required to be aided with outer space satellites.

To ensure nuclear command and control, Pakistan announced its C2 structure on Feb 7, 2000. Pakistan's command and control structure was grouped under three constituents.(Zahra, 2012) (Jaspal, 2011)

- National Command Authority (NCA)
- Strategic Plans Division (SPD)
- Strategic Forces Command (SFC)

5.4. *Ballistic Missile Defence Systems*

In the aftermath of Cold War, shift in global strategic environment changed the threat perception of major powers chiefly United States. This instigated potential states including India to acquire missile shield, Ballistic Missile Defence shields (BMD), to ensure their security fences.

(Jaspal, 2011)

India intends to destabilize prevailing balance of deterrence by employing new category of weapons i.e. BMD in its arsenal. For sure, this will shift balance of power in favour of its holder. It will give India an upper hand in protection against retaliation strikes be it convention or nuclear capable in case of crisis and standoff.

New Delhi, under its Guided Missile development Program 1983, has been acquiring such capabilities than can help India to build indigenous BMD system. Initially India has been relying Russian Anti-Ballistic Missile (ABM) technology i.e. Antey 2500/S-300 VM and Almaz S-300 PMU-1/2. India incorporated few parts of Arrow-2 BMD system in 1990s from Israel. Later on, Israel provided India Anti-Tactical Ballistic Missile, a component of Arrow and an airborne early warning system named Phalcon. Next Step Strategic Partnership (NSSP) between India and US let former to get more sophisticated missile defence technology Patriot Advanced Capability, PAC-3. It gave India a chance to install its lower altitude interception Advance Air Defence (AAD) and Parithvi Air Defence (PAD) for high altitude interception.

The action-reaction theory between Pakistan and India may oblige Pakistan either to deploy own BMD or deploy operational nuclear weapons to maintain its defensive fence. Pakistan would confront an alarming deterrence management what Scott D. Sagan has termed vulnerability/invulnerability Paradox. Moreover, the existing asymmetry between India and Pakistan in conventional realms enhances the probability of Pakistan to on nuclear weapons and led to adopt First Use nuclear posture. The immediate counter measure to BMD could be the large number of delivery vehicles and warheads, replacing single warhead missile with multiple independently targetable re-entry vehicles. The payload capacity up to 10 warheads per vehicle will bolsters BMD illusion due to high velocities enough to dodge them. The NASR or Hatf IX, short range surface to surface missile will breaks the premise of CSD superiority.

Implications on Pakistan

The growing tendencies in defence budgets in South Asian states are attributed to changing threat perception and subsequently growing capabilities to mitigate those threats. India's defence program seems to be more advanced and heavily funded as compared to Pakistan thus self-reliance of Pakistan military certainly gradually increases its efficiency and capacity to provide the revenue for the military as a whole. The dependency on imported arms has served as leverage at the hands of superpowers to force Pakistan to serve their interests in the region but at the same time it suffered embargoes and sanctions on weapon imports. (Mirza, 2015)

Along with all challenges and prospects be it economic or political, technological advancement is the centrepiece of Pakistani armed forces. With widening cooperation gap between the US and Pakistan has alienated Pakistan towards China. China is assisting Pakistan to establish Heavy Industry Taxila to enhance joint cooperation and indigenously build capacity for Pakistan. At the same time, some of the analysts' view that Chinese weapons technology is inferior to western

counterparts and their equipment cannot be used as force multiplier. For instance, China and Pakistan are working on joint projects building next generation fighter jets but previously Pakistan was adamant to replace ejection seats in Chinese built cockpits because of unreliable safeguards as per PAF standards. (Aguilar, 2011) The maintenance of advanced military is expensive though while war may be more expensive than ensuring deterrence and defence capabilities so Pakistan has to go with this advancing anarchic world.

Conclusion

The future of warfare is intense in South Asia because of its geography and demography. Conventional forces backed by nuclear forces are evolving day by day according to evolution of threat perception i.e Low Intensity Conflict and High Intensity Conflict as both exist in place in a form or another. This nature of challenges feed the fear and frustration in key players of South Asia eventually engaged them in arms race. In efforts to prevent each other, sophisticated technologies are being acquired or built indigenously making future more unpredicted and realm of chance than ever it was. At the same time, it will pose challenges of leadership and strategy that must be accorded with new dimensions of warfare. In a time to come, strategy would never be free from technological advancement making it more complex for the generals. The future of warfare in South Asia is no more associated with Pakistan and India only rather it set the US and China confronting each other on the backs of respective allies. The more they engage with each other, the more war would be devastating even to imagine even below the nuclear threshold.

References

Aguilar, F., Bell, R., Black, N., Falk, S., Rogers, S., & Peritz, A. (2011). *An Introduction to Pakistan's Military*. Harvard Kennedy School, Belfer Center for Science and International Affairs.

Aguilar, F., Bell, R., Black, N., Falk, S., Rogers, S., & Peritz, A. (2011). *An Introduction to Pakistan's Military*. Harvard Kennedy School, Belfer Center for Science and International Affairs.

Ansari, U. (2017, August 08). Pakistan Seeks To Energize Naval Modernization. Retrieved January 21, 2021, from https://www.defensenews.com/naval/2015/06/17/pakistan-seeks-to-energize-naval-modernization/

Bolte, P. L. (2015,). Tanks and Armored Warfare Doctrine: World War II. World at War: Understanding Conflict and Society. Retrieved March 15, 2015,

Bronk, J. (2017, February 23). Present and future challenges for the Indian Air Force. Retrieved January 21, 2021, from https://www.orfonline.org/expert-speak/present-and-future-challenges-for-the-indian-air-force-and-what-changes-innovations-in-todays-technologiesplatforms-will-help-them-prepare-for-tomorrows-conflict/

Das, R. (2009). The prism of strategic culture and South Asian nuclearization. *Contemporary Politics*, *15*(4), 395-411.

Dilipraj, D. (2015). SOUTH ASIAN CYBER SECURITY ENVIRONMENT: AN ANALYTICAL PERSPECTIVE. Retrieved January 21, 2021, from https://www.academia.edu/15710049/SOUTH_ASIAN_CYBER_SECURITY_ENVIRONMENT_AN_ANALYTICAL_PERSPECTIVE

Forno, R., & Baklarz, R. (1999). *The art of information warfare: insight into the knowledge warrior philosophy*. Upublish. com.

Gady, F. (2016, December 13). The Diplomat. *Confirmed: Pakistan Air Force Now Operates 70 JF-17 Fighter Jets*. Retrieved from https://thediplomat.com/2016/12/confirmed-pakistan-air-force-now-operates-70-jf-17-fighter-jets/.

Giles, L. (2001). *Sun Tzu on the art of war*. IndyPublish.com.

Hoodbhoy, P., & Mian, Z. SPECULATIONS ON THE FUTURE OF NUCLEAR SOUTH ASIA. *Confronting the Bomb*, 295.

Jaspal, Z. N. (2005). Arms control: risk reduction measures between India and Pakistan. *Islamabad: SASSU*, 1-28.

Jaspal, Z. N. (2011). Ballistic Missile Defense: Implications for India-Pakistan Strategic Environment. *NDU Journal*, *25*, 2.

Khan, A. (2013). Global Trends in Space Militarization: Its Implications on South Asia. *LAP LAMBERT Academic Publishing*, 39-40.

Khan, A. (2013). Global Trends in Space Militarization: Its Implications on South Asia. *LAP LAMBERT Academic Publishing*, 39-40.

Mirza, M. N., Jaspal, Z., & Malik, A. (2015). Military spending and economic growth in Pakistan. *Margalla Papers*, *19*.

Molander, R. C., Riddile, A., Wilson, P. A., & Williamson, S. (1996). *Strategic information warfare: a new face of war*. Rand Corporation.

O'Hanlon, M. E. (2011). *Technological change and the future of warfare*. Brookings Institution Press.
O'Hanlon, M. E. (2011). *Technological change and the future of warfare*. Brookings Institution Press.
Osman, A. (2015, November 10). Pakistan's tool of war: Al-Khalid Main Battle Tank – the armoured fist. *Dawn*.
Pike, J. (n.d.). Military. Retrieved January 21, 2021, from https://www.globalsecurity.org/military/world/pakistan/air-force-equipment.htm
Pike, J. (n.d.). Military. Retrieved January 21, 2021, from https://www.globalsecurity.org/military/world/pakistan/navy-modernization.htm
Singh, H. (2010). India's emerging land warfare doctrines and capabilities.
Sloan, E. (2008). *Military transformation and modern warfare: A reference handbook*. Greenwood Publishing Group.
Swift, J. (2009, March). The Soviet-American Arms Race. Retrieved January 21, 2021, from https://www.historytoday.com/archive/soviet-american-arms-race
Venkataraman, D. (n.d.). Regional security dynamics of south Asia. Retrieved January 21, 2021, from https://www.springeropen.com/collections/securitysouthasia
Zahra, F. (2012). Credible Minimum Nuclear Deterrence in South Asia. *IPRI JOURNAL*, *12*(2), 1-14.
Zapotoczny, W. S. (2006). The impact of the Industrial Revolution on warfare. *Retrieved from wzaponline: http://www. wzaponline. com/InductrialRevolution. pdf THIS PAGE INTENTIONALLY LEFT BLANK*.