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EDITORIAL

It is indeed a matter of great pleasure for the Editorial Board to present the 71st issue of Bangladesh Army Journal before the valued readers. Bangladesh Army Journal acts as a professional mouthpiece of the military writers and it serves as an important medium for the professional development of officers of Bangladesh Army. It provides an open forum for exchange of innovative ideas and matured thoughts related to Bangladesh, national and international security affairs, military strategy, military leadership and management, military history and tradition, unit affairs and other topics of significant and current interest to Bangladesh Army. It seeks to encourage further research on the core issues of defence, provides the latest perspectives, and serves as a platform for sharing research findings and opinions of military scholars for constant improvement of Bangladesh Army.

The current issue of Bangladesh Army Journal contains articles on varied themes including the Historic Speech of the Father of the Nation during the Passing Out Parade of 1st BMA Short Course, grooming young officers as ‘Lighthouse Leaders’, professional dichotomy between unit service and course performance, supporting future combat through outsourcing, implementation of Padma Multipurpose Bridge Project, dynamics of principal leadership, indigenization of Unmanned Aerial Systems, importance of UAVs in modern warfare, capabilities of Army Aviation, and evaluating the need of materialistic gain and psychological inspiration for strengthening the interpersonal relationship between officers and men in the units. We would feel amply rewarded if the readers find the innovative and thought provoking dissertations of the current issue worth reading and satisfying.

The Editorial Board is profoundly indebted to **General S M Shafiuddin Ahmed, SBP, OSP, ndu, psc, PhD, the Chief of Army Staff, Bangladesh Army and Chief Patron of Bangladesh Army Journal** whose wisdom, professional acumen and keen observance have made the qualitative enrichment of the journal. We would like to thank all the writers who contributed immensely for this issue despite their busy schedule of professional commitments. We would also like to thank all concerned who have cooperated us in publishing the journal. We are highly optimistic that we would be able to present multidimensional, more resourceful and enlightening articles in future for the esteemed readers through our inquisitive military scholars and writers.

THE HISTORIC SPEECH OF THE FATHER OF THE NATION BANGABANDHU SHEIKH MUJIBUR RAHMAN DURING THE PASSING OUT PARADE OF THE 1ST BMA SHORT COURSE: A TRUMPET CALL FOR THE MILITARY LEADERS OF ALL AGES

Major General Md Jahangir Harun, SGP, ndc, afwc, psc (LPR)

Abstract

The historic speech of Bangabandhu Sheikh Mujibur Rahman delivered in the 1st Passing Out Parade of Bangladesh Military Academy (BMA) at Cumilla Cantonment on 11 January 1975 has a unique and universal appeal for the military leaders. The speech bears the testimony of his farsightedness in developing a professional and competent Army. The content of the speech eloquently articulates the philosophy of the Father of the Nation. Through this speech, he expressed his vision of how he wanted to see his Army in the future. This study considers that the speech of Bangabandhu is a complete code of conduct for the military leaders. In this background, the study is carried out through qualitative analysis. The study portrays an accurate picture of the leadership issues and regimental feelings needed for a military leader, which is deliberately compared with the essence of the speech of Bangabandhu. The study identifies that the majestic address has an unbound influence on leadership traits, responsibility towards the nation, vision for Bangladesh Army and conceptual alignment, which will remain as the source of inspiration for the military leaders of all generations. The paper suggests a few recommendations to inculcate the qualities and guidance/ lessons extracted from the historic speech for enhancing leadership qualities and regimental feelings amongst the military members. However, this landmark speech of the Father of the Nation warrants a further comprehensive and deliberate study.

Keywords: Bangabandhu, speech, passing out parade, military leaders, vision, philosophy, farsightedness, leadership quality, regimental feelings, inspiration.

Introduction

Over the known history of humanity, it has been observed that some public speeches have lasting impact on human society. They changed the total gamut of history by shaping it in its way. History got a new dimension and the speakers emerged as idols for that generation and the generations to come. Speeches like "I have a dream" by Martin Luther King in 1963, "We shall fight on the beaches" by Winston Churchill in 1940, "I am the first accused" by Nelson Mandela in 1964, "Gettysburg Address" by Abraham Lincoln in 1863, "Duty, Honour, Country" by General Douglas MacArthur in 1962, "Quit India" by Mahatma Gandhi in 1942 and "Historic 7th March Speech" by the Father of the Nation Bangabandhu Sheikh Mujibur Rahman are some notable examples of epoch-making speeches.¹

¹ Kumar, O. 16 Famous Speeches That Shaped the History of the World. [online] Firangi. Available at: <https://www.scoopwhoop.com/inothernews/historical-speeches/> [Accessed 26 May. 2022]

In the context of Bangladesh, speeches of the Father of the Nation bear a lasting influence. His speeches were the 'Golden Torch', the trumpet call for the people subsisting on rice, for the home-keeping Bangalee and turned them into 'Bir' (Valliant) Bangalee. The result was the long-awaited independence of Bangla which was lost at Plassey in 1757. The historic speech of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman during the Passing Out Parade of 1st BMA Short Course is a glaring example of a speech that influenced not only the cadets of that parade but also the future military leaders around the world. This speech is unique in nature and universal in appeal. It is versatile because the essence of this speech is a clear guideline for every military leader. It is a clear farsighted guideline for the young military leaders, which encompasses patriotism, command, responsibility, firmness, discipline, indomitable courage, unselfishness, honesty and integrity, empathy, loyalty setting a personal example and so on.² Bangabandhu articulated this speech in a certain tone, at a specific rate of speed, and with a phenomenal degree of modulation.

The speech of Bangabandhu for the cadets of the 1st BMA Short Course was extempore and it was absolutely delivered from his heart. The speech was a complete guideline not only for the passing out cadets transforming into commissioned officers but also to military leaders of all ages. Bangabandhu delivered his strategic vision regarding the code of conduct, leadership traits, and expectation of the general people from the military leaders and the subsequent vision of Bangladesh Army. Each of the sentences of his speech carries clear directives and strategic guidelines for the futuristic Bangladesh Army. The speech bears the testimony of his farsightedness in developing the country and disseminates his spiritual strength to future military leaders. As envisioned by the 'Father of the Nation,' Bangladesh Army has travelled a long way since independence and the Forces Goal 2030 is the testimony of that. As an institution, the Army today is self-contained, with tremendous potential to sustain growth, expansion and modernisation in its totality which is duly recognised by the whole world.

In this paper, an endeavour has been made to analyse the speech delivered by Bangabandhu on 11 January 1975, focusing on identifying the essence of the speech to enhance the leadership qualities and regimental feelings amongst the members of Bangladesh Army, especially to the leadership. In doing so, initially, the background and context of the speech are considered as the primary sources. After that, leadership quality and regimental feelings in military life have been reiterated and compared with the essence of the speech. Finally, the contents of the speech in context with the influencing leadership quality and regimental feelings are studied in detail.

Background and Context of the Speech

Unbearable exploitation by the West Pakistanis and devastation of nine months Liberation War left the country amid wreckages. It was an enormous task for the leaders to rebuild Bangladesh

² Alam, S. (2020). Father of the Nation's First Passing Out Parade Speech at BMA: An Introduction. *Father of the Nation's Birth Centennial Journal*, pp.160-165.

from an empty economic state. But like a phoenix, the Father of the Nation Bangabandhu Sheikh Mujibur Rahman successfully started doing it. Bringing in good law and order, neutralizing the freedom fighters and rehabilitating the repatriated members were great challenges. An organised Armed Force was of great necessity after the Liberation War as the symbol of sovereignty and support for resetting the country. Establishing necessary institutions, building infrastructures and communications facilities, developing diplomatic relations with friendly countries and disarmament of different freedom fighter groups demanded upkeep of a well-organised Army.

A professional army always requires well trained and upright leaders. Military Academy is the maker of military leaders. After independence as a prime reconstructing endeavour, Bangabandhu inaugurated Bangladesh Military Academy at Cumilla Cantonment on 11 March 1974 with the expectation that the leaders of the soil should take charge to fill up the vacuum, the sooner the better for the country. The 1st BMA Short Course started its training of one-year duration with 70 cadets. As recalled by the Generals of this course, their BMA training culminated with the ever luminous speech of the Father of the Nation on the day of their Passing Out Parade on 11 January 1975.

Leadership Quality and Regimental Feeling – Impact on Military Life

Officers are the nucleus of the military. The speech of the Father of the Nation was explicit guidance for the leaders. One needs to be a sound leader first to be a good commander. Leadership is an important concept. It can be said that leadership is about taking the initiative and capacity for sustained hard work in performing tasks in his immediate sphere of activities. Leadership is about inspiring people and encouraging them to reach beyond their perceived capability. The Father of the Nation Bangabandhu Sheikh Mujibur Rahman highlighted almost all the qualities of a good leader in his speech on 11 January 1975. Those leadership qualities, as he envisioned, are shown in figure 1.

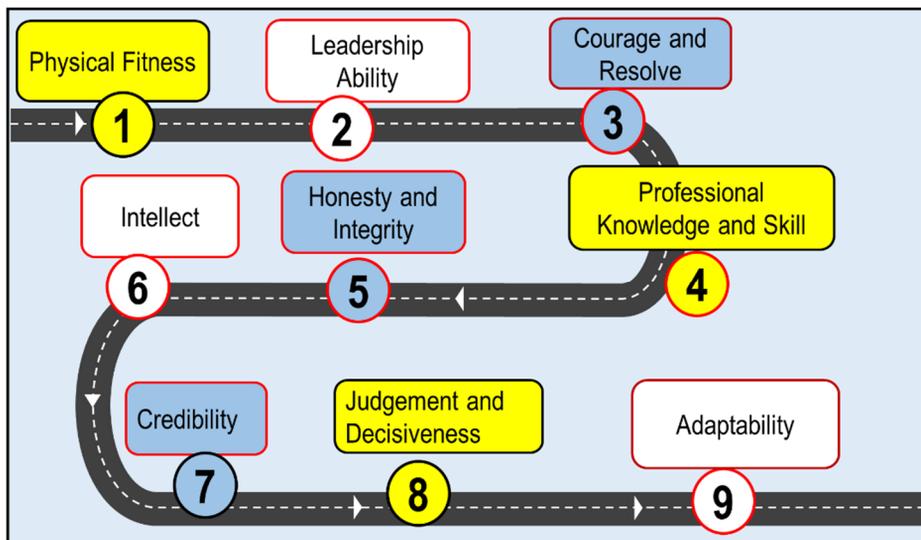


Figure 1: Leadership Qualities Envisioned by the Father of the Nation

Source: Author's own construct

Regimental feeling is an intangible emotion and one of the most influential factors that lead a commander to apply sincerity, responsibility, and judgment to the best of his ability. The regimental feeling cannot be confined to a fixed paradigm. Numerous perceptions are prevailing regarding the regimental feelings. Regimental feelings may have several definitions, as many military leaders have tried to define them from their own perceptions. This is the spirit for which every member performs his duties, responsibilities and unit activities to the best of his ability, even without being observed, to uphold the honour and pride of the unit or organisation. The impact or necessity of regimental feelings in military life can be well described as:³

- a. The regimental feeling is conceived to bring regimental pride, comradeship and a sense of service among the warriors.
- b. Enhances fighting spirit.
- c. Leads the members to keep service before self.
- d. Increases love and respect towards unit tradition and rules/regulation.
- e. Develops the foundation of a sense of respect and teamwork.
- f. Boosts up the overall discipline of a unit, regiment or organisation.
- g. Helps the command channel to implement the Command philosophy.
- h. Has a significant impact on practical training, which is the building block of an army.
- j. Leads the soldiers towards supreme sacrifice for the unit and the nation.
- k. Develops the team spirit among them, which helps achieve any mission assigned for.

The farsighted leader Bangabandhu Sheikh Mujibur Rahman could identify all the essentials of regimental feelings and focused on developing a few key indicators. These are patriotism, service before self, comradeship, teamwork, mutual trust, honesty and integrity, respect, discipline, sincerity, chain of command, sympathy and empathy, sacrificing attitude, loyalty, integrity and setting a personal example.

To grasp the essence of regimental feelings and attain the expected leadership qualities, one must possess good values and ethos. Bangladesh Army has formulated a set of values and ethos over times, which are considered as the essence of healthy military life. True values are absolute commitments of a soldier to the outfit, regiment, battalion or organisation he belongs to. It establishes a great connection and equality among the military members who are hailed from different platforms of the society. Therefore, in the context of the above-perceived definitions, the values of Bangladesh Army and the essence of the speech of the Father of the Nation are compared and shown below:⁴

³ Study Period, D.L. (2021). How regimental feelings can be improved among the unit members. 101 Infantry Brigade, 33 Infantry Division on October 05 2021.

⁴ Original Speech by Bangabandhu, Annex A to Chapter 5, Command, Leadership and management precis of BMA.

- a. **Honesty and Integrity** - নিজেকে সৎ হতে হবে এবং চরিত্র ঠিক রাখতে হবে।
- b. **Loyalty** - তোমার উপরে যারা তোমাদের হুকুম দিবে তাদের হুকুম মানতে হবে। তুমি যদি তাদের হুকুম না মানো, নিচে যারা আছে, তারা তোমার হুকুম মানবে না।
- c. **Trust and Faith** - আমি আশা করি ইনশাআল্লাহ এমন একদিন আসবে, এই একাডেমির নাম শুধু দক্ষিণ-পশ্চিম এশিয়ায় নয়, সমস্ত দুনিয়াতে সম্মান অর্জন করবে।
- d. **Justness** - নিশ্চয় যেখানে অন্যায় হবে সেখানে দমন করবা, কিন্তু নিরপরাধ লোকের উপর অন্যায় না হয়, এদিকে খেয়াল রেখো।
- e. **Service before Self** - যে জাতির ত্রিশ লক্ষ লোক রক্ত দিতে পারে স্বাধীনতার জন্য, সেই জাতি দরকার হলে কোটি লোকের জীবন দিবে বাংলার স্বাধীনতা রক্ষার জন্য।
- f. **Courage** – পাকিস্তানের সৈন্যরা বাংলার মাটিতে দেখে গেছে যে, কেমন করে বাঙালিরা যুদ্ধ করতে পারে। মুক্তিবাহিনীর ভয়েতে তাদের পরমাণু শক্তি ওয়ালা, ভুঁড়িওয়ালাদের জান শেষ হয়ে গিয়েছিলো। আমরা বাঙালিরা আর হতে পারি কিন্তু আমরা কাপুরুষ নই।
- g. **Patriotism** - তোমরা সৎ পথে থেকো, মাতৃভূমিকে ভালোবাইস।
- h. **Honour and Pride** - আজ লাখো শহীদের রক্তের বিনিময়ে বাংলাদেশ স্বাধীন রাষ্ট্র। আজ সত্যিই গর্বে আমার বুক ভরে যায়।
- j. **Respect** - তোমাদের শ্রদ্ধা অর্জন করতে হবে, সে শ্রদ্ধা অর্জন করতে হলে তোমাকে শৃঙ্খলা অর্জন করতে হবে।
- k. **Comradeship** - মনে রেখো, তোমরা এক একজন সামরিক কর্মচারী, যাদের নিচেই থাকবে তোমার সৈনিক বাহিনী। তাদের সঙ্গে মিশতে হবে, তাদের জানতে হবে, তাদের পাশে থাকতে হবে।

The historic speech of Bangabandhu Sheikh Mujibur Rahman is the perfect epithet which epitomises all the values and ethos of Bangladesh Army. He went over with a fine-tooth comb to emphasise the importance of values and ethos in military life.

The Crux of the Speech delivered by Bangabandhu

The historic speech by the Father of the Nation was an address from the core of his heart. The speech itself reflected the genesis of independent Bangladesh, the post-independence scenario, expectations out of the future military leaders, his vision for an 'Army', and a nation's desire. He started the speech as the Prime Minister of the country, considering the ceremonial aspect of the Parade and addressed the cadets as "brothers". Gradually he progressed with conveying directives transforming him as Father from the statesman adoring the cadets as "son". He maintained all the formalities of an ideal speech as the Chief Guest, but he delivered his speech in his usual eloquent tone and style. The speech mainly addressed the newly commissioned officers, yet it had ingredients for the entire nation. Though the speech was a pure extempore, it vividly signified every relevant guideline and directive necessary for the true military leaders to be good citizens of a nation.

The Father of the Nation addressed first to his fledgling Armed Forces, then to the civil and military bureaucrats and finally to the entire nation. This was also a passionate speech that contained a lot of anguish within it, deeply-rooted in his tone, tenor and choice of words. In this historic speech, he expressed satisfaction that his long-cherished dreams of an independent Bangladesh with its own Military Academy to build up and train its Army had come true after many decades of relentless struggle. The repetitive and emphatic theme of discipline and responsibility from this momentous speech takes us back to the final words of Bangabandhu's speech of 7 March 1971, when he was spurring his fellow citizens to embark on their struggle for liberation. However, the speech on 11 January 1975 completes that thematic circle.

At the outset of the speech, Bangabandhu congratulated the newly commissioned officers and expressed his apologetic mind to them as they had to undergo training with many constraints. Bangabandhu outlined almost all aspects necessary for the junior leaders to step into a new life - transforming from a cadet to an officer. Within the purview of the speech, Bangabandhu outlined the resource limitation of the Army and projected a definition of professionalism, the role of the Army as an organisation and the responsibilities of the officers. The historic speech bears the testimony of his farsightedness in developing the country. It also disseminated his spiritual strength to future leaders.

Analysis of the Speech Influencing Leadership Quality and Regimental Feeling

The extraordinary speech of the Father of the Nation to the Newly Commissioned Officers had many dimensions. This speech was so gracefully articulated that it contains almost the entire philosophy of military life. While studying this speech of the architect of Bangladesh, anyone will be mesmerised by its potential and thematic guidance for the members of Bangladesh Army. However, the scope was made limited and ordered under the following dimensions shown in Figure – 2:

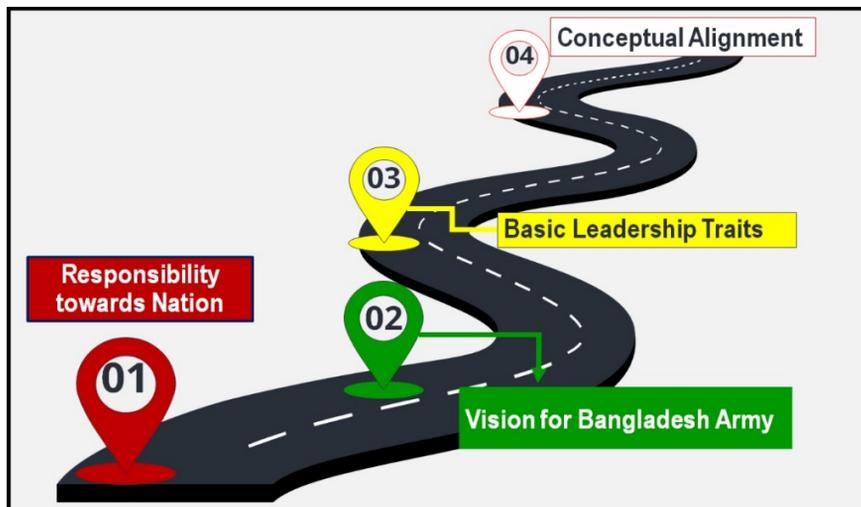


Figure 2: Various Dimensions of the Speech

Source: Author's own construct

Basic Leadership Traits. "Leaders are born, not made". There can be an argument in favour of and against this statement. However, the greatest Bangalee of all times, Bangabandhu was born to lead this nation and had his leadership style. He followed the democratic types of charismatic leadership throughout his life. Considering the need of the time and assigning the responsibility to the young officers, Bangabandhu explicitly ordered the pioneer military leaders of independent Bangladesh to infuse the following leadership traits and code of conduct (Figure-3):

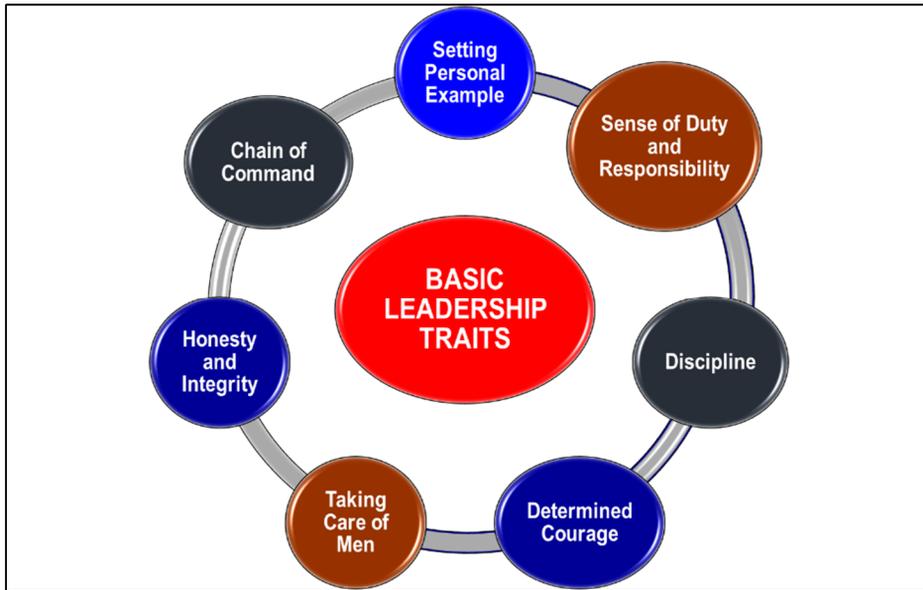


Figure 3: Basic Leadership Traits

Source: Author's own construct

Sense of Duty and Responsibility. A military leader must nurture and develop a sense of responsibility. He should instil the same in his under commands. Bangabandhu strongly reminded us about this responsibility of the officers to the nation, to the ordinary and distressed people, to the subordinates, to superior commanders and to own self. He said, *‘আজ তোমরা তোমাদের উনিং শেষ করলা। এক পর্যায় শেষ আরেক পর্যায় শুরু। এ পর্যায়ে দায়িত্ব অনেক বেশি।’*⁵ This transition from cadet to officer is not limited to mere status but shifts enormous responsibilities on a military leader towards his under command. A leader is the one who trains his soldiers and makes them fit to fight, making a mindset for supreme sacrifice. Besides, he has specific responsibilities bestowed on him by the state and the people. He also needs to perform his duties to his superiors and to himself as well. A responsible leader always practices and upholds some important core military values like Loyalty, Service before Self, Respect, Patriotism, Comradeship, Courage, and Honour and pride. The Father of the Nation duly emphasized these core values in this speech.

⁵ Ibid.

Discipline. Discipline is the keystone of success for the military leaders of any country. The Father of the Nation has reiterated that a nation cannot reach to the pinnacle of its professionalism unless discipline prevails within that nation. He mentioned- *ও/তামাদের শ্রদ্ধা অর্জন করতে হবে, সে শ্রদ্ধা অর্জন করতে হলে তোমাকে শৃংখলা অর্জন করতে হবে*⁶. Without discipline, a strong organisation like Army will remain prone to chaos and as a result anarchy will follow. The prime responsibility of making a disciplined military organisation lies with its leaders. Unless the leaders themselves are disciplined, they will fail to inspire their subordinates to be so. All the factors affecting the regimental feelings are either directly or indirectly connected to this principal trait – discipline.

Determined Courage. Soldiering has always demanded physical and moral courage. Physical courage is required to risk own life, kill the enemies, show restraint, endure hardships and focus on the assigned task. Soldiers depend on each other and ultimately make the bond within a regiment or group. Simultaneously, moral courage is equally essential, i.e. the strength and confidence to do what is right, although it may be unpopular. This earns respect and fosters trust. The Father of the Nation explicitly urged upon the newly commissioned officers to possess indomitable courage. Throughout his life, Bangabandhu demonstrated courage to materialise his dream - 'the independent Bangladesh'. In his speech, he said, “আমরা বাঙালিরা আর হতে পারি কিন্তু আমরা কাপুরুষ নই”⁷. He emphasized on this virtue for the emancipation of the Bengali nation. He expected that all military leaders must be engrossed with real courage.

Taking Care of Men. Care of subordinates is the prime responsibility of a military leader. A true leader interacts with his troops and shares their grief, sorrows and happiness. Bangabandhu always emphasised and talked about the importance of mutual trust, confidence and respect between the leader and the led. Accordingly, he urged the newly commissioned officers to love their men, know them by heart, mix with them and sit beside them in joy and sorrow. Under commands will sacrifice their lives at the time of need provided that a leader genuinely loves them, think for them and care for them. Again, the same leader must be tough to train their men, enforce discipline and other fundamental military customs. This will allow him to foster a solid outfit capable of accomplishing any given mission. In his speech, the Father of the Nation stressed this very principle of leadership. He said, “জনে রেখ, শাসন করা তারই সাজে সোহাগ করে যে। তুমি যখন শাসন করবা সোহাগ লাভে শেখ”⁸ He who can caress can command.

Honesty and Integrity. Honesty and integrity are the qualities which remain at the base for developing all other character qualities. A military leader needs to be honest

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

in his deeds and thoughts and should possess the virtue of integrity. The Father of the Nation profoundly articulated the absolute leadership traits of honesty and integrity in his speech. He specifically mentioned, “Aij j Lj Lrona, saðe sat kochi manusher mukh kala Lrona. tomera adarshaban ho, pv fthe theke”⁹. During his rule of independent Bangladesh, Bangabandhu declared war against corruption, bribery, smuggling, and irregularities. He urged the young officers to develop and nurture exemplary character qualities. He persuasively insisted upon taking oath not to compromise with any irregularities, unjust and indiscipline act in the days ahead. A military leader must adopt a 'zero tolerance' strategy against corruption and malpractices. A leader must bear the military values and ethos and teach these qualities to the subordinates through proper motivation.

Maintaining Chain of Command. Loyalty to the chain of command is another prime requirement in the military. Maintaining chain of command is a must to accomplish any mission during peace and war. Bangabandhu strongly enumerated the importance of loyalty during his speech by saying, “Sthane tomera she kaje nemekh, upare yara tomadeder hukum chebe, tomera এখনই ওয়াদা করলা, তাদের হুকুম মানচে হবে”⁹. A healthy atmosphere, mutual trust, respect, positive command climate, sharing of information, and frequent interactions can help maintain the chain of command. If a military leader does not comply with the command or orders of his superiors, his subordinates will also do the same. This will, in turn, make the entire organisation an ineffective one. Absolute obedience to the chain of command is a must to accomplish all the tasks of a military outfit.

Setting Personal Example. “A leader who knows the way goes the way and shows the way” is a famous quote of John C. Maxwell. One cannot lead people beyond that limit where he is unable, unprepared or unwilling to go by himself. All military leaders set personal examples before subordinates and guide them to attain excellence in operational/non-operational aspects. Leaders are role models and actively demonstrate military values in everything they do. The Father of the Nation urged upon setting personal examples by own deeds. Bangabandhu said, “Aij j Lj Lrona, saðe sat kochi manusher mukh kala Lrona. tomera adarshaban ho, pv fthe theke”⁹. A healthy atmosphere, mutual trust, respect, positive command climate, sharing of information, and frequent interactions can help maintain the chain of command. If a military leader does not comply with the command or orders of his superiors, his subordinates will also do the same. This will, in turn, make the entire organisation an ineffective one. Absolute obedience to the chain of command is a must to accomplish all the tasks of a military outfit.

Responsibility towards the Nation. As the “Father of the Nation”, Bangabandhu was always affectionate to the Bangalees with his fatherly gesture, he loved this country and its 75 million people as an individual and nurtured all its institutions like his own children. He urged upon the officers mentioning that the government expects a lot from them. In this regard, his directives for the young leaders of the 1st BMA Short Course are mentioned in figure- 4:

⁹ Ibid

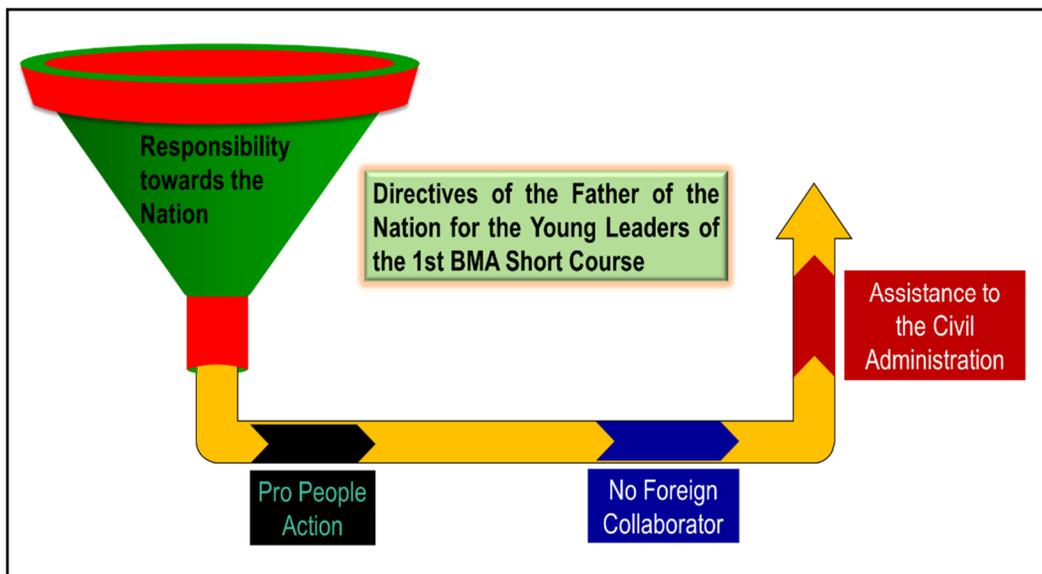


Figure 4: Responsibility towards the Nation

Source: Author's own construct

Pro People Orientation. A leader has to be selfless. He should remain concerned about the well-being of the country and its people. His interest and own comfort should come last. Bangabandhu cited this aspect in a very well conceivable way during his remarkable speech, *Ôg#b ti L, RbMY Kri v, tZvgvi eiv, tZvgvi firB, tZvgiv `qs| tZvgiv Ziv`i gvi j K bl, tZvgiv Ziv`i tmeK| Ziv`i A+_*tZvgiv`i msmvi Pj te, Ziv`i k&v Ki tZ wL, Ziv`i firj veim tZ wL*¹⁰. Therefore, it is expected that a military leader would be selfless and should respect the general people as members of his own family. He forcefully and emotionally instructed them to work as an army for the people and the Nation called “People's Army”. He asked all to respect the ordinary people of the nation. He asked all military and civil bureaucrats to consider themselves a servant of the nation, not lords of the nation.

No Foreign Collaborator. The Father of the Nation also expected military officers to be vigilant to safeguard the sovereignty of the country from foreign collaborators. His voice was redolent of patriotic thunder. First, Bangabandhu led the struggle of Bangalees against the Pakistani oppressors; then, he was uncompromisingly leading the new battle against these menaces of independent Bangladesh. He reminded us that leaders must have the fortitude to endure any greed in the question of the country's interest. This expectation demands an unquestionable patriotism to be demonstrated by the men in uniform.

¹⁰ Ibid.

Assistance to the Civil Administration. The Father of the Nation wanted to shape the Army as professionally competent yet friendly to the people of Bangladesh. He desired to build Bangladesh Army as a disciplined organisation that would stand beside the country in peace and war. Within four years of inception, Bangladesh Army could earn the people's confidence and stood beside the country during any crisis to assist the civil administration. Bangabandhu appreciatively said, “সেনাশিক্ষা, হাট্ট নালাই ৭৫ িন প্ৰিন্সিপালস্‌ অর্জিত হইতে পেরেছে ...”.¹¹

He had firm believe that Army would always stand beside the country and its people during any crisis. Presently, Bangladesh Army is training its outfit in Military operations other than the war to become more effective in meeting the expectation of Bangabandhu and the country.

Vision for Bangladesh Army. The visionary leadership of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman led to the long-cherished Independence of Bangladesh. He never dreamed asleep; instead, his dreams kept him awake and gave him enough courage to sacrifice himself for the country. He showed the young military leaders the way and offered the farsighted prospects in his speech as shown in figure 5:

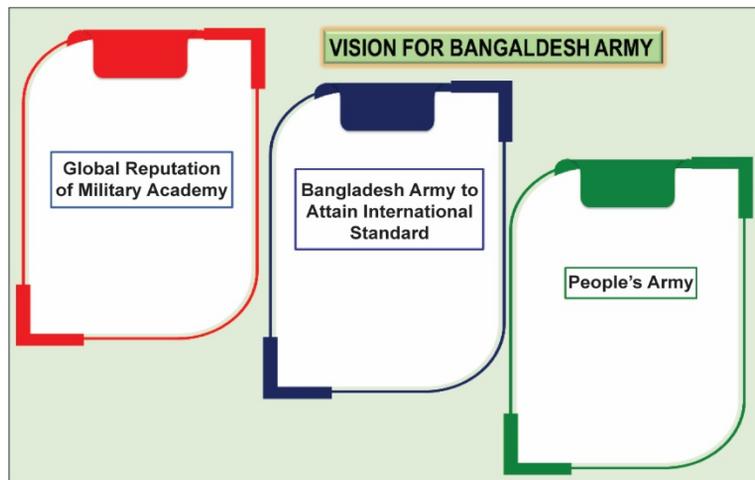


Figure 5: Vision for Bangladesh Army

Source: Author's own construct

Global Reputation of Military Academy. It can be proudly said that cadets of many friendly countries around the globe have been trained from BMA. The standard of training and its infrastructure has grown over the years succeeding the vision of Bangabandhu enumerated in his speech. He said, “আজ আনি লই, সেনাশিক্ষা হইতে অর্জিত, হইতে পেরেছে ...”.¹² The Father of

¹¹ Ibid

¹² Ibid

the Nation knew that being a third world country, Bangladesh might not always be able to procure technologically advanced hardware for its Army. But to cope up with future challenges against its competent adversaries, this Army needs efficient leaders. A globally reputed Military Academy will always make competent leaders and gradually these leaders shall make the Army operationally proficient.

Bangladesh Army to Attain International Standard. With the inspiration of Bangabandhu, freedom fighters of Bangladesh with inferior weapons and equipment's have defeated well trained Pakistani Army having modern armament. Believing in the courage of Bangalees, Bangabandhu asserted that if the youths of this soil can be trained appropriately, they would do something remarkable. After reviewing the parade and seeing the agility, performance and training standard of the newly commissioned officers; Bangabandhu became confident of his conviction and said, “Aij k; cMmij aite ami bishwas kore fil, ke fil pshyag sushidha deya bay, amara helerder ei shakti ache ye kon দেশের ye Le pteker sse tara mokabelo kore poe”.¹³ By now, Bangladesh Army has proven its commitment to the Father of the Nation being the most dependable organisation of the country and demonstrated its compatibility beyond border by contributing highest number of troops for world peace.

People's Army. Bangabandhu floated the concept of 'People's Army' to the young leaders and military planners of this country through this maiden Passing Out Parade and desired to have one. He took a lesson from the bitter experience of atrocities against innocent Bangalees by Pakistani Army. Bangabandhu never liked the colonial attitude of Pakistani Army and ordered the young leaders not to follow their footsteps. He said, “Aij aijder jaitir pita hisahe Aidesh dichh, tomadar mध्ये येन पाकिस्तानी मेन्टालिटी ना Aise। तोमरा बांग्लादेशे सैनिक। तोमरा हईबा आमर पिपल'p Aij flz¹⁴ Bangabandhu dreamt of an Army who will be self-sustained if need be. Bangladesh Army has already started materializing the concept and striving to become habituated with this attitude. Today's military planners and young leaders have to take initiative to fulfil this expectation of the Father of the Nation. The concept of the respected Chief of Army Staff of utilizing every inch of military land and other resources to contribute into GDP is a step forward to materialize the dream of Bangabandhu.

Conceptual Alignment of the Army. Bangabandhu dreamt of an Army that follows and obeys his concept of patriotism, courage, empathy and keeps the Nation and its people ahead of everything. Our respected Chief of Army Staff (CAS) desires our Army should be in a place of pride of the Nation. In that perspective, his guidance towards the young leaders are shown in figure 6:

¹³ Ibid.

¹⁴ Ibid.

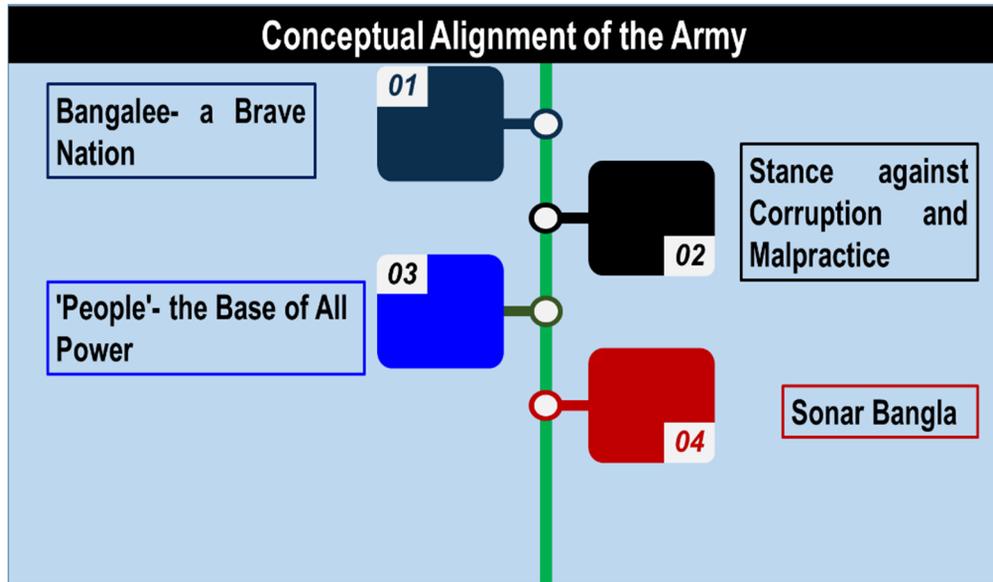


Figure 6: Conceptual Alignment of the Army

Source: Author's construct

Bangalee - A Brave Nation. Bangabandhu was a firm believer in Bangalee Nationalism. The bravery and courage of the Bangalees impressed him. History bears the testimony of the bravery of Bangalees throughout the ages. With vigour, Bangabandhu informed that being afraid of Bangalees, the West Pakistanis never allowed more than 2% contribution in the Armed Forces from the then East Pakistan. The sluggish plea of incompetency of Bangalees by West Pakistanis was proven wrong. Pakistanis had to pay a heavy toll during the War of Liberation. No atrocities and dominance could ever stop the Bangalees from their legitimate demands. Bangabandhu expected all to do the same in future to safeguard the country and ensure the freedom of the Bangalee nation.

Stance against Corruption and Malpractice. The Father of the Nation declared a 'zero-tolerance' policy against corruption. Recalling the sacrifice of martyrs, he asked the nation to be united once again. Bangabandhu founded BMA with its motto "Ever High is My Head", keeping in mind that each cadet passed out from this academy will be an upright leader of character against all vices. On the eve of a new life, Bangabandhu reminded the officers about his determination, expectation and military leader's responsibility toward the country. He said, "HC বাংলার মাটি থেকে দুর্নীতিবাজ, HC ঘুষখোর, HC মুনাফাকারী, চোরাকারবারী নির্মূল করতে হবে। আমি প্রতিজ্ঞা নিয়েছি, তোমরা প্রতিজ্ঞা নাও, বাংলার জনগণ fīa' j NqZ LI|L".¹⁵ This entrenches a prime virtue in the heart and mind of a military leader. Therefore, an officer shall be obliged to accomplish this oath from whatever situation he might embrace in the entire career.

¹⁵ Ibid

‘People’- the Base of All Power. Bangabandhu has preached with confidence that populaces are the base of all power. His politics, statesmanship and the entire struggle were routed around the unity and well-being of the general people. He never lost sight of people's sufferings and always respected them as his family members. Therefore, Bangabandhu tried to utilize this strength to fight against all odds. He motivated the young leaders by citing the example of his life to care about his people and put the country's interest before self.

Shonar Bangla. Bangabandhu had undergone numerous volatile situations where threats prevailed from outside and within. Still, his ultimate aspiration, expectation and vision were to create a country free of exploitation and full of happiness. The sorrows and grief of the Bangalee people had always made him cry. He wanted the 'Sonar Bangla' even sacrificing his life. He had a firm conviction on the people and he believed that, “@Cn যখন আমার আছে, মাটি যখন আমার আছে, যদি আমরা সোনার ছেলে পয়দা করতে পারি, ইনশাআল্লাহ আমার K ÜC# সোনার বাংলা তা একদিন হবে। আমি দেখে না যাবার পারি, কিন্তু ইনশাআল্লাহ একদিন হবেই”.¹⁶ In his inspirational speech, he motivated the officers to work together to achieve this goal of making Shonar Bangla.

Extracts from the Speech in Enhancement of Leadership Quality and Regimental Feelings. Leadership and regimental feeling are two widely uttered yet complex terminologies in the military. Though it is difficult to determine the state of regimental feelings and identify the factors contributing to it, it is a proven fact that the military values and the ethos are the cornerstones for regimental life and practising leadership, which creates regimental feelings. Bangabandhu envisaged these desired traits' importance and emphasized those during his historic speech. Though an endeavour has been made through this study to analyse the speech, the effort could never be enough to understand the great philosophy of one of the great poets of leadership. Some momentous leadership principles are drawn out of this speech, which will be of great importance for regimental feelings and dynamic leadership throughout the ages:

- a. 'The safety, honour and welfare of the country come first; always, 'The honour, welfare and comfort of your men come next'; 'Your own ease, comfort and safety come last' ---BMA Credo.
- b. Patriotism is the principal motivational factor for a person, leader or follower for the supreme sacrifice.
- c. Understanding under-commands is a prime requirement. A military leader should learn from them, mix up with them, know them, be close to them and stand beside them during their joys and sorrows. He must win their hearts and minds through love.

¹⁶ Ibid.

- d. Respecting under-commands and being loyal and obedient to the higher commander is a must quality for a military leader.
- e. Maintaining the good character and leading an honest life should not be compromised with corruption and dishonesty.
- f. People are the owner of the country. Therefore, one must learn to respect and love them.
- g. A leader must set good personal examples and be the ideal to followers and subsequent generations to take them along with.

Recommendations

Every sentence of the speech reflects the highest motivation and spirit aimed at the military leaders. In light of the study, the following recommendations are put forward for everyone's perception:

- a. The speech may be included in BMA curricula as a must-read subject.
- b. The maiden speech delivered by Bangabandhu Sheikh Mujibur Rahman in the first Passing Out Parade may be included as part of the Army/ Division/ Unit level training curriculum. An adequate study may be carried out at all levels of command.
- c. The speech may be shown to all newly joined military leaders in the unit as a tool to motivate them to lead a life as envisioned by the Father of the Nation Bangabandhu Sheikh Mujibur Rahman.
- d. Important quotes may be displayed in and around the unit premises. It will help to take lessons and remain abreast with the spirit of the Father of the Nation.

Conclusion

The Father of the Nation Bangabandhu Sheikh Mujibur Rahman delivered this unique speech in a solemn atmosphere at Cumilla Cantonment. In every word of this illustrious speech, there was a piece of orderly advice to the young leaders of the military of the newly independent country. There was also a promise to build the 'Golden Bangla' of his dreams. The speech itself reflected the genesis of independent Bangladesh, the post-independence scenario, the anxiety as the Father of the Nation, his expectation out of future military leaders and his vision for an 'Army'. This extempore speech was so gracefully articulated that it contains almost the entire philosophy of military life. He could identify all the essentials of regimental feelings and focused on growing a few key indicators. These are patriotism, service before self, comradeship, teamwork, mutual trust, honesty and integrity, respect, discipline, sincerity, following chain of command, sympathy and empathy, sacrificing attitude, loyalty and setting personal example. It has an unbound influence on leadership traits, responsibility towards the nation, vision for the Bangladesh Army and

conceptual alignment, which will remain as the source of inspiration for the military leaders of all generations. As envisioned by the 'Father of the Nation,' Bangladesh Army has travelled long since independence. Forces Goal 2030 is the testimony of this advancement. As an institution, the Army today is self-contained, with tremendous potential to sustain growth, expansion and modernization in its totality. Effort by the respected Chief of Army Staff to utilize every inch of Military land for contributing to National Economy is a yet another foot step to achieve Bangabandhu's people's Army.

The lessons from the speech of Bangabandhu Sheikh Mujibur Rahman are inevitably great tools to enhance leadership qualities and regimental feelings amongst military leaders of all ages. If the message of Bangabandhu is truly understood by the leaders of this generation, love and respect for the regiment, dedication to the service and even sacrificing for the nation would never be a difficult affair. Therefore, this speech will remain as the most effective guiding principle for military leaders of the past, present and future. The name of Bangabandhu will be ever shining so long as Bangladesh exists because of his unwavering principles, intellectual leadership, proverbial guidelines in all spheres of life and selfless love for his fellow citizens. That is why echoing our heart, as poet Annada Shankar Ray said:

As long as the Padma Jamuna
Gouri Meghna flow on
Your accomplishments shall be living on
Sheikh Mujibur Rahman.

যতকাল রবে পদ্মা যমুনা
গৌরী মেঘনা বহমান
ততকাল রবে কীর্তি তোমার
শেখ মুজিবুর রহমান। - (A&C; nWLI lju)

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Major General Md Jahangir Harun, SGP, ndc, afwc, psc (LPR) was commissioned on June 23 1989. He has graduated from Defence Services Command and Staff College (DSCSC) and National Defence College (NDC). He has completed his MPhil (Part-I), Masters of Social Science in Security and Development and Masters in Defence Studies. He has served in six Infantry Regiments and commanded three Infantry Regiments. Besides, he has served as Staff Officer Grade- 3, 2 and 1 in an Infantry Brigade Headquarters, an Infantry Division Headquarters and Directorate General of Forces Intelligence. He has served as Contingent Commander of BANBAT-1 (MINUSMA) and Country Senior in the United Nations Mission in Mali. He has also served as Colonel GS of the Directorate General of Forces Intelligence. He was the Commander of Elite President Guard Regiment, 72 Infantry Brigade and the Commandant, Bangladesh Institute of Peace Support Operation Training (BIPSOT). Major General Md Jahangir Harun is awarded with the Army Medal of Glory, SGP (সেনা গৌরব পদL) for his remarkable contribution to the UN mission. Before going on LPR, Major General Md Jahangir Harun, SGP, ndc, afwc, psc served as General Officer Commanding, 33 Infantry Division and Area Commander, Cumilla Area.

INDIGENIZATION OF UNMANNED AERIAL SYSTEMS (UASs): A WAY FORWARD

Brigadier General Mohammad Ariful Bari, psc

Abstract

In Forces Goal 2030, there is a mammoth drive to reduce the manpower of Armed Forces keeping the focus on modernisation of equipment. The modern-day battlefield is mostly dominated by Unmanned Aerial Systems (UASs) and other superior warfare machinery with advanced sensors. Technology like Artificial Intelligence (AI) is also blended wisely with Unmanned Aerial Vehicles (UAVs) which is creating challenges for other nations. With the improvement of the autonomous and multivehicle control system, it would be possible to deploy swarm attacks against an adversary. Most of the developed countries already have advanced UASs in their inventories. Our country is also aspiring to be on the list of developed countries by 2041. Therefore, more powerful, modern and indigenized arsenals and technologies are required for the Armed Forces. The existing and upcoming inventory of UASs (BROMAR C4I; small size unarmed and BAYRAKTAR TB 2; mid-size armed) will become the perfect springboard for proposed innovations for indigenization. Proposed indigenization will achieve brain gain instead of brain drain. Brain gain means involvement of scholars from all walks of existing institutions within Bangladesh using optimum local resources. Patronizing the qualified, innovative, and patriotic personnel under the defence umbrella will surely pave the way for indigenization and guide our scholars to reach our desired goals.

Keywords: Unmanned Aerial Systems, indigenization, technology, system components, design methodology, brain gain, desired goals.

Introduction

Bangladesh seems to be besieged by myriad and complicated sets of internal and external challenges due to the latest trends which will show a calculated shift towards the balance of interest, especially in the defence sector. Accordingly, Bangladesh Army should prepare itself for the emerging complex challenges and security environment through improved surveillance, night vision, and target acquisition, wherein UAS will be a key actor for their integral features. There is a mammoth drive to reduce the manpower of Armed Forces in Forces Goal 2030 and the focus is on modernisation of equipment which seeks obsolescence, negated and critical deficiencies based on upgraded technical induction. With the existing operational capability and strength, Bangladesh Army kept the nation together during various crises including insurgencies, refugee handling, and other national management. Therefore, the Army cannot afford to reduce its manpower further. Though, at present our defence budget is pegged to approximately 1.3019% of its GDP and 6.13% of the fiscal budget; the lion's share of the amount is expended on the revenue account (pay and allowances, rations, etcetera) where a small portion remains for modernisation. Due to budget constraints, Bangladesh Army seems to be lagging behind in this very crucial aspect to become a

capability-based force which may ultimately reduce the tempo of operations. In this regard, indigenization of UASs/UAVs may play an important role by enhancing the operational capability of Bangladesh Army.

UAV has flourished quickly all over the world because it is smaller in size and much more affordable technology has been used in it. The technology of UASs continues to flourish and it is within the reach of many non-state groups also. Many non-state and rebel groups are using such platforms to conduct tactical surveillance. UAVs can be employed as guided bombs or for dispersing chemical substances instead of launching separately for designated targets. UASs will be able to overwhelm a strong and superior adversary if used in large numbers. UAVs' detection and interception are complicated as they don't follow high ballistic trajectories.

Agility of unmanned platforms will set the stroke in the war zone or at the chosen field. Combat UAV increases mobility and extends the capacity to move and support in manifold. By default, UAVs especially Combat UAVs have brought revolutionary changes in the conduct of modern warfare due to their unmatched versatility and technologically sophisticated weapon system. All types of UAVs now have to cope with a wide spectrum of threats as well as counter-insurgency operations. From the military perspective, the UAVs fulfill a variety of roles for all branches of arms/ services. There are dedicated platforms which have been developed for specific battlefield requirements in the form of attack, reconnaissance, observation, search and destroy, target acquisition, etcetera. Efforts are needed to step up and enhance indigenous capabilities and thereby reduce the dependency. We need to develop technologies in various fields such as electrical, mechanical, artificial intelligence, machine learning and employ the unmanned systems which would be smart enough to do a task formerly done by the human being. In any role, the UASs are prized for their observation and acquisition of target round the clock or even week-long footprint and ability to reach in the areas where neither vehicles nor fixed/ rotor-wing aircraft can reach. This paper will explore a few technical aspects of UASs that define the development of future technology and lay out the indigenization process following a way forward.

Classification of UAS According to Range and Endurance

Currently, UASs are available in terms of affordability and accessibility from inexpensive commercial form to exclusive high-end military-grade systems. Considering the capability, accessibility, and cost, UASs can be categorized under the following four spectrums:

Hobbyist Platform. This is a usual system with basic technology and commercially available which is pre-assembled or assembled but designated infrastructure or formal training is not required to operate the platform. A platform like DJI Phantom is equipped with a Global Positioning System (GPS) and navigation system with the facilities of a waypoint along with a few sensors, HD video cameras, infrared thermal camera, relevant firmware, etcetera. The aforesaid system allows the platform to hover by determining accurate position, taking away the requirement of Line of Sight (LOS) communication, harnessing video downlinks to provide on-ground

information, intelligence, reconnaissance, surveillance, etcetera. More sensors and multi-location receivers take away the payload which eventually restricts the range and battery life but both can be extended by recording high-definition still and video photographs. Necessary endeavours may be taken with reverse engineering and indigenous method to carry explosives and other destructive materials, sensors to avoid obstacles, aid to allow GPS's independent navigation system, by devoicing signal/ GPS jamming and spoofing attacks.

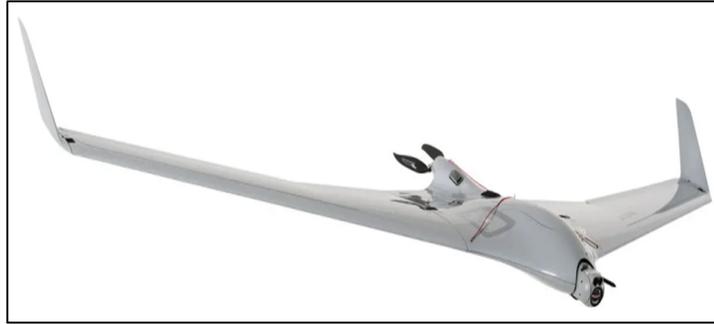


Figure 1: BRAMOR C4 EYE

Source: Author's Collection

Midsize Platforms. This system requires high-end technology. In general sense, commercially this platform is not available due to prohibitive cost and required infrastructure. However, the said platforms can be sold or transferred to other countries including non-state actors. These systems are larger and capable of carrying more payloads, having modern communication technologies, and extended range with longer endurance. Integration of ground-based radio station, laser range finder or illumination, synthetic aperture radar, and night vision infrared cameras will enable UASs to allow target tracking, all-weather terrain mapping, and detection of an improvised explosive device, communication relay Beyond Line of Sight (BLOS), etcetera. It can also be equipped with limited intelligence and jamming capabilities to disrupt or intercept the communication and radar systems of potential adversaries.



Figure 2: BAYRAKTAR TB2

Source: Author's Collection

Large Military Platforms. This system demands state of the art technology including armed platforms and requires formal training along with substantial military infrastructure. Generally, it is not accessible to any actor beyond the armed forces of developed countries. It has a wide array of sophisticated features, extended range, sufficient endurance, improved and synthesized inputs from the sensors, increased payload capacity, etcetera. Therefore, it persists for an elongated time over the target or area for reconnaissance, surveillance and intelligence collection. This system has the capability of surveillance from air-to-air/ air-to-ground, tracking both individuals and vehicles, high bandwidth data links, electronic intelligence gathering, jamming capabilities, improvement in communication capabilities, weapon payload which can be delivered or released from high altitude (30,000 to 50,000 feet). The cost of these platforms varies from million to multi-million dollars.



Figure 3: GLOBAL HAWK RQ 4

Source: Author's Collection

Stealth Combat Platforms. This system includes high-end features with extremely sophisticated technologies and it is not easily accessible. Only a few countries are developing stealth technology but the USA, Russia, Israel, China, and Turkey appear to be the known operators for using it on different fronts. Its technological sophistication is similar to the 5th generation fighter aircraft. It is fully autonomous and designed with stealth coating to reduce radar detection by minimizing radar reflection. It has the capability of superior resistance to adversary's jamming, air-to-air combat, high-density resolution along with eminent precision navigation system without GPS environment, etcetera. These systems correspond to the premier level of technological sophistication; therefore, they are firmly controlled to show supremacy and capability over adversaries.



Figure 4: STEALTH COMBAT DRONES

Source: Author's Collection

System Components

Airframe. Airframe is the most apparent component of UAS and it is mainly considered for the payload which varies in size and shape of wingspan. The platform must be designed to meet the capabilities and operational requirements along with the anticipated payload, speed, endurance, sneakiness, advanced maneuver, affordability, etcetera for an integrated system. To reduce the exposures from radar, all airborne platforms need to fly at high altitudes for an extended duration using stand-off techniques. Comprehensive endurance is considered to maximize time on-station, imagery of the target, etcetera. The design of the UAS must support different types of weather in a changing operational environment. Instead of variation in types, Bangladesh Army should opt for indigenous single/ multi-platforms to accomplish the above-mentioned tasks. Airborne platforms should provide a redundant system and have the capability of synergetic collection capability for all possible systems. Indigenous UAS developers should also consider the requirement of armament (Guided missiles or bombs) for armed reconnaissance, strike missions, target threat, neutralization requirement, etcetera which demand hardpoints and strong standability. Concepts of electronic attack should also be kept in mind during design and simulation, which will demand jamming, anti-jamming, signature control, etcetera.

Propulsion. By minimizing cost and payload, the design of the propulsion system must provide an elevated dominance. It would regulate the key machinery like affordable burning sections to sustain the combustion chamber/ temperature of the engine, lube-free bearings, low-cost techniques of manufacturing, aerodynamics, cutting-edge technologies, etcetera. Good engine reliability (Two or four cycles; gasoline/ turbine) should posture a greater influence of 'power to lift' ratio but weight minimizing of JP/ diesel fuel systems remain in vogue. So far, the design of UAS with two-cycle gasoline engines is being used all over the world due to a very 'high power to lift' ratio. Suitable design of turbochargers, high-pressure pumps, cooling systems, scavenge pumps, fuel control techniques, etcetera will be able to increase the efficiency of the engine in manifold.

Navigation. Autonomy of flight is one of the vital parts which demands advanced computer and communication technologies along with the numbers of redundancy. Autonomous capability should determine required computational power to run all sorts of sophisticated systems, sensors, and communications. Autonomy should also involve a guidance system, navigation, and control along with all sorts of contingencies. While designing an indigenous UAS module, expertise/ scholars should consider that during the loss of flight computers, navigation components, data links, etcetera; the existing software module of contingencies management will dictate the matrix of corrective action. An advanced control system will be able to manage and assure stable operation during flight, take-off, and landing phases.

Sensors. Sensors are the eyes and ears of UASs which are very precious and significant items. To detect and identify the target along with aiming accuracy, reliable and sophisticated individual sensor technologies are required which might take more than a year for maturity to rely on. Important aspects of static visual imagery, motion imagery, infrared image, radar imagery, communication systems, Electronic Warfare (EW), Electronic Countermeasures (ECM), etcetera are appended below:

Still Imagery Sensor Technology. Static imagery with new-fangled sensors without video capabilities can be obtained from medium to high altitudes, spot imagery from high or medium-altitude, reconnaissance from stand-off distance, and wide-area reconnaissance from high or medium altitude. Besides, day/ night/ low light target identification from operational altitude, intelligence gathering round the clock, battle damage assessment, etcetera can also be done with the said technology. Wideband or broadband data links, firm assemblies, optics, large storage, onboard processing, etcetera would be the determining features to deliver such images.

Motion/ Video Imagery Sensor Technology. All types of UASs other than micro-UASs can meet the requirement with such types of sophisticated sensors from low range, mid-range, and high range altitudes. The said technology can provide imagery across the hill, imagery of both sides of the building, surveillance during low light or no light, force protection over the battlefield, picket duty on key installation, etcetera. Such a sensor is also able to verify target designation, a precision strike by giving geo-location, and would be the decisive factor to extract the benefit from the above knowledge.

Radar Imagery Sensor Technology. All types of UASs other than micro-UASs can meet the requirement with such types of sophisticated sensors from low range, mid-range, and high range altitudes. With this sophisticated technology imagery of ground/ air moving target, wide-area reconnaissance, intelligence preparation of the battlefield, etcetera can be done precisely. In addition, data for precision-guided munition targeting, data transfer of the operator and bombing target, 3D mapping over thousand square meters, etcetera can be done with this technology. To extract the benefits from this technology, critical aspects like image enhancement with a high-resolution camera during flight, collection of algorithms from the sensor, fixing electric generator for powerful output, etcetera should be kept in mind during the indigenous simulation process. UASs are eyes in the skies, over a battlefield that is crammed with high-resolution optics, data links, radars, synthetic aperture radars, and laser-guided systems.

Communication. The UAS platforms should incorporate or be equipped with a robust but small antenna to relay for effective communication along with an integrated network system during LOS/ Non-Line of Sight (NLOS)/ BLOS coverage. The platforms need to have the capability of relaying aerial communications following national and international standards. It also needs to comply with the standard procedure for effective communication with the ground control station through the ground data terminal. Maintaining data links, sensor operation, internet on the battlefield, etcetera. would be the conclusive purpose to extract the benefit.

Target Acquisition, EW, and ECM. Target acquisition, surveillance, intelligence, and reconnaissance can be extended in a greater range like 200 km or so with ground data terminal keeping the platform at operational altitude with LOS. It is also possible to NLOS/ BLOS by adopting a satellite system with C or Ku band or both. With the six-axis gimbal, gyro-stabilized sensor systems can automatically track the target and process with a secure data link. In addition to infrared and optical imaging payloads, the said payloads may include laser target designator, EW, decoy, communications relay, ECM, etcetera.

Potential/ Prospective for Overmatch Equivalent

The operational environment of modern-day warfare is multi-dimensional, very fluid, and complex, especially in offensive operations. Effective support to land operations demands a very close understanding and thorough knowledge of the enemy's and own organisation, equipment, and tactics. Most of the research works have focused mainly on the large military platform or combat platform. On the other hand, hobbyist and to some extent small/ midsize UASs are often less discussed, but perhaps these can embrace the better potentiality to achieve overmatch against the adversaries. With the existing capabilities of hobbyist and mid-size platforms; UASs offer autonomous flight, extended payloads, usual range, moderate endurance, EW, ECM, high-end surveillance, target acquisition and neutralization capabilities, intelligence collection capacity, etcetera. During the indigenization process, UAS could be augmented with extended payloads, range, endurance, etcetera in combination with the reverse-engineering method. Such platforms may not emerge as sophisticated and traditional military sense but will be able to prove as effective, economical, and hard to defeat equipment. With the improvement of the autonomous and multi-vehicle control system, it would be possible to launch swarm attacks against an adversary with such type of inexpensive and expendable UASs in different forms. This approach would produce a large-scale and easily detectable radar vector which will eventually complicate the targeting system and overwhelm the specific airspace or area of operation as well. By large, the indigenization of UASs could be used to saturate an array of force and high-value targets. Our patriotic motivation, skill, inspiration, the progress of modern and sophisticated technology for test and trial, etcetera will be available to produce the desired quantity of UASs against adversaries.

Indigenization Process

Opportunity of indigenization is an environment of belief, belief in the power of imagination, and the spirit of innovation. The existing and upcoming inventory of UAVs/ UASs may become the perfect springboard for proposed innovations for indigenization. Indigenization in the form of imagination, passion, and innovation will place our beloved army in a better place. Indigenization of UASs will be resting on 4 pillars; encouragement/ inspiration, enthusiasm, investments, and local institutional resources. Proposed indigenization will achieve brain gain instead of brain drain, and brain gain means involvement of scholars from all walks of existing institutions within Bangladesh using optimum local resources. It is expected that there will be a

growing demand for indigenization through innovation and manufacturing of defence equipment. For large-scale production/change, we need to offer solutions that are innovative, affordable and powered by other local institutional resources. Vision for technological transitions includes accumulating expertise and working with like-minded expertise incongruence with enthusiastic combat personnel and scholars. Priorities of our Army leadership would make life easier for the personnel working for innovation by giving them freedom of work and proper encouragement at least with a 5 (five) years perspective plan. Details of indigenization process are as follows:

Design Methodology. Technology is bringing a big shift in the world of security. The innovation spirit is integral to our modernized ethos and different parts of the world have followed different paths of innovative development. Transformational initiatives and Bangabandhu satellites under Digital Bangladesh have opened doors for UASs and other innovations to be applied in designing associated components through reverse engineering. The methodology may include UAS design requirements, conceptual proposal, primary and detailed design, testing, evaluation, and finally the production phase.

Design Steps. The designs of manned aircraft and UASs with their related airborne elements are almost the same except few aspects. UAS is required to carry sensors including armament (comparatively lighter one), payload fulfilling the operational requirement leaving aside the passengers, freight, and heavy armament. A few important aspects related to design of UASs are appended below:

Mission Specification. User organisation of the Army will determine the operational requirement, specification and based on that UASs will be configured in terms of operational range, payload, endurance, and speed.

Flight Boundary Condition/ Payload Calculation. The type and performance of UAS are driven by the requirement of operational tasks like extending communication system, a video system with greater range and longer focal length, high power radar, a grouping of different types of sophisticated modules, etcetera. Operational need and characteristics, operational range, endurance, and related requirement will dictate the mounting of payload in terms of sensors, communication system, airframe, fuel, lubricant, and support equipment. Design of modules in line with operational needs may take minimum 1 (one) year or so. User and designer should keep in mind that payload has a proportional trade-off with airframe and endurance.

Airframe Design. Airframe design is achieved through efficient aerodynamics results. Usually, smaller versions will be benefitted through structure and mechanism but mid or larger UAS demands a material with mission-specific strength and strenuousness to avoid material failure due to fastening, bending, and direct loading. At present advanced composite materials (carbon with aluminum,

carbon-glass, Kevlar, etcetera) are being used for airframe which are comparatively lighter and harder. Utilizing our resources, the innovative team will be able to prepare the same within a year and subsequent years will be utilized to reduce further weight along with stealth capability exploiting existing laboratories of Bangladesh University of Engineering and Technology (BUET), Military Institute of Science and Technology (MIST), Bangladesh Army University of Science and Technology (BAUST), Bangabandhu Sheikh Mujibur Rahman Aviation and Aerospace University (BSMRAAU), etcetera. Skilled and innovative personnel qualified in mechanical engineering, Internal Combustion (IC) engine, turbomachinery, and power electronics field would be best suited for the above-mentioned indigenous project.

Propulsion System Design. Normally gas-turbine engines are better than piston engines due to reduced noise. The gas-turbine engine is capable to produce the required power at a low power ratio either with turbo-jet or turbo-shaft units. Of late, the turbo-fan concept has emerged with the mixture of turbo-jet and turbo units where energy is extracted as jet and mechanical power to drive the fan to reduce the weight substantially. Selection of a power plant (desirable and alternative) will be made to support the main design and characteristics of UASs by testing with a thrust measuring system and dynamometer. Besides, a lightweight developed motor and improvement in rechargeable battery will facilitate the use of electric propulsion with minimum power. The development of propulsion system is expensive and needs a longer time for test and trial. Again, without bulk production of such a system, it may not be cost-effective. Instead of self-sufficiency, we can adopt the self-reliance concept, therefore, we can buy propulsion/ engine systems from existing manufacturers to reduce cost and time. Skilled and innovative personnel qualified from mechanical engineering, IC engine, turbomachinery, power electronics field would be best suited for the above-mentioned indigenous project.

Navigation System Design. Instead of managing flight paths, operators are likely to fixate on capturing, collecting, collating, and interpreting the data. Therefore, "Autonomous" technology will remain to support strongly the pre-planning missions and updating the flight plans in-flight conditions. Besides, the UAS controller has to know various positions for position fixing and loitering between points by using the GPS. Integration of navigation systems and flight control is needed to lock the moving/ stationary target whilst the UAS will be on move. The apropos system can be inducted by the local expertise within 2 (two) years or so but with anti-jamming software and advanced autonomous module will take considerable time. Skilled and innovative personnel qualified from the electronics-digital communication, and software engineering field would be best suited for the above-mentioned indigenous work. Existing laboratories of BUET, MIST, BAUST, BSMRAAU, etcetera can be utilized for test and trial purposes.

Flight Control Design. Sensors and payload design i.e. configuration of UAS will dictate the requirement of flight control. It is the brain of the UAS which is being mastered by the ground controller through the ground control station. It would be electrically powered with actuators directly operating the aerodynamic control surface. Using local and other resources apropos system can be inducted by the local expertise within 2 (two) years or so, and subsequent years will be utilized to reduce further weight and power consumption. Skilled and innovative personnel qualified from the electronics-digital communication, and software engineering field would be best suited for the above-mentioned indigenous work. However, existing laboratories of BUET, MIST, BAUST, BSMRAAU, etcetera can be used for test and trial.

Sensor and Actuator Design. It represents the obligation of the operational requirement, and the response of the sensors and structures by the design assurance. Added actuator system and associated sensors should be simulated and tested with designed aerodynamic surfaces to check resistance/ drag, inertia, etcetera before integration. It would have the ability to loiter, often at high altitude over a target, watching it closely for hours, days, and sometimes even weeks. Possibility of system design and induction can be made within 2 (two) years or so and the rest of the duration will be utilized for weight reduction and fine-tuning. Skilled and innovative personnel qualified from the mechanical engineering, mechatronics, and electronics fields would be best suited for the above-mentioned indigenous work. Besides, existing laboratories of BUET, MIST, BAUST, BSMRAAU, etcetera can be used for test and trial.

Communication System Design. Adopted sensors will demand different volumes of bandwidth at diverse rates. Most of the UASs are limited to LOS communication and available frequencies. An effort is to be given with the system architecture to reduce the bandwidth but keep speedy sending data received. Communication systems need to be interfaced with other components of data-flow and network-centric systems for efficient control stations and operators. Skilled and innovative personnel qualified from the electronics-digital communication, and software engineering field would be best suited for the above-mentioned indigenous work. Existing laboratories of BUET, MIST, BAUST, BSMRAAU, etcetera can be used for test procedures of different systems. Using local and other resources apropos system can be inducted by the local expertise within 2 (two) years or so, and subsequent years will be utilized to reduce further weight, utilizing the bandwidth of Bangabandhu satellite (C and Ku band) and appropriate power consumption.

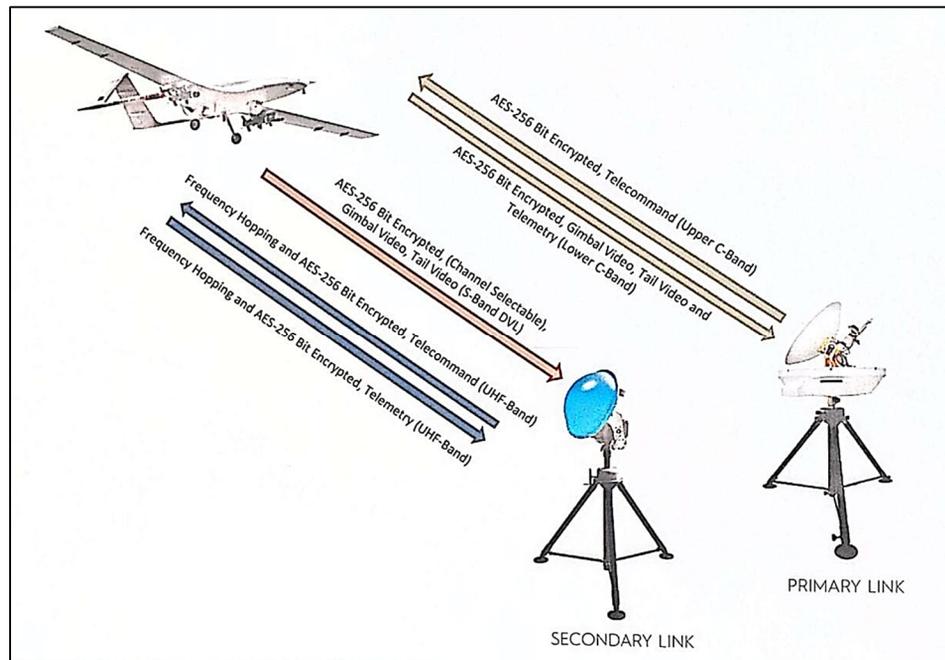


Figure 5: COMMUNICATION SYSTEM

Source: Author's Collection

Electronic Warfare (EW)/Electronic Counter Measures (ECM) Design. Due to autonomous flight conditions, UAS should have the capability of EW and at the same time resistance to ECM. Skilled and innovative personnel qualified in electronics-digital communication, and software engineering would be best suited for the above-mentioned research work, and development of the system will take a little longer time, i.e, approximately 3 (three) years or so.

Conclusion

Resolving today's battlefield issues/ environment needs an integrated approach. Utility of UAS as an air-assault platform need not be over-emphasized. Thus, influence on current doctrine vis-a-vis problems related to fleet management is the utmost factor to be considered. However, the high cost of manned aircraft platforms and budgetary constrain remain as an iron curtain to go with such sophisticated tools. Accommodating the strong demand of UASs with present budget constrain requires the adaption and indigenization of fleets with multi-role remaining in a single platform. Economic and budget constrain have a reflective influence on the subject issue, obviously, it will act as a vital part in defining to decide the utilization of single or multi-role platforms. Integration of technology and components is not a simple task due to lack of an integrated theory and practical experiences as well, but the application of such is challenging since it demands professional knowledge in aerodynamics, software, and control theory. However, it is possible to develop and optimize the design of UASs by using simplified theories on standard configuration.

UASs can influence a whole range of ground warfare by augmenting the capability of the army to conduct prompt and sustained warfare. At the operation level, it will act as an airmobile strategic reserve force to be employed in any threatened sector. Again, at the tactical level, it will stand as the available observation and reconnaissance means to the ground commander. Proper integration of the UASs in the Bangladesh Army and Army Aviation, in particular, will necessitate two things; firstly, the doctrines evolved have to be made operational with suitable training, and secondly, it must be realized with the appropriate air support within forces or services during all-weather and day-night conflict environment. Considering the present battlefield environment, integration of the UASs within services, maintenance, adaption and financial aspect, insertion of indigenized UASs will be able to create perception between our Armed Forces from the rest. The use of such UASs will confirm five things; sustainable maintenance support, proficiency of aviators and other associated operators, retaining the liberty of action, concentrating efforts at a given time on a particular point in the terrain, and thus reduction of the forces needed in the battlefield.

Foreseeable structural change against the evolution of the engagement context/ the concept of operation under the overall ambit of Forces Goal 2030; we inherited a gleaming UASs, which will be able to minimize the confrontation with considerable challenges in terms of operation, capabilities, and technology. The decisive role of the said platform will be presented as a "Cost-effective" solution due to its ability to increase the operational impact of other components of the Bangladesh Army as well as the Armed Forces. Our indigenization approach will strengthen the operational outfit of the army and in turn beloved country as well. The army will become strong through indigenization, innovation and manufacturing programmes with strong research and development projects. Besides, there is an inherent possibility of continuous innovation of these products according to the needs of the Armed Forces, climate, and the nature of our landscape with the help of local industries and resources. Point to be considered that, the availability of said fleet is also largely depending on the qualified and skilled personnel assigned to their maintenance. Thus, this component of the army needed to be strengthened both in terms of capability with available resources and equipment used must be compatible to fulfill the Forces Goal 2030. However, the ability to adapt to the UASs is going to be shadowed by financial limitations but we have to see the benefits it offers. "Fortune favours the industrious", therefore, instead of sacrificing and draining our intelligence, we would like to move on and appreciate any of the projects which will induce and force us to develop which will ultimately pave the best way for indigenizing of defence system/equipment. Harnessing the expertise of local scholars through determination, performance efficiency, and workload will bring sweeping changes in the economy, security, connectivity, and international relations in a manifold. An investment that offers a positive return is always rewarding and should be pursued.

Recommendations

“A good beginning is half of the battle”; therefore, we need to determine and design the simulated model for test and trial. The result of the test and trial will show the path of modification and correction to onboard indigenization platforms. But if botched up, then at the passage of time, we may learn to prepare the new module and make the changes by the simulation process to set the desired platforms.

“Necessity is the mother of invention”; thus, initially there will be a trade-off between performance, payload capacity, and robustness. Indigenization needs a technological management system through reverse engineering and collaboration with local resources and avoiding software complexity.

Patronizing the qualified, innovative, and patriotic personnel under the defence umbrella will surely pave the way for indigenization and guide our scholars to reach our desired goals.

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PROFESSIONAL DICHOTOMY BETWEEN UNIT SERVICE AND COURSE PERFORMANCE IN THE CAREER PLAN OF JUNIOR OFFICERS: MUCH PRONOUNCED BUT LESS FOCUSED IN BANGLADESH ARMY–WAYS FORWARD

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"If everybody is thinking alike then somebody is not thinking"

- George S. Patton

Abstract

Bangladesh Army as one of the premium professions attracts many of the youths during early stage of their career. Individuals imbued with patriotism join army to find a challenging profession. After commission, dreams start fading away with the progress of service. Promotion, self-recognition, social status, opportunities in service, etcetera succumbed to frustration for many of the officers. Many feel that they were not adjudged appropriately despite their full devotion and sincerity in profession. They argue for not getting alike opportunity to succeed in the service. A sigh of frustration acts in mind. Good percentage of officers concentrate elsewhere in the mid of their journey leaving aside army profession. It is understandable that due to pyramidal organisation significant proportion of officers has to go on retirement as Major. However, efforts may be taken not to sap confidence of officers. They should remain complacent during retirement irrespective of their ranks. Army profession should bolster confidence so that officers remain brave heart throughout. Senior leaderships in Army very appropriately profess for deeper concentration in the unit affairs. Serving with troops is the corner stone of unit cohesion. It acts as building block for the effectiveness of Army. In reality, junior officers' career plan at times gets more influenced by their course achievement than unit performance. Officers presume that attaining good grading in the course should be the catch point in service. Therefore, dichotomy between unit service and concentration on course persists in the service. A humble effort has been taken in this paper to analyse the aforesaid issue for the junior officers up to the rank of Lieutenant Colonel. Lacunas of present career planning have been analysed and modifications required have been suggested. As per the study, little modified approach of existing professional arrangement in the Army may tribute to the enhanced effectiveness of the organisation.

Keywords: Professional Dichotomy, unit service, course performance, career plan, junior officers.

Introduction

Two officers were discussing at station officers' mess anteroom. One was counselling the other to concentrate in unit affairs. After ten minutes discussion, recipient officer replied in frustration, "Sir, my fate is decided. I am not a 'plus material' like you in Army. It is too late for me. Had I been commissioned in your unit and received guidance before, my career would have

been different too". An arbitrary survey on any course presents more than fifty percent officers retire at the rank of Major. Army as a pyramidal organisation can never take all officers of a course to the upper edge of pyramid. The concept is common but varies while talking about confidence of officers specially who retire at junior rank. Young officers join the Army imbued with patriotism and colourful reveries. All dreams start fading away with the progress of service. Many argue regarding influence of unit service and course performance within the conduit of career plan in service. Army appropriately focuses on fine balance between unit service and course performance, yet something is missing while planning career of junior officers in present arrangement.

Cohesion is the building block for overall effectiveness of any army¹. Unit service is the foremost requirement for the refinement of cohesion. Army always embolden officers to devote completely in unit affairs. Despite all sincere efforts by the authority, experience of officers serving in the unit is diverse. Short time stay in the unit remains as a hidden desire for many officers. Junior officers remain focused on the opportunity to serve in extra regimental employments. Many officers even question regarding the quality of officers who stay comparatively longer period in the unit. Recognition of unit service appears inadequate than expected. As a result, officers remain dispassionate to serve in the unit.

Training is imperative for professional development of army. It takes complete shape combining both individual and collective training. Training and leader development are two military functions that go hand in hand.² Army has placed adequate importance on both individual and collective training. Training institutions mostly focus on individual skill development. Letter grading arrangement as part of evaluation system remain benchmark for subsequent employment of officers. Officers lagging in the course performance fall apart from the main stream of service. Quantified assessment on collective training is yet to be endorsed in the career profile of officer. Therefore, sigh of frustration acts in the mind of officers who contrive to concentrate in the unit with moderate or poor course performance. The frustration continues even after retirement denting moral confidence of officers significantly. It rises dichotomy regarding priorities between unit service and course performance in the career plan of officers.

An effort has been taken in this paper to examine present dichotomy between unit service and course performance in the career plan of officers. While analysing the issue, existence of dichotomy, its causes and impact on service and likely measures against dichotomy have been discussed. Finally, few recommendations have been mentioned. Officers up to the rank of Lieutenant Colonel both male and female have been categorized as junior officers in this paper.

¹ Robert J. MacCoun and William M. Hix, 2010.

² Greer, Jim Colonel, US Army (Retired), 2018.

Existence of Professional Dichotomy in Bangladesh Army

What is dichotomy? As per Cambridge dictionary, dichotomy is a difference between two completely opposite ideas or things. Is there any professional dichotomy between unit service and course performance in Army? The answer is blurred. Professional dichotomy does not exist in Bangladesh Army only. One of the researches of the US Army clearly spelt out, 'Lack of control in obtaining preferred assignment' as one of their dichotomies³. Various fields where professional dichotomy exists are as follows:

Benchmark for Different Appointments. All important appointments at junior officer level be it instructional or staff are guided by some stipulated criteria. An officer, if not doing well in junior command and Staff Course, will be deprived of the opportunity to serve as grade three staff officer or instructor in school or in any other good appointments. The same is with the result of Staff Course. Despite ardent hard work and sincerity in unit affairs, an officer will remain abstained from desired selection. Interestingly, in many cases an officer is posted as Deputy Assistant Adjutant and Quarter Master General as he does not fulfill the criteria of Brigade Major but continues most of his tenure as acting Brigade Major due to non-availability of posted Brigade Major. There are many more untold alike stories. They perform in most of the cases better than expectation with hard work and sincerity; however, they curse themselves for their course performance. They remain confused too as to what can be better criteria than dedication and sincerity for holding any appointment. There is no relation with Tabulated Record and Comparative Evaluation (TRACE) for the said selection.

Hallo Effect in Officers' Performance Report (OPR). History of hallo effect originates from military. Psychologist Edward Thorndike first coined the term in a 1920 paper titled "The Constant Error in Psychological Ratings".⁴ Ideally, an initiating officer try to endorse all contribution of a reporting officer in the OPR. In reality, it becomes very challenging for the initiating officer to follow the format. Overall course performance remains as one of the directorial tools to grade an officer. In many instances, initiating officer completes OPR following wary approach keeping in mind overall course performance of the officer. Absolute unit performance at times stumble with the poor course performance. Officers with moderate or poor grading in courses struggle to get a good grading in OPR. There are many cases where officers with good course grading enjoy privilege in OPR due to hallo effect.

Marks in TRACE. Examination of existing TRACE manifests the dominance of course. Presently training has thirty percentage of total weightage where Staff Course holds thirteen and Unit Command Course holds ten weightage. A Staff Course qualified officer will spontaneously enjoy more weightage in TRACE due to weightage variance between Staff Course and Unit Command Course. Officers not qualifying in Staff Course find difficulty to get good marks in TRACE too. Triumphs in courses at times surpass long-time contribution in unit service.

³ John R. Hyatt and D. Matthews, Michael, 2000.

⁴ Cherry, Kendra, reviewed by Morin, Amy, 2020, P1.

Identification of Elite Class. At present, junior officers are frequently known by the appointments they hold in different stages of their service. For example, someone is known as 'Instructor Type' due to holding appointment in School of Infantry and Tactics at early stage followed by directing staff in Defence Services Command and Staff College. Again, someone is known as 'Staff Type' for serving in various staff appointments. First group is perceived to be elite class where later is inconspicuous. Other than these two groups, rest of the officers form the general or common group in Army lacking confidence in themselves.

Selection for Higher Studies. Broad trend is to select officers for higher studies basing on course performance. TRACE weightage remains inconsequential. Junior Command and Staff Course remains as cardinal point for any higher study at the rank of Captain/Major. Selection for second Staff Course or any other equivalent study remains within the parlance of first few plus cases of Staff Course. Why does course performance remain only consideration for higher studies? How much is the knowledge difference between candidates scoring 62.5 percentage and 63.5 percentage in the same course? What about TRACE? In reality, present system keeps 62.5 cases out of the race irrespective of TRACE mark. Importance of TRACE is being observed during selection for higher study, but it is yet to transform into policy.

Causes of Dichotomy in Bangladesh Army

What may be the likely causes for present dichotomy between unit service and course performance in the career plan of junior officers? Logical exploration of the following issues will unearth the grey areas of dichotomy:

Professional Outlook of the Career Plan. Presently, career plan of junior officers is course performance driven. Doing good in courses allow better opportunity to serve. Officers who failed to do well in initial mandatory courses start taking away themselves from the main stream. They serve in other appointments with frustration. They find sheer difficulty to accept the phenomenon where someone is posted to any good appointment despite less TRACE mark in comparison to others. Their dedication and sincerity in unit activities at times get fickle affecting overall professional development of the organisation.

Initial Grooming in the Unit. As perceived in Army, "There is no good or bad unit. It is the good or bad officers". Noble parental duty belongs to any parent unit. History, tradition, heritage, etcetera of any unit along with the set of officers tremendously influence grooming of newly commissioned officer. In many cases, course performance of an officer depends on traditional practices of the units. Regardless of performance as cadet in military academy, initial grooming is immersed in the military as one of the factors for shaping future career of an officer.

Inadequate Recognition for Unit Service. "We hear many officers say, I'd do anything to get a command."⁵ Army has sufficiently focused on the importance of command specially at battalion level. How about the recognition of an officer who serves as company commander for long? Does he get any extra weightage in TRACE due to elongated service in the unit? Despite toil in the multi-dimensional challenges in the unit, the officer is accounted in the back bench in comparison to his peers who serve in different extra regimental appointments. Grade three staff officer, Brigade Major, instructor etcetera are desirable appointments during evaluation of officers' service profile. Nothing special can be mentioned about someone who is holding unit appointment at company level for long. Instead, more length in unit service at times signposts average career in the Army.

Maintaining Heredity. According to Aristotle, for all animals the blueprint is "the soul", that is, the integrated functional capacities that characterise the fully developed entity⁶. The soul encompasses physical or mental characteristics genetically from one generation to another that is otherwise known as heredity. Members in military remain committed round the clock in respective field of service. Shortage of officers, overall commitment etcetera put officers at trying situation in most of the cases. Completing routine task within stipulated time frame remains the most important challenge for all concerned officers. Despite all sincere efforts, maintaining heredity appears to be the appropriate option instead of evaluating present system. Thus, capital change is not observed in the career plan of junior officers.

Ambit of Training Institutions. Train hard, fight easy, a classic military maxim is well endorsed by Army. As said by Douglas MacArthur, "In no other profession are the penalties for employing untrained personnel so appalling or so irrevocable as in the military". Training institutions clamp sheer responsibility of imparting required training. Prime focus of training institutions is to instill confidence amongst individuals in different field of military expertise. What is the reality? A certain percentage of grading conscious officers remain with the objectives of the course. Their prime focus is to get a plus. Rest of the officers give up after certain progress of the course leaving hope of getting plus grading. At the end of the course, more than sixty percent officers draw conclusion regarding their future career pattern. Back around the 1940s, the grading system was invented. The main reason that grades were invented was to make it easy for institutions to communicate with one another about a student's academic readiness.⁷ The said grading system is being reviewed by different institutions. Training institutions shape the career of officers proclaiming their suitability for different employment in future causing dent to their confidence.

Inadequate Evaluation of OPR. OPR is an incredible tool of endorsing all kinds of unit activities of any officer. However, generally any adverse comment and overall grading are two important aspects that are accentuated in OPR. Importantly, recommendation of initiating officer for any future extra regimental employment/training/higher education remains dormant if the reporting officer's course performance does not match with the selection criteria of present system.

⁵ Cherry, Kendra, reviewed by Morin, Amy, 2020.

⁶ Roughley, Neil, 2021.

⁷ University of the People, 2021.

Difference between Discourse and Practice. Efforts are taken to stimulate the junior officers to concentrate more in unit affairs. Such inspiration remains common in different professional discourses. In reality, few officers at times become indispensable for different appointments and do not serve in the unit. These officers apparently being good cannot contribute much in leading their under commands. Remaining away from the troops becomes one of their predicaments to become an effective commander in future. However, professional success in terms of promotion and other opportunities for these officers encourage rest of the officers to follow the same. As a result, obtaining good grading and remaining out of unit affairs become desired trend for many officers.

Absence of Voice for Voiceless. Often it is difficult to have complete faith in the words we read on a page, especially from bigger publications with an agenda. That is why smaller authentic voices have become popular⁸. The concept is applicable in military as well. In most cases, findings of different study periods remain confined within papers only. Officers with average course performance, stay far away to express their opinion in the entire process. Most of them remain shy to ask why they can't be given opportunity to serve in any particular appointment with their average performance in the course. The said large category of officers continues in silence with frustration and dissatisfaction.

Impact of Dichotomy in Bangladesh Army

Every army has their unique challenge that affect overall organisational interest. Expeditionary force like the US Army has problem with Operating Tempo⁹. Dichotomy and latent challenge of Army affect its organisational interest in many ways. The impacts of dichotomy on the officers are as follow:

Decay in Self-confidence. Junior officers who could not do well in military courses strongly feel, "I am not a 'plus' material". Such imprinted feelings start waning confidence of officers. Subsequent employment of officers basing on course performance further expedite declination of their confidence level. Resilience and confidence are two of the strongest fundamentals of a well-rounded capable person. The effort of building, maintaining and exuding both resilience and confidence is therefore necessary to success¹⁰.

Decision Making Process by the Junior Officers. Junior Officers distinctly perform different in present days comparing to past. Leaving apart glorious Liberation War, Chattogram Hill Tracts was another testing ground for junior officers to exhibit their leadership qualities. There are abundant examples of junior leaders in making the history. However, the same is not observed in challenging situation of present UN peacekeeping mission. The prime reason is the confidence. A junior officer is not certain about the acceptability of his decision. Therefore, in many cases, remaining indecisive seems as common trend in the thick of any conflict situation.

⁸ Singh, Deepiksha, 2020.

⁹ Don Capps, Colonel, US Army (retired), 2008.

¹⁰ Moloney, Hayden, 2018.

Fragile Team Spirit. According to the Collins dictionary, team spirit is the feeling of pride and loyalty among the team members. Team spirit proportionately contribute to team effectiveness. Team effectiveness has been a substantial focus of research within the military for decades to ensure military teams have the human capabilities to complete their missions and address future challenges successfully¹¹. A united team will have higher levels of team spirit because they trust each other, communicate well, and collaborate to reach their goals. Without proper communication and cooperation, unity among team members is impossible.¹².

Lack of Interest in Unit Affairs. A discontented soul due to non-achievement of desired result in course faces difficulty to devote more in the unit affairs. Serving in the unit does not offer him/her any attraction. Frustrated leaders cannot encourage their followers too. As a result, collectively unit performs poor in training their under commands.

Early Departure from Professional Concentration. Early retirement in military is a major concern across the globe. In the US Army, military retirement is often experienced as an abrupt change¹³. Such job insecurity in terms of post retirement rehabilitation is deepened due to existing dichotomy. Junior officers after certain progression of career start preparing themselves for post-retirement life. At their golden age, instead of focusing more in profession, they frantically look for other engagement. Few look for higher studies, few actively focus on making wealth for future and so on. At times they fail to restrict themselves within professional boundary and succumbed to unethical issues. As a result, Army as a whole miss the contribution of the most energetic blood.

Display of Vanity in Profession. Vanity is the illusory professional impression of an officer based on his course performance. Vanity is analogous to the concept of 'Paper Tiger'. Good or bad performance in unit remains confined within OPR which is never exposed widely. On the contrary, course performance is known by others. It encourages officers to pay attention for vanity. An officer may remain self-centered throughout a course and still can come out with a very impressive result. The same is not possible in case of unit performance. One has to succeed applying his individual leadership skill taking both superiors and under commands with him. If unit performance is repressed, then vanity in profession will revive.

Lack of Leadership Traits. Types and numbers of leadership traits are almost the same in different armies. These are important characteristics for a leader. The very concept of leadership originates from the unit. Officers acquire in-depth theoretical knowledge during their training but can't apply in training institution. Unit is the practical ground where junior officers will prepare themselves to lead their under command in any crisis situation. Lack of service in the unit will keep officers deprived of inculcating leadership traits. Training will make someone more knowledgeable but not confident unless those are practiced on ground.

¹¹ Gerald F. Goodwin, Nikki Blacksmith and Meredith R. Coats, 2017.

¹² Rabha, Mrinmoy, 2021.

¹³ Russ Thomas Graves, 2005.

Lack of Mutual Respect. Respect is one of the prime requirements in carrying out military task. In military, respect is omnipresent for rank and position. However, one has to remember, "Respect is not given; it is earned over time and through actions."¹⁴ Respect is also very closely linked with trust and confidence. If subordinates think that you are not concerned about their welfare, they will follow you unwillingly.¹⁵ In Army, existing respect between officers and under commands does not have any relation with dichotomy. The problem is amongst the officers. Due to dichotomy, one pattern of officers lack trust and confidence on other category of officers. This phenomenon results lack of mutual respect from early stage of military career. It turns into anxiety once fragmentary effect is observed amongst the junior officers.

Ways Forward

Dichotomy in military service will differ from one another. Dichotomy in the western army will not be the same as in Bangladesh Army. Presence of dichotomy should not be a major concern but serious attention should be devoted to find out the plausible solution. Open mind approach should be considered in finding out the ways to avert dichotomy. It needs a holistic approach to way out existing dichotomy of Army. The approach may include the following ways and means:

No Letter Grade in the Officers' Course. Army courses for officers may be designed without letter grade result. There may be two categories; qualified and not-qualified. Present quantified assessment may continue exposing to individual course member and Military Secretary Branch only in order to calculate the weightage in TRACE. Course report will only project qualified or not-qualified status without mentioning the percentage of obtained marks.

Review Domain of Training Institutions. Junior officers need to refrain from result anxiety while undergoing training in training institutions. Nothing other than inquisitiveness should persist amongst the course members. Training institutions' prime responsibility may be to create such environment of inquisitiveness. They need to redesign the courses as more participatory and knowledge seeking. A short span of time in any training institution may not be the decisive point for an officer. Instead of superfluous course grading race, training institutions need to instill confidence amongst the officers. No recommendation on officers' future employment may be made by training institutions. An officer should not go back at the end of course with sense of defeat in his career. Instead, officers should bolster their morale and courage to undertake new challenges.

Non-disclosure of Course Report. Only individual officer and Military Secretary Branch may be exposed to the course reports. Rest may not know about the course performance of an officer. It will reduce overall impression fallacy regarding any officer. Officers after completion of their training will devote completely without any superiority/inferiority complex. Officers doing good need to earn confidence of their under commands and superiors through hard work and sincerity. None may be allowed to get a free chit because of his good course report. It will provide every junior officer with equal opportunity to excel his career.

¹⁴ Howard, Bill, 2020.

¹⁵ John A. Lejeune, 1930.

Formation as Hub of Training. Junior Officers after completing their individual training will steer collective training in the formation. As commonly referred the quote of Joseph Joubert, "To teach is to learn twice". Officers will be more experienced while imparting training. Such training will not have any anxiety of grading/merit order. Officers will be fear free regarding any innovation. They won't have any limit of experiment. Therefore, formations may be the most appropriate training institutions to promote both individual and collective training.

Unit Performance may Shape Career of an Officer. Formations particularly unit may observe proficiency of junior officers in different fields of employment. Officers will be judged accordingly in their OPR. Recommendations of the initiating officer may be one of the important criteria for Military Secretary Branch to shape career of officers.

Reviewing Selection Criteria for Different Assignments. Present selection criteria for different assignments like staff appointments, higher studies may be reviewed. TRACE as reflection of hard work and sincerity may be the main cardinal point for all such selection. Sincere and dedicated officers of Army are capable of performing any kind of assignment. Military academy successfully groom the officers accordingly since the beginning of military life. Imposing various criteria for different appointments may not restrict the officers in delivering their best in the service.

Rearranging TRACE Mark. Little more effort may be taken to review the marks distribution in TRACE. Out of hundred weightage, training marks may be limited to maximum ten. There are many reasons for doing well in the course. Army can't ensure equal opportunity in terms of unit environment, preparation time etcetera for all officers prior to the course. Officers are already socially deprived for not being Staff Course qualified. Why to penalize them again in TRACE? Instead, twenty marks from training may be redistributed within OPR and physical efficiency test weightage.

Conclusion

Dichotomy between unit service and course performance exists in Bangladesh Army. Many of the officers feel that overall career planning of army officers lean against course performance. Officers are being identified with their course performance. Benchmark for different appointments, halo effect in OPR, marks in TRACE, identification of elite class, and selection for higher studies are the areas where professional dichotomy exists. There are reasons for existence of professional dichotomy. Mentionable reasons are professional outlook of the career plan, initial grooming in the unit, inadequate recognition for unit service, maintaining heredity, ambit of training institutions, inadequate evaluation of OPR, difference between discourse and practice, and absence of voice for voiceless.

List of impact due to professional dichotomy in Army is quite long and thoughtful. It saps the confidence of junior officers. In addition to decision making process by the junior officers,

fragile team spirit, lack of interest in unit affairs, early departure from professional concentration, display of vanity in profession, lack of leadership traits, and lack of mutual respect are the areas of impact due to dichotomy. Small endeavor in Army can eradicate the dichotomy. No letter grade in the officers' course, reviewing domain of training institution, non-disclosure of course report, formations as hub of training, unit performance for shaping career of an officer, reviewing selection criteria for different appointments, and rearranging TRACE mark are the important steps that may be considered to reduce the effect of dichotomy.

Bangladesh Army is known as one of the professional armies at home and abroad. Lion share of this achievement belongs to the junior officers. Achievement in Liberation War, Chattogram Hill Tracts, UN Mission manifest role of junior officers in Army. Junior officers are the soul of any army. Correct motivation of these officers will drive the Army in the desired direction. Leaderships will be able to implement their command philosophy through appropriately motivated junior officers. Frustration should not work in the mind of junior officers within the professional arrangement. Army being pyramidal organisation s can't take all junior officers to the upper edge of pyramid. Appropriate career plan will allow to take the suitable officers to the upper edge of pyramid without denting confidence of others. Such step is possible when fine balance between unit service and course performance can be made. The measures are simple and easy to implement. Precise realization of dichotomy by appropriate leadership will help to implement the suggested measures.

Recommendations

Following measures are suggested to address the existing dichotomy of Bangladesh Army:

- a. Military course for officers may not have any letter grade assessment. All officers may be considered qualified/not-qualified. It will eradicate present plus material complexity of officers. Present quantified course result percentage may continue exposing to individual course member and Military Secretary Branch only. It will allow training weightage calculation in TRACE.
- b. Domain of training institutions may be reviewed. Instead of recommending future career profile of junior officers, training institutions may be the center of excellence for knowledge enrichment. They may pursue both knowledge and confidence of junior officers.
- c. TRACE may be the important criterion for any kind of selective nomination of junior officers. Unit performance may get more share in the marks distribution of TRACE. Marks allotted for training may be reduced to ten sharing rest twenty weightage with OPR and physical efficiency test.

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PADMA MULTIPURPOSE BRIDGE: SYMBOL OF HONOUR AND PRIDE OF BANGLADESH

Colonel Mohammad Shahidul Islam, psc

Abstract

Padma multipurpose bridge is the most challenging construction project of the country. Initially, the World Bank agreed to finance but at one stage they withdrew from financing the project. At this backdrop, Honourable Prime Minister Sheikh Hasina decided to undertake the project by our own financing and the project has been implemented without any foreign investment. It was the most courageous and dynamic decision by the Honourable Prime Minister. Bangladesh has demonstrated to the whole world that it has acquired the capability to undertake any iconic project with its own funding. Sheikh Hasina inaugurated the construction work on 12 December 2015. Padma multipurpose bridge is a double layer still truss bridge with a four-lane road in the upper floor and a dual gauge rail line in the lower level. The width of the bridge is 22 meter and the length is 6.15 km. The construction work of the bridge has been completed successfully negotiating some major challenges. The bridge was inaugurated by the Honourable Prime Minister on 25 June 2022 and was open for all on the following day. The people of twenty-one districts of south western part of the country will be much benefitted out of this bridge. It is expected to boost the economy of the country. It is likely to increase the national GDP by 1.2 percent. Besides, Mongla Sea Port and Benapole Land Port can be directly connected to the capital city through Padma Bridge. From the very beginning Bangladesh Army has been actively involved in the construction of the project. Members of Corps of Engineers of Bangladesh Army are engaged as Construction Supervision Consultant of the project. Besides, Bangladesh Army provides round the clock security to the project. Bangladesh can be proud of this project and it has raised the confidence of the country to undertake any iconic project in future. The project came into reality only because of the dynamic leadership of the Prime Minister Sheikh Hasina. Now, the Padma Multipurpose Bridge has become the symbol of honour and pride for Bangladesh.

Keywords: Padma Multipurpose Bridge, Construction Project, Economy, Challenges, Bangladesh Army, Honour and Pride.

Introduction

The Father of the Nation Bangabandhu Sheikh Mujibur Rahman dreamt of constructing number of multipurpose bridges over the major rivers of the country to make the communication system easier and to reduce the travel time of the people. To implement the dream of the Father of the Nation, the most qualified daughter of Bangabandhu, Honourable Prime Minister Sheikh Hasina took the challenging step to construct Padma Multipurpose Bridge over the mighty river Padma. This iconic project has been implemented with our own resources and funding under the

dynamic leadership of Honourable Prime Minister. The bridge connects Mawa of Munshiganj district with Jajira of Shariatpur district. It is a double layer bridge having a four-lane road in the upper floor and a single lane dual gauge rail line in the lower level. The Padma Multipurpose Bridge is the longest bridge in our country and it is the biggest challenging construction project in the history of Bangladesh. The construction of the bridge faced some major challenges like deep piling, river training work, rehabilitation of the affected people, scouring of the river bed etc. Piling of the bridge was done through screen grouting method. Bangladesh is the first in the world to apply such method and the technology used in Padma multipurpose bridge is rare in the world¹. Honourable Prime Minister Sheikh Hasina inaugurated the largest infrastructure of the country on 25 June 2022².

Padma Multipurpose Bridge will usher new dawn of possibilities for the people of Bangladesh. It is of great importance for the sustainable development of the country. It is expected to have enormous contribution in the national economy as well as in the overall development of the country. It connects the capital city with the twenty-one south western districts of the country by road and railway communication system. The bridge with significant cost benefit ratio is expected to boost the economy of the country. All possible steps were also taken to mitigate the environmental impact due to the construction of the bridge.



Picture 1: Construction of Padma Multipurpose Bridge

Bangladesh Army has active contribution for the construction of the bridge as well as providing security to the mega structure. Bangladesh Army is employed firstly as Construction Supervision Consultant in the project. Members of Corps of Engineers of Bangladesh Army have

¹ <https://sameotech.com/2020/12/15/padma-bridge-will-change-the-destiny-of-bangladesh/amp/>

²The Daily Star, Dhaka, 25 June 2022.

been actively involved in the construction of Padma Multipurpose Bridge. Besides, Army is directly involved in the implementation of Padma Bridge Rail Link Project. Secondly, Bangladesh Army is providing round the clock security to the project and giving protection to all locals and foreigners involved in the project work. The contribution of Bangladesh Army in the project has been much appreciated by all concerned.

In this paper an attempt has been made to highlight the background of the project, discuss major construction challenges, significance of the project, and contribution of Bangladesh Army in the project.

Background of the Project

The Padma Multipurpose Bridge has an eventful background history. Honourable Prime Minister Sheikh Hasina, laid the foundation stone of Padma bridge at Mawa Ghat on 4 July 2001³. The Government of Bangladesh signed a contract with the consultant designer of the project in the year of 2009⁴. Thereafter, all the necessary formalities were accomplished to begin the construction of the mega project. The Government of Bangladesh signed a loan treaty with the World Bank on 28 April 2011⁵. The World Bank pulled out from the loan treaty of funding 1200 million dollars for the project on 5 June 2012⁶. World Bank's decision came in a time when Bangladesh Government has already made substantial investment in the project. This unexpected decision of World Bank frustrated the whole nation. At that moment the courageous leader of the nation, Prime Minister Sheikh Hasina took a bold decision to implement the milestone project with country's own resources. She announced her decision on 8 July 2012 at 13th general assembly of the National Parliament⁷. This was a stunning step by Prime Minister Sheikh Hasina and it was a blessing in disguise for the nation.

Executing this dream project Prime Minister Sheikh Hasina desired to give a message to the world that Bangladesh has acquired the capacity to implement any mega project. She also reiterated that the heroic nation who had earned independence through nine- month long bloodshedding war and sacrifice of three million people will keep its head high. Prime Minister Sheikh Hasina inaugurated the construction of the project on 12 December 2015 at Mawa under Munshiganj district⁸. Terming the day, a 'Red Letter Day' for the people of the country, Sheikh Hasina mentioned her government remained firm to construct the bridge despite all eventualities. The bold and dynamic decision by Prime Minister Sheikh Hasina has earned much appreciation from all corners.

³ Mahbub Reza, *Padma Setu*, HawladarProkashoni, Dhaka, 2019. P. 71

⁴ Ibid. p. 71

⁵ Helena Janahgir, *Padma setu in my eyes*, Progoti Press and Publications, Dhaka, 2021 p. 70

⁶ Ibid. p. 71

⁷ Ibid. p. 72

⁸ Ibid. p. 72



Picture 2: Inauguration of construction work of Padma Multipurpose Bridge

An Overview of the Project

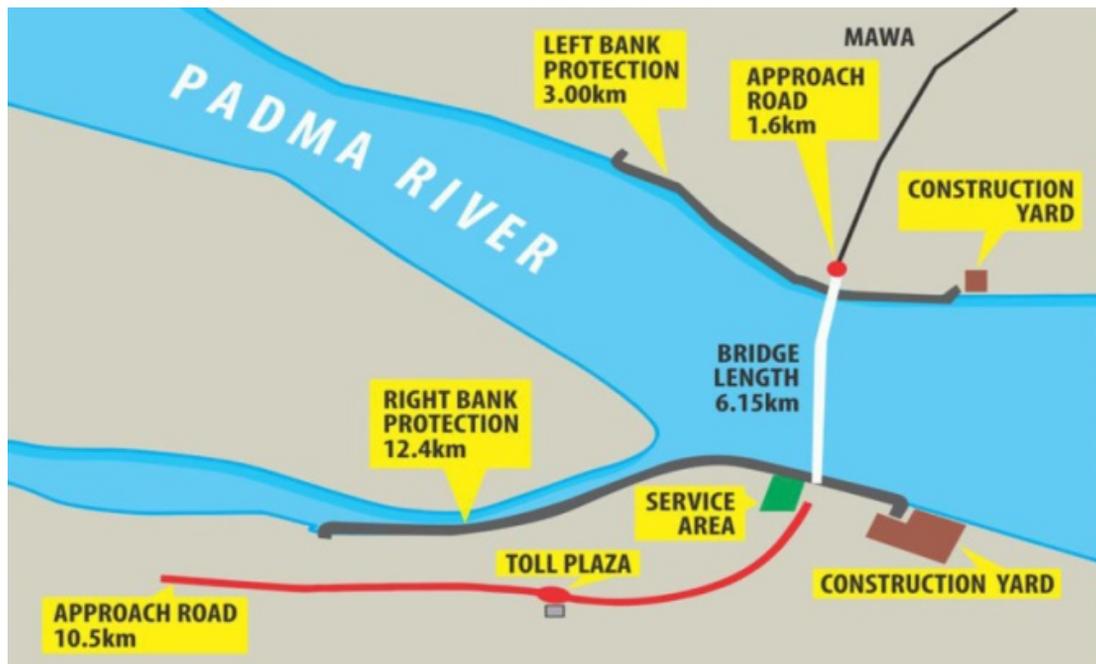
The pre-feasibility study of Padma multipurpose bridge project was completed from 1996 to 1999. The Japan International Cooperation Agency finalized the study between 2003 and 2005. The US, New Zealand and Australia based consultant organization Monsell-Ecom developed the design of the Padma multipurpose bridge between 2009 and 2011⁹. Bangladesh Government declared to construct Padma multipurpose bridge by own funding in the year 2013. An agreement was done with China Major Bridge Engineering Company Limited to construct the main bridge and Sinohydro Corporation Limited was given the contract for river training work in 2014. The first span of Padma multipurpose bridge was laid on 30 September 2017 and the last span was set up on 10 December 2020.

The main bridge is a two-level steel truss superstructure acting compositely with a reinforced concrete deck slab with road traffic on the upper level and rail on the lower level. The main bridge is 6.15 km in length connecting Mawa of Munshigonj district at one end and Jajira of Shariatpur district at another end. Considering the 3.12 km viaduct of both ends, total length of the bridge become 9.83 km. This is the 122nd longest bridge in the world¹⁰. There are total 42 piers and mostly six piles under every pier except twenty-two piers which have another extra pile. There are total 41 spans of 150 meter length each. Length of river training works at Mawa point is 1.6 km and at Jajira point 12.4 km¹¹.

⁹ <https://businessinspection.com.bd/economic-benefits-of-padma-multipurpose-bridge/>

¹⁰ <https://www.tbsnews.net/world/padma-bridge-worlds-122nd-longest-bridge-169861>

¹¹ <http://www.padmabridge.gov.bd/rtw.php>



Picture 3: Construction site of Padma multipurpose bridge

Parts of the spans are prepared in mainland China and carried to Bangladesh through sea route. There are provisions for the supply of gas, electricity, and fiber optical cable with the bridge. Spans are at a height of fifty feet from the highest water level of the river. The construction works are divided into six different segments, namely construction of main bridge, river training work, construction of connecting road at both ends, construction of toll plaza and other infrastructural construction. The piles used in Padma bridge construction are the longest in the world and of best quality pile. The pile length varies from ninety-eight meter to hundred twenty-two meter with a radius of three meter¹². Each pile can sustain 124.6 mega newton of load and the world's most powerful hammer (3500 kilojoules) is used to drive these piles¹³.

All the piles of the piers are attached to a pile cap which is made of reinforced concrete. The area of each pile cap is approximately 900 square feet. Piers are attached to a height of 50 feet from the pile cap. Fabricated steel truss of 150-meter length are put on the piers. One single steel truss weighs 3200 metric tons. World's most powerful floating cranes capable of lifting 4000 metric tons are used to carry these steel trusses¹⁴. Precast deck slab of reinforce concrete are set on span. Length of each deck slab varies from 2 meter to 2.1 meter. A four-lane road of 22-meter width has been prepared by connecting 2917 deck slab in each span. An international expert panel was formed to implement the project. Bangladesh Bridge Authority, Bangladesh Army and Panel of experts from BUET worked together to materialize the dream project.

¹² <http://www.padmabridge.gov.bd/mainbr.php#>

¹³ <https://steemit.com/bridge/@nachon/padma-bridge-the-longest-bridge-in-asia>

¹⁴ MdEnayetChowdhury, *Padma Setu*, University Press Ltd, Dhaka, 2020



Picture 4: Construction work of Padma Multipurpose Bridge

Construction Challenges of the Project

According to the experts, the Padma multipurpose bridge project is the biggest challenging construction project in the history of Bangladesh. The speed of current of the Padma is the second highest in the world after the Amazon¹⁵. This speed of the current was a great concern during pile driving. The soil of the river bed is very soft. Again, the river carries huge volume of sediments. River scouring was another concern. The highest scour record of the river is 65 meter which is the maximum in the world. Therefore, piling depth had to be increased up to 120 meter to sustain the calculated load of the bridge. Padma Bridge may be called the deepest foundation bridge in the world¹⁶. Special hammer was brought from Germany to drive the piles into the river bed. Special floating crane was brought to carry the steel truss and place it on the bridge.



Picture 5: Pile arrangement for Padma Multipurpose Bridge

¹⁵<https://www.dhakatribune.com/bangladesh/2018/09/16/bangladesh-can-handle-mega-projects-without-foreign-aid>

¹⁶<https://thedailynewnation.com/news/273056/Padma-Bridge>

Another mentionable challenge for the implementation of the project was river training work. The Padma is a very unpredictable river. It can change its course at any time. Therefore, river training work for 1.60 km at Mawa end and 12.40 km at Jazira end had to be carried out with some major challenges. Other important challenges include, rehabilitation of the affected people, acquiring of land for the project, earthquake protection, mitigation of environmental impact etc. Due to extraordinary challenging features, Padma Bridge is likely to be included in the 'Engineering Textbooks' in different countries of the world. COVID-19 Pandemic was another challenge for the project because the speed of the construction work was slowed down due to pandemic situation.



Picture 6: River Training work at Padma Bridge

Significance of the Project

The Padma multipurpose bridge is expected to open a new horizon of economic doors for the country. The construction of the bridge is going to be economically profitable for the nation. The dream of establishing road connectivity between the south western part of Bangladesh and the capital city came true after the opening of long waited Padma Bridge in June 2022. Padma Bridge is expected to transform the economic landscape of the country. Some of the significant benefits of the Padma Bridge are discussed in the subsequent paragraphs:

Economic Implications. Padma multipurpose bridge is a gateway to our economic aspirations. It will help in the socio economic development of millions of people living in the south western part of the country. It has the potential to accelerate our economic development. Padma multipurpose bridge will have enormous contribution in the national economy and overall development of Bangladesh in achieving Sustainable Development Goals (SDGs) by 2030¹⁷. Agricultural sector will improve to a great extent. Farmers will be able to send their products to various distant places to get better prices. Agro based industries will also develop quickly. Exclusive Economic Zones, high tech parks and private industrial cities will be built on both sides

¹⁷<https://www.daily-sun.com/printversion/details/522974/Reinventing-the-might-of-Bangladesh>

of the bridges. Payra and Mongla Port will be associated with the main economy of the country. Ready-made garments factories will be set up.

Impact on Communication and Transportation Sectors. The river Padma is a considerable obstacle in transporting anything from south western part of the country to Dhaka by road. According to Asian Development Bank, 27% of the total population of Bangladesh lives in the south-west part of the country. Therefore, the transportation is expected to increase more than 20 times with the opening of the bridge. According to Asian Development Bank, Padma Bridge will carry more than 24,000 vehicles per day in 2024 and 67,000 by 2050¹⁸. Due to existence of Padma multipurpose bridge distance from Dhaka to Mongla port will reduce to 170 km. On the other hand, distance from Dhaka to Chattogram port is 264 km. As a result, importance of Mongla Port in the movement of commodities will increase and this will save many working hours and will accelerate the economic growth.

Tourism Sector will Flourish. Tourism is one of the emerging industries in Bangladesh. At present, the importance of the tourism industry is escalating with the increasing number of tourists in the country. The tourism industry account for 4.4% of the country's GDP and is showing a noticeable amount of growth every year. Therefore, it can be said that the tourism industry is going to have a big impact on the economy of Bangladesh in the near future. There are many attractive tourist destinations in the south western districts. In absence of proper communication system tourists could not visit those places. Some of the attractive destinations of the tourists in these areas are Kuakata Sea beach, the Sundarban, the sixty-domed Mosque, Mausoleum of Bangabandhu Sheikh Mujibur Rahman etc. More number of tourists from home and abroad will be interested to explore these places due to easy communication through Padma Bridge. It will have significant contribution for the improvement and development of tourism sector of the country.



Picture 7: Mausoleum of Bangabandhu at Tungipara

¹⁸ <https://www.dhakatribune.com/op-ed/2022/06/28/what-we-can-expect-from-the-padma-bridge>

Industrial Revolution in South Western Region. The construction of Padma multipurpose bridge will change the scenario on both sides of the bridge. Electricity, gas, and fiber optic cable will pass through Padma multipurpose bridge from the capital city to the south-western districts. Therefore, it will create opportunity for much scale industrialization on both sides of the bridge. Experts believe that many small and big industries will grow in the south western part of the country along the Padma Bridge route. The bridge will be an important hub for many major sectors in the country's south west, including multinational communications, trade, readymade garments etc. Payra, Mongla and Benapole port will come under direct communication network from Dhaka and south western part of the country. It will facilitate in the export and import of products through these ports.

GDP Growth. The economic output of the transportation, trading and regional industrial revolution centered on the Padma Bridge, along with the GDP growth, will impact the overall economy of the country. According to government estimates, the bridge will help to increase the annual GDP of the south by 2.0 percent and the overall GDP of the country by 1.2 percent¹⁹. The poverty rate is expected to drop by 0.84 percent due to the impact of the bridge²⁰. The Padma Bridge will have direct impact on the sustainable development of Bangladesh. According to IMF forecast, Bangladesh ranks 20th in the world in ranking GDP growth in 2022. In 2026, Bangladesh is likely to reach 3rd position in this ranking and Padma multipurpose bridge will have significant impacts on this achievement²¹.

Trading Implications. Trading across the country is likely to be boosted due to the opening of the Padma Bridge. It used to take at least 2 to 3 days for a freight truck to travel from Khulna or Barishal to Dhaka. After the opening of Padma Bridge, it takes maximum one day which increases the trading of the regions by several times. The distance from Dhaka to Kolkata through Padma Bridge has reduced to a half. This will boost the country's international trading. Mongla and Payra ports are now directly connected with the capital city through Padma Bridge. Overall development will attract foreign investors and increase foreign investment.

Socio-Economic Impacts. Bangladesh strives to be an economically developed, socially inclusive and environmentally friendly country by the year 2041. Under the dynamic leadership of Sheikh Hasina Bangladesh has crossed several milestones, among which the self-financed Padma Bridge is the most significant one. The Padma Multipurpose Bridge will contribute to fulfill Vision 2041 as well as realise SDGs. The construction of Padma Bridge will reduce the

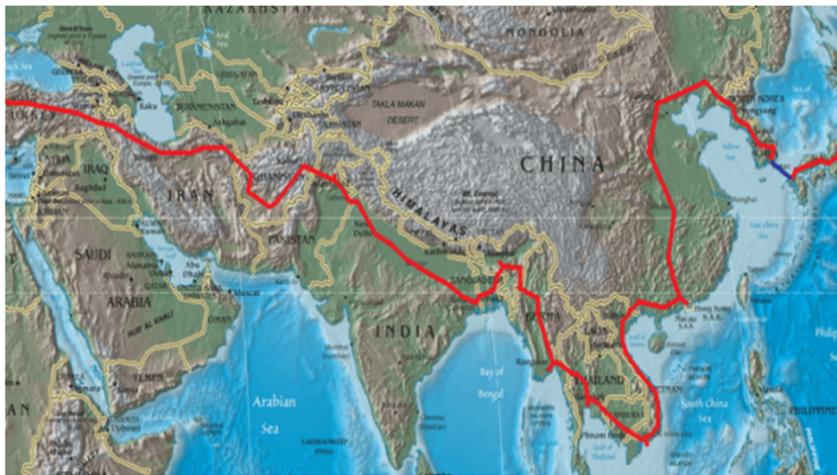
¹⁹ <https://www.thedailystar.net/editorial/news/padma-bridge-gateway-our-economic-aspirations-2010017>

²⁰ <https://thefinancialexpress.com.bd/views/padma-bridge-economic-benefits-and-policy-focus-1614351779>

²¹ <https://businessinspection.com.bd/economic-benefits-of-padma-multipurpose-bridge/>

poverty rate by 1.01 percent at the regional level and by 0.84 percent at the national level. Gradually investment and employment will increase which will eventually raise the livelihood standards of the people of Southern part. Particularly the Padma Bridge will greatly impact the lives of millions of women and girls living in Southern part of the country. They will get better access to health care, education and employment opportunities. The mobility of women will be easier and safer which will encourage their participation in service and labour market. The bridge will enhance the choices available to women leading to better standard of life. Eventually, non-discrimination and empowerment of the women of Southern region will be ensured.

Regional Implications. The Padma multipurpose bridge will connect Bangladesh with proposed Asian Highway and Trans-Asian Railway network. Bangladesh will embark in a new journey with the proposed connectivity network²². It will open a new window of opportunity for economic activities. The importance of the country will increase manifold with the connection of the bridge to the Asian High way and Trans Asian railway. It will take Bangladesh to a new height in the South Asian Countries. It will play a groundbreaking role in regional connectivity in South Asia.



Picture 8: Asian Highway Network through Bangladesh

Impact on Real Estate and Housing. Real estate and housing business are expected to develop due to the construction of the Padma multipurpose bridge. Due to high-speed communication system people can reach Dhaka in a short time using Padma Bridge. More people will be interested to live on either side of the bridge. Real estate companies have already started expanding their business in that area. Renowned developer companies have already started their housing project on both sides of the bridge. Environment friendly housing societies are expected to develop soon because of Padma Bridge.

²² <https://www.newagebd.net/article/53166/padma-bridge-plotters-to-get-befitting-reply-pm>

Cost- Benefit Analysis. The benefit-cost ratio (BCR) is a ratio that attempts to identify the relationship between the cost and benefits of a proposed project. Study conducted jointly by Copenhagen Consensus Centre and BRAC Research and Evaluation Department found that benefit cost ratio of the Padma multipurpose bridge project was 1.18 percent. They considered 8 percent discount rate during their research. Any investment project having benefit cost ratio more than 1 is economically viable. Rate of Return is always calculated before making any investment project. This is to find out the economic viability of the investment project. The approximate investment cost for the Padma multipurpose bridge project is taka 30,193 crore²³.

An economic rate of return of 12 percent is considered as ideal for any investment. However, a study report shows that there will be 19 percent of investment return per year in the Padma Multipurpose Bridge project²⁴. It will be economically beneficial project for the nation. However, there are lots of other benefits, which will add value to this economic index. Like, the bridge will save wastage of time of its travelers. This time saving can have direct impact on the economic activities of the country. It can save fuel cost, maintenance cost and other associated cost of transportation. Considering all other associated impacts, the construction of Padma multipurpose bridge is economically viable and beneficial project for the country.

Impact on Environment. Any large-scale construction project will have a certain ecological impact on the surrounding environment. Detail study was carried out on the environmental impact of the Padma multipurpose bridge project and all possible measures were taken to mitigate the negative impact of the project. The river Padma is the second largest in carrying the water volume after the river Amazon of South America. The Padma carries one lac forty thousand cubic meter of water per second to the sea²⁵. The bridge was designed in a manner so that it does not obstruct the natural flow of water to the sea. The course of the river could be changed if the natural flow was disturbed. The taste of Hilsa of the river Padma is well known to the whole world. Due consideration was given to keep the natural flow of the Hilsa in the river and not to disturb them anyway.

Pile construction was stopped during the reproduction period of Hilsa fish. There was river training work on both sides of the bridge to stop soil erosion. Good numbers of trees were cut for the implementation of approach and exit road on both ends, for preparing service areas and for other associated works of the bridge. To keep the ecological balance, environment department of the government has planted 1,58,000 trees in the area by December 2016²⁶. To give space to the project 13,000 houses were vacated where 74,000 people used to live. Government has made settlement plan for all the affected families. They were resettled with all the facilities of houses, markets, mosques, educational institutes, health facilities etc. More so, the project has created job opportunity of the unemployed people of the area.

²³ <https://thefinancialexpress.com.bd/views/padma-bridge-its-huge-impact-on-economy-1613752119>

²⁴ https://www.copenhagenconsensus.com/sites/default/files/khondker_padma_bridge.pdf

²⁵ <https://www.dhakatribune.com/uncategorized/2013/09/19/pm-inaugurates-new-composite-brigade-for-padma-bridge>

²⁶ <https://www.thedailystar.net/opinion/macro-mirror/news/padma-bridge-and-the-pursuit-inclusive-growth-2010893>



Picture 9: National award for plantation programme to Padma Bridge Project

Contribution of Bangladesh Army in the Project

Bangladesh Army has great contribution for the construction of the Padma Multipurpose Bridge project. Members of Bangladesh Army are employed in the project in two specific roles. Firstly, they are engaged as construction supervision consultant and secondly, they provide security to the project. To ensure security of the Padma multipurpose bridge project, Prime Minister Sheikh Hasina inaugurated the Flag Raising of 99 Composite Brigade on 19 September 2013²⁷. The members of 99 Composite Brigade are deployed on both Mawa and Jajira side of the bridge. They are performing their duties round the clock to ensure the security of the project. To expedite the speed of the construction work of the project, members of the 99 composite brigade ensured the safety and security of all personnel including foreigners involved in the construction of the bridge.



Picture 10: Flag Raising Ceremony of 99 Composite Brigade

²⁷ <https://www.observerbd.com/details.php?id=163277>

Besides ensuring security, members of Bangladesh Army are also entrusted with some construction works at both ends of the bridge. Some of the mentionable works supervised by Bangladesh Army are river training works on both Mawa and Jajira ends, approach road, construction of toll plaza, police station etc. Bangladesh Army constructed service area 1, 2 and 3 for the local and foreign technicians involved in the construction of the bridge.



Picture 11: Chief of Army Staff, Bangladesh Army visiting Construction Project at Padma

The role of Bangladesh Army as construction supervision consultant is highly appreciated from all corners. Bangladesh Army is actively involved in Padma Bridge Rail Link Project. Members of Bangladesh Army perform their duties spontaneously and professionally to ensure timely implementation of the project. Army provided all out support to materialize the dream project without any flaws. The role of Bangladesh Army in implementing the project is well appreciated by everyone including the Prime Minister of Bangladesh.



Picture 12: Members of Bangladesh Army in the Padma Multipurpose Bridge Project

Conclusion

Padma Multipurpose Bridge is the name of a dream cherished by millions of people in Bangladesh. The Padma Multipurpose Bridge project is not merely a project, it involves the image and prestige of the country. The World Bank declined for funding the project in a stage when Bangladesh had already made substantial progress in the project. At that point of time, the bold and courageous decisions of Prime Minister Sheikh Hasina to construct the bridge with own resource was a historic step. Due to the construction of the bridge the economic landscape of the country is likely to be changed. The connectivity of the bridge to the Asian Highway and Trans Asian Railway Network will have significant impact on the country. The construction of the bridge by self-finance will give a lot of confidence to Bangladesh to handle any mega project in future.

The project faced multidimensional challenges. However, with the dynamic leadership of the *Honourable* Prime Minister Sheikh Hasina the nation has overcome all the challenges. Bangladesh Bridge Authority, Bangladesh Army and Expert Panels from Bangladesh University of Engineering and Technology worked relentlessly to materialize the project and dream of the nation. Bangladesh Army has earned outstanding reputation for the immense contribution in the project. Members of Construction Supervision Consultant and 99 Composite Brigade worked round the clock to ensure the progress of the project. Different steps were taken to minimize the environmental impact of the project.

It is expected that cities like Singapore and Shanghai will be flourished further in future centering the Padma multipurpose bridge. Mongla Sea Port and Benapole Land Port will be directly connected to the capital city and Chattogram Sea Port through the bridge. This will open a new window of economic activities. Importance of Payra Deep Sea Port will increase manifold. The nation can feel proud of the Padma multipurpose bridge project. Honourable Prime Minister, Sheikh Hasina deserves much appreciation for her time worthy and courageous decision to take up the most challenging project of Bangladesh.

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SUPPORTING FUTURE COMBAT THROUGH OUTSOURCING - A CONTRIVANCE TO MANAGE TOOTH-TO-TAIL RATIO (T3R) OF BANGLADESH ARMY

Colonel Mohammad Nawroz Nichoshier, psc, G

"I have never yet found a contractor who, if not watched, would not leave the government holding the bag".

-Harry S. Truman, the US President (1945-1953)

Abstract

In early times armies foraged for their support from the surroundings. This option is presently obsolete as the size of modern militaries and their remote locations necessitate much larger "tails". Supplying the military is of prime importance. But if the military can free more soldiers from the tasks of providing logistic support and more fighting men can join the war, the efficiency of the military will boost. Militaries worldwide are constantly facing a reduction in the defence budget and ceiling on the workforce through "outsourcing". It allows the military personnel to obtain the facilities and services at a lower cost, which cannot be acquired or operated economically by indigenous means. Even the defence forces, like the USA, the UK, Australia, China, India and Pakistan, are slashing their organic overheads through 'outsourcing' and developing a favourable partnership with the private sectors. Outsourcing is the transfer or delegation of function and day-to-day management to an external service provider synonymous with privatisation. However, privatisation entails a complete transfer of assets and ownership of a service, while outsourcing allows few particular areas supported by outside contractors. Outsourcing benefits an organisation by focusing on three aspects: infrastructure cost, acquisition process, and service support. The cost-effective service supports from the competitive market makes the organisation efficient. Simplification of the acquisition process expedites the service and frees resources and the commander's mind. Every military commander endeavours to utilise his uniform personnel for the task he has been trained for, i.e. fighting an adversary. Many commanders wonder about combat-trained soldiers executing the functions which civil personnel can perform effectively and at a considerably lower cost. Therefore there are several reasons for increase of outsourcing amongst the armed forces. Bangladesh Armed Forces is also no exception. With a limited budget of a developing country, Bangladesh Army is on the verge of implementing Forces Goal 2030. Managing the "tail" by outsourcing to keep enough for "tooth" may be a viable option for Bangladesh Army to support future combat efficiently.

Keywords: Logistic support, defence budget, workforce, tooth-to-tail ratio, outsourcing, service provider, private sectors.

Introduction

The military is generally perceived as providing a public good: defending sovereignty and territorial integrity.¹ Unlike other government-provided services that have oscillated between public and private provision due to issues of cost, quality or changing conceptions of governmental duties,² military service provision has been an uncontested public good since the nation-state system solidified.³ But the degree to which wartime services have been contracted out and the scope of the services performed by private sector personnel over the past 20 years is unprecedented. Moreover, state military outsourcing has become a global phenomenon.⁴

Militaries are inherently cumbersome, unwieldy, and wasteful of resources due to redundancy and overstocks. The combat troops are known as the spear's tip. In contrast, combat support and combat service support troops provide the combat troops with the necessary supplies and services to effectively carry out their mission. The conventional belief is that one combat soldier requires seven combat support and combat service support personnel. For example, during the Napoleonic Era Combat, strategists found that a greatly increased military 'train' significantly increased the chances of military success.⁵ During World War II, millions of people were involved in supporting the combat troops.

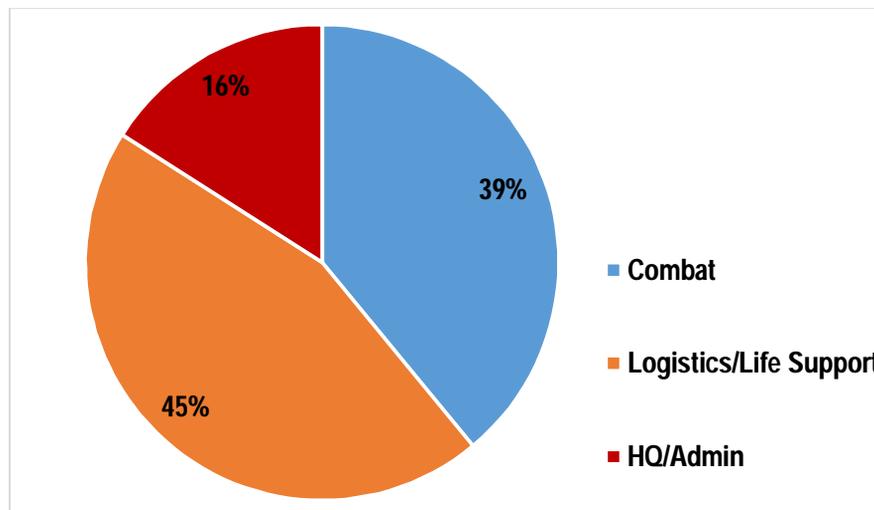


Figure 1: European Theatre of Operations by Category in WW II, April 1945.

Source: Shelby Stanton, Order of Battle, US Army, World War II⁶

¹ <https://www.army.mil.bd/About-Bangladesh-Army> (Role of Bangladesh Army)

² Singer, Peter (2008). *Corporate Warriors - The Rise of the Privatized Military Industry*. New York, USA: Cornell University Press, p7.

³ On the other hand, military goods were privately produced for states since at least the nineteenth century. *ibid*, p 274.

⁴ Kinsey, Christopher (2006). *Corporate Soldiers and International Security: The rise of private military companies*. New York, USA: Routledge. p101.

⁵ Crevel, Martin Van (1997). *Supplying War – Logistics from Wallenstein to Patton*. Cambridge, UK: Cambridge University Press. p 61 & 72.

⁶ US Army, *Forces in the European Theater, General Board Reports*, Bad Nauheim, Germany: 1945-46

Today, however, the pendulum has begun to swing in the opposite direction. The military is expected to accomplish more with fewer resources. Sometimes, combat and service support personnel and organizations are viewed as 'nice to have' as opposed to 'essential'. When economic and political pressures for reductions in defence spending have risen, logistical personnel and capabilities have often been the first to be sacrificed.⁷

Emphasising the essential nature of good logistical support, German Field Marshal Erwin Rommel states, "the battle is fought and decided by the quartermasters before the shooting begins."⁸ Nevertheless, despite this concept for conducting successful operations, there remains pressure to 'downsize' the support infrastructure and support personnel pool. The perception persists that the support structure can be burdensome to the primary mission of the military and drain vital resources from the 'fighting machine'. The debate 'Tooth versus tail' stems from this perception. Many military jobs are currently contracted out to civilians to free up military personnel for combat. Hence, the concept of outsourcing is presented.

Bangladesh Army is also consciously attempting to improve its efficiency through outsourcing. Since the early 1990s, it has involved the private sector for laundry, tailoring, Canteen Stores Department (CSD), fresh supply, etc. Since 2000, Bangladeshi Army has been in a position to enter new arenas, abandoning many of its traditional practices. 'Outsourcing' is one of the most recent ideas and significant issues in the current context, and its validity must be carefully examined to improve the functioning of the army.

An attempt has been made in this paper to establish the importance of outsourcing in Bangladesh Army in present world context. Endeavour has also been made to identify possible sectors to be supported by outsourcing with pros and cons. However, few recommendations have been made to maintain T3R by outsourcing in identified sectors.

Understanding Outsourcing and T3R

Outsourcing. Cambridge dictionary defines outsourcing as 'a situation in which a company employs another organisation to do some of its work, rather than using its employees to do it'.⁹ In the broadest sense, outsourcing refers to contracting out to external agencies, services and tasks that were previously performed with internal resources. In addition, it utilizes the facilities and expertise of the public sector. Outsourcing enables a greater concentration on critical functions and reduces the size of the military's support elements. The purpose of outsourcing is to increase efficiency and reduce administrative costs. Outsourcing is also financially prudent.

⁷ Spicer, Tim (2000). *An Unorthodox Soldier: Peace and War in the Sand line Affair*. Edinburgh, UK: Mainstream Publishing. p128

⁸ *ibid* Van Creveld, p 200.

⁹ <https://dictionary.cambridge.org/dictionary/english/outsourcing>.

Tooth-to-Tail Ratio (T3R). T3R, in military jargon, is the amount of military personnel it takes to supply and support ('tail') each combat soldier ('tooth'). While both 'tooth' and 'tail' soldiers may find them in combat or other life-threatening situations, 'tooth' soldiers are those whose primary function is to engage in combat. Thus, the ratio is not a specific measure but rather a general indication of an army's actual military might concerning the resources it devotes to supply, upkeep and logistics.¹⁰ In modern expeditionary warfare, the variety of troops who serve in units or elements whose direct primary mission is not to fight the enemy has grown to manifold. Thus, definitions of 'tail' and 'tooth' change with the specific situation, environment, and measurement timing.¹¹ Hence, in terms of functional T3R, this paper looks at four specific categories of troops: combat, headquarters or administrative, logistical and life support.

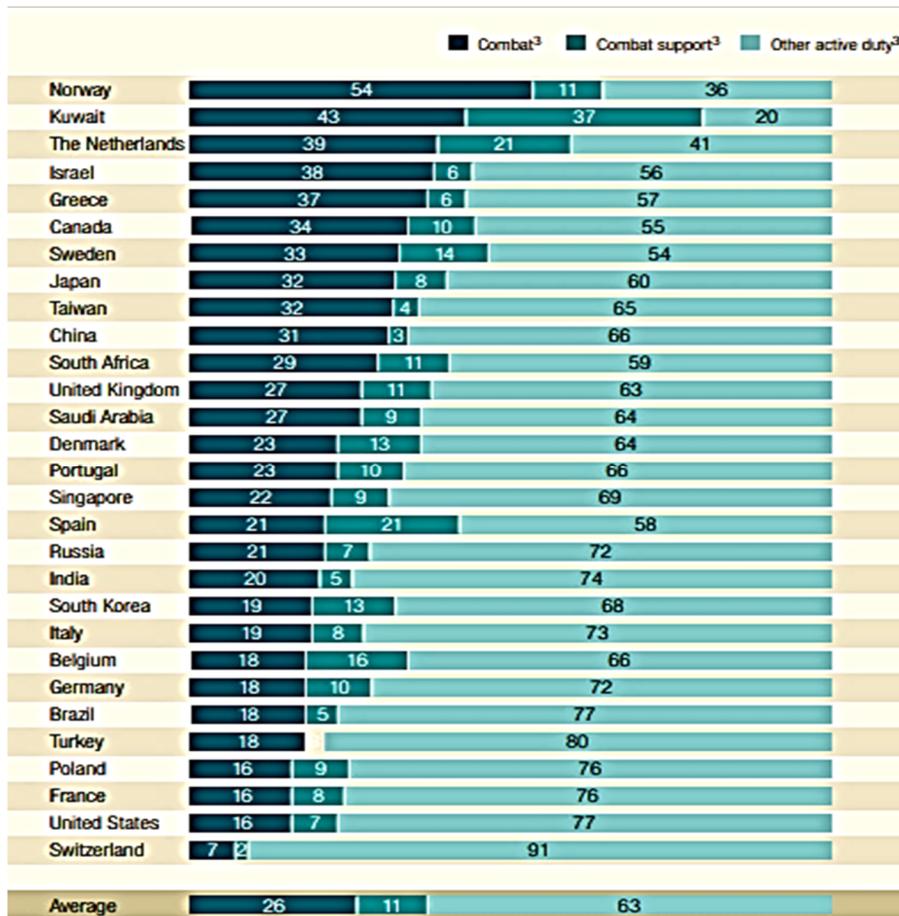


Figure-2: Tooth-to-tail ratio of Armies around the Globe

Source: *The Military Balance 2008, The International Institute of Strategic Studies; McKinsey analysis*¹²

¹⁰ https://en.wikipedia.org/wiki/Tooth-to-tail_ratio.

¹¹ 'An analysis of the tail-to-tooth ratio as a measure of operational readiness and military expenditure efficiency' by Tamara L. Campbell Carlos H. Velasco, Naval Postgraduate School, Monterey, California; December 2002.

¹² www.mckinsey.com > dotcom > pdfs > defence

Outsourcing in Retrospect

Outsourcing personnel, supplies and services from outside the military is as old as the military itself. The Chinese, Greeks and Romans used outside sources to support their military organisations in ancient times. For example, William the Conqueror hired half of his army.¹³ The British hired 30,000 Hessian soldiers to fight the Americans in the Revolutionary War.¹⁴ Americans are known to have used sutlers¹⁵ to support their needs. Napoleon employed civilian contractors to help him keep his army.¹⁶

Within weeks of America entering World War I, the War Department of the USA entered into more than 30,000 contracts worth more than \$7.5 billion.¹⁷ Despite the intense Allied air campaign, Germany dramatically increased the production of vital military goods like tanks and aircraft by 2 to 3 times using civilian factories.¹⁸ During World War II, Mitsubishi Heavy Industries Company was one of Japan's two largest aircraft producers which outsourced aircraft parts to its plants.¹⁹

The magnitude of the mission and the speed with which the US military moved personnel and supplies to the Gulf in 1991 dwarfed all previous efforts. The United States moved over 500,000 fully-equipped troops, shipped 7 million tons of supplies, and operated 12,575 flights of various types with the assistance of contractors. It appears that contractor support for military operations will continue for the foreseeable future.

Outsourcing in Armies Around the Globe

The US Army. The US Army engages itself to provide a commercial product or service only if it cannot be procured more economically from a commercial source.²⁰ This policy was the basis of outsourcing services for the US forces around the globe. General Pagonis, the chief of the US Army logistics in the 1st Gulf War stated that "Contractors were key to helping affect this logistical marvel."²¹ General John M. Shalikashvili²² once commented praising KBR's²³ service in support of the US mission in Somalia that, "No one knows better than I the tremendous work that Brown and Root have done in Somalia."²⁴

¹³ Abbott, Jacob (2002). *History of William the Conqueror*. New York, USA: Skyhorse publishing Inc. p 89.

¹⁴ Rodney Atwood (1980), *The Hessians: Mercenaries from Hessen-Kassel in the American Revolution*. New York: Cambridge University Press. p 107.

¹⁵ A sutler or victualer is a civilian merchant who sells provisions to an army in the field, in camp, or quarters.

¹⁶ Napoleon's Logistics: How Napoleon Learned to Worry about Supply by Jake R. Jelineo, Major, USAF (A Research Report Submitted to the Faculty In Partial Fulfilment of the Graduation Requirements, Maxwell Air Force Base, Alabama, US, April 2012)

¹⁷ A History of Defense Contract Administration By Janet A. McDonnell, Defense Logistics Agency, Fort Lee, Virginia, USA, 5 March, 2020.

¹⁸ The Bombing of Germany – A Reappraisal, R. J. Overy, *Modern History Review* April 1999. p. 30

¹⁹ "Supplier networks as a key to wartime production in Japan", Tetsuji Okazaki, *Vox EU*, 13 November 2019.

²⁰ US Bureau of the Budget Circ. No. 55-4, Jan. 1955

²¹ William G Pagonis (1999). *Moving Mountains-Lessons in Leadership and Logistics from the Gulf War*. Boston, UK: Harvard Business School Press. p 122.

²² Chairman, Joint Chiefs of Staff of the USA from 1993-1997.

²³ KBR, Inc. (formerly Kellogg Brown & Root) is an American engineering, procurement, and construction company that received many contracts with the US military, including during World War II, the Vietnam War, and the Iraq War.

²⁴ Young, David L. "Planning: The key to contractors on the battlefield," *Army Logistician*, Vol 31 Issue 3, May/June 1999. (p. 10-13)



Figure 3: Logo of Military Outsourcing Giant KBR, Inc. (formerly Kellogg Brown & Root)

Source: Wikipedia

Ambassador L. Paul Bremer, The former head of the Coalition Provisional Authority (CPA) in Iraq, entrusted his security to Blackwater Security.²⁵



Figure 4: Blackwater personnel escorting Paul Bremer in Ramadi, Iraq, March 2004

Source: Peter Andrews/Reuters

People's Liberation Army (PLA) of China. A significant element of the logistics reform of PLA is outsourcing.²⁶ In times of peace or emergency, the PLA can draw and pay for rations from civilian warehouses under contract. Similarly, the PLA has contractual relationships with numerous civilian vehicle repair and auto supply shops. Many logistics support personnel positions have reportedly been eliminated or reallocated due to 'outsourcing'.²⁷

Indian Army. In its proposed outsourcing method, the Army divides logistics support into three levels: strategic, operational, and tactical. The Army does not advocate outsourcing tactical logistics after analyzing three levels of logistics. It provides troops with first- and second-line support and confidence during operations. The Indian Army identifies three broad areas for

²⁵ Blackwater USA began in 1997 by Al Clark and Erik Prince. Their first contact in Iraq was in the summer of 2003 when they secured a \$21 million contract for Personal Security Detachment and two helicopters for the head of US occupation in Iraq, Paul Bremer.

²⁶ Chinese Military Logistics: The GLD System By Dennis J. Blasko In China Brief, Volume: 4 Issue: 19, 30 September 2004

²⁷ Lonnie Henley (2000). PLA Logistics and Doctrine Reform, 1999-2009. Pennsylvania: US Army War College. p. 55-77.

potential outsourcing: 'system support' about equipment maintenance and repair; 'services' associated with transportation, healthcare, and security; and 'contingency and competitive' about services and civil contracts.²⁸

Pakistan Army. Based on goodwill, the Pakistan Army has developed a system for the provision and procurement of items from outside. For instance, Pakistan Ordnance Factory (POF) has contracted with the local industry to produce the French-origin V-19P fuse. In accordance with the terms of the contract, the factory will produce these fuses for the Pakistan Army for a limited time. Thus, they will be able to fulfil the army's needs once the war begins.

Rudiments of Outsourcing

In general, outsourcing decisions are based on 'core' and 'non-core' activities that determine which tasks must be performed in-house and which must be outsourced. There are benefits to integrating civilian service providers into military operations, including gains in efficiency, access to cutting-edge technology, and the capacity for rapid build-up. In contrast, there are potential disadvantages associated with extensive outsourcing of tasks, such as a loss of expertise in the armed forces, a loss of efficiency due to an increasing reliance on markets, and a loss of legitimacy as a result of inappropriate actions by the private contractor. Consequently, it is essential to evaluate which tasks can be outsourced and which criteria must be applied.

Certain prerequisites are indispensable for the success of outsourcing. First, the private sector must be capable of carrying out the required activity to support military missions. Second, there must be a viable commercial market for such action. Finally, all outsourced activities must yield the highest value for the military. Therefore, it is essential to select the provider with care.

Efficacy of Outsourcing

General. In addition to its economic effects, outsourcing has significant impacts on personnel.²⁹ Even if outsourcing has the potential to generate cost savings, military leaders are primarily interested in benefits other than price. In a conflict environment, these advantages include rapidly acquiring personnel who already possess highly desirable skills, focusing military personnel on combat and many others.

Improves T3R. Outsourcing is considered an ideal alternative for non-combat 'tail-like' functions. The budget allocation for Bangladesh Defence Services for Financial Year 2021 was approximately Taka thirty four thousand crores. The share of the non-development component in the overall defence the budget has always been more than 95%. Hence, a significant

²⁸ Seminar on Outsourcing Possibilities in Defence: Some Impressions by Laxman Kumar Behera, 11 April 2007, The Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA)

²⁹ Embleton, P.R. and Wright, P.C. (1998), "A practical guide to successful outsourcing", *Empowerment in Organizations*, Vol. 6 No. 3. p. 94-106.

percentage of the defence budget is exhausted for pay and allowances. Employing civilians with specific skills in contractual service to take over the non-combat jobs will reduce the tail and improve the teeth. Bangladesh government is also encouraging outsourcing.³⁰

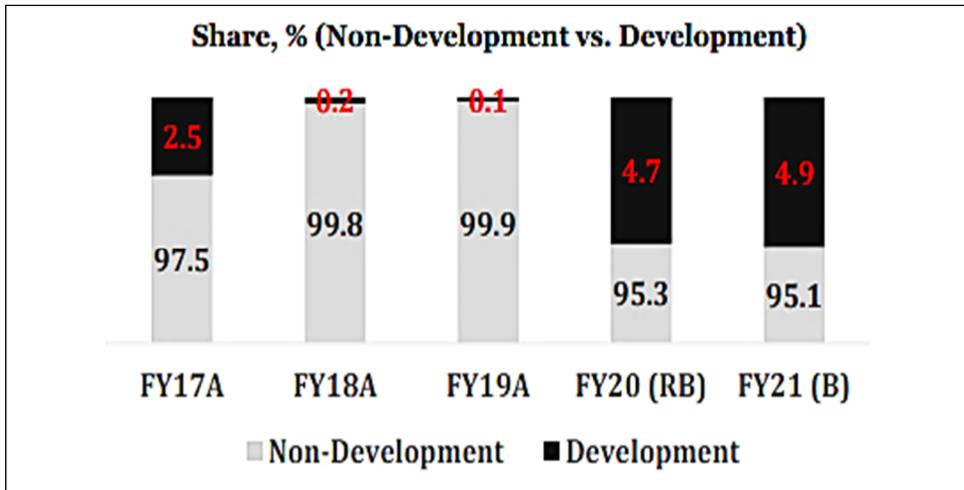


Figure 4: An Analysis of National Budget for Financial Year 2021 by Centre for Policy Dialogue³¹

Source: CPD Budget Analysis - FY2021

Focus on Core Functions. By outsourcing, less critical functions are rendered to service providers. Thereby, commanders get freed to their operational tasks and focus on their primary responsibility, training and preparing for war.

Supplements Uniformed Manpower. The size of the military is constrained. It is up to the defence forces to fulfil their assigned operational responsibilities with the authorized workforce. Therefore, it is necessary to avoid wasting soldiers on logistical tasks. This is only possible by outsourcing non-combat functions to service providers.

Cost-Effectiveness. Developing an integrated capability to perform logistical functions is an expensive endeavour for two reasons. First, there are substantial startup costs to consider. Second, employing a soldier to perform tasks that a civilian can do is more expensive. The United States has discovered that outsourcing helps them save up to 30 percent of their total budget.³²

Specialisation. Companies that specialize in particular activities can perform more efficiently and provide superior service. Outsourcing to those companies would allow the Bangladesh Army to utilize technologies and systems that it cannot afford to acquire or operate.

³⁰ <https://mof.gov.bd/site/notices/765dc0c2-1bf9-4143-802d-381ee0acd67d/Outsourcing>.

³¹ CPD Budget Analysis - FY2021. pdf available at <https://cpd.org.bd/>

³² Dunn, Contractors in the 21st Century 'Combat Zone', presented at the Naval Post Graduate School 2nd Annual Acquisition Research Conference (vide). Available from the Centre for Public Policy and Private Enterprise, School of Public Policy, University of Maryland; and at the NPS website (www.nps.navy.mil/gsbpp/ACQN/publications)

Improved Service. Introducing a competitive culture within the organization is the primary consideration for outsourcing. This competition has the potential to expedite the delivery of superior goods and services to the Bangladesh Army, thereby enhancing its operational readiness.

Developing Industrial Infrastructures. In many nations, the defence industry is regarded as a significant contributor to national development. This can be accomplished if the private sector collaborates with the Army to develop such projects. In addition, there can be a visionary objective to construct a mutually supportive industrial infrastructure. Various concerns of Sena Kalyan Songstha (SKS)³³ may be the start-ups.

Resource Optimisation. Outsourcing allows the military to focus its workforce on operational and tactical requirements on the battlefield. This will enable them to direct primary efforts towards those areas to obtain competitive combat advantages. By outsourcing, the army can focus on core functions and thereby can make optimum utilisation of the military actions.

Retaining Expertise of Ex-Servicemen. It takes a considerable amount of time and effort to construct a capable force. The Bangladesh Army cannot afford to lose retired experts and specialists who are still at the height of their effectiveness. Employing these qualified individuals through outsourcing would be a superior solution to the issue.

Prospective Sectors of Outsourcing in Bangladesh Army

The service supports that can be outsourced as envisaged are Army Service Corps (ASC), Army Medical Corps (AMC), Ordnance Corps (Ord), Electrical and Mechanical Engineering Corps (EME) and Army Education Corps (AEC). In addition, the army can outsource a number of miscellaneous services, such as Information Technology (IT), Catering Services for static installations, and military engineering services. During times of peace, it is possible to obtain the benefits of these sectors efficiently, but during times of war, the means by which this support can be attained remains a crucial question.

Army Service Corps (ASC). The core functions of the ASC personnel include second and third-line transport support and combat supply. Division ST Battalion and Station Supply Depot (SSD) provide these supports in the formation. In addition, Army ST Battalion gives third-line vehicle support, which can be easily outsourced during peacetime. In addition, combat supply (less ammunition) is ensured by SSD from external contractors. Thereby, during peacetime, this service support can easily be outsourced and the scope to decrease ASC personnel seems promising.

³³ <https://www.senakalyan.org/>

Army Medical Corps (AMC). AMC personnel represent a lion's share of the total army strength, who provide medical service through Combined Military Hospital (CMH) or Field Ambulance. However, the activities of field ambulances are vivid during the war through the Advanced Dressing Station (ADS) and Main Dressing Station (MDS). But services of Specialist Doctors, Nurses and other healthcare professionals may be gradually obtained from civil resources. Specialist Doctors and technical experts may be employed from experienced retired military persons on a contract basis. Housekeeping services and outer perimeter security may entirely be outsourced.

Ordnance Corps. The Corps of Ordnance is primarily responsible for the provisioning of vehicles, equipment, and other items such as spare parts, mobilisation stores, general stores, clothing stores, ammunition and explosives, weaponry, etc. The majority of these items are sourced from either domestic or international markets. As in-house management is the most important task of base ordnance installations, a substantial portion of the workforce engaged in these tasks can be outsourced.

Electrical and Mechanical Engineering (EME) Services. 1st, 2nd and 3rd line repair of equipment are done by Unit Repair Organisation (URO), Field Workshop and Base Workshop respectively. In the URO, EME personnel are employed for the repair works, which can be effectively done by the personnel of the Mechanical Transport (MT) section with little training. The repair of general service vehicles through public workshops will foster a sense of community and bonding during times of peace and could be called upon in times of war. Field Workshop may only be able to repair and recover specialized vehicles and equipment, such as Armoured Personnel Carriers (APC), Armoured Recovery Vehicles (ARV), Artillery Guns, and Small Arms, with a restricted workforce. Certain civil workshops can begin operating as pilot projects. If the experiment is successful, it can be recorded for future use.

Army Education Corps (AEC). Presently, the Secondary School Certificate (SSC) is the minimum qualification for joining the army as a soldier. But soldiers need to obtain a Higher Secondary Certificate and Bachelor of Arts/Bachelor of Science respectively to be promoted to Non-Commissioned Officers and Junior Commissioned Officers respectively. Educating them further in the station schools is the responsibility of AEC personnel. Other jobs of the AEC include teaching academic subjects at Bangladesh Military Academy (BMA)/MIST, map reading, taking care of the station libraries, editing various journals, etcetera. These functions may be outsourced easily.

Information Technology (IT) Sector. Globally, outsourcing has been most successful in the IT industry. Software development, hardware maintenance, and networking are also highly specialized in the private sector of Bangladesh. If this possibility is investigated, it may significantly improve the Corps of Signals' efficiency and cost-effectiveness.

Catering Services for Static Installations. Catering services in the Bangladesh Army are provided by uniformed personnel and civilian employees with auxiliary facilities who do not contribute to the war effort. Significant financial savings can be realized and uniformed personnel will be combat-ready if catering services are outsourced. Cooks, clerks, and draftsmen of permanent installations, institutions, and centres can therefore be outsourced.

Military Engineering Services (MES). Little room is left for outsourcing in MES since most of its services are already contracted out. However, the routine maintenance, as presently done by the organic resources of MES, can also be outsourced, keeping only an effective supervisory body. However, some skilled manpower must be retained to support essential emergency services like generators, electricity, water and gas line repair.

Instructors in Various Training Centres. The training centres and schools are static in nature. The instructors of courses other than core combat subjects relating to arms and ammunition can be taught by instructors outside the army on a contractual basis. Combat subjects may also be taught by hiring veteran instructors who have retired recently.

Cantonment Cleaning Service. Non-combatant personnel of station headquarters and cantonment executive office are employed for cleaning the cantonment area. But this can also be leased or contracted to cleaning service providing agencies. Professional cleaners or ethnic minorities like 'Horizons'³⁴ may get preference.

Obstacles against Defence Outsourcing

Though outsourcing can provide plenty of advantages, yet there are various obstacles in the way of its implementation too. For example, psychological rigidity, non-availability of infrastructure and expertise, dependency on the contractor, loss of flexibility, labour unrest, uncertainty and low quality of service are few to be cared about.

Ensuring Quality and Competitive Price. The private sector may not produce similar services or products. Even if it exists, the current market conditions may not provide the competition needed for successful outsourcing. Consequently, the lack of competition may result in services provided at higher costs. In addition, some agencies may not have the capability to ensure adequate quality. As a result, prices sometimes may go too high. Sometimes cost overruns may occur due to over-tasking or altered mission requirements.

Acceptance of Outsourcing. There is widespread reluctance among Bangladesh Army personnel to accept outsourcing for their units. It could be due to their strong sense of belonging at work and their lack of confidence in private agencies. This dilemma is prevalent at all levels with the exception of a few.

³⁴ Occupation, Income, Education and Modernization among the Horizon Community of Bangladesh: A Sociological Profile by A. F. Imam Ali, Md. Arif Uddin Khan, Zakia Sharmin and Md. After Hossein; Asian Journal of Social Sciences & Humanities Vol. 4(3). August 2015.

Dependency. British observation on outsourcing during Gulf War was that "whilst all the civilian contractors made a significant contribution to our efforts, they were, inevitably, less predictable in terms of availability, work-rate and reliability than would have been personnel under military discipline."³⁵ Readiness of personnel, equipment and facilities is the precondition for a sustained operation. Therefore, there has to be a procedure chalked out either to integrate private companies or to have an alternative means so that, army retains its capability under all conditions.

Lack of Flexibility. According to the regulation, personnel from the Bangladesh Armed Forces may be deployed whenever and wherever necessary. Contracting private firms may lack the same level of dedication as military personnel. As a result, the Bangladesh Army may lose flexibility and operational capability adopting outsourcing.

Labour Unrest. The country's socio-political situation encourages the formation of different employee/labour associations in various organisations. The possibility of labour unrest cannot be entirely ruled out. Thus, the operations of the Bangladesh Army may be hampered by labour unrest if proper clauses are not included in the contract.

Logistic War Reserve. A logistical war reserve is kept to support an operation for approximately one month. If support functions are outsourced, the question of maintaining this logistical reserve may arise. Private companies will not be interested as reserve would freeze their funds.

Measures to Overcome the Barriers to Outsourcing

To find the best result from outsourcing, qualitative and quantitative analysis of each field needs to be carried out. Besides, certain aspects need due attention for the implementation of outsourcing.

Service in Peacetime and Wartime. At times, the attractiveness of outsourcing during times of peace may obscure the danger during times of war. Consequently, outsourcing support functions must never compromise operational readiness. During the war, the continuation of assistance from civil agencies is much less certain. Therefore, during times of peace, the major service providers should be developed to expand the capability of internal missions. To promote lasting stability, the Bangladesh Army should adopt a long-term partnership with defence contractors.

The Contract. Effective contract management can minimize the loss of control that occurs when outsourcing to a service provider. The control must be maintained over the outsourced field, and regulatory concerns must be examined and incorporated into contract documents. When applicable, service providers must employ skilled retired Bangladesh Armed Forces personnel. In the outsourcing contract, risk management and wartime requirements must be specified with clarity.

³⁵ White, MS (1995). *Gulf War – Blackadder's War*. London: Brassey's Ltd. p. 246.

Policy Aspects. For a mission-driven organization like the Bangladesh Army, outsourcing must be institutionalized to endure. This can only be ensured by a comprehensive policy that outlines the procedures for ‘outsourcing’ from its inception to its implementation in any field.

Evaluation and Execution Board. The Evaluation Board will carry out the required study on a particular outsourcing field and submit a proposal regarding the implementation to the appropriate approving authority. The Execution Board initiates the process and organises the implementation. These boards may comprise of the relevant specialists under executive authority, either at HQs or at the formation level.

Recommendations

Bangladesh Army is reforming almost all sectors to achieve maximum output from the existing resources to achieve Forces Goal 2030. In addition, advanced military gadgets are being procured to take combat efficiency to the next level. In light of the above discussion, the following are recommended:

- a. Considering the legal aspects, Bangladesh Army needs to formulate a comprehensive draft policy for outsourcing after a threadbare Cost-Benefit Analysis in coordination with SWOT (strength, weakness, opportunities and threat).
- b. Based on the draft policy, a few pilot projects are to be adopted in the service sector to assess the validity and effectiveness of outsourcing. If pilot projects are proved worth running, outsourcing in other sectors of the Bangladesh Army may be resort to in phases.
- c. A steering committee may be formed with senior ranks from all arms and services to monitor progress, evaluate the outcome, provide feedback to the senior decision-makers and recommend necessary corrections (policy options).

Conclusions

Over the past decades, numerous studies have been carried out on the tooth-to-tail ratio as the prime indicator of defence efficiency and effectiveness. However, the dynamics of irregular and asymmetrical warfare have blurred the historical ‘bright line’ between ‘tooth’ and ‘tail’. Moreover, which activities constitute the military's core competencies is widely contested. Yet, despite these arguments, at least one function is undisputedly military: combat.³⁶ Outsourcing wartime support services will allow in-house military personnel to more remarkable dedication to combat operations.

³⁶ Government Accountability Office, Military Operations - Contractors Provide Vital Services to Deployed Forces but are Not Adequately Addressed in DOD Plans, Report to the Subcommittee on Readiness and Management Support, Committee on Armed Services, US Senate (Washington DC, June 2003), 1–2.

Bangladesh Army has already outsourced a portion of its support services but has yet to capitalize on the opportunities in other industries. A crucial aspect of outsourcing is that the private sector must have the required capabilities to provide specialized support when needed. The service provider which has specialisation in a specific activity can render the services more effectively and efficiently by offering higher quality service at a lower cost.

To enhance efficiency, armed forces worldwide are outsourcing military tasks to private contractors progressively. However, excessive outsourcing can hurt mission fulfilment. This calls for a clear policy guideline to limit the extent of outsourcing. However, the relationship between efficiency gains and loss of effectiveness depends considerably on the security situation. Outsourcing decisions should therefore be made flexibly.

Outsourcing the army's non-core activities will help increase the Tooth-to-Tail Ratio and allow the defence budget for utilisation in other core combat purposes. In addition, outsourcing non-core functions would save a significant amount of funds, which could be devoted to modernising the army. Several possible fields for outsourcing in the Army include services of Army Medical Corps, Army Service Corps, Ordnance Corps, Electrical and Mechanical Engineering Corps, Army Education Corps and Information Technology Sector.

Although outsourcing has many advantages, there are some inherent risks and various impediments on its way of implementation. Outsourcing may undermine the troops' morale and legitimate concern for the potential displacement of professional employees. The service provider may lack a proper understanding of the defence forces' requirements and, most importantly, the concern about the long-term vision and loyalty during peace and war. Therefore, Bangladesh Army should adopt a long-term partnership with the defence contractors to promote enduring stability.

Regarding strategic or combat competencies, outsourcing must not reduce the internal skills base below the minimum threshold. To ensure this, the selection of a service provider, the quality of the service provided, and, if necessary, reintegration of the competence are of utmost importance. Taking a holistic approach, it is time to realign the thought process with the current global trend. Hence, to support future combat of Bangladesh Army, outsourcing can be an operative contrivance to manage T3R effectively.

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GROOMING YOUNG OFFICERS AS LIGHTHOUSE LEADERS IN THE UNITS BY DEVELOPING FOCUSED PERSONALITY TRAITS

Colonel Syed Obaidullah Hel Shafi, afwc, psc

Abstract

Personality reflects individual's internal thoughts, feelings and behaviours. While grooming young leaders, focus on personality traits can pave the way effectively. In the background study, researcher has identified that Commanding Officers (COs) are less exposed to adolescent's personality traits. Consequently, COs face challenges to understand the reasons of varying conducts exhibited by the Young Officers (YOs) in the units which generally lead to distant interpersonal relationship and falls short in effective team dynamics. The present study attempted to equip the COs with knowledge based on the findings of comparative study between personality patterns. The researcher also suggested a theoretical model based on the findings of the study for mentoring the YOs in the units of BD Army. Researcher adapted short version of NEO FFI (Five Factor Inventory) in Bangla to measure and compare personality patterns of COs and YOs. Validity, reliability and correlations between adapted versions with original version were ascertained and found satisfactory. Adapted NEO FFI (BD) was selected in order to get a comprehensive personality pattern (Workplace Big Five - Need for Stability, Extroversion, Originality, Accommodation and Consolidation) of COs and YOs. Mixed method was used where researcher followed Focused Group Discussions and Key Informant Interviews in the explorative session and correlational method for confirmatory session. In this cross-sectional study YOs exhibited significantly more Need for Stability and less in Extroversion and Originality compared to COs. Finally, based on the developmental needs of the YOs, the researcher suggested 'A-B-C-D Model' implying Appraisal Brief - Balanced Efforts - Congruent Guidance- Delegation of Responsibility for the COs in grooming YOs in the units.

Keywords: Leadership, Big Five Profile, Grooming, Young Officers, Personality Traits.

Introduction

Grooming young officers (YOs) in the units is manifested by achieving best practices of involving the Commanding Officers (COs), interpersonal relationships and leadership development approaches. Both formal and informal grooming styles are found in different armed forces based on the personality patterns of the individuals. Personality is referred as the characteristics and individual's unique response to the environment¹. Personality reflects individual's internal thoughts, feelings and behaviours. Personality traits of the officers form the foundation of professional competence and influence the dynamics of interpersonal relationships in the units. In

¹ Fernald, L. D., & Fernald, P. S. (2010). Introduction to Psychology.

military, the personality traits are aptly evaluated at Inter Services Selection Board (ISSB) during selection of candidates, at Bangladesh Military Academy (BMA) while training the cadets and at the units for reporting annual performance of the officers. Eventually, personality traits of the officers and their collective social skills can influence the interpersonal relationships among the unit members. Previous study² recognises that personality traits can be influenced suitably for enhanced productivity, effectiveness, decision making skills and attitude towards organisational policies. As such, COs are expected to groom the YOs considering their personality traits for becoming effective leaders in the units.

The impacts of evolving society, growing technology uses and shifting preferences of YOs need to be considered while grooming the future leaders. The author identified that COs are devoid of formal exposure on dynamic attitude of adolescence based on behavioural indicators. Consequently, in many occasions, COs face challenges to understand the rationale of varying conducts exhibited by the YOs based on their personality traits which generally affect the unit environment. Personality has wide spectrum which demands in-depth knowledge to comprehend completely. However, habitual understanding on human resource management by the COs, if reinforced with focused learning on personality traits can be instrumental from the functional point of view. By and large, COs mostly rely on individual art to groom YOs in the units. As such, COs can instill focused personality traits in the YOs to turn them as Lighthouse Leaders.

Leaders are often referred as lighthouses and the idea was first coined by Chris Nichols³. Later, Rodger Dean Duncan prudently linked this idea stating that the *lighthouse leader* provides *Light, Hope, and Safety* to his/her people⁴. The philosophy has been brought forward with sheer significance in today's context. The challenges of the operation environment embedded with *Volatility, Uncertainty, Complexity and Ambiguity* (VUCA⁵) demand leaders to be equipped with *Vision, Understanding, Clarity and Adaptability/Agility* (VUCA Positive⁶). As such, grooming future leaders demands a methodical effort to focus on behavioural aspects and inspire them to become lighthouse leaders for their under-commands. At this backdrop, this paper aims to present a functional approach for grooming YOs as lighthouse leaders in the units by developing focused personality traits. This paper also makes an endeavour to highlight the findings of study conducted by the author describing the 'Workplace Big Five Factors', lighthouse leadership and balanced leadership profile followed by personality traits of YOs in the unit environment. The paper finally delineates a functional approach for grooming YOs as lighthouse leaders based on their developmental needs. In the study, YOs are considered having the service length below three years.

² Ajila, C.O., Akanni, A.A., & Ekundayo, O.O. (2012). Leadership and Strategic Human Resource Management in the Nigerian Local Government Councils.

³ Chris Nichols ex- director of Ashridge business school and Ashridge consulting, and professor of practice in systems innovation and leadership.

⁴ Duncan, R. D., Are You A Lighthouse Leader? accessed from the web link <https://www.forbes.com/sites/rodgerdeanduncan/2019/03/26/are-you-a-lighthouse-leader-heres-the-job-description/?sh=63aa71dd558f>, browsed on 04/08/2021.

⁵ Leadership theories of Warren Bennis and Burt Nanus accessed from the web link <https://www.vuca-world.org/>, browsed on 02 Feb 2022

⁶ VUCA Positive Prime by Bob Johansen accessed from the web link <https://www.vuca-world.org/>, browsed on 02 Feb 2022

Workplace Big Five Factor Profile

Five basic dimensions are used to distinguish the behaviour of one human being from another. The Workplace Big Five Factors (**WB5P**) are known as Need for Stability, Extraversion, Originality, Accommodation and Consolidation⁷. The factors are briefly introduced below:

Need for Stability (N). It deals with the emotional composure of an individual. The lower score is better. Individuals with low N scores are emotionally stable and exhibit resilience under stress. Individuals with mid N scores are somewhat responsive based on emotional impulses. But, individuals with high N scores suffer from insecurity and display reactive behaviour to stressful situations.

Extraversion (E). It deals with the social aspects of an individual. The higher score refers to more assertive behaviour by an individual. Individuals with high E scores are extrovert in nature and more lively during interaction with others. Individuals with mid E scores are somewhat ambient who can balance between being extrovert and introvert based on the situation. But, individuals with low E scores are typically introvert who remain reserved or even withdrawn.

Originality (O). It deals with the creative aptitude of an individual. The higher score refers to more exploring attitude by an individual. Individuals with high O scores are keen to discover new ideas and strive for creative solutions. Individuals with mid O scores are somewhat moderate who balance between being creative and formatted based on the situation. But, individuals with low O scores are typically preserver who comply with the norm and like to conserve status-quo.

Accommodation (A). It deals with the individual preferences and responses towards the norm. The lower score refers to challenging attitude of an individual. Individuals with low 'A' scores possess thinking mind and are inspired to change the status-quo. Individuals with mid A scores are somewhat negotiator who balance between being challenger and adapter based on the situation. But, individuals with high A scores mostly agree to the norm and follow routine activities.

Consolidation (C). It deals with the persistence aptitude of an individual. The higher score refers to more exploring attitude by an individual. Individuals with high C scores remain focused and pursue their goals methodically. Individuals with mid C scores are somewhat balanced who follow focused or flexible approach based on the situation. But, individuals with low C scores are typically flexible who show wavering attitude in attaining goals.

Spectrum of Big Five Factor

The spectrums of five factors considering *Low - Mid - High* ranges are conceptualized at Table -1 with reference to the theory of Howard & Howard (2000).

⁷ Howard, P. J., & Howard, J. M. (2000). Owner's Manual for Personality at Work.

Research Synopsis

Literature review showed the current trend on the subject matter. The tool was adapted as NEO FFI (BD) based on Workplace Big Five Profile. Finally, the tool was implemented on the subject groups. NEO FFI was used in the study for comprehensiveness of the scale to measure *Need for Stability, Extraversion, Originality, Accommodation* and *Consolidation* of the subject groups. To adapt NEO FFI (BD) for the study, total 60 items were translated in Bangla by the expert. Control group of respondents were administered with English and Bangla questionnaire. Total 45 items having Correlation Coefficients within 0.576 to 0.743 were considered. Rest 15 items were excluded during data analysis due to low coherence. Primary data were collected through survey the subject groups using adapted self-administered questionnaire. NEO FFI (BD) was used by COs and YOs as Self-administered where 2ICs responded as ‘Rater’ for the YOs. Purposive sampling technique was used in the study. Total thirty-two different units covering all divisions of Bangladesh Army were taken as the sample. Mixed method was used where Focused Group Discussions and Key Informant Interviews were used in the explorative session and correlational method was used for confirmatory session.

Reliability of the Sub Scales. Survey data were analysed for statistical interferences and the summary of Reliability of Five Factors are furnished in Table 2 where minimum Cronbach’s Alpha value was found 0.719 and maximum was 0.820. It indicates that the items of the sub scales are consistent and reliable.

Validity of the Sub Scales. Multi-methods were used for ascertaining validity. Survey data were analyzed for determining correlation of ‘rated’ and ‘self-evaluation’ of 32 YOs by estimating concurrent validity. The summary of Validity of Five Factors are furnished in Table 2 where coefficients of Pearson correlation (r) were found between 0.746 and 0.889. It indicates the validity of items of the sub scales.

Table 2: Reliability and Validity of Five Factors

Name of Sub Scale	Reliability	Validity
	Cronbach's Alpha Value	Pearson Correlation Coefficient (r)
Need for Stability	0.719	0.783
Extraversion	0.820	0.746
Originality	0.756	0.826
Accommodation	0.765	0.776
Consolidation	0.790	0.889

(Reference: Shafi, S. O. H. Lt Col, 2019)

Lighthouse Leadership and Balanced Leadership Profile

Lighthouse Leadership. Leadership functions for the followers can be referred to the functions of lighthouses to the travelers⁸. The beacon from the lighthouse shows an illuminated path to travelers. The lighthouse provides hope to travelers for being on the right course. The lighthouse also provides safety to travelers for maintaining a reliable course. Besides, withstanding extreme weather conditions lighthouses keep standing rock-solid for the travelers. Similarly, a lighthouse leader shows the way to his/her people with bright light rather than feeling the heat. He/she emphasizes on the objective (*What*) along with emphasizing on ‘*Why*’ and ‘*How*’. A lighthouse leader encourages his/her people considering individual of references. He/she ensures effective communication with tangible interpretation addressing the golden question: *What’s In It For Me?* (*WIIFM*). A lighthouse leader assures his/her people to discuss freely and put forward ideas during decision making process. He/she takes responsibility of the outcome by owning his/her decision and cares for his/her people. The manifestation of lighthouse leadership is presented in Figure 1. The lighthouse leaders are likely to be emotionally intelligent, innovative and they strive for changing the status quo for better results. They will be goal oriented and reach out for their people with assurance. In the units, lighthouse leaders can cast light into the shadows and show enlighten paths to all members for better performance.

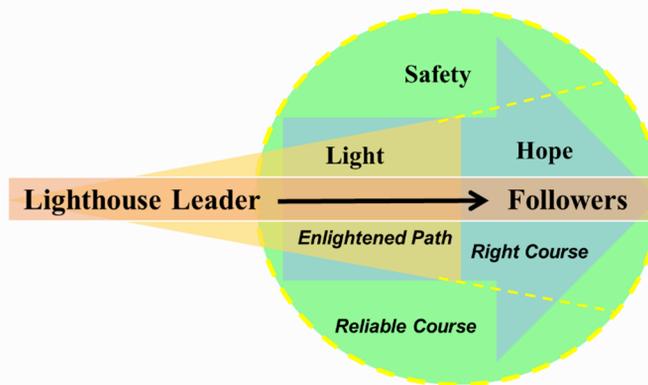


Figure 1: Manifestation of Lighthouse Leadership

(Source: Author’s construct from article ‘Are You A Lighthouse Leader’ by Duncan, R. D.)

Balanced Leadership Profile. The author conceptualized the ‘Balanced Leadership Profile’ by blending ideal leadership profile⁹ with the philosophy of Machiavelli where ‘*Lion*’ would play ‘*Fox*’ time to time¹⁰. Balanced leadership profile is applicable basing on various situations. A balanced leader who is generally calm (*Low in N*), may get excited occasionally under stress (*High in N*). He is assertive and outgoing in nature (*High in E*), yet occasionally would allow space to others (*Low in E*). He is generally an explorer with new vision (*High in O*) who at times restricts himself to the existing practices (*Low in O*). Balanced leader challenges the status quo for advancement (*Low in A*), yet occasionally adapt to the norm (*High in A*). Finally, he remains

⁸ Duncan, R. D., Are You A Lighthouse Leader? accessed from the web link <https://www.forbes.com/sites/rodgerdeanduncan/2019/03/26/are-you-a-lighthouse-leader-heres-the-job-description/?sh=63aa71dd558f>, browsed on 04/08/2021.

⁹ Howard, P. J., & Howard, J. M. (2000). *Owner's Manual for Personality at Work*.

¹⁰ Machiavelli, N., 1984. *The prince* (1513).

focused on the goal (*High in C*), who at times be impulsive and easy with life (*Low in C*). Author’s construct on balanced leadership profile is given as Figure 2 which has been conceptualized from the Owner’s Manual for Personality at Work of Howard & Howard. Considering the attributes of balanced leadership, author inferred that the norm values are observed with higher frequency where the variations would occur occasionally since the traits are intangible which eventually lead to preferences. Again, personality is mostly exhibited through individual preferences. The Workplace Big Five Factor Spectrum manifests the traits that are exhibited either ‘Mostly’ or ‘Occasionally’ due to individual preferences.

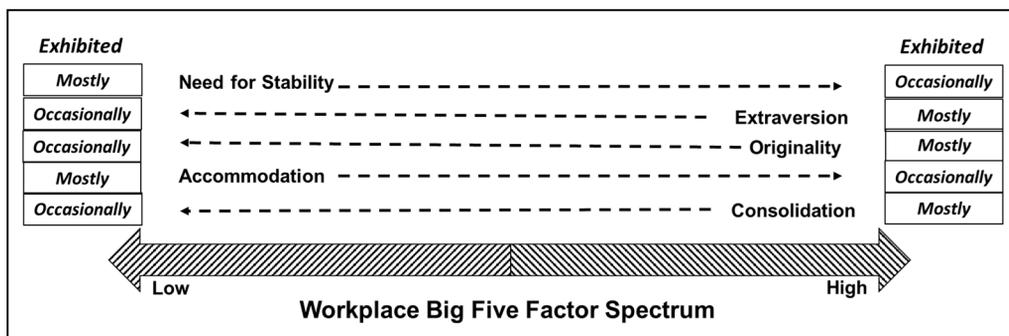


Figure 2: Balanced Leadership Profile

(Source: Researcher’s construct from the theory of Howard & Howard (2000), p.116)

Manifestation of Big Five Factor in the Unit Environment

Need for Stability (N). Need for stability is negatively related to leader’s performance¹¹ in the unit. An officer with High ‘N’ is likely to fail to control emotional pulses under constant stress. On the other hand, an officer with Low ‘N’ can perform calmly amid stressful situations. Possible interactions between CO and YO having comparative personality are tabulated in Table 3 focusing ‘need for stability’ based on the concept of Howard & Howard (2000), p.53.

Table 3: Interactions between CO and YO focusing Need for Stability (N)

Personality Pattern		Performance Review of YO
CO	YO	
Low N	High N	Too serious and over-reacting; need to calm down.
High N	Low N	Too relaxed and lack of seriousness; need to exert ownership.
Mid N	Mid N	Appropriate level of seriousness; interaction is befitting.
Low N	Low N	Optimum level of seriousness; conduct is befitting.
High N	High N	Seems similar; both need to control emotion (<i>Less productive situation</i>).

Extraversion (E). Extraversion is positively related to leader’s performance. In the unit, an officer with High ‘E’ is likely to be in control of the proceedings of any group owing to his proactive involvements. On the other hand, an officer with Low ‘E’ lacks social skills to champion group dynamics. Possible interactions between CO and YO having comparative personality are tabulated in Table 4 focusing ‘extraversion’ based on the concept of Howard & Howard (2000), p.66.

¹¹ Bartone, P.T., Eid, J., Helge Johnsen, B., Christian Laberg, J. and Snook, S.A., 2009.

Table 4: Interactions between CO and YO focusing Extraversion (E)

Personality Pattern		Performance Review of YO
CO	YO	
High E	Low E	Lacks social skill to interact; need to be assertive.
Low E	High E	Talkative and fun-loving; need to be patient and serious in attitude.
Mid E	Mid E	Appropriate level of assertiveness; interaction is befitting.
High E	High E	Optimum level of assertiveness; conduct is befitting.
Low E	Low E	Seems similar; both need to communicate (<i>Less productive situation</i>).

Originality (O). Originality is positively related to leader’s performance. In the unit, an officer with High ‘O’ pursues for innovative solutions and is likely to be more approachable by his subordinates. On the other hand, an officer with Low ‘O’ lacks adaptability and remains conservative. Possible interactions between CO and YO having comparative personality are tabulated in Table 5 focusing ‘originality’ based on the concept of Howard & Howard (2000), p.79.

Table 5: Interactions between CO and YO focusing Originality (O)

Personality Pattern		Performance Review of YO
CO	YO	
High O	Low O	Lacks innovation; need to be open to new ideas and modify.
Low O	High O	Dreamer and spender; need to restrict imaginative initiatives.
Mid O	Mid O	Appropriate level of creative; interaction is befitting.
High O	High O	Optimum level of creative; conduct is befitting.
Low O	Low O	Seems similar; both need to explore new ideas (<i>Less productive situation</i>).

Accommodation (A). Accommodation is negatively related to leader’s performance. In the unit, an officer with High ‘A’ is likely to be popular among the subordinates to lead them along the known path. On the other hand, an officer with Low ‘A’ challenges the status quo to improve the system. They can either be dynamic leaders who bring changes with a challenging spirit or at times find difficulties to adapt with norm and culture. Possible interactions between CO and YO having comparative personality are tabulated in Table 6 focusing ‘accommodation’ based on the concept of Howard & Howard (2000), p.92.

Table 6: Interactions between CO and YO focusing Accommodation (A)

Personality Pattern		Performance Review of YO
CO	YO	
Low A	High A	Too sceptical and questioning; need to be more cooperative.
High A	Low A	Too tolerant and accepting; need to be more competitive.
Mid A	Mid A	Appropriate level of agreeableness; interaction is befitting.
Low A	Low A	Optimum level of agreeableness; conduct is befitting.
High A	High A	Seems similar; both to focus on cooperation (<i>Less productive situation</i>).

Consolidation (C). Consolidation is positively related to leader’s performance. In the unit, an officer with High ‘C’ remains goal-oriented, focused and persistent for any assigned job. On the other hand, an officer with Low ‘C’ lacks in methodical approach and needs reminder at times for the task. However, they can sometime bring out productive results as well. Possible interactions between CO and YO having comparative personality are tabulated in Table 7 focusing ‘consolidation’ (based on the concept of Howard & Howard, 2000, p.104):

Table 7: Interactions between CO and YO focusing Consolidation (C)

Personality Pattern		Performance Review of YO
CO	YO	
High C	Low C	Lacks managerial skills; need to be more methodical in approach.
Low C	High C	Too focused and ambitious; need to show more flexibility at times.
Mid C	Mid C	Appropriately disciplined; interaction is befitting.
High C	High C	Optimum disciplined; conduct is befitting.
Low C	Low C	Seems similar; both need to be more methodical (<i>Less productive situation</i>).

Findings on the Personality Patterns Based on NEO FFI (BD)

The survey findings on comparative mean values of five factors i.e. *Need for Stability, Extraversion, Originality, Accommodation* and *Consolidation* for COs and YOs are plotted in the chart as Figure 3. The obtained values for COs were taken as norm for assessing the developmental needs of the YOs.

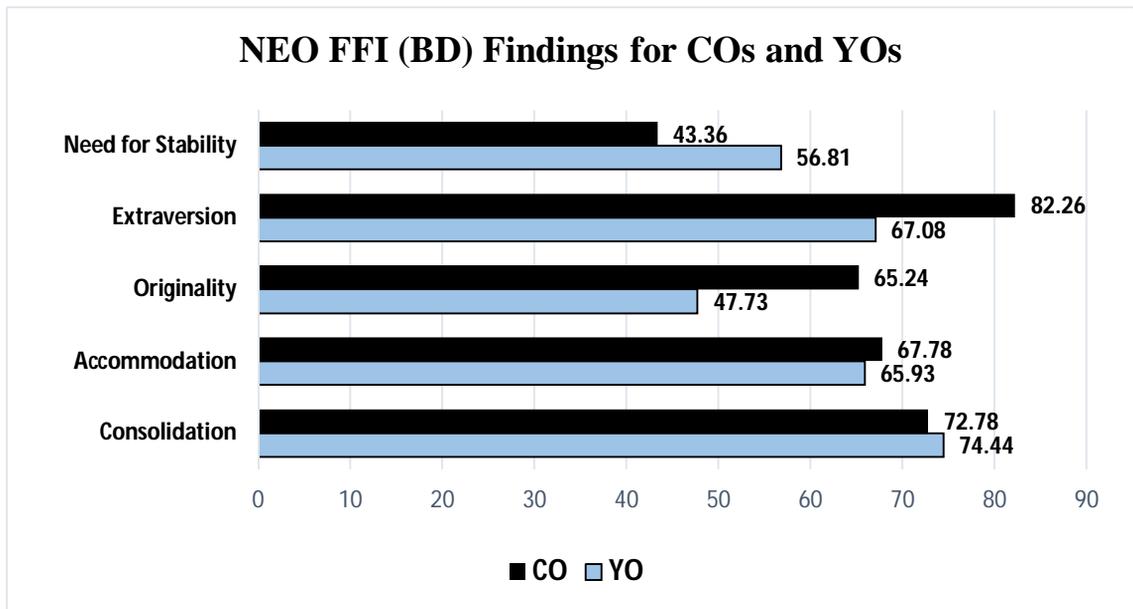


Figure 3: Comparative Personality Patterns between COs and YOs
(Source: Survey; Shafi, S. O. H. Lt Col, 2019)

Interpretation of the Chart (Figure 3)

YOs had more value in Need for Stability than that of the COs in the units. It interprets, YOs seem to suffer from insecurity and possess low self-confidence. YOs obtained less in Extraversion than that of the COs which interprets that YOs seem to stay aloof and lack social skills in regards to interpersonal relationship. YOs obtained less in Originality than that of the COs implying that YOs seem to remain within boundary and plan conservative in finding new solutions. YOs obtained slightly less in Accommodation than that of the COs which deduces that YOs seem to disagree, though slightly, in regards to accommodation which implies they might take due interest in a supportive environment. Finally, YOs were somewhat equal to COs in Consolidation in the units. It interprets that YOs seem to be equally focused in achieving goal oriented results; however, their approaches might be different.

Discussion on Survey Findings

The obtained values for Cos were taken as the desired pattern. The referred study identified that, the COs were found to be stable and effective leaders. At the same time, YOs were found equally effective in terms of consolidation. However, their approaches could be different. Though Interview and FGD had suggested the YOs could be more creative, the study revealed otherwise. The author had identified the possible link for low creativity to be ‘insecurity of the YOs in the units’ which was also agreed by the President, ISSB¹² during Interview. The study also revealed that COs were high in Extraversion and Originality which could be effective for training proficiency which was also suggested in previous study¹³. As such, COs can suitably perform as proficient trainers in grooming the YOs on ‘extraversion’ to become more sociable and action-oriented. Statistical inference of the data from referred study is presented in Table 8, where Need for Stability (N), Extraversion (E) and Originality (O) were found significant.

Table 8: ‘T’ Test for Big Five Factors

Factors	Sig. (2-tailed) ‘p’	p < 0.05
Need for Stability	0.000	Significant
Extraversion	0.000	Significant
Originality	0.001	Significant
Accommodation	0.773	Insignificant
Consolidation	0.727	Insignificant

(Reference: Shafi, S. O. H. Lt Col, 2019)

¹² Brig Gen Mohammad Abdul Alim Tarafder, SGP, PBGM,ndu,afwc,psc was serving as President, ISSB; interviewed on 18 May 2019.

¹³ Barrick, M. R. and Mount, M. K. (1991). The Big Five Personality Dimensions and Job Performance

Findings from the Study on Grooming Philosophy

Grooming philosophy for three factors, namely: Need for Stability (N), Extraversion (E) and Originality (O) need focused approach with reference to Table 8. Mostly FGD, Interviews and secondary data were evaluated to formulate objective and suggested ways to develop focused personality traits. Methodical approach by COs can effectively groom YO as Lighthouse Leaders in the units.

Grooming Philosophy for YOs with High Need for Stability (N)

Objective: The objective is to lower their insecurity and assist to manage emotion under stressful situation.

Suggested Ways: Few suggested ways to lower the Need for Stability of the YOs in the unit are furnished below:

- a. Applying supportive communication to guide YOs being ‘Congruent’ i.e. being honest in feeling and expression.
- b. Being empathetic to YOs and adopt descriptive conversation avoiding any prejudice and judgment.
- c. Giving proper ‘Attention’ to the YOs and show due respect for his position.
- d. Discussing with YOs on ‘specific issues’ involving his personality development.
- e. Maintaining ‘conjunctive’ i.e. progressive talk during every meeting with YOs.
- f. Expressing own assessments about the YOs and avoid other’s perception.
- g. Allowing YOs ‘required time and space’ to cope with the development guidance.
- h. Managing with Problem-orientation: ‘*This is the Problem*’ rather than ‘*You are the Problem*’.
- j. Ensuring ‘supportive listening’ and encouraging YOs to express freely.
- k. Respecting YOs’ feeling and perception and modifying the same progressively.

Grooming Philosophy for YOs with Low Extraversion (E)

Objective: The objective is to enhance their assertiveness and enrich social skills.

Suggested Ways: Few suggested ways to enhance Extraversion of the YOs in the unit are furnished below:

- a. Understanding ‘Thinking Process’ of the YO and asking him to do ‘Journaling’.
- b. Identifying YO’s comfort zone and inspiring him to cultivate ‘Good Moods’.

- c. Pushing YO to interact more on purposes, starting with expressing ‘gratitude’ to others.
- d. Developing ‘Optimism’ in YO i.e. “*Yes, you can succeed in this way*”.
- e. Assisting YO to ascertain the ‘Limits’ and ‘Free-play range’.
- f. Involving YO in games, sports and cultural events with specific objective.
- g. Delegating higher responsibility in a progressive manner.
- h. Guiding YO to envision the preferred military leadership style for pursuing.

Grooming Philosophy for YOs with Low Originality (O)

Objective: The objective is to promote free-thinking and welcome new ideas.

Suggested Ways: Few suggested ways to enhance Originality of the YOs in the unit are furnished below:

- a. Ensuring a collaborative and fear-free environment in the unit.
- b. Explaining the importance of creativity and innovation to YO.
- c. Allowing time to YO for brainstorming.
- d. Being supportive to YO for venturing new ideas even if they might not succeed.
- e. Soliciting ideas from YO actively.
- f. Providing the freedom within boundaries to YO.
- g. Rewarding YO for the creativity/innovation.
- h. Acting on ideas of YO to instill confidence.
- j. Promoting ‘out of the box’ solution.
- k. Tolerating mistakes of YO and accepting the blame for failure.

Grooming Young Officers as Lighthouse Leaders

Personality theorists concluded that traits have both inherited and learned components¹⁴ which pave the way for nurturing focused traits methodically. Grooming philosophy identified in the current study aptly trigger the functional approach for developing personality traits of the YOs. As such, CO’s role would be instrumental to assist the YOs in the unit for managing their three personality traits: *Need for Stability*, *Extraversion* and *Originality* in growing as Lighthouse Leaders for their people. The journey of YO starts at the parent unit and a supportive environment can set the tone for leadership skills development.

¹⁴ Howard, P. J., & Howard, J. M. (2000). *Owner's Manual for Personality at Work*.

Legacy of the Parent Units. Traditionally in the parent unit, YO gets the parental guidance from the officers of the unit at the outset of his professional journey. On the same note the first CO, the parent CO of that officer, has significant influence in shaping his professional make-up and setting the course right. In this regard, the experience and wisdom of the CO play vital role in grooming the YO. Generally, the domain falls under individual art of command and leadership. Consequently, there are various approaches adopted by the COs based on their personal assessments. As such, a common action plan for desired mentoring role of the CO in nurturing the YO would surely uphold the legacy of the parent unit.

Fostering Supportive Environment. The vibe of the unit has direct bearing on the grooming of the YOs. The quote of Field Marshal Sir Bill Slim can be quoted in this regard, “*there are no good units and no bad units – only good and bad officers and NCOs. They make or break the unit.*”¹⁵ As such, CO of the unit needs to create a supportive environment for the YO starting with a purpose-oriented, well-managed and closely supervised ‘Regimentation Programme’. The effectiveness of supportive environment depends on the art of command where CO creates an ambiance blending empathy, tolerance, and flexible mindset.

Manifestation of YO’s Development Needs. In general, YOs need to lower the Need for Stability by alleviating their sense of insecurity in the units i.e. lowering ‘Need for Stability’. They also need to get more assertive and socially proactive in unit affairs and management of troops, i.e. enhancing ‘Extraversion’. Having linkage with previous two attributes, finally, the YOs need to be creative and put focus on adaptability in producing desired outcome in the unit affairs, i.e. enhancing ‘Originality’. Besides, YO’s strengths and weaknesses based on CO’s initial assessment need to be addressed as well. The manifestation of developing needs of YO for growing as a lighthouse leader is furnished at Figure 4 within a supportive environment duly created by CO.

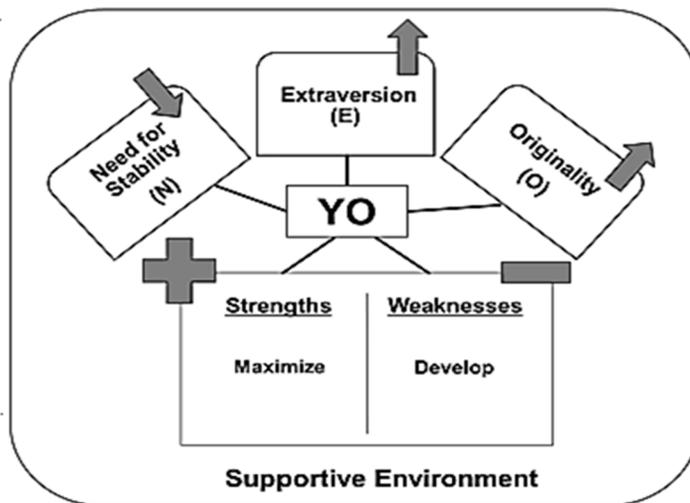


Figure 4: Manifestation of YO’s Development Needs

¹⁵ Field Marshal Sir Bill Slim, 1949 in the foreword to the first edition of the British Army Review, then called the British Army Journal.

Development Scheme Applicable in the Units

Based on the grooming philosophy, the ‘A-B-C-D Model’ implying Appraisal Brief, Balanced Efforts, Congruent Guidance and Delegation of Responsibility is conceptualized and furnished at Figure 5 for applying in the units. Suggested A-B-C-D Model is outlined in subsequent paragraphs along with approach and design including sample formats.

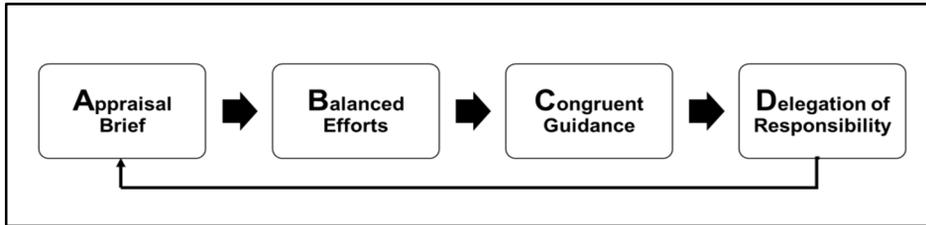


Figure 5: A-B-C-D Model of Development Scheme for YO's

Appraisal Brief

Approach to Appraisal Brief. Appraisal brief is the first step of researcher’s development scheme. CO will establish a ‘clean slate’ condition right from Day-1 negating the BMA passing out serial which can trigger a fresh start for the YO at unit environment. During the initial days, CO can adopt any suitable assessment technique for identifying strengths and weaknesses of the YO. The objective of this stage is: *Setting Progressive Goals by CO.*

An Assessment Format for ‘Need for Stability’ (furnished as sample) is at Figure 6. The Assessment Grading would prompt the next course of action to lower YO’s ‘Need for Stability’.

Instruction (For Figures 6, 7 and 8): Please observe behaviour based on indicator and record three observations to rate ‘Yes’ or ‘No’. Maximum frequency would finalize the Grade as ‘Adequate’ or ‘Need Improvement’ of the individual for development Scheme.

Ser	Behaviour Indicator	Record	Obsn 1	Obsn 2	Obsn 3	Rate	
		Date	xxxx	xxxx	xxxx	YES	NO
		Time	xxxx	xxxx	xxxx		
1.	When things go wrong, he gets tensed and feels like giving up.	xxxx	Yes	No	Yes	2	1
2.	He often gets angry with his under command.		No	Yes	Yes	2	1
3.	He often gets depressed.		Yes	Yes	No	2	1
4.	He can laugh easily.		No	Yes	No	1	2
5.	He feels helpless and wants someone else to solve his problem		Yes	No	Yes	2	1
Grade: Total Rate: 9 Y / 6 N		Comment:				XXX	
NEEDS IMPROVEMENT		1. Passing through a crisis at home, etc				Signature	

Figure 6: Assessment Format - Need for Stability

An Assessment Format for ‘*Extraversion*’ (furnished as sample) at Figure 7. The Assessment Grading would prompt the next course of action to enhance YO’s ‘*Extraversion*’.

Ser	Behaviour Indicator	Record	Obsn 1	Obsn 2	Obsn 3	Rate	
		Date	xxxx	xxxx	xxxx	YES	NO
		Time	xxxx	xxxx	xxxx		
1.	He usually prefers to do things alone.	xxxx	No	Yes	Yes	2	1
2.	He really enjoys talking to people.		Yes	No	No	1	2
3.	He likes to have a lot of people around him		No	Yes	No	1	2
4.	He often feels as if he is bursting with energy.		No	No	Yes	1	2
5.	He likes to be where the action is.		Yes	No	Yes	1	2
Grade: Total Rate: 6 Y / 9 N		Comment:				XXX	
NEEDS IMPROVEMENT		1. A techno savvy guy, etc				Signature	

Figure 7: Assessment Format - Extraversion

An Assessment Format for ‘*Originality*’ (furnished as sample) at Figure 8. The Assessment Grading would prompt the next course of action to enhance YO’s ‘*Originality*’.

Ser	Behaviour Indicator	Record	Obsn 1	Obsn 2	Obsn 3	Rate	
		Date	xxxx	xxxx	xxxx	YES	NO
		Time	xxxx	xxxx	xxxx		
1.	He enjoys playing with theories or abstract ideas.	xxxx	No	No	Yes	1	2
2.	He often gets into arguments with other contemporary officers.		No	No	No	0	3
3.	He has keen interest in speculating on the nature of the universe.		Yes	No	No	1	2
4.	He often tries new and foreign foods.		No	Yes	Yes	2	1
5.	He looks for different ways to solve any problem.		No	No	Yes	1	2
Grade: 5 Y / 10 N		Comment:				XXX	
NEEDS IMPROVEMENT		1. Likes to maintain status-quo conforming with the norm, etc				Signature	

Figure 8: Assessment Format - Originality

Design of Appraisal Brief. Appraisal Brief is designed to facilitate the mentoring support. Author formatted ‘Personality Development Matrix’ is given as Figure 9. This format can be filled through the findings of three ‘Assessment Tools’ and CO’s subjective assessment about the YO. The key for the success is the consistent engagement by the CO during the process. To attain the goals, balanced efforts are necessary for behavioural modifications which would be dealt subsequently.

Unit.....					
Personality Development Matrix					
BA No.....Rank.....Name..... Coy..... Appt:..... Date.....					
General:					
Factor	Need for Stability	Extraversion	Originality	Strengths	Weaknesses
Present Observation					
Behavioural Guidance					
Comment:					
					Signature:

Figure 9: Personality Development Matrix

Balanced Efforts

Approach to Balanced Efforts. COs need to balance the approaches to influence the behaviour of the YO's for attaining the goals set during Appraisal Brief. In doing so, prudent application of 'reinforcements' and 'coercion' by COs can regulate YO's behaviour. The objective of this stage is: *Modifying YO's Behaviour by CO*. The author consulted the 'Behavioural Consequences Matrix' of Aubrey and James¹⁶ and illustrated *Reinforcement - Punishment Application in the unit* as given in Figure 10. The illustration shows the impact of Positive and Negative Reinforcements by CO to enhance YO's behaviour along reinforcement line. On the other hand, penalty-punishment line shows the impact of Penalty and Punishment by CO to decrease YO's behaviour.

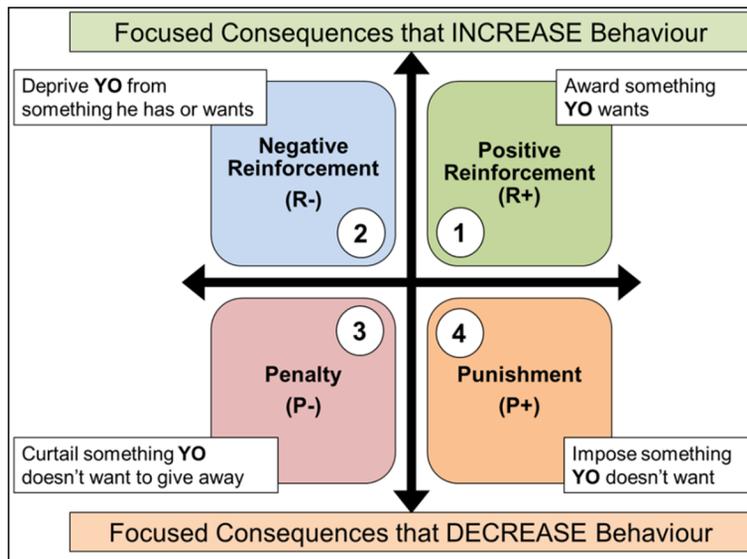


Figure 10: Reinforcement - Punishment Matrix in the Units

(Source: *Researcher's Construct from the concept of Aubrey and James (2007), p.103*)

¹⁶ Aubrey C. Daniels and James E. Daniels, 2007. Measure of a Leader.

Design of Balanced Efforts. The author designed Balanced Efforts in the unit context to attain desired performance from the YOs. It calls for an understanding by the COs on organizational behaviour coupled with individual art of command. *Reinforcement - Punishment Matrix* (Figure 10) was considered for articulating the Balanced Efforts under two circumstances involving *Originality* while YO has to write on an open topic and *Need for Stability* where YO needs to control his temper as shown in Figure 11. To observe the behavioural consequences, congruent guidance would be necessary for ensuring spontaneous involvement by the YOs during development process.

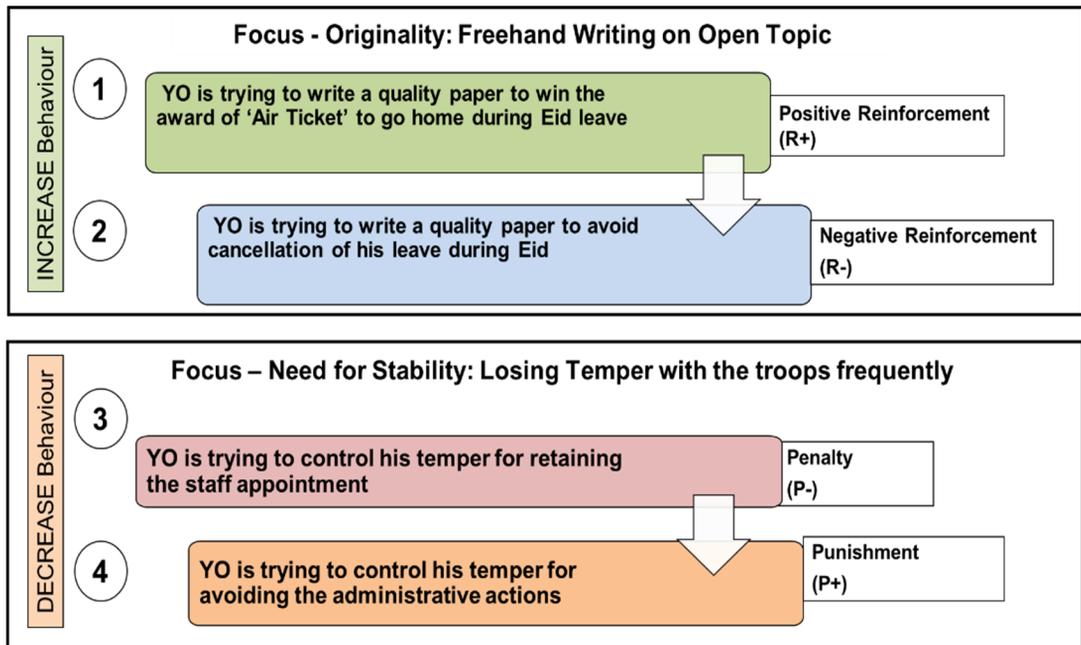


Figure 11: Regulating Behaviour with Balanced Efforts in the Units

Congruent Guidance

Approach. Congruent guidance calls for honest and sincere expression which is an attribute of Supportive Communication (David and Cameron, 2007)¹⁷. YO will feel the warmth of such conversation with his CO which will eventually bring positive behavioural impact. On the other hand, incongruent communication fails to establish psychological contract¹⁸ between CO and the YO. As such, if a CO cannot guide congruently, his intention might not get across to influence the YO positively. There are two kinds of incongruence. Firstly, being unaware of experiencing anger which may call for prejudice and secondly, due to mismatch of feeling and expression. The objective of this stage is: *Providing Supportive Guidance to YO by the CO.*

¹⁷ David A Whetten and Kim S Cameron (2007). *Developing Management Skills*.

¹⁸ Psychological Contract: The unwritten understandings and informal obligations between an employer and its employees regarding their mutual expectations of how each will perform their respective roles; Business Dictionary (2019)

Design of Congruent Guidance. CO needs to focus on reflecting or advising responses basing on the circumstances. *Reflecting* responses are non-directive and open-ended suitable for counseling and initial discussion. On the other hand, *Advising* responses are directive and close-ended being that can be applied for coaching and later stage of discussion. As the conversation gets going, CO may apply *Probing* responses to show his interest and know deeper and/or apply *Deflecting* responses to navigate the discussion for addressing the core issue. The process is graphically conceptualized by the author in Figure 12 from the theory of David and Cameron.

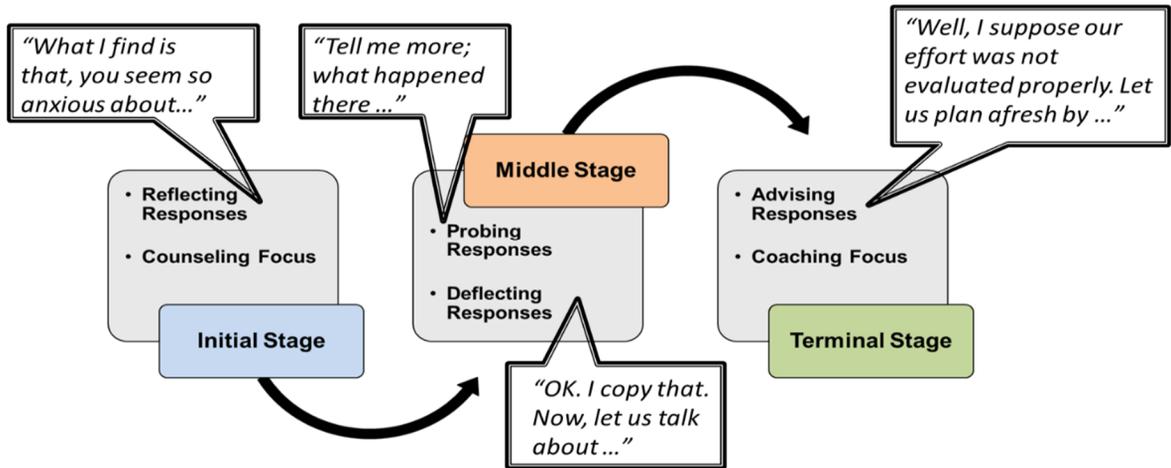


Figure 12: Response Techniques during Congruent Guidance
(Source: Researcher's Construct from the concept of David and Cameron)

Delegation of Responsibility

Approach. Delegating responsibility is the last stage of the development scheme: A-B-C-D Model. Up to this stage, YO's have received adequate explanation and supportive guidance to develop their weakness in attaining goals set during Appraisal Briefing. This stage is equally decisive for a CO as to how he can depend on the YO. Empowering others is the challenging task performed by leaders. As such, CO's art of delegation of responsibility will also be tested through time and space. The objective of this stage is: *Empowering YO by the CO to take higher responsibility*. The key for success lies in delegation by the CO with appropriate authority which is conceptualized in Figure 13. The art of command of COs will be at play to take the YO along the path progressively from low to high. CO can have own mechanism to monitor the performance distantly to evaluate the development. While undertaking higher responsibilities by the YO, any failure will be graciously accepted by CO as the 'investment for development'.

Design of Delegation of Responsibility

CO needs to assign tasks to the YO along with responsibility to take independent decisions. This process will continue progressively with higher responsibility starting from organizing events at company level (in short term), followed by unit level (in mid-term) and finally formation level (in long term). The duration of each term will vary for individuals and the unit environment. CO

will use his/her judgment to implement the action plan for shaping YO's personality in accepting responsibility for higher performance. The concept is graphically presented in Figure 14 where a tolerant command climate is essential for such confidence building scheme.

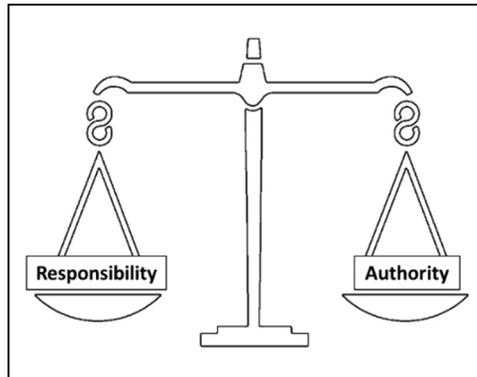


Figure 13: Delegation Concept

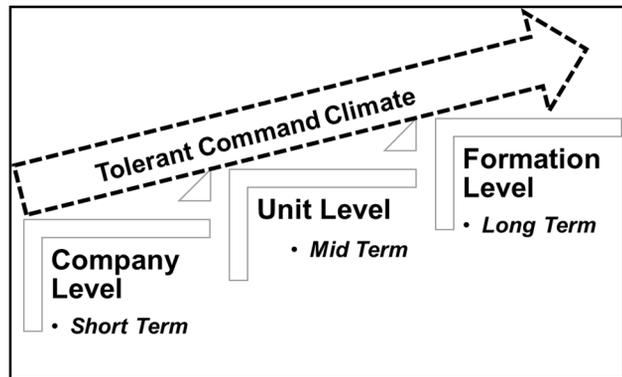


Figure 14: Delegation of Responsibility

Conclusion

Personality reflects individual's internal thoughts, feelings and behaviours. COs are less exposed to adolescent's Big Five personality traits which pose challenges to understand the reasons of varying conducts exhibited by the YOs in the units. This fact generally creates void among interpersonal relationships and falls short in maintaining effective team dynamics. The referred study identified that YOs exhibited significantly more in Need for Stability and less in Extraversion and Originality compared to the desired norm. As such, grooming future leaders as Lighthouse Leaders is hinged on functional understanding by the COs and prudent application of grooming philosophy.

Personality has wide spectrum which demands in-depth knowledge to comprehend completely. However, habitual understanding on human resource management by the COs, if reinforced with focused learning on personality traits, would surely be instrumental. The 'Golden Rule' for the CO is to balance and synchronize the mentoring efforts for improving focused Big Five Factors. It is recommended to arrange focused briefing for COs by ISSB annually in the formations to ensure a general standard on dynamic attitude of adolescence and mentoring YOs.

Suggested 'A-B-C-D Model' implying *Appraisal Brief - Balanced Efforts - Congruent Guidance- Delegation of Responsibility* for the COs can be an effective tool for grooming YOs in the units. An exposure on Big Five Factors and the mentoring approach applying A-B-C-D developmental model for COs would influence team dynamics positively and enhance performance of the YOs in the units of Bangladesh Army. In the process, future leaders will grow as lighthouse leaders. Eventually a network of lighthouse leaders would enlighten the path along reliable course ensuring safety of the people and assigned mission will be accomplished with pride and excellence.

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CONCEPTUALIZING THE DYNAMICS OF PRINCIPAL LEADERSHIP FOR BANGLADESH ARMY DIRECTED SCHOOLS AND COLLEGES

Colonel Mohammed Zaber Hossain, PhD

Reformers widely agree that leadership is central to the degree of success ... virtually all developed countries are in the midst of unprecedented, if less dramatic, efforts to improve the quality of existing programs and to launch fresh initiatives in leadership¹

Abstract

The leadership of a principal is the single most important factor affecting a school's effectiveness. His or her leadership influences the school's tone, learning atmosphere, teachers' professionalism and morale, and the amount of care for what children could become. A study of the status of principal leadership, which is thought to be crucial to academic success, has been attempted. Bangladesh Army-run schools and colleges have been chosen as the area of interest. In terms of secondary and higher secondary school education in Bangladesh, these schools and institutions are regarded as the most important contributors. As part of its social duty, the Bangladesh Army is devoting personnel and resources to guaranteeing high-quality education in this field. With this purview, the current research aims to conceive and model principal leadership, as well as promote it in Bangladesh Army-directed schools and colleges and elsewhere, with a view to achieving excellence in education.

Keywords: Principal Leadership, Educational Administration, Teachers' Job Satisfaction, Governing Body, Classroom Teaching, Teacher Leadership, Collegial Culture.

Introduction

What factors influence the effectiveness of education? Excellent instruction. A growing body of studies over the last decade have revealed that the most important factor in determining whether students learn is the presence or absence of high-quality instruction, rather than school technology, building logistics, or administrative money. In recent years, a wide range of scholars have recognized the responsibilities of principals or school leaders for teaching quality.² The sheer volume of non-instructional work that principals encounter today is one of the most significant roadblocks they face. Principals and other school leaders are typically preoccupied with tasks that do not directly contribute to student learning progress, such as filling out compliance reports, attending non-instructional meetings, or managing infrastructures, to mention a few.

¹ Leithwood, K., & Day, C. (2007). Starting with what we know. In *Successful principal leadership in times of change* (pp. 1-15). Springer, Dordrecht.

² Bambrick-Santoyo, P. (2012). Beyond the Scoreboard. *Educational Leadership*, 70(3), 26-30.

As the scholars agreed, today's principals, like the other teachers in the school, have a clear understanding of what constitutes good and effective education and can provide feedback to help instructors improve. It should be focused on teaching rather than building management or other administrative issues. According to Leithwood, K., Sun, J., & Pollock, K. (Eds.). (2017), the principal's leadership is the second most important school-based component in students' academic performance, behind teachers who impart education. The Wallace Foundation's research and field experiences since 2000 have revealed that the following five activities in particular appear to be critical to good school leadership³:

- a. Creating a vision of academic success based on high expectations for all students.
- b. Creating an environment conducive to learning in which safety, cooperation, and other foundations of constructive interaction prevail.
- c. Fostering leadership in others so that teachers and other adults can contribute to the school's vision.
- d. Improving instruction so that teachers can do their best work and students can learn to their full potential.
- e. Managing people, data, and processes in order to improve school performance.

Principals have a real opportunity of making a difference for students if they place equal focus on each of these factors while keeping each factor in check.

At this backdrop, an attempt has been made to conceptualize the state of principal leadership which is posited central to academic performance. The study setting has been selected as Bangladesh Army run schools and colleges. These schools and colleges are considered to be the highest contributing agents so far as the secondary and higher secondary school education is concerned in Bangladesh. As a social responsibility, Bangladesh Army is investing its men and material in ensuring quality education in this sector. It is well acknowledged that these institutions with a volume of around sixty schools and colleges both Bangla and English medium are well reputed and playing a pioneering role in propagating quality education all over the country. Along with the defence background students, almost seventy percent civil students have been receiving education from these institutions. So, an experimental and qualitative change in education in this sector will obviously be a representative one and will, in turn, advance quality education in the country. Keeping this view in mind, this study has been devised to conceptualize and model principal leadership and promote the same for attaining quality education in Bangladesh Army directed schools and colleges and beyond.

³ Mendels, P. (2012). The effective principal: 5 pivotal practices that shape instructional leadership. *The Learning Professional*, 33(1), 54.

Conceptual Framework

A conceptual framework to model principal leadership has been developed keeping the Bangladesh Army directed schools and colleges at the bedrock of this study. This model will also be applicable in the similar context. In harmony with principal leadership, some correlational concepts, like principal leadership styles, leadership and management, educational administration, Governing Body, Teacher Leadership, Teachers' Job Satisfaction, Classroom Teaching and Collegial Culture have been taken into consideration.

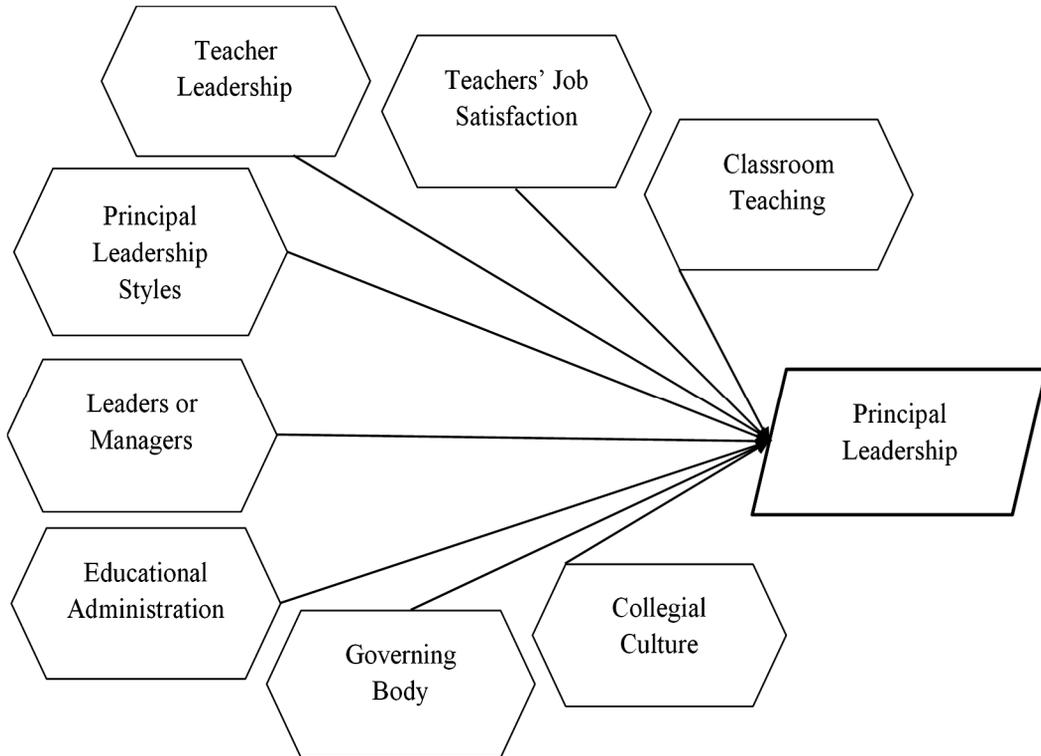


Figure 1: Conceptual Framework of Principal Leadership

Source: Author's Self-construct

Principal Leadership Styles

In this Indian subcontinent, the arrival of British colonial authority ushered in modern education. Bengali society was first exposed to the contemporary educational system in the eighteenth century. William Carey, David Hare, Raja Ram Mohan Roy, Henry Vivian Derozio, Ishwar Chandra Vidyasagar, and others were among the pioneers who toiled to exalt modern education in this society and led education from the front. As part of their social duty, they took educational leadership into their own hands. As a result, leadership was ingrained in their personalities, and this is how the most recent notion of educational leadership works.

But, in most Bangladeshi schools and colleges, principal leadership is restricted to management, and the overall notion of a good principal is associated with an authoritarian leadership style. The Laissez-faire principals are also found who take no interest to make students and the school effective. It is no surprise that despite having laissez-faire kind of principal the institutions have been performing better. It has been revealed in this regard the existence of some confounding variables, like teachers' involvement in coaching business, good students' intake and parents' initiative for the good academic outcome.⁴

Table 1: Principal Leadership Styles in Bangladeshi Schools and Colleges

Category	Frequency	Percent
Laissez-faire Leadership	467	38.88
Transactional Leadership	557	46.44
Transformational Leadership	176	14.66
Total	1200	100.0

Source: Hossain, 2021.

Nearly 39 percent of respondents said their principal practised Laissez-faire leadership, while just 46 percent thought their principal pursued Transactional Leadership. Only 15% of respondents considered their principal to be a transformational leader.

The role of school leadership is becoming more widely recognized around the turn of the twenty-first century. The modern school is viewed as both a learning environment and a family unit. Schools not only educate, but also raise children. Schools are now viewed as social centres, with principals serving as leaders who define the schools' vision and learning procedures. As the head of a social centre, principals absorb the society's psychology and convert the society's wants and goals into a good learning culture. The vision and learning processes of the school are shaped by transformational principals.

Principals exercise leadership as the institution's leader, which can be seen in a variety of situations. Frame school goals, communicate school goals, supervise and evaluate instruction, coordinate curriculum, monitor student progress, protect instructional time, maintain high visibility, provide incentives for teachers, promote professional development, provide incentives for students are all activities that principals plan and carry out, sometimes alone and sometimes in collaboration with teachers.⁵ Considering these events, principals of the Bangladesh Army directed schools and colleges showed some sort of leadership. Only a slight change in attitude and understanding towards principal leadership may bring about a qualitative change in education in schools and colleges in Bangladesh Army. This qualitative change will encompass all sorts of

⁴ Hossain, M.Z. (2021). *Principal Leadership*, University Publications, ISBN: 978-984-34-8821-3, 2021.

⁵ Moffitt, T. E., Harrington, H., Caspi, A., Kim-Cohen, J., Goldberg, D., Gregory, A. M., & Poulton, R. (2007). Depression and generalized anxiety disorder: cumulative and sequential comorbidity in a birth cohort followed prospectively to age 32 years. *Archives of general psychiatry*, 64(6), 651-660.

responsibilities that a student needs to be taken care of. In a sense, under the leadership of the principals and teachers, the institutions will shoulder academic and parental concern of the students.

In this regard, leadership training is required not only for the principals but also for the teachers so that assessing the situation principals and teachers can adapt the latest leadership styles like, transformational, distributed, instructional, and so on. It is a fact that different leadership styles influence the followers differently. A transformational style is basically Bottom-Up in which the principal as a leader provides maximum freedom to the teachers to work with the students. In this situation, teachers as leaders who work directly with the students can bring expected outcome in the education.

The Debate whether Principals are ‘Leaders’ or ‘Managers’

The ideas of leadership and management gained centre stage in the early years. Management emerged with the advent of our industrialized society at the turn of the twentieth century. By minimizing chaos, management was created to help companies function more successfully and efficiently. Planning, organizing, staffing, and controlling were the basic responsibilities of management, according to Fayol.⁶ These functions are still relevant in today's management area.

According to Kotter, the two functions are quite different. Management's primary function is to bring order and consistency in an organization, whereas leadership's primary function is to create change and movement.⁷ Many academics feel that leadership and management are two different things. Bennis and Nanus, for example, believe there is a considerable difference between the two. To manage is to carry out tasks and master procedures, whereas to lead is to influence others and change visions. In their oft-quoted phrase, "Managers are people who do things properly, while leaders are individuals who do the right thing,"⁸ Bennis and Nanus made the distinction very obvious.

School transformation needs 70-90 percent leadership and just 10-30 percent management, according to Scheff and Kotler (1996).⁹ The principal who provides instructional leadership, according to Hauserman and Stick, is important in setting organisational circumstances that allow teachers to perform at their best.¹⁰ According to Mendels, today's administrators, like the other instructors in the school, have a strong understanding of what constitutes excellent and successful teaching and can give feedback to help teachers.¹¹ It should focus on education rather than building

⁶ Gill, R. (2011). *Theory and practice of leadership*. Sage.

⁷ Kotter, J. (1990). Management Vs Leadership; «. *Work is a force for change*.

⁸ Bennis, W., & Nanus, B. (1985). The strategies for taking charge. *Leaders, New York: Harper. Row, 41*.

⁹ Scheff, J., & Kotler, P. (1996). Crisis in the arts: The marketing response. *California management review, 39(1)*, 28.

¹⁰ Hauserman, C. P., & Stick, S. L. (2013). The leadership teachers want from principals: Transformational. *Canadian Journal of Education/Revue canadienne de l'éducation, 36(3)*, 184-203

¹¹ Mendels, P. (2012). The effective principal: 5 pivotal practices that shape instructional leadership. *The Learning Professional, 33(1)*, 54.

management or other administrative issues. In reality, the teachers and principals are placed at the back of the hierarchy of Bangladeshi society. The result is that everyone holds a position on top directing the principals officially in such a way that the principals get choked and, consequently, confining themselves in managerial and administrative job rather than practising their leadership.

Educational Administration

Everything of education is regulated by the government offices and staff under the supervision of Education Ministry of Bangladesh. The principals are sitting at the receiving end. Their experiences and expertise are hardly consulted and reflected in education policy and its implementations. Apart from government backed legal and administrative machinery, teachers recruitment, their posting and promotion, budget, and for all those kinds of things, principals depend either on local Governing Body or else on the higher administrative authority. Administrative influence from outside prevents principals from completely exercising administrative authority. A lot of academic, administrative, and budgetary decisions are made by the local Governing Body. It takes a lot of time and effort to follow up on every single incident.

Principals are more leaders than administrators should be the attitude. As education is a specialized field, appropriate persons should be posted and given responsibilities to hold the key appointments like, principal and chairman. Personnel working for the educational administration both in the ministry and in the field should know that they are facilitators.

The Governing Body

The Governing Body and the principal should collaborate for the institution's benefit. Principals are treated as the little guy of the Governing Body in our country, which is detrimental to the development of any institution. As a result, the Governing Body's psychological pattern, as well as its transparency, is a problem for school reform. The local political authorities and administration should allow and encourage qualified and socially accepted persons to get elected and selected in the managing committee.

The scenario is quite opposite in the case of Bangladesh Army run schools and colleges. The president of the Governing Body is usually a senior officer of Bangladesh Army who gets selected by virtue of his command position. This becomes a blessing to the institution. The school reaps the benefit out of his effort and experience. In a win-win situation, there exists a perfect marrying up of role-play of the principal and the president of the Governing Body. The notable point is that the leadership threshold and domain for both of them is different. There is a thin line which exists in between and it should exist because in its absence principal leadership gets affected. The conceptualization focused a variety of circumstances that jeopardize the key leadership. The most significant of which is that in the absence of an adequate understanding of academic leadership, principal leadership is endangered, which has a detrimental effect on educational quality. The Governing Body should act as a facilitator for the principal.

Teacher Leadership

Lambert discovered that leadership is a critical aspect in a school's potential to progress.¹² There is a link between teacher leadership and that of the principal. The ability of this particular teacher to lead is thought to be a major component in school improvement and change. Another point of contention is that school achievement is co-constructed, implying that leadership is primarily about cooperatively and collaboratively developing and learning information and meaning. This constructivist leadership method attempts to ponder and work in the direction of common beliefs as well as to generate behaviours that propagate these new understandings.

In today's knowledge culture, Harris and Muijs emphasized on teacher leadership as a critical transformation component. Teachers are referred to as midwives in such knowledge culture.¹³ In the United States, school districts considered that high quality improvement in terms of teacher professionalism is absolutely necessary for student accomplishment.¹⁴

Around the world, the value of teacher agency and professional influence in the pursuit of school and system transformation is becoming more widely recognized.¹⁵ The feasibility and potential of teacher leadership remains a fundamental subject in the international conversation on educational reform and transformation. A number of recent articles propose that teachers should have a significantly bigger involvement in policymaking and decision-making, demonstrating this potential.

This argument is well-founded. Teachers as co-constructors of educational reform and significant contributors to policymaking is long overdue in many educational systems. When teachers are genuinely at the vanguard of educational reform and co-constructing change, the end effect may be both good and empowering.¹⁶ The significance of teacher agency, cooperation, and leadership in enhancing learner outcomes is constantly emphasized in the large literature on educational transformation.¹⁷

But what does it mean to be a teacher leader? In essence, teacher leadership is a leadership style in which teaching personnel at all levels of an organization are given the opportunity to lead.¹⁸ This leadership paradigm entails establishing the environment for people to collaborate and learn together, to develop and revise meaning, and to achieve a common goal or set of objectives. Teacher

¹² Lambert, D. M., Cooper, M. C., & Pagh, J. D. (1998). Supply chain management: implementation issues and research opportunities. *The international journal of logistics management*, 9(2), 1-20.

¹³ Goodall, J., Day, C., Lindsay, G., Muijs, D., & Harris, A. (2005). *Evaluating the impact of continuing professional development (CPD)*. London: Department for Education and Skills.

¹⁴ Fullan, M. (2001). *The new meaning of educational change*. Routledge.

¹⁵ Harris, A., Jones, M., & Huffman, J. B. (Eds.). (2017). *Teachers leading educational reform: The power of professional learning communities*. Routledge.

¹⁶ Yano, J. M., Yu, K., Donaldson, G. P., Shastri, G. G., Ann, P., Ma, L., ... & Hsiao, E. Y. (2015). Indigenous bacteria from the gut microbiota regulate host serotonin biosynthesis. *Cell*, 161(2), 264-276.

¹⁷ Hargreaves, A., & Ainscow, M. (2015). The top and bottom of leadership and change. *Phi Delta Kappan*, 97(3), 42-48.

¹⁸ Harris, A., & Lambert, L. (2003). *Building leadership capacity for school improvement*. McGraw-Hill Education (UK).

leadership is defined as a collection of behaviours and activities carried out by a group of teachers. It is largely concerned with the interpersonal ties and connections inside a school. The nature and goal of leadership, according to the proposed model, is the ability of those inside a school to work together, collectively and collaboratively producing meaning and knowledge.

Teachers' Job Satisfaction

Teachers must be committed to the institution's success. Teachers' commitment to their institutions is motivated by job satisfaction. Commitment is the driving force behind an employee's participation in the organisation.¹⁹ Commitment is an emotional bond formed with an institution. These are the psychological needs that motivate an employee to work in an institution.²⁰ Teachers in an institution will work tirelessly if they believe the institution is on their side in any circumstance.²¹ This assistance to teachers will undoubtedly increase their motivation to work.

It has been found out over time that teachers' monetary benefit impacts the job he is doing. When their financial income is high, they are satisfied; when their salary is low, they are dissatisfied. It has an effect on performance in both instances. Teachers contribute to the institution's improvement for the benefit of society. As a result, they anticipate a certain amount of financial benefit that will enable them to run their family and meet other needs. The institution is critical in motivating them by providing the necessary financial benefits. Not only financial benefits have been demonstrated over time, but non-monetary rewards have also been shown to increase employee's job satisfaction.²² Non-monetary benefits include expressions of gratitude, positive feelings, and a helping attitude. A simple compliment or even body language can be enough to satisfy an employee. What teachers require is motivation, as the institution's success is contingent upon it.²³ The principal should motivate teachers to work together toward a common goal.

In any educational institution, employees should be treated with respect and honour they truly deserve. In this regard, teachers should also be respected in their workplaces by their colleagues and higher authority. But through observation, it has been found that the relationship between the colleagues and the principal is not good. Teachers have conflicts because of their personal and professional issues. Principals do not try to mediate the conflicts in early stages before these conflicts turn into serious problems which require disciplinary action. The door of the school leaders is found close for the school teachers. These closed doors affect the ability of the teachers. Leadership attitudes of this kind demoralize them. There is another commonplace factor prevails

¹⁹ Zapata-Phelan, C. P., Colquitt, J. A., Scott, B. A., & Livingston, B. (2009). Procedural justice, interactional justice, and task performance: The mediating role of intrinsic motivation. *Organizational behavior and human decision processes*, 108(1), 93-105.

²⁰ Maier, G. W., & Brunstein, J. C. (2001). The role of personal work goals in newcomers' job satisfaction and organizational commitment: A longitudinal analysis. *Journal of Applied Psychology*, 86(5), 1034.

²¹ Eisenberger, R., Armeli, S., Rexwinkel, B., Lynch, P. D., & Rhoades, L. (2001). Reciprocation of perceived organizational support. *Journal of applied psychology*, 86(1), 42.

²² Decenzo, D. A., & Robbins, S. P. (2010). Human resource management. Hoboken.

²³ Peerbhai, R. (2006). *Job satisfaction at IT SMEs in Durban* (Doctoral dissertation).

in Army run schools and colleges that is fear factor. Though it is not the whole truth; yet it is a dominating factor. When the principal remains close-door, it creates an ambience of panic and fear which has a statistically significant correlation with teachers' job satisfaction.

Classroom Teaching

Students' problem-solving abilities got enhanced working in an active learning classroom (ALC) environment. The interaction between the learning environments in regards to the physical space and the instructors influences behavioural, cognitive, and affective learning outcomes of the students. The learner-centered contemporary smart classroom has the following characteristics: it can respond to learners' different learning methods and learning aptitudes; it can support learners' lifetime learning; and it provides support for continued growth. In the age of information technology, rich media technology, network technology, and artificial intelligence, the classroom environment should be such that teaching materials can be enhanced to speed up the acquisition of learning resources and stimulate classroom interaction, with situational responsiveness and environmental management tasks. Other than that, the smart classroom is a Smart Learning Environment (SLE) that has evolved from the traditional classroom.²⁴ The SLEs, according to Huang et al., include intelligent tools, learning resources, a learning community, and a teaching community. It also focuses on diverse ways of learning and teaching, which makes learning environments smarter in terms of different learning requirements.²⁵

The existence of effective classroom instruction is one of the strongest indicators of principal and teacher leadership in schools and colleges. Classroom instruction should take precedence over all other activities. All other priorities should be designed around the institution's central mission. The classroom environment should be well-equipped, dynamic, and alive with activity. Modern teaching techniques avoid teacher-centered learning and focus on student-centered learning. Every effort should be made by principals and teachers to comprehend and implement student-centered teaching, which is based on the premise that the success or failure of the learners is directly related to the success or failure of the educators.

Collegial Culture

Barth studied that the quality of relationships between administrators and teachers in an educational institution influences the overall performance and achievement of the students.²⁶ A positive relationship among the educators impacts other relationships of the school positively; on the other hand, a negative relationship impacts the whole of the school community negatively.

²⁴ Yao, X. D., Chen, X., Huang, G. Y., Yu, Y. T., Xu, S. T., Hu, Y. L., ... & Liu, Z. H. (2012). Challenge in pathologic diagnosis of Alport syndrome: evidence from correction of previous misdiagnosis. *Orphanet journal of rare diseases*, 7(1), 1-8.

²⁵*Ibid.* p.1-8

²⁶Barth, R. S. (2006). Improving relationships within the schoolhouse. *Educational leadership*, 63(6), 8.

Kurland, Peretz, and Hertz-Lazarowitz looked at how transformational principals affected the school's vision and learning procedures, ultimately leading to a good learning culture.²⁷ The results of Hauserman and Stick that a principal's vision and the creation of a collegial culture enhanced teacher empowerment were reinforced by this. Head teachers in England, according to Hauserman and Stick, employed both transactional and transformational leadership methods.²⁸ On the other side, transformational leadership is a true game changer. Leadership that is transformational is a tremendous development driver. The leadership components that most accounted for this stimulation were vision formulation, creating consensus about group goals, giving intellectual stimulation and individual assistance, culture building, and contingent pay.

Adult relationships inside a school have a greater impact on the school's character and quality, as well as student success, than anything else. If administrators and teachers have trusting, generous, helpful, and cooperative relationships, then interactions between teachers, teachers and students, and teachers and parents are likely to be similarly trusting, generous, helpful, and cooperative. If, on the other hand, administrators and teachers' relationships are frightened, competitive, suspicious, and corrosive, these characteristics will spread across the school community. In conclusion, the interactions among the teachers, students, and parents determine all linkages within a school's culture. All too frequently, teachers and administrators have the capacity to enrich or diminish one another's lives, and so enrich or deplete their schools.

Conclusions

Understanding the dynamics of principal leadership will lead Bangladesh Army to carry on the baton of propagating quality education in secondary and higher secondary level. Through this pioneering role play, Bangladesh Army can be a role model for the rest of the country. To support the generation and save the parental role, this is a proven option worldwide.

It is connected to a student's academic success. Indirectly, principals have an impact on school's effectiveness and student's achievement. Many forces are at play here, but the true transformation takes place at the school level, under the guidance of the principal. Principals must promote, develop, and assist teachers in becoming good role models, cooperating, collaborating, emphasizing facilitation, and supporting empowerment.

Recent researches indicate that even in the most challenging conditions, schools may continue progress through strengthening capacity and empowering teachers to lead innovation and development. Similarly, other researches have emphasized the necessity of developing the capacity for development through dispersing leadership throughout the organisation. The obvious message is that sustained progress requires the leadership potential of the many, not the few, and that

²⁷ Kurland, H., Peretz, H., & Hertz-Lazarowitz, R. (2010). Leadership style and organizational learning: The mediate effect of school vision. *Journal of Educational administration*

²⁸ Hauserman, C. P., & Stick, S. L. (2013), p.184-203.

learning improvements are more likely to occur when leadership is instructionally oriented and positioned closest to the classroom. The understanding of principal leadership with all its co-constructs will further enhance quality education in Bangladesh Army directed schools and colleges and become a model to be pursued in schools and colleges in Bangladesh.

Recommendations

The following recommendations are gleaned from this study:

- a. The mindset should be that principals are more leaders than administrators. Education is a specialized area where qualified individuals should be assigned to key positions such as Principal and Chairman. Leadership training should be made a compulsory criterion prior to becoming a principal.
- b. Governing Body (GB) should be the highest authority to execute any administrative and instructional matter in line with the national education policy appropriate for running schools and colleges. It should act as a facilitator to the principal.
- c. Principals should be vested upon more administrative power in relation to budget, hire and fire of teachers and staff, teachers' professional development, and overall administrative activities.
- d. Ministry of Education should attempt to propagate a kind of cultural awareness in the society so that people from all walks of life be it government official or civilians, recognize the principal as a leader.

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THE BIRD THAT CHANGED THE MODERN WARFARE

Lieutenant Colonel Tanveer Ahmed, psc, G+

“Drones that dropped drones that released drones that then silently killed people”

— Brett Arquette, Operation Hail Storm

Abstract

Since the dawn of civilizations, war, conflicts, armed fight or various disputes have become the part of it. Disagreements on opinion, claim of territorial integrity or distribution of natural resources were some of the vital catalysts of those conflicts. But one thing was always common and that was the urge of possessing superior technologies or weapon system among the belligerents. Otherwise, the inferior one would have ended up in losing side. As we enter the 21st century, there has been an increasing interest in unmanned technologies. With the advancement of artificial intelligence supported by the emergence of high-power density batteries, increased range with low power micro radio devices, low-cost frames and powerful microprocessors; the use of unmanned technology has been expanded in various fields such as military, industry, and commercial. This technology has shown itself to be versatile in terms of use and sizes, where the small Unmanned Aerial Vehicles (UAVs) are commonly used in remote observation, tracking, survey, traffic control, surveillance, etcetera. Such technology has also gained popularity among the militaries across the globe. Recent conflicts like Nagorno-Karabakh issue or battle of Idlib portrayed the effectiveness of UAVs those wrote the fate of the fighting forces. Not only the super powers of the world, powerful states of South-Asia like India, Pakistan and even Myanmar have started using drones for operational purpose. Time has come for Bangladesh Armed Forces to focus on the use of drones as well as review the operational plan in regards to the anti-drone capability. This paper attempts to study on the evolution of drones and their effects on modern warfare. The writer further took the effort to suggest effective use of drones in Bangladesh Armed Forces and brought some recommendations for materializing the induction of drone deliberately in Bangladesh Army.

Keywords: Territorial integrity, unmanned technologies, artificial intelligence, surveillance, drones, modern warfare, Bangladesh Army.

Introduction

In the time of World War II, performing reconnaissance and then analyzing the reconnaissance to determine what needed to be struck took weeks, if not months. As a result, the time between obtaining the goal and achieving it required months or so. In Vietnam, it took weeks, and in Desert Storm, it took days. In present days, the time lapse between target recognition and destruction has reduced to single-digit minutes. Unmanned Aerial Vehicles (UAVs), also known as drones, have played a key role in recent international conflicts. Modern warfare has taken on a

new dynamic and instability as a result of greater usage and accessibility of hi-tech equipment like drone. For the past two decades, military drones have been employed for assassination. Turkey's recent victory in Nagorno-Karabakh illustrated the important aspects of modern warfare.

Nowadays, UAVs are utilized to coordinate among artillery, armoured, and infantry. As a result, superpowers' reliance on drones is gradually expanding. The scope of drones has broadened to include anything from normal combat drones to suicidal variants. Many drones can also disrupt an opponent's communication and Air Defence (AD) systems. Drones' ascension to indispensability is unsurprising due to their higher performance, affordability, and deniability. Today, several nations like China, Israel, and Turkey have a varied range of drones. These countries manufacture and export the technology at the same time.

Drones have already been used largely by the Bangladesh Armed Forces, but limited to surveillance and monitoring only. Bangladesh Army (BA) and Bangladesh Air Force (BAF) use drones as targets to fire AD missiles and guns. Our neighbouring countries like India, Pakistan, and even Myanmar have begun to use drones aggressively. So, a comprehensive assessment of the military usage of drones, as well as the viability of using them in the Armed Forces of Bangladesh is highly needed. Therefore, the author made an effort to research the evolution of drone, their impacts in recent conflicts, and possibility of induction of drones in BA.

Rudimentary of UAV

Definition. A drone is "a remotely piloted, powered aerial vehicle that does not carry a human operator relies on aerodynamic forces for lift, is recoverable or extensible, and capable of carrying a lethal or non-lethal payload." Remotely Piloted Vehicles (RPVs) and UAVs with aerodynamics are also included in this design. The Artillery, ballistic or semi-ballistic vehicles, and cruise missiles, on the other hand, are not included in this paradigm. UAVs can be flown continuously through satellite command system and can be manned or unmanned, autonomous or remotely piloted. In few cases, the autonomously operated vehicles will follow pre-programmed routes. They will not be able to reroute or retarget, whereas autonomous UAVs will be able to follow pre-programmed paths and reroute or retarget. Weapons are disposable in military terms, whereas vehicles are reusable.

Characteristics. UAVs can be classified into two categories: remotely piloted and autonomous vehicles. In the case of remotely piloted vehicles, the operator is removed from the drones, whereas the control of the vehicle is removed from pilot's hand in case of autonomous vehicle. UAVs are capable of projecting combat power through their endurance, range and altitude potential. The Predator and Global Hawk are the classic examples of such kind of drones. Now pros and cons of various types of UAVs will be discussed in subsequent segments of this write up.



Figure-1: RQ-4 Global Hawk
Source: Author's Collection



Figure-2: MQ-1 Predator
Source: Author's Collection

RPV. Due to their tiny size and extended operating endurance, RPVs are well-suited for remote flying. Compared to piloted vehicles of the same specifications, these are less expensive. They are equipped with dependable sensor and communication systems, so the driver always knows what is going on with the vehicle. RPVs are commonly used in intelligence, surveillance, and reconnaissance operations these days, with a few exceptions. Fighter aircraft and high-value targets like the Airborne Warning and Control System (AWACS) could be protected with RPVs in air warfare operations. Pros and cons of RPV are as follows:

Pros and Cons. Remotely operated vehicles are more affordable and human control can be applied remotely. These are both maneuverable and unobtrusive. The remote operator's tasks are comparable to those of the pilot. As a result, individuals can make rational decisions in unforeseen situations. On the other hand, the majority of RPV operators are distracted by their working environment. This may cause the mission failure and vehicle can also be lost. Additionally, if the data or communication link with the vehicles is disrupted for any reason, the entire system may be jeopardized or have dangerous consequences.



Figure-3: RPV Operation

Source: Author's Collection

Autonomous Vehicles. The term indicates that the vehicles can operate independently of manual control. These are smaller in size and hence more affordable. They have also simple navigation system and communication capabilities. These vehicles, on the other hand, have a longer operating life due to their compact size. Pros and cons of Autonomous Vehicles are as follows:

Pros and Cons. In terms of efficiency, speed, and accuracy, autonomous vehicles out form manned airplanes. Their prices are set by their characteristics and features. Self-driving vehicles are equipped with basic navigation systems and are incapable of adapting to changing battle situations. They do have important benefits like they may be used safely in nuclear, chemical, or biological settings. Autonomous vehicle may be sufficiently tiny to evade detection and destruction. A big downside of autonomous vehicles is the likelihood of system failure. This may culminate in fratricide, wreaking havoc in areas populated by non-combatants. Without the help of a person, these vehicles are incapable of forming decisions. Autonomous vehicles are costlier due to their strong artificial intelligence. They are, nonetheless, just prone to being swayed by adversaries.

Evolution of UAV

While drones have lately captured the world's attention, they have a lengthy history stretching all the way back to the nineteenth century. Austrians launched an assault on Venice using balloons armed with time-fuzed explosives. Though balloons do not fall under the category of drones, the notion itself implies that air combat will eventually be turned to an unmanned version.

Prior to the outbreak of World War I, the US military developed autonomous, self-contained “aerial torpedoes”. The US navy was the first to show unmanned aircraft. It was dubbed the "Flying Bomb" and was guided by a guidance system so that it could hit a designated target.

Israeli military skillfully integrated UAVs and piloted air craft during the 1973 Battle of Yom Kippur to offer extensive reconnaissance that aided in thwarting the advance of Arab and foreign invading armies. As a result of the achievement, the US bought a large number of Israeli UAVs quickly. The Hunter and Pioneer were the US’ first modern UAVs. They made their debut in the Gulf War.



Figure-4: RQ-2B Pioneer
Source: Author’s Collection



Figure-5: Hunter RQ-5A
Source: Author’s Collection

At first, the US used drones primarily for battlefield surveillance. However, following 9/11, drones became the preferred method of assassinating terrorists. The development of the post-9/11 drone campaign is divided into four segments, according to Matt Flannes, Leila Hudson, and Colin Owens.

Segment-1. During the invasion of Afghanistan, the US tested drones against High-Value Targets on a limited scale. The majority of the time, drones such as the Predator and Reaper were used. This might be regarded as the initial step.



Figure-6: MQ-9 Reaper

Source: Author's Collection

Segment-2. During the 2007 surge in Iraq, the second segment included a similar target acquisition of high-value terrorist suspects. The strike rate, on the other hand, was slightly greater.

Segment-3. During the final years of the Bush administration, the third segment began with an increase in attack frequency. In 2008, there were 37 drone strikes, compared to 09 between 2001 and 2007.

Segment-4. During Obama's presidency, the world saw the most rapid growth in drone attacks. Unidentified militants and other potential targets, such as militant safe places, are on the list. After 2007, in Yemen and Pakistan, approximately 370 drone strikes have been carried out.

Current UAV Issues

The countries like Russia and Turkey are preparing to engage in trendy combat in the twenty-first century – modern warfare by using UAVs. At the starting of 2020, Russia and Turkey had a near-instant cinematic war as a result of the successful onslaught by revolutionary Syrians backed by Turkey. Turkey began a war with Syria as a result of this victory. This resulted in the beginning of the climax phase of fighting in Idlib, that continued from 27 February until 5 March 2020. This has been considered a significant change in combat that warrants inclusion in military textbooks for universal study.

Khmeimim Air Base Battle. Khmeimim Air Base serves as a sign of Russia's involvement in Syria. As per the Russian intelligence, Tartus (which is “similarly leased to Russia”) began using powerful “anti-drone systems” from Khmeimim and its naval correspondent in 2017. A collective drone strike has been launched by the Syrian rebels in 2017 on the occasion of New

year, deploying 08 UAVs in synchrony. As a result, Russian forces were obliged to conduct intense drone operations against their strongholds throughout January. Russia foiled over 60 UAV assaults in Khmeimim in 2019.

Idlib Battle. Turkey utilized UAVs massively in the Idlib Campaign (Operation Spring Shield). Turkish UAVs conducted extensive operations over the greater region of Idlib, penetrating deep into the Syrian Army's rear. They employed modern drones for the first time in Idlib, and vigorously testing their “ANKA-S and Bayraktar-TB2” in the military exercises. Apart from typical strategic duties, UAVs were deployed to conduct sniper missions, eliminate target clusters, and important stakeholders. Syrian facilities, chemical weapons stores, and aircraft defence systems have been destroyed by these remotely operated drone swarms.



Figure-7: ANKA-S

Source: Author's Collection

War of Nagorno-Karabakh. Nagorno-Karabakh demonstrated how small and apparently less expensive armed drones may alter the dimension of traditional combat, which is often associated with ground conflicts and traditional airpower. Additionally, it warned that without strong anti-drone capabilities, advanced sensors, armament systems, tanks, and Surface-to-Air missiles are susceptible. This battle was fought mostly against Azerbaijani drones. Azerbaijan gained control of the skies with the use of the advanced Russian made “Orlan-10” UAVs. The Azerbaijan’s drones aided significantly in Intelligence, Surveillance, and Reconnaissance (ISR) missions and long-range strikes. Azerbaijani soldiers were specifically tasked with locating, tracking, and assassinating the target well beyond the battlefield. UAVs have been effectively combined with manned planes and artillery for the purpose of destroying significant military targets. Turkish ‘Bayraktar TB2’ exhibited numerous attributes of UAVs. Along with targeting data and detection system, the TB2s are equipped with ‘intelligent, micro-guided missiles’ capable of independently killing targets. Armenian air defense systems, i.e S-300, which was ineffective for anti-drone operations, and the drones of Azerbaijan could efficiently hit the targets.



Figure-8: Orlan-10

Source: Author's Collection



Figure-9: Bayraktar TB2

Source: Author's Collection

Bangladesh Perspective

Drones-Civil Grade. Bangladesh currently lacks competent UAVs, with the exception of a few applications such as cinematography, photography, and recreational use. Bangladesh has not yet developed necessary technological capability. Quad-rotor aerial vehicles have been launched in Bangladesh recently. Kawsar Jahan and Nazia Ahsan, graduate students from ‘American International University Bangladesh’ (AIUB), created ‘quad-rotor drone’ for a university project at the 2012 “Digital Expo”. That is a big boost for Bangladesh's indigenous drone construction. Shortly thereafter, Mamun Khan Dip of ‘Khulna University of Engineering Technology’ (KUET) constructed a remotely operated quadcopter which has potential to climb upto 300 feet. This endeavor drew the attention of several researchers from ‘Bangladesh University of Engineering Technology’ (BUET). BUET established the Bangladesh ‘Aero Research Centre’ (ARC) and enrolled those students to organise a team. ARC upgraded and produced more two types of drones: **Bangla-drone** and **Ghuri-1**.

Drones in Military

BA. BA has introduced aerial drones first time in the history in 1992, BA built a target drone (TD). Initially, BA used to purchase Chinese-made TDs. Later, they pioneered the development of TD in 2001 indigenously. Doyel, the first indigenous TD, was successfully launched in 2006. In 2008, the Artillery Centre and School (AC&S) and 6 Independent Air Defence Artillery Brigade developed a drone workshop. Almost all AD units have workshops for drones dedicated to developing a TD suited for AD units equipped with Manually Operated Guns (MOG). BA efficiently tested ‘Oerlikon Gun System and FM-90 SHORAD SAMs’ on domestically manufactured TDs last year, marking a benchmark moment in TD development project. The Research and Development (R&D) was undertaken entirely by the drone workshop which was patronized by the Brigade Commander of 6 Independent Air Defence Artillery. BA has acquired 36 ‘C-Astral Bramor C4EYE Short Range Reconnaissance UAVs’ from Slovenia recently.



Figure-10: Bramor C4EYE

Source: Author's Collection

BAF. BAF has started adding UAVs to its fleet. They have already issued proposals for drones. The purpose of acquiring the UAVs would be for ISR missions. System components include “a medium-altitude long-endurance” (MALE) UAV, a ground control station (GCS), sensor subsystems, and air-to-surface missiles. This UAV, would enable BAF to establish a ‘systematic ISR coverage net synchronized with targeting capabilities and time-critical targeted strikes’. The technology would greatly enhance the BAF's ‘asymmetrical and border control operations’. At present, such activities require the use of more expensive fighter aircraft. Turkish Aerospace Industries (TAI) is proposing the drone named Anka to meet this demand of the BAF. The ‘Aviation Industry Corporation of China’ (AVIC) can provide numerous options, including the CH-4 of the ‘China Aerospace Science and Technology Corporation’ and Wing Loong-II of the ‘Chengdu Aircraft Industry Group’.



Figure-11: CH-4

Source: Author's Collection



Figure-12: Wing Loong-II

Source: Author's Collection

Use of Drones in Neighbouring Countries

RKS Bhadauria the Air Chief Marshal of India stated, '**Drones play a critical role in surveillance and intelligence collection. Their contribution to the build-up to a conflict is critical. However, once hostilities begin, they become vulnerable to enemy action...**' The Air Chief Marshal referred to the employment of UAVs during the 'Nagorno-Karabakh conflict'. His remarks are in reference to India-US agreement to acquire armed and unarmed drones. A \$3 billion contract with the US company 'General Atomics' to acquire 30 weaponized drones is anticipated to be announced soon. Additionally, if the agreement is completed, the Indian Army, Navy, and Air Force will each receive ten such combat drones. These would primarily be used for reconnaissance, information gathering, surveillance, and combat missions behind enemy lines to mitigate the threats faced by air men and combatants on tough hilly terrain. Public sector entities and private Indian enterprises are developing such platforms which will be critical in military action in the near future.

Pakistan was anticipating 'Predator-type drones' for surveillance of its 2500 kilometer Durand Line since the beginning of the Global Conflict on Terror following 9/11 and the start of the Afghan-Pakistan conflict. However, because of the US's concerns about technological proliferation, the aspiration was never fulfilled. In response to this embargo, development of an indigenous 'Unmanned Combat Aerial Vehicle'(UCAV) began in 2009. National Engineering and Scientific Commission (NESCOM) of Pakistan was approved with the contract. 'Burraq' was the nomenclature given to the UCAV. The 'Predator and the Chinese Rainbow CH-3 UCAVs' are regarded to have had the most effect on the project. China already supplied '48 Wing Loong II UCAVs' to Pakistan in December 2020. The procurement represents a huge qualitative upgrade to Pakistan's UCAV inventory, which now includes 'high-end reconnaissance, strike, and multi-role UCAV'.

The Arakan Army (AA) of Myanmar stated that the Tatmadaw (the 'Armed Forces of Myanmar') employed drones during confrontation with the AA in northern Rakhine. The military of Myanmar conducted drone operations against the rebels. As per the government stance, on 02 January 2020, the Tatmadaw began using combat drones in the Buthidaung and Rathedaung townships. Colonel Win Zaw Oo of the Tatmadaw's Western Command told that the military deployed the drones for reconnaissance but did neither accept nor reject their use in battle against AA.

UAVs in Combat

Recent conflicts and development of warfare already proved the effectiveness of UAVs in combat. Few significant roles of UAVs in combat are discussed below:

Enhance Combat Efficiency. The armed drones are capable of transporting a wide variety of weapons and other equipment, including missiles, guided bombs, electro-optical sensors, infrared laser range finders, communications and electronic spying gear, and more. Drones today can fly themselves and transfer weapons from the air to the ground using data in real time, greatly improving their utility in battle.

Rapid Reaction. Drones can conduct day or night time surveillance missions, making them ideal for tracking valuable assets. Multiple launch systems exist for UAVs. Drones can respond rapidly on early detection of any threat. Close Air Support (CAS) by drones can allow rapid delivery of air-to-ground weapons as soon as forces come into contact.

Extended Endurance Capabilities and Operational Range. A major problem for drones is endurance, which is essential for a variety of military tasks. Modern drones are able to fly for extended periods of time (12 hours to 7 days).

Protection of the Force. In a certain operational area, armed drones are appropriate solutions for force protection. One of the indications of a combatant's effectiveness is force protection. In Iraq and Afghanistan, the US military made considerable use of the MQ-1 Predator and MQ-9 Reaper Armed Drones for force protection and high-altitude surveillance.

Operational Use. Armed Drones' distinct advantages in versatility of operation are readily apparent. Targets deep within enemy territory can be neutralized by the armed drones with pinpoint accuracy and minimal collateral damage. Drones with weapons have been utilized effectively in Afghanistan, Yemen, and elsewhere. The employment of an armed drone was most recently seen in the Nagorno-Karabakh war that already mentioned in earlier segment of this write up.

Anti-Terrorism and Counter-insurgency Operation. Drones are quickly replacing conventional weapons in the fight against terrorism and insurgency. The armed drone's principal benefit in counter-insurgency warfare is an increased capacity to locate, hit, and eliminate hostile combatants with minimal collateral damage. Armed UAVs allow unique counter-terrorism missions to be carried out without risking the lives of ground personnel by conducting surveillance or launching attacks.

Potential Military Uses of UAV in Bangladesh

UAVs can be efficiently employed in the Armed Forces of Bangladesh following the modern warfare trail. Few effective and potential uses of UAVs are discussed below:

UAVs in Combat. Armed drones can be the most effective tools to initiate the attrition process and reshape the battlefield through the destruction of high-value targets. In order to locate and destroy the enemy's command and control node, division commanders may use armed drones at the tactical level. When used in conjunction with ground forces, an armed drone can strike at high-value objectives including the enemy's reserve, command and control echelon, high-payoff targets like the bridge, and tank concentrations. UAVs can also be used to provide electronic support to Army AD systems and conventional aircrafts. UAVs can be used for the purpose of decoys to imitate various radio and radar signatures. On discovering of hostile air craft, drones transmit information to AD system, with the purpose of destroying them, as previously stated.

ISR. Drones may continually deliver real-time images to the ground commander during the operation, enabling him to make the best choice at the correct time. An armed drone may be used against any impromptu target. The most important and successful use of UAVs for ISR missions would be to extend their travel time and deploy closer to key assets. Additionally, they are smaller in size, making them difficult for enemies to identify. Border Guard Bangladesh (BGB) can successfully employ drones to conduct border monitoring, particularly at strategic areas. The Military Intelligence (MI) Directorate's Detachment Ground Study Section (DGHS) is tasked with border observation. Their effectiveness may be increased further by utilizing drones effectively. Additionally, drones can be used for 'Surveillance and Target Acquisition' (SATA) missions by Field Artillery and Observation Posts (OP).

Operation against Insurgency. Armed drones can play a crucial role in counter-insurgency operations by locating and neutralizing rebels with no or minimal collateral damage. Armed Drone is capable of providing continuous monitoring and it has assault capabilities to

destroy rebel bases and hideouts. Long endurance Armed drones are capable of patrolling in search of targets and engaging them with payloads upon confirmation. In the traditional system, if a target is detected by any form of surveillance, either attack aircraft or ground force is utilized to eliminate it. This procedure requires an adequate quantity of time. Armed drones thus save important time and accelerate the decision-making process.

Transportation. Cargo and combat supply transportation might be a useful application of UAVs, particularly in tactical scenarios. Attempts can be made to utilize remotely piloted or autonomous vehicles capable of transporting supplies and ammunition to deployed soldiers, including from Zone Headquarters to remote camps located in ‘Chattogram Hill Tracts’ (CHT) locations.

Unconventional Warfare and Minor Operations. UAVs may readily be deployed to target and destroy enemy-controlled installations like ordnance manufacturers, ammunition or fuel storage facilities, or communication stations. With the effective blending of conventional and unconventional warfare, attacking important and fixed or moving enemy objectives with drones will have a terrible effect, particularly behind the enemy lines.

United Nations (UN) Peacekeeping Operations. To keep up with the drone-dominated world, the incorporation of Armed Drones is vital. BA has already acquired Bramor C4EYE Drones for using in the UN mission area. In the context of the UN, the introduction of armed drones would be preferable for force protection. In addition, surveillance and weaponized drones are seen as force multiplier. The UN also stressed the operational use of drones; so BA may establish an organisational structure and infrastructure to adopt Armed Drones.

Technology against Drone

Recent battles demonstrated the world that conventional anti-drone or anti-aircraft weaponry was ineffective against drones. Because a SHORAD missile or AHEAD ammunition will not be a cost-friendly way to shoot down a drone. Additionally, conventional AD radars are primarily built for the detection of big, fast-moving targets. Low-flying drones that are slow and tiny in scale are difficult to detect. As a result, the AD systems that have historically been employed to protect a certain airspace against manned airplanes are very less effective against drones.

Bangladesh's AD strategy for drone technology should be revisited, as drone inventories of neighboring countries continue to rise. BA added Oerlikon Air Defense Gun System and FM-90 SHORAD Missile System in their inventory. Additionally, the Medium Range Air Defence Regiment has been raised lately. However, previous wars and present concerns demonstrate a paradigm shift in warfare where UAVs play a crucial role. BA is procuring advanced AD weapon systems to improve range, airspace control, and deterrence capabilities. However, considering contemporary warfare, the country's inventory should include modern drones and anti-drone weapons in response to the trail and characteristics of potential adversaries. Hybrid and Composite

AD System will be a dependable piece of contemporary military technology instead of depending on a particular platform. Additionally, a complete EWS must be integrated into the broader AD umbrella in order to fight adversary armed drones.

Developing Indigenous Drones in Bangladesh

The expansion of the commercial drone sector provided Bangladesh with several chances to explore various procurement strategies and develop its own drone manufacturing capabilities. A small number of strategic UCAVs may be purchased and technology may be shared for domestic production as an effort to improve military preparedness and effectiveness. Present facilities which can be utilized for developing indigenous drones are discussed below:

Military Institute of Science and Technology (MIST). Aeronautical Engineering laboratory of MIST is well-equipped and the students are developing UAVs. Aeronautical engineering students are developing a variety of drone prototypes. If necessary specifications and funding are made available, the laboratory and engineering students can serve as a springboard for the development of UAVs for use by military.

Artillery Centre and School (AC&S). Target drone production is already continued in AC&S's drone workshop. Recently, the workshop has been focusing on the design of UAV for use in military reconnaissance. Any UAV project launched by BA would benefit from the ability of AC&S to produce drones with surveillance and other combat capability.

Bangladesh Machine Tools Factory (BMTF). BMTF manufactures a variety of defense products. The professionals of BMTF have honed their craft through time, which could aid in the advancement of UAVs. Therefore, many electrical and mechanical engineering parts of the UAV can be produced in BMTF.

Bangladesh Ordnance Factory (BOF). BOF is dedicated to producing high-quality weapons, ammunition, and explosives by adhering to international standards. Munitions for UCAVs can be developed in BOF.

Army Aviation. Since the UAV pilots need to be trained in avionics and intelligence analysis, BA's UAV development project would benefit from the expertise of the pilots of Army Aviation Group. To help maintain the necessary Ground Control System (GCS) infrastructure, the Army Aviation Group can serve as a launchpad.

Conclusions

Guns don't kill people; people kill people. This classic phrase is very applicable to the drone scenario. As time passes, the inevitable development follows its natural course, and weapons which are basically merely instruments for mankind to fight war, must continue to improve. It is important for any Armed Forces to modernize its inventory to avoid being left behind by a powerful enemy capable of overpowering the democratic world.

Drones have shown to be useful in recent battles, and their success stories are astounding. The war in Nagorno-Karabakh is a good illustration of this. Neighbours of Bangladesh are increasingly adding armed drones to their arsenals, following the lead of contemporary warfare. They are also working on developing an autonomous UAV system.

Bangladesh Armed Forces is adding UAVs to its inventory; however, they are currently in basic condition. UAVs are mostly deployed as target drones against different AD Weapon systems. However, the time has come to reap the benefits of UAV's diverse uses and applications. Most crucially, given the military strength of the neighbours of Bangladesh, a complete doctrine and purchase of UAVs for the Bangladesh Armed Forces is urgently required. To keep up with the ever-evolving nature of warfare technology and to gain an edge over potential adversaries, policymakers must develop a strategic framework to craft a practical doctrine for employing UAVs.

Recommendations

The following suggestions for Bangladesh Armed Forces are presented specifically in the context of UAV induction:

Drone Units. Drone units can be included into the organogram of Air Defence Artillery of BA. The Table of Organization and Equipment (TO&E) for the unit should be designed with the varied purposes of the drone subunits, as well as the drone R&D cell and workshop.

Tri-Services Coordination. UAVs are being added to the inventory of BA and BAF. A well-coordinated operating plan, an integrated procurement strategy, and the construction of maintenance infrastructure would improve overall capabilities and avoid replication.

Local Production. To manufacture the drones locally, a project for Transfer of Technology (TOT) from drone manufacturing nations such as Turkey or China can be launched. In addition, existing facilities and infrastructure of the country as mentioned already to be utilized systematically.

Budget. UAVs are no longer the subject of science fiction writings. Drones will progressively initiate the future battlefield. So, adequate budget should be allotted for procurement of drones. Furthermore, the drone workshops must be adequately patronized in order to improve the quality, capability and competence.

AD Inventory. It is high time for Bangladesh to rethink its AD strategy and policy. Procurement of Hybrid and Composite AD systems for the GBAD system is a need of time. Not only that, our potential adversaries have a large stockpile of longer-range missiles, combat aircraft, and drones. For successful defence, Layered Air Defence (LAD) to be designed to bring the National Assets, Vulnerable Area (VA)s and Vulnerable Points (VP)s under the protection of fortified AD umbrella.

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EVALUATING THE NEED OF MATERIALISTIC GAIN VIS-À-VIS PSYCHOLOGICAL INSPIRATION FOR STRENGTHENING INTERPERSONAL RELATIONSHIP BETWEEN OFFICERS AND MEN IN THE UNITS

Major Md Razibul Haque, psc

“Wars may be fought with weapons, but they are won by men. It is the spirit of the men who follow and of the man who leads that gains the victory”

-General Patton

Abstract

Interpersonal Relationship (IR) is a highly significant phenomenon in all aspects. However, for Military as an organisation, understanding IR is even more important since it is all about the leader and the led, and relationship between officers and men. Military, being a very noble profession always demands a praiseworthy state of IR amongst its members. The efficiency and success of military, especially Army largely depends on IR amongst its different tiers of members. Out of all the tiers prevailing in Army; units are very significant as these are the basic building blocks of Army. It is assumed that when men in the units of Bangladesh Army are provided with the materialistic gains, they are expected to contribute in strengthening the officers-men IR. Besides, when men in the units are psychologically inspired, they are highly expected to contribute more in strengthening the officers- men IR in the unit. This simple understanding about relationship offers the window of thought on the argument: what should be the prime focus to strengthen the IR between officers and men in the unit: materialistic gain or psychological inspiration? In this paper, an endeavour is taken to identify the importance of officers-men IR in the unit. A detail analysis is carried out to evaluate the preference between the two aspects: materialistic gain and psychological inspiration in strengthening the IR. Plausible steps are brought out which can significantly strengthen the IR. Besides, a well thought implementation plan is also presented through a model to deal with the issue.

Keywords: IR, Materialistic Gains, Psychological Inspiration, Command Echelon (CE), Officers (less CE), Men.

Introduction

Interpersonal Relationship (IR) is of enormous importance in regards to all aspects whether it is between peers, within different tiers of the same organisation, or even between different organisations. For Military as an organisation, understanding IR is even more important since it is

all about the leader and the led, and relationship between officers and men¹. Military, being a very noble profession always demands a praiseworthy state of IR amongst its members. The efficiency and success of military, especially Army largely depends on IR amongst its different tiers of members. Amid all the tiers within Army, officers and men are two most valuable tiers. In Army, there are number of command stairs in hierarchy. Out of all these stairs, units are very significant tiers as units are the basic building blocks of Army. In a unit, Officers include all the officers of any ranks including Commanding Officer and men include all the soldiers from Sainik to Sergeant. Relationship between these two tiers: Officers and men in a unit, carries noteworthy contributions in shaping the overall performance gamut of a unit.

Materialism is the excessive desire to acquire and consume material goods. It is often bound up with a value system which regards social status as being determined by affluence as well as the perception that happiness can be increased through buying, spending and accumulating material wealth. When gains are achieved in meeting these needs, it is termed as materialistic gain. It is assumed that when men in the units of Bangladesh (BD) Army are provided with the materialistic gains, they are expected to contribute in improving the IR between them and the officers. On the other hand, psychological inspiration is a facet, which motivates someone psychologically for any desired event. It is also the mental devices by which an individual avoids frustration. The word psychology literally means – ‘the study of the soul’. In regards to unit environment, it is all about care, sense of belongingness, freedom of work, informal interaction and many more. When men in the units are psychologically inspired, they are highly expected to contribute more in improving the IR between officers and men in the unit.

Most of the measures taken to strengthen IR as professed by various literatures are much focused on materialistic gains, such as salary, standard of accommodation, food, etcetera. But factually, the IR is always related to mind and developed on rapport among individuals, which is primarily psychological in nature, not merely a give-and-take process. This simple understanding about relationship offers the window of thought on the argument: what should be the prime focus to strengthen the IR between officers and men in the unit: materialistic gain or psychological inspiration?

At this backdrop, this paper takes an endeavor to evaluate the need of materialistic gain vis-à-vis psychological inspiration for strengthening IR between officers and men in the unit. In doing so, initially an overview on the necessity of officers-men IR in the unit has been highlighted, thereafter, need of materialistic gain and psychological inspiration have been analysed to establish the preference of one over another and finally few plausible steps have been suggested to strengthen the IR between officers and men in the unit.

¹ Lieutenant Colonel Dewan Mohammad Monzur Hossain, *Interpersonal Relationship In Military: AnIntangible Tool In Attaining Organizational Goal*, Bangladesh Army Journal, 63rd Issue, 2018.

Key Concepts

IR. IR is a social connection between two or more people. The discovery or establishment of common ground between individuals is a fundamental component for long lasting IR². IR is not governed by rigid mathematical formula. In Army, understanding interpersonal relationship is more important since it is all about the leader and the led, and relationship between officers and men. For the units of Bangladesh Army, officers-men IR is even more important.

Materialistic Gains. Materialism, according to the dictionary meaning, is the excessive desire to acquire and consume material goods. Materialism comprises a set of values and goals focused on wealth, possessions, image, and status. It is often bound up with a value system which regards social status as being determined by affluence as well as the perception that happiness can be increased through buying, spending and accumulating material wealth³. When gains are achieved by meeting these needs, it is termed as materialistic gains. However, when men in the units of BD Army are provided with the materialistic gains, they are expected to contribute in improving the IR with the officers.

Psychological Inspiration. According to Oxford Advanced Learner's Dictionary, the meaning of the word psyche is - one's mind, especially with regard to the deep feelings and attitudes that account for one's opinions and behaviour. Human behaviour is always an exceedingly complex phenomenon. Most frequently stated definition of psychology is, 'the scientific study of human behaviour'.⁴ There is no denying the fact that, the men are the main components of a unit. The best possible operational or tactical plan is not the only key to achieve victory. If the men are not well motivated, the best plan may not be successfully executed. Officers in the unit must therefore study their men and evaluate what shapes their values and characters. If it is done properly, only then officers can understand the psychology of their men specifically and feel what motivates them well, and accordingly do the needful to motivate them for achieving the success of the unit. In fact, when men in the units are psychologically inspired, they are highly expected to contribute more in strengthening the IR with officers in the unit.

Command Echelon (CE). For the purpose of the paper and due to substantial gap of experience and maturity amongst the officers in the unit, at some places of the paper the term 'Command Echelon (CE)' is stated, which in fact refers to Commanding Officer (CO) and Second in Command (2IC) of the unit.

Officers (Less CE). For the purpose of this paper, officers of the units excluding CE have been considered as Officers (less CE). They perform the duty of company commanders and staff officers in the units and are directly responsible for training, administration, and welfare of their subordinates.

² Junayed Bayezid, Mohammad, *Declining Trend of IR in BD Army: Effects of Materialism*, Mirpur: Defence Services Command and Staff College, Individual Research Paper, 2011.

³ 9 Infantry Division, *Dichotomy between Professionalism and Materialism: A Quest for Remedy*, Dhaka Cantonment: AHQ Project Study, 2012.

⁴ Philip G. Zimbardo, *Essentials of Psychology and Life*, London, England: Forseman and Company Press, 1979.

Men. The rank of JCO is inherited from VCO (Viceroy Commissioned Officer) of British Colonial Army which was essential to bridge between officers and men. Therefore, for men, JCO is not considered. Rather, the term ‘men’ throughout the paper will refer all the combatants of the units of BD Army between the ranks of Sainik and Sergeant.

An Overview on Officers-Men IR in the Unit

Army comprises of two major functional entities – officers and men. It is imperative that the officers-men relationship should be based on the mutual trust and confidence for the existence of the organisation. That is why the military in the world stands on the strong edifice of IR of its members⁵. IR enhances the capabilities and efficiency of the organisation up to a great extent. Good IR automatically generates enthusiasm, initiative, devotion and many more important qualities inside the mind of both officers and men.

Importance of IR in the Unit

Units are the basic building blocks of Army. To be strong as a building block, a unit needs good IR among all components. Thus, IR becomes the essential element of the fabric on which Army’s efficacy is contingent. However, to reassess this perception, a good number of stakeholders (CE, Officers less CE and men) of one of the formations were asked about the importance of IR in the unit. The survey result is shown at Figure1 and 2.

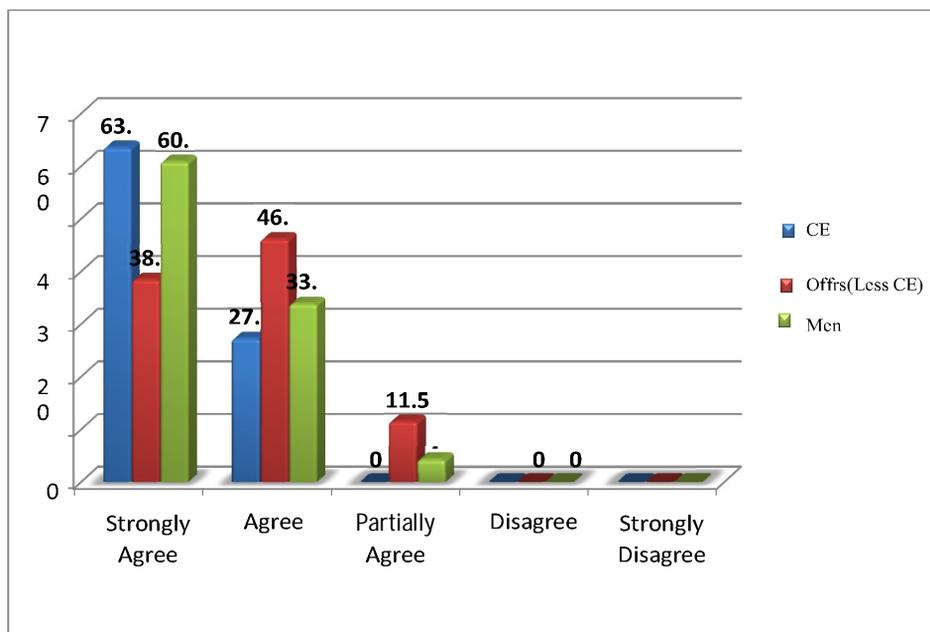


Figure 1: Perception that IR is Important - Response Percentage
Source: Survey Conducted by the Author

⁵ Fuller J.F.C. Major General, *Generalship: Its Diseases and Their Cure, a Study of the Personal Factor in Command*, New Delhi: Military Service Publishing, 1921

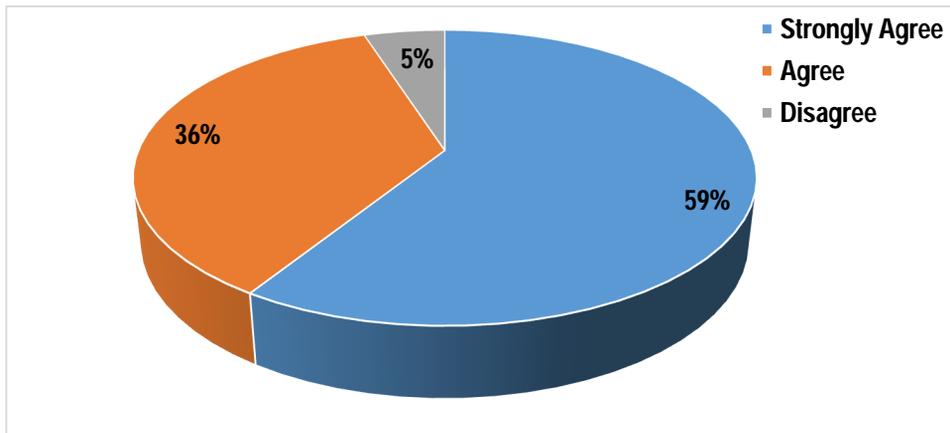


Figure-2: Perception that IR is Important - Cumulative Percentage
Source: Survey Conducted by the Author

Survey result shows that by large all the respondents agreed upon the fact that IR is important in the unit.

Indicators of IR between Officers and Men in the Unit

In all the units of BD Army, almost the same pattern of day to day events takes place. As such, it can also be assumed that the same kinds of indicators are applicable to evaluate the IR of all units. Few of the significant indicators are discussed in the following paragraphs:

Spontaneous Attitude amongst Men. A spontaneous person is someone who does something on the spur of the moment. Men in a unit if found taking all orders and instructions of the officers very spontaneously, it is believed that high standard of officers-men IR prevails in the unit. As such, spontaneous attitude amongst men is one of the significant indicators of IR between officers and men.

Mutual Faith. 'Faith' is a broad term. Usually, 'faith' means much the same as 'trust'. In some units, officers are often found not relying on men. Again, men are not very sure that officers are working for their betterment. Again, opposite scenario also exists in many of the units. Nevertheless, these kinds of situations arise as an outcome of the state of mutual faith between officers and men in the unit.

Reliance on Each Other in Crisis Situation. Crisis situation does not always mean the war. Rather, any sort of event which demands combined effort of both the groups can be termed as crisis situation. Numbers of incidents are available in the units where the reliability of officers-men on each other played the vital role in accomplishing the task.

Satisfaction on Each Other's Conduct. Sometimes, men lack in proper military conduct, which ultimately creates dissatisfaction amongst officers. On the contrary, many of the conducts of officers may not be liked by men. As a result, it creates dissatisfaction amongst both. As such, state of satisfaction of officers-men on each other is one of the important indicators of IR.

Hesitation of Men in Sharing Personal Problem. Due to the typical environment that exists in the unit; men may or may not hesitate to share their personal problems with officers. In fact, men will feel comfortable in sharing any kind of personal issues only when good IR exists, otherwise, they would not.

State of Mixing Up Attitude between Officers-Men. Sometimes, men are found shy and very uneasy whenever they are asked to mix up with officers. They rather fail to express their views properly while mixing up. In fact, whenever good IR exists in the unit, the mixing up attitude also improves.

Significant Factors that Affect IR

A good number of factors exist in various units which may affect the IR of officers and men. However, among all the factors, few factors carry noteworthy importance and can significantly affect the IR. The factors are as follows:

Lack of Interaction between Leaders and Led. Interaction between leaders and led facilitates to build strong relationship. Through interaction, leaders can know more about their led. Men in turn also build up a feeling of confidence on their leaders⁶. Except the prescribed period, nowadays officers are rarely found coming to the unit to interact with the men. Thus, opportunity of interaction gradually fades away which badly affects the officers-men IR in the unit.

Changing Technology and Accessibility. Technological advancement and easy access to social media have made virtual world more important than physical world. Lack of physical interaction between officers and men is partly resulting from this technological advancement. For instance, previously junior officers used to spend their leisure time in the evening in unit recreation room and thereby making good IR with their men. But now they spend most of their time in social media: Facebook or Twitter, interacting with their virtual friends. On the other hand, most of the men also now prefer to spend the leisure time enjoying YouTube on their smartphones or even remain busy with various social media platforms. Thus, inclination to virtual world, resulting from technological advancement, seriously affects the officers-men IR in the unit.

Lack of Motivation. So long men are not motivated, best output can never be brought out from them. Number of indiscipline cases in the units reflects notable decline of motivation level amongst men. Due to lack of motivation, men do not give their hundred percent efforts to improve IR in the unit. At the same time, officers, especially young officers remain reluctant to motivate their under commands.

Presence of Zero Error Syndromes (ZES). ZES is defined as the attitude of expecting a perfect result and non-acceptance of error. Mistakes may occur when any task is performed. Some mistakes are intentional, whereas some are unintentional. Sometimes, the unintentional mistakes made in the course of duty are not accepted by any means. When those are considered to be indicators of failure, ZES becomes prevalent.

⁶ 6 Independent Air Defence Artillery Brigade, *Enhancing Command- Under Command Relationship of BD Army – A Pragmatic Approach*, Dhaka Cantonment: AHQ Project Study, 2012.

Micromanagement. For achieving perfection, many a times the officers supervise any task given to the men, which is known as ‘micromanagement’. It acts as an impediment in enhancing men’s capability. Micromanagement gives a feeling to men that their leaders lack confidence upon them.

Fading Away of Social Values. Social values help to make someone a perfect social being. It is all about maintaining healthy relationship within the surroundings. Fading away of social values amongst men make them self-centered. It also creates negative impact on officers-men IR.

Over Commitment vis-à-vis Shortage of Manpower. The manpower in the units of BD Army has not increased proportionately with the number of commitments. These days, units are facing huge difficulties for the shortage of officers. At the unit level, one officer is made responsible for number of companies. Thus, he fails to give equal time to all his men. The same is also applicable in the case of men. Pressure of work becomes more on particular person due to non-availability of required manpower. As a result, imbalanced ratio between commitment and manpower drastically affects the IR.

Analysis on the Need of Materialistic Gain vs Psychological Inspiration

So far, in this paper, through the overview on officers-men IR, the necessity of IR between officers and men in the unit is already established. It is well expected that when men in the unit remain satisfied on their materialistic gain, they will have better IR with officers. On the contrary, it may also be found that, even after being satisfied on materialistic gain in the unit, substantial state of IR is not prevailing in unit environment. It happens when there is lack of psychological inspiration. Hence, there arises a concern to analyze the need of materialistic gain vis-a-vis psychological inspiration for identifying the contributions of these two aspects in strengthening the officers-men IR in the units.

Aspects of Materialistic Gain in Strengthening IR

There are few basic needs of men: food, clothing, accommodation, treatment, leave and recreation. Besides, salary and economic benefit from UN Mission also fill up men’s materialistic needs. In fact, there is no end of fulfilling the materialistic needs. But, there always can be minimum satisfaction level which will keep men happy about their gains. Few significant aspects connected with materialistic gains are as follows:

Satisfaction on Standard of Food. Food is a basic physiological need. Thus, satisfaction is needed on the standard of food. In course of time, the standard of food for men in the unit has substantially improved. This improvement is related with the scale of food amount as well as quality. However, it’s undenying fact that there is no end of satisfaction for few people. Hence, standard of food is one of the materialistic gains men expect from officers in the unit.

Satisfaction on Accommodation Standard. Standard of accommodation greatly determines the living standard of men. Men in the unit expect to have a better-quality

accommodation. Though minimum standard of accommodation is always maintained by the authority, men are often observed to expect much better. Therefore, accommodation standard is linked with the materialistic gain of men in the unit.

Better Medical Facilities. Medical treatment being one of the basic needs of human being, always remains as a priority for the men in the unit. Free treatment is always ensured for the men and their families. However, the level of satisfaction on available treatment facilities including qualities often varies amongst men in the unit. Hence, it is marked as one of the materialistic gains men expect.

Satisfaction on State of Availed Leave. Perhaps, the most desired facility men expect from officers is 'Leave'. As maximum number of men in the unit cannot really get the opportunity of keeping their families with them, leave always remains as one of the top priorities in their desired list. However, often men do not remain satisfied with the amount of leave they get in average. Always there exists a tendency of getting more leave which sounds like 'the more the better'.

Opportunity of Availing United Nations (UN) Mission. Despite the UN mission involves life risk it always acts as a dream for men in the unit. Almost all the men expect to avail a UN mission at the earliest opportunity because the financial gains they achieve through one year mission, make them economically solvent. Hence, opportunity to serve in a UN mission acts as one of the materialistic gains for the men in the unit.

Satisfaction on Salary Standard. Salary is a very important aspect for everyone; so is for the men in the unit. In course of time, salary of men has been substantially increased. As the salary standard is directly linked with living standard, it remains as an ever-important concern for men. As such, it is one of the materialistic gains that has direct impact on IR in the unit.

Recreation Facilities. Day to day activities of soldiers in the units are unlike other professions. Men's life in the unit is about training, duties and various operational and administrative responsibilities. Thus, recreation facilities always remain as an important concern for the men in the unit. In fact, CE and all officers of the unit give due emphasis on this aspect as well. However, as there is no limit of expectation, satisfaction level on available recreational facilities in the unit vary amongst the men.

Aspects of Psychological Inspiration in Strengthening IR

Psychological inspiration creates enough strength inside human being. For men in the unit, this inspiration enhances both physical and mental working capabilities. Whenever, the leaders talk informally to their men, desire to visit their family quarters, automatically men feel a psychological boost in their minds⁷. In a gathering where men's families get the scope of mixing up with officers' families, get a feeling that they are also an important part of the unit. Fear free environment in the unit enhances the initiative level of men. Men expect that their Commanders will allow them to

⁷ Lieutenant Colonel Al Faroque Siddiquee, *Understanding the Psyche of Under-Commands: Its Applications at Unit Level*, Bangladesh Army Journal, 52nd Issue, 2012.

express their views freely; good works will be well recognized and incentives will inspire them. Motivation from officers always helps men to think positively which in turn significantly contributes on officers-men IR in the unit. Few of the important aspects directly related to psychological inspiration of men are as follows:

Status Upgradation. Status of men has already been upgraded in recent years which acted as a strong psychological inspiration for men in the unit. Before the upgradation, there were imbalances with the other similar kinds of government organisations. However, this problem was well addressed by the authority. As a result, men were highly satisfied and it contributed strongly on developing IR. Hence, status of men is one of the psychological aspects that help strengthen IR in the unit.

Educational Qualification. Education speaks about knowledge and the confidence. This education is related with both men and their children. For men, a good number of procedures and facilities are introduced in Army by which educational qualification of men are upgraded. For example, men may appear now various public exams under Bangladesh University of Professionals (BUP). Besides, good number of Army owned institutions are well established in the educational field of Bangladesh where quota facilities are reserved only for the children of military personnel. As such, these are deeply involved with the psychological aspects of men.

Adequate Motivation. Motivation is the process or drive that persuades people to carry out allocated work willingly and effectively. In the army, all the causes of men's frustration often can't be understood and, therefore, their alleviation is difficult⁸. Officers in the unit, especially CE has to identify the causes of men's frustration, address the issues to eradicate those, and then motivate them to do their tasks spontaneously. There are certain motivating factors that affect men's psychology. Recognition, reward, job satisfaction, good leadership, fairness, justice etcetera may be considered as few motivating factors, of which leadership is the most significant one. The CE in the unit should possess the qualities that attract men to follow them. Honesty, integrity, loyalty, sincerity and discipline observed by the officers can establish their superiority and influence men to follow them. Hence, motivation is strongly linked with men's psychology.

Flexibility in Tasking. Men in the unit expect flexibility in the tasking they are assigned with. Over supervision makes them psychologically weak and thus affects IR. It is observed that when men get substantive amount of flexibility in their work, they remain psychologically inspired to bring out the best from them. As such, flexibility is an important psychological aspect for men.

Fear free Environment. Fear of unknown curbs initiative and decays courage. It is an unpleasant emotion that affects men's behaviour in the unit. Officers in the unit shape up the fear level for the men. Fear free environment increases the efficiency of men in manifolds. Besides, it eliminates low morale, rumour and lack of self-confidence amongst the men.

⁸ Lieutenant Colonel Md G R Jahangir, *Improving Moral Values in the Under Commands*. Bangladesh Army Journal, 43rd Issue, 2008.

Recognition of Good Works. Men always expect the recognition of their praiseworthy works in the unit. CE and officers may play a vital role in identifying these works in the unit. Being recognised in a forum by the officers, men always feel mentally elevated and in turn it boosts up their psychology and morale.

Informal Interaction by Officers. Besides routine formalities and formal interviews, officers may interact with their men⁹ sparing some leisure time. When men get the opportunity to interact with the officers, they may express their inner views directly and become psychologically inspired. As such, it contributes positively in strengthening the IR.

Officers’ and Men’s Family Interaction. Apart from interaction of officers-men, there is noteworthy effect of family interaction on the psychology of men. It can be arranged by the CE of the units where officers’ families can make a plan of visiting men’s families and again some sort of picnic and outing may also be arranged at unit level to facilitate this concept. Getting the opportunity of interacting with officers’ families, the families of men feel themselves honoured and in turn it creates positive impact on the psychology of men and their families. Determining the Preference of Materialistic Gain vs Psychological Inspiration for Strengthening the Officers-Men IR in the Unit

So long by qualitative analysis, both the aspects of materialistic gain and psychological inspiration are well discussed in the preceding paragraphs. Through the analysis, an idea on the preference between the two mentioned factors can be figured out. However, for better assimilation of the concept stated, a survey was conducted as part of quantitative analysis in few units of a formation of BD Army. In the survey, CE, Officers (less CE) and the men were asked about the contribution of identified aspects for both the factors (psychological inspiration and materialistic gain) in strengthening the officers-men IR. Response of the survey is projected at Figure 3.

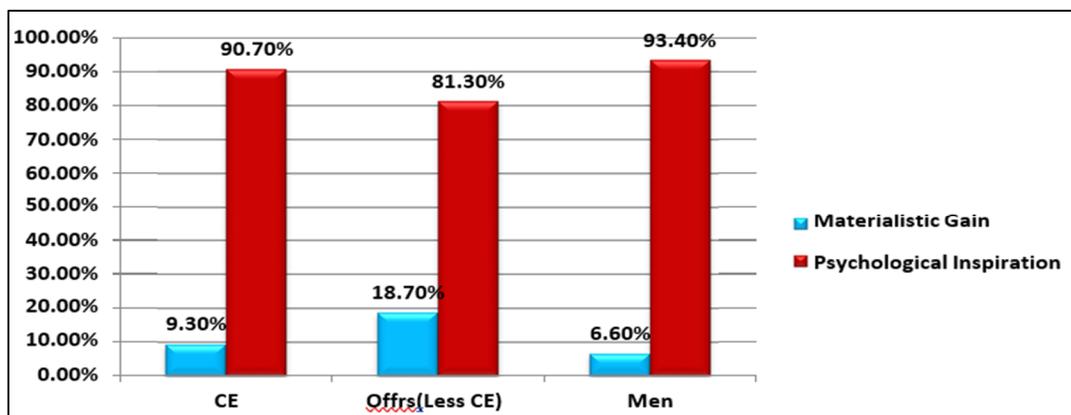


Figure-3: Preference of Materialistic Gain vs Psychological Inspiration on IR
Source: Survey Conducted by the Author

⁹ 11 Infantry Division, *Effective Teamwork in Different Tiers of Bangladesh Army- An Insight*, Dhaka Cantonment: AHQ Project Study, 2012.

Significant percentage of all the respondent groups (CE, Officers less CE and Men) has opined that psychological inspiration is more contributory for officers-men IR than that of materialistic gain. However, it should be kept in mind that minimum level of materialistic aspects are needed to be fulfilled i.e food, accommodation, treatment, salary, etcetera. Thus, it can be stated that for strengthening the officers-men IR in the unit, psychological inspiration gets preference over materialistic gain.

Plausible Steps to Strengthen the Officers-Men IR in the Unit

It has already been evaluated that the psychological inspiration gets preference over materialistic gain in strengthening the officers-men IR in the unit. However, materialistic gains still hold as an important contributing factor for IR. Therefore, a balanced approach- correct blending of psychological inspiration and materialistic gains - needs to be taken to strengthen officers-men IR. As such, functional measures, with plausible application approach, to improve officers-men IR are projected at Figure 4 and are outlined in the succeeding paragraphs.

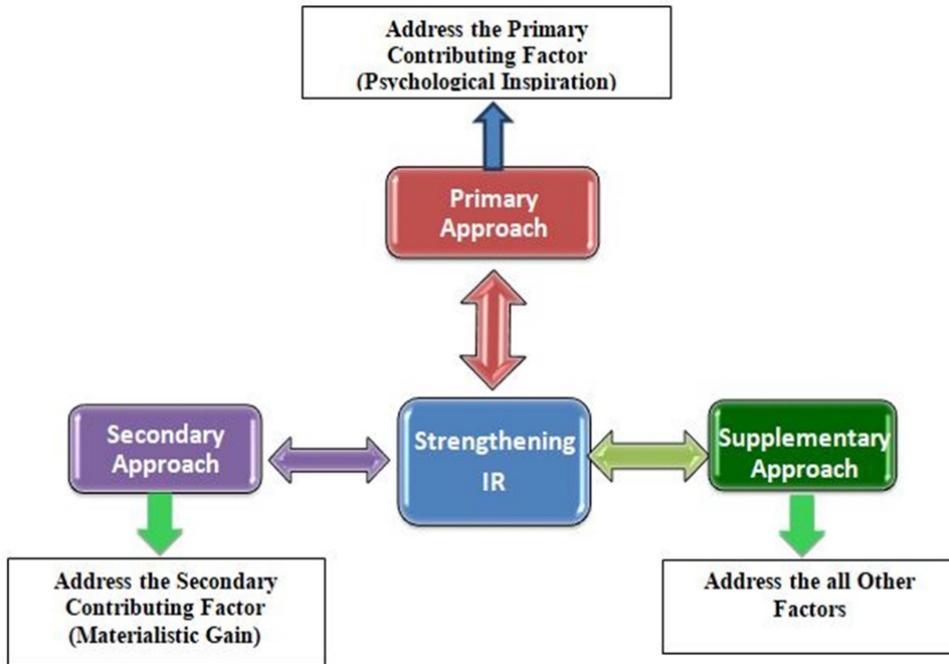


Figure 4: Flow Chart Showing Approaches of Implementing the Plausible Steps to Strengthen IR
 Source: Author’s Self Construct

As projected at Figure 4, primary approach addresses the primary contributing factor (psychological inspiration), secondary approach addresses secondary contributing factor (materialistic gains) and supplementary approach deals with all other factors. The working mechanism of all three approaches has been explained at Figure 5. As it is outlined, the total mechanism works like a chain. Here, primary approach is the prime mover. Other two approaches become effective only when the prime mover becomes functional.

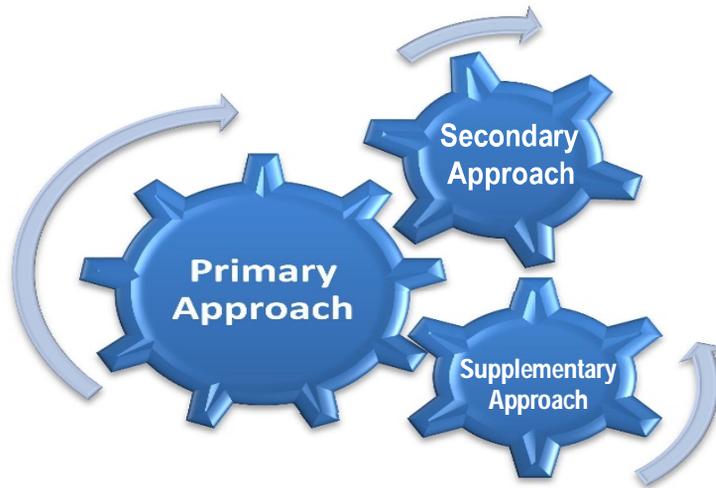


Figure 5: Flow Chart Showing Working Mechanism of Approaches
Source: Author's Self Construct

Primary Approach

Adequate Care from Superiors. Adequate care by superiors develops a sense of belongingness amongst men. Officers (less CE) should be encouraged by the CE to give due importance on this matter. Those in the leadership strata, should be more empathetic to the under commands. At times, one should be very personal to show ownness to the subordinates. This will also enable under commands to behave reciprocally.

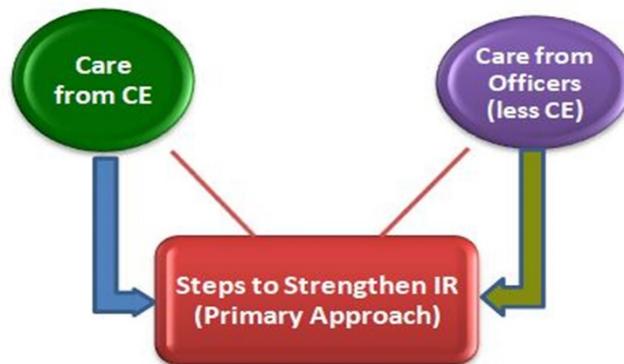


Figure 6: Flow Chart Showing Relation between Adequate Care from Superiors and IR
Source: Author's Self Construct

Informal Interaction through Social Activities. Informal interaction can overcome the barrier in the flow of information among officers and men. It can be ensured by visiting men's families, passing leisure time with them, arranging cultural nights, etcetera. Visiting each other's residence may be introduced at a decided scale among all ranks. However, point to be noted that

this practice should not become a mere formality and burden to the men. Nevertheless, this step will act as an important measure in strengthening IR.

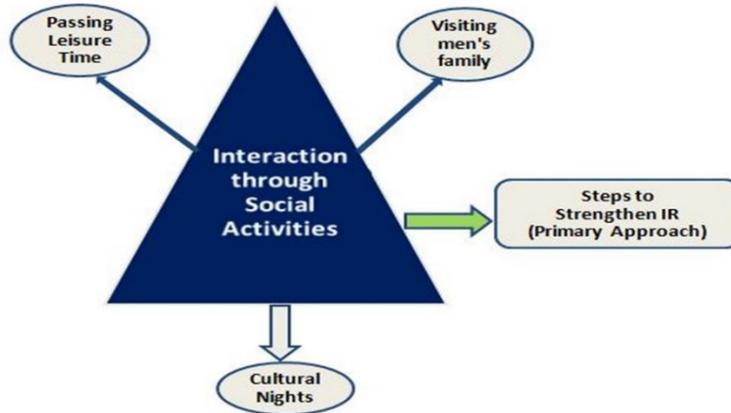


Figure 7: Flow Chart Showing Relation between Informal Interaction and IR

Source: Author's Self Construct

Elimination of Zero Error Syndromes (ZES) and Micromanagement. ZES curbs the initiative level of men to the minimum. Officers frequently try to over-supervise the activities of men which is often termed as micromanagement. CE needs to ensure that ZES and micromanagement don't exist in the unit. It is well observed that better state of IR exists in the units where all these do not prevail. As such, eliminating these will ensure psychological boost up of men and will act as an effective step.



Figure 8: Flow Chart Showing Relation between 'Elimination of ZES, Micromanagement' and IR

Source: Author's Self Construct

Frequent Motivation. Motivation is a continuous process. It has a direct linkage with psychology. Men should be sensitized and acclimatized with military way of life through effective leadership and motivation. As such, necessary steps need to be taken by officers to keep men motivated towards their work. CE can play the vital role in this aspect. Even simple caring words from officers motivate their men.

Recognition of Good Works and Incentives. Men feel strong interest and initiative for any kind of assignment when they find that good works are well recognized by the officers in the unit. Incentives to efficient persons encourage rest of the men. As a result, it accelerates psychological spirit and creates definite impact on IR.

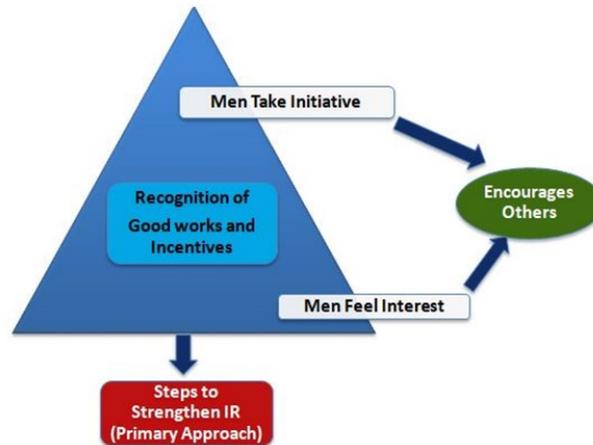


Figure 9: Flow Chart Showing Relation between 'Recognition of Good Works and Incentives' and IR
Source: Author's Self Construct

Freedom and Flexibility in Work. Healthy environment in the unit allows freedom in expressing views. However, this freedom is definitely not about breaking the chain of command. Rather, this is about expressing opinions freely in any kind of tasks, responsibilities or assignments. Besides, whenever men are allowed with flexibility, better output is observed from their work.

Enhancing Mutual Trust and Faith. Trust and faith between officers and men in the unit must have to be enhanced to strengthen IR. Army should always try to uphold the traditions and age-old practices which are still in vogue and helpful in building trust and faith. Technology has changed, armaments have new versions, but human treatment between the individuals remains universal. Therefore, to strengthen IR enhancing trust and faith is highly required.

Setting Personal Example by Officers. Personal examples set by the officers inspire men more than anything. Being leader, officers must utilize this opportunity to have positive impact on their led. This in turn improves the IR. It is observed that men have better relation with the officers who always try to set personal example before them.

Secondary Approach

Economic Solvency. Economic solvency keeps men free of mental agonies. Present salary structure of men allows them to remain solvent. However, unplanned expenditure of money, especially money earned from UN mission brings trouble in life. Therefore, officers can guide their men in this aspect so that men plan and expend judiciously. This will help men to retain their mental peace and it will contribute in strengthening IR.

Ensuring Quality Family Accommodation. Quality and quantity of men's family accommodation may be improved further. The quality of housing and the Military Engineering Service (MES) may be further upgraded. Present quota for the accommodation can be increased. Besides, barrack life is a necessity for effective grooming up of men. Quality of barracks should be well maintained to provide a nice and tidy environment. Due to lack of maintenance and proper care, living standard sometimes falls below the expected level. MES and unit authority may give more attention in maintaining the quality of men's living standard.



Figure 10: Flow Chart Showing Relation between Ensuring Quality Family Accommodation and IR
Source: Author's Self Construct

Good Standard of Treatment. Access to available health care facilities may be further improved. Treatment facilities for men's family members at Combined Military Hospital (CMH) may be made easier and more spontaneous. All CMHs may have the similar standard.

Recreational Facilities. Recreation is an effective tool for maintaining sound mental health. In this regard, existing recreational facilities in the unit may be increased further. For example, weekly movie show can be arranged on holidays. Famous war movies can be shown to men. Thus, along with recreation, it will also increase military ethos and values. Besides, existing scope of indoor games in the unit will help further to address this issue. As such, it will meet men's needs and subsequently will improve IR.

Educational Facilities. Children's education is an important concern of men. Married soldiers feel more secured once their children are able to study in cantonment schools. This concern of a parent affects his/her commitment to the profession adversely. Every child of a military family either living in or out may be guaranteed for easier access in the educational institutions of any cantonments. Thus, it will eliminate soldiers' anxiety and will ultimately improve IR.

Supplementary Approach

Persuasive Leadership. Leadership acts as glue that binds different elements of a force together and provides focus and motivation for all the military activities¹⁰. CE and officers may exercise persuasive leadership in their style of leading. CE plays the most important role in influencing the men of his unit and strengthening IR.

Effective Training System. Effective training can create a great impact on men's psychology. During initial training at various training centres, necessary lessons may be included in training curriculum regarding the importance of IR. Provision of psychology test in Inter Service Selection Board (ISSB) can also be introduced in recruiting process of men. This will facilitate to have men of better psychology. Besides, training system in the unit should also continuously focus on men's mental grooming up.



Figure 11: Flow Chart Showing Relation between Effective Training System and IR

Source: Author's Self Construct

Proposed Implementation Plan

The previous discussions suggest that strengthening IR in the unit requires the active contribution from all levels. Basing on the nature of the measures and the level of implementation, following model can be utilized:

¹⁰ *Operations of War (Volume 1)*, Dhaka Cantonment: Bangladesh Army: AHQ Printing Press, 2006.

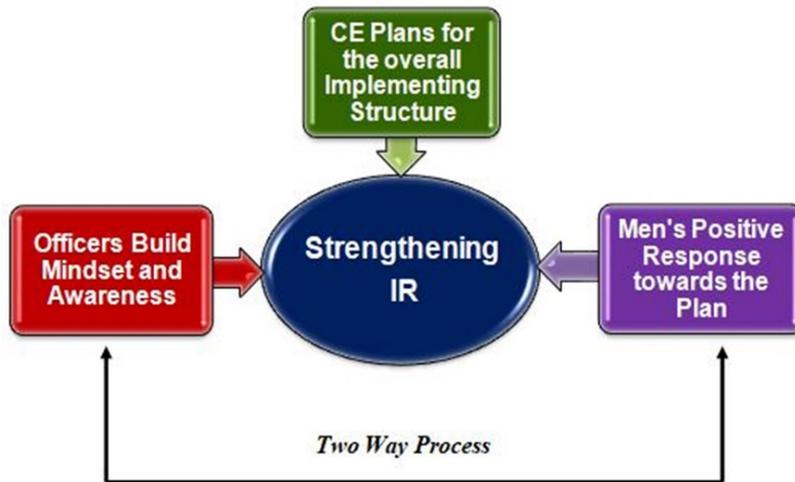


Figure 12: Implementation Plan for Adopting the Steps to Strengthen IR

Source: Author's Self Construct

Challenges in Implementing the Measures

In implementing the above-mentioned measures, there are likely to be two challenges. The first challenge is building positive mind-set inside officers and men. Officers may think that they are alright with their attitude. Again, men can assume the same. So, the existing inertia has to be broken. To address this challenge, primary responsibility will lie with CE.

The second challenge is about building and maintaining rapport between individual officer and man. Building IR is a gradual process. An officer (for example a Company Commander) builds up substantial bonding with his men with the passage of time. Once that officer is posted out within a short period of time (even internal posting), newly assigned officer needs to start building rapport from the beginning. However, serving in a particular unit for a considerable amount of period and reposting to parent unit in next suitable time can overcome this challenge.

Conclusions

For any type of organisation IR carries enormous importance. Military is an organisation which basically remains functional by its leaders and the led, and thus the relationship between these two driving factors (leaders and led) is highly important for the smooth functioning of the organisation. The efficiency and success of military, especially Army largely depends on IR amongst its different tiers of members. Officers and men are two most valuable tiers among all the tiers within Army. It is assumed that when materialistic gains are provided to the men of the units, they are expected to contribute in strengthening the officers-men IR. Besides, whenever men in the units are psychologically inspired, they are also highly expected to contribute more in strengthening the officers-men IR in the unit. This simple understanding regarding relationship offers the window of thought on the argument - what should be the prime focus to strengthen the IR between officers and men in the unit: materialistic gain or psychological inspiration?

Units are the basic building blocks of Army. To make the building block robust, good IR among all its components is a must. Thus, IR becomes the essential element of the fabric on which Army's efficacy is contingent. Result of survey conducted in one of the formations clearly projected the necessity of officers-men IR. Few indicators can specify the state of IR prevailing in the unit which includes spontaneous attitude amongst men, mutual faith, reliance on each other in crisis situation, satisfaction on each other's conduct, etcetera. Few significant factors are also identified in the paper that may affect officers-men IR in the unit and those include lack of interaction between leaders and led, changing technology and degree of access, lack of motivation, presence of ZES, micromanagement, fading away of social values, etcetera.

It is well expected that if men in the unit remain satisfied on their materialistic gain, they maintain better IR with officers. On the contrary, it may also be realized that, even after the materialistic gain of men being addressed in the unit, substantial state of IR does not prevail in unit environment. It may happen, when unit lacks in aspect of psychological inspiration. Hence, there arises a concern to analyze the need of materialistic gain vis-a-vis psychological inspiration for identifying the contributions of these two aspects in strengthening the officers-men IR in the units. Both qualitative and quantitative analysis projected that for strengthening the officers-men IR in the unit, psychological inspiration gets preference over materialistic gain.

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ARMY AVIATION - HARBINGER OF BANGLADESH ARMY'S OFFSET CAPABILITY

Major Md Shameem Ferdous, SPP, psc

Abstract

Aviation is one of the most effective and essential components of land power. Bangladesh Army (BA) has realized aviation's necessity and invested enormous effort to build robust combat-capable aviation in recent years. Unsurprisingly, Bangladesh Army is expected to fight against a numerically and technologically superior adversary in the event of a war. Therefore, Bangladesh Army will require some capability to offset the balance of combat power in her favour while denying the enemy overwhelming advantages. Aviation can generate effects of exponential proportion that can offset potential enemies' overwhelming superiority. Hence, aviation can be Bangladesh Army's prospective 'Offset Capability'. In order to declutter ambiguity about aviation in Bangladesh Army context, it is necessary to seek theoretical clarity. The ultimate 'end' for aviation is to meet Bangladesh Army's aerial support requirements utilizing its 'means' (aircraft) in practicable 'ways' (various missions). Aviation is deeply nested within the Battlefield Operating Systems (BOS) framework. In addition, aviation is a true force multiplier and never a duplication of the Air Force. Bangladesh Army can leverage aviation's exclusive capabilities against her potential adversaries. Aviation is an inseparable component of the combined arms team in the multi-domain battle concept due to its cross-domain fires and maneuver capabilities. It is also a critical enabler of recently acquired long-range weapon systems. Furthermore, aviation can mitigate the risks of UAV operations being a viable alternative for Intelligence, Surveillance, Target Acquisition, Recce (ISTAR), and Electronic Warfare (EW) missions. These conceptual foundations and exclusive capabilities provide a comprehensive roadmap for aviation in the days to come. An adequate quantity of attack and armed helicopters, tactical fixed-wing airlifters, and multi-mission sensor upgrades are priorities for the days ahead. This paper provides an insight into the ambiguity regarding aviation vis-à-vis its potential offset capability, including some applicable measures for 2030 and beyond.

Keywords: Aviation, superior adversary, offset capability, aerial support, force multiplier.

Introduction

The US-led coalition's strategy in the Gulf War 1991 is probably the most spectacular example of modern maneuver warfare. The synergized and synchronized orchestration of fourth-generation warfare elements functioned with clockwork precision in an incredible display of technology that has gone into the annals of world history. However, one of the least noted facts of this war is that the opening salvos were fired by the Army Aviation (AA) attack helicopters in

clearing the Iraqi impregnable Air Defence (AD) umbrella for the coalition air campaign to roll in¹. Previously in Vietnam, the US military rejuvenated AA and established it as one of the essential components of land power². In recent years, Bangladesh Army has realized the necessity of this organic vertical capability and is in the process of building her aviation as a robust combat-capable force multiplier.

Aviation is an integral component of war-fighting in the land domain. Since elements of land power operate primarily on land, the war-fighting considerations seldom address aviation academically and operationally in Bangladesh Army's context. In fact, a shroud of mystery covers the theoretical understanding of aviation and its application on the battlefield. Too often, it is thought to be an alternative and/ or duplication of airpower³, which is becoming a reality. As in any future war, Bangladesh Army is expected to fight against overwhelming odds; she will need some offset capability to deny the overwhelming advantages of her potential adversaries. Aviation offers an exclusive set of capabilities that Bangladesh Army can leverage against such adversaries to offset their overwhelming overmatch by tilting the balance of combat power. Achieving that will be possible through pragmatic planning for aviation capability enhancement and practical integration within the overall operational gamut by 2030 and beyond. In fact, one of the top modernization priorities of the US Army is aviation which substantiates the global trend of increased investment in aviation⁴. At this backdrop, decoding the mysteries that overshadow aviation and understanding its practical application is immensely pertinent today.

This paper is primarily intended for anyone who needs to solve the quiz of winning for land power in a multi-domain environment against overwhelming odds. And to do that, one needs to maximize the utilization of aviation as a potent component of land power. To facilitate that, initially, the paper will establish a theoretical and conceptual understanding of aviation and debunk a few myths that undermine its significance. After that, it will lay out how Bangladesh Army can leverage aviation capabilities to offset potential adversaries' overwhelming superiority. Finally, it will explore how aviation capabilities can be enhanced in a practicable manner up to and beyond 2030.

Conceptual Foundation

Defining Future Operational Environment. Defining the operational environment of a potential future conflict for Bangladesh (BD) is essential. BD may have to fight a numerically and technologically superior enemy, who will have superior fire and maneuver capability,

¹ King, Lt. Col. Jason A. (2019). US Army Aviation: Setting Conditions, Creating Effects across the Operational Framework in Large Scale Combat Operations. Large Scale Combat Operation: The Division Fights. US Army Command and General Staff College Press, US Army Combined Arms Center, Fort Leavenworth, Kansas. pp 125-126.

² Lepore, Herbert P. (1994). The Coming of Age: The Role of the Helicopter in the Vietnam War. Army History. Issue no. 29 (Winter 1994). U.S. Army Center of Military History. pp 29-36.

³ Hooker, R.D. Jr. (June 18, 2021). Make US Army Aviation More Lethal. Retrieved from: <https://www.defenseone.com/ideas/2021/06/make-us-army-aviation-more-lethal/174819/> [Accessed on 23 January 2022].

⁴ Army Modernization Strategy: Investing in Future, US Army, (2019). p 3.

potentially holding control of the air⁵. It is not conceivable that BD will be able to match her enemy's guns for guns, tanks for tanks, and air for air. Therefore, to deal with such overwhelming odds, BD desperately needs some capabilities to generate effects in exponential proportion compared to their apparent face value. The challenge is determining what capabilities can offer such a potential offsetting advantage.

Defining Offset Capability. Offset capability enables offsetting the existing balance of power or status quo within a system by tilting the balance in favour of the applicator⁶. The concept is very relevant in the field of warfare and the idea is not new. Offset strategy formed the core of the USA's approach to challenging Soviet Russia during the Cold War. During the 1950s, the US President Dwight Eisenhower invoked the first offset strategy using tactical nuclear weapons as an active deterrence to offset Soviet numerical superiority. Later on, the second offset strategy was long-range precision-guided weapons, stealth technology, and newer Command, Control, Communication, Intelligence, Surveillance, Target Acquisition, Recce (C3ISTAR) platforms⁷. The USA's 3rd offset strategy aimed to defeat China and Russia's Anti Access Area Denial (A2AD) weapon systems through developing Machine Learning, Artificial Intelligence, and Internet of Things (IoT) technologies⁸. Replicating the similar footstep, Bangladesh Army also needs to deny her adversaries' overwhelming numerical and technological superiority in firepower, armour, air, and space capabilities. Such capabilities would become Bangladesh Army's *Offset Capability*.

Aviation through Ends, Ways, and Means Concept. As a platform-based component of land power, the machines use to perform the missions are at the core of the aviation operation. However, that does not preclude aviation from the concept of ends, ways, and means⁹. The pillars in Figure 1 represent the aircraft/ helicopters' capability, while the globes represent their capacity. The ultimate objective or the 'End' for aviation is meeting the requirements of field formation laying across a sea of uncertainty or risk. Aviation uses the means (platforms) to perform various missions (ways) to meet the end. Aviation cannot achieve the desired 'end' if any platform lacks capabilities (speed, altitude, endurance, firepower, etc) or capacity (quantum of assistance required). Hence, the 'end' (field formations' requirements) must be considered in all cognitive processes concerning aviation.

⁵ Interview with Major General I K M Mostahsenul Baki, ndc, afwc, psc, Group Commander, Army Aviation Group and former Chief Instructor, Armed Forces War Course Wing of National Defence College, Mirpur on 12 February 2022.

⁶ "Define offset capability". Deputy Defense Secretary Robert Work speaking to Air Command and Staff College students about the Third Offset Strategy 28 May, 2016. Retrieved from YouTube.com: <https://www.youtube.com/watch?v=wA0epN0L1fc>, [Accessed 02 February, 2022].

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⁸ Gentile, Gian. Shurkin, Michael. Evans, Alexandra T. Gris , Michelle. Hvizda, Mark. Jens, Rebecca, (2021). "A History of the Third Offset, 2014–2018", RAND Corporation, Santa Monica, California. pp 35-36.

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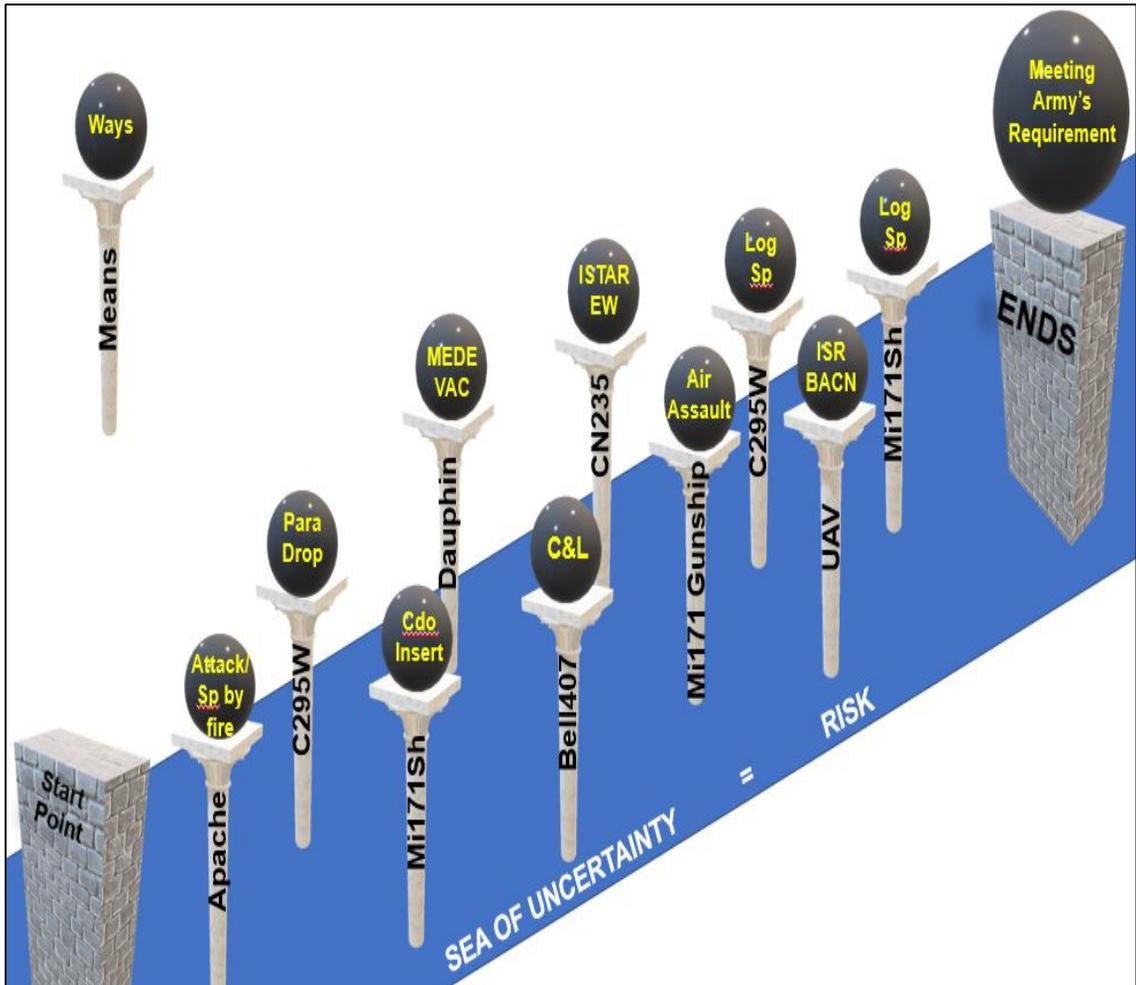


Figure 1: Aviation through Ends, Ways, and Means concept (Author's adaptation).

Aviation within Battlefield Operating Systems (BOS). All elements in the battlefield are assessed and viewed through the framework of BOS. Aviation is also considered as equally important element in the battlefield. Although the presence of aviation is not very pronounced within BOS¹⁰ or war-fighting functions¹¹, it does not mean that aviation is not nested within the BOS framework. A close introspection reveals that aviation exists in multiple BOSs by its versatility. It anchors in the realm of the maximum number of BOSs due to its inherent flexibility, speed, range, firepower, and survivability. Exploitation of aviation's wide-ranging capabilities allows the commander to achieve superiority in multiple BOSs. Figure 2 describes the omnipresence of aviation within the BOS framework with its wide-ranging capabilities.

¹⁰ GSTP 0032. (2006). Operations of War Volume One. Dhaka: Bangladesh Army SD Directorate. p 3-24.

¹¹ US Army ADP 3-0 Operations. (2017). p iv.

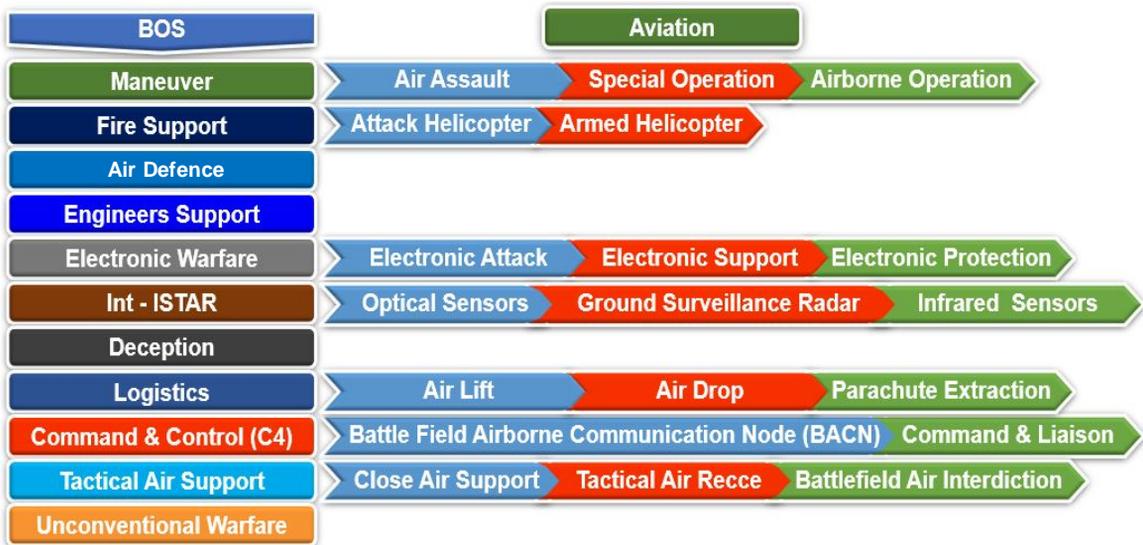


Figure 2: Aviation within BOS Framework (Author's construct)

Aviation as a True Force Multiplier. Asymmetric maneuver advantage through amplified reach, protection, lethality, and situational awareness provided by aviation in the vertical dimension and its close integration with the other arms of the army make aviation the ultimate force multiplier in the hands of the field commander¹². They are the extensions of land commanders' firepower, mobility, survivability, and sustainability. Moreover, aviation can deliver decisive combat power at critical times through various missions (direct fire, air assaults, directing artillery fires, C3ISTAR etc). Moreover, aviation's ability to overcome terrain friction provides mobility to the force for rapid application at a given point. Therefore, it shrinks battlespace by enabling greater reach and expands time by enabling rapid response and flexibility, making it a true force multiplier¹³.

Air Power vis-à-vis Aviation. The foremost truth about aviation is that it is not a part of airpower. Their distinction lies in the domain in which they fight. In the multidomain environment, aviation fights in the land domain as a component of land power, and airforce fights in the air domain¹⁴. Moreover, aviation is organic to the land forces and almost always deputed to the operational command level. In contrast, airpower follows centralized command and control philosophy rejecting any connotation of delegating control authority to the supported command¹⁵. Most importantly, primary mission of Air Force is to ensure AD of the nation's airspace, while supporting land forces is one of their *many* secondary missions. Despite operating the same

¹² US Army FM 3-04 Army Aviation. (April 2020). p 1-2.

¹³ King, Lt. Col. Jason A. (2019). US Army Aviation: Setting Conditions, Creating Effects across the Operational Framework in Large Scale Combat Operations. Large Scale Combat Operation: The Division Fights. US Army Command and General Staff College Press, US Army Combined Arms Center, Fort Leavenworth, Kansas. p 131.

¹⁴ US Army FM 1-100 Army Aviation Operations. (February 1997). p 1-3.

¹⁵ Draft Bangladesh Airforce Doctrine. (2014). pp 3-12, 4-4.

aircrafts, the intent of their operation is widely different. However, in no way it implies that the role of aviation and the Air Force is frictional or duplication. Instead, they are complementary to each other. Gulf War 1991 serves as a testament to their complementary employment.

Offset Opportunities in Targeting Cycle or Kill Chain. The ultimate aim of any military operation is to bring the enemy to the culmination point before the enemy does the same to his forces. For this reason, at the end of all Military Decision-Making Processes, the final product is the target list for engagement and producing desired effects. The secret of the efficacy of advanced militaries in the world (e.g. the USA, the UK, Israel etc) is their efficiency in target selection. How well a military can close his kill chain or targeting cycle and thwart the enemy's kill chain determines whether they will win or lose. Therefore, the aim is to get faster than the enemy to complete the targeting cycle or close the kill chain¹⁶. Through every cycle in the kill chain, the enemy will be brought closer to the culmination point through attrition and maneuver. As such, Bangladesh Army needs to adopt means and ways to close the kill chain faster. Mere acquiring more guns or tanks will not achieve that. The targeting cycle in Figure 3 shows the shooter's (weapons) involvement in only one step of the cycle¹⁷. Hence, Bangladesh Army may consider incorporating better sensors and sensor-to-shooter coupling to hasten her kill chain closure rate. And aviation is the most suitable platform to base these sensors, potentially offsetting the adversaries' overwhelming superiority.

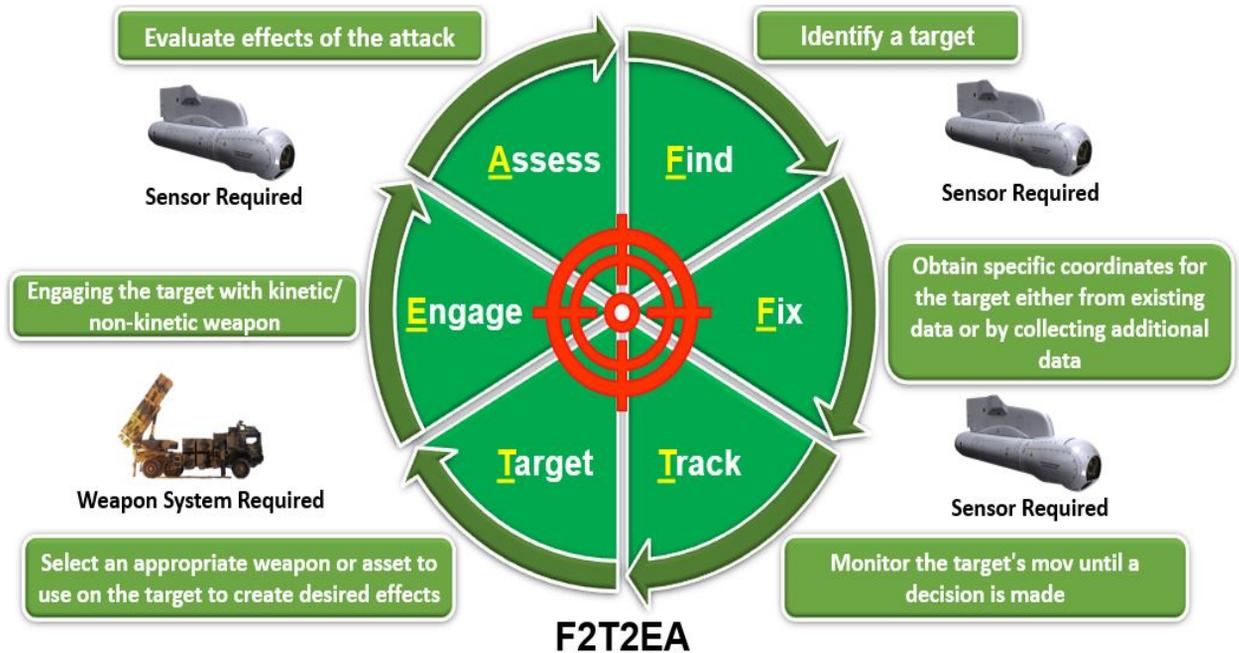


Figure 3: The Targeting Cycle or Kill Chain and associated capabilities (Author's adaptation).

¹⁶ Brose, Christian. (2020). *The Kill Chain: Defending America in the Future of High-Tech Warfare*. New York, NY: Hachette Books. p 17.

¹⁷ US Joint Targeting School Student Guide. Joint Targeting School, Virginia. (March 2017). p 153.

Imperatives of Attack Helicopter and Transport Aircraft for BD Army. Not so long ago, aviation was an alien capability to Bangladesh Army. Investing in other familiar technologies (e.g. Tanks, Artillery Guns, Missiles, Rockets, etc.) seemed more beneficial for the organisation. It is critical to remember that aviation is the army's '*organic*' air component and an inseparable element for maneuver operations (e.g. mechanized or Airborne (AB) operation). Attack helicopters are the cornerstone of modern mechanized maneuver warfare. Additionally, transport aircrafts are imperative for AB operations. The way the armored and mechanized units need their organic means of maneuver, the tanks and APCs, BD Army should also retain organic means of vertical maneuver¹⁸. Contrastingly, the Air Force is unlikely to delegate operational control of air assets to the army¹⁹. For example, the US Marine divisions received more support from their own Marine Air Wing during the Korean War than the US Army divisions received from the US Air Force²⁰. It validates that organic air assets (sufficient transport aircraft and attack helicopters) are imperative for meeting BD Army's air support requirements in a realistic manner.

Bangladesh Army Leveraging Aviation Capabilities

Multi-domain Battle. Gone are the days when "Air-Land" battle sufficed military forces to secure victory in battle²¹. In the "multi-domain battle" era, potential adversaries have steadily and steadfastly initiated investing in capabilities across all five domains i.e. land, maritime, air, cyber and information domain. Under such circumstances, it will not be possible for BD Armed Forces to dominate all of these interdependent domains all the time. Therefore, military forces will have to converge their domain-specific capabilities in time and space to create a limited window of domain supremacy and carry out decisive action²². For example, aviation can set the condition for the air domain to function effectively. Aviation can neutralize enemy's Integrated Air Defence Systems (IADS) by the kinetic attack of aviation delivered through Special Forces or attack helicopters, or by electronic attack (EA) of Special Electronic Mission Aircraft (SEMA) (Figure 4). As such, aviation is a practical enabler for all other domains to converge their capabilities in the time and space of a highly contested battlespace.

¹⁸ Interview with Brigadier General Md Saiful Alam Bhuiyan, psc, Commander, Para Commando Brigade on 26 February 2022.

¹⁹ Draft Bangladesh Airforce Doctrine. (2014). pp 3-12, 4-4.

²⁰ Hooker, R.D. Jr. (June 18, 2021). Make US Army Aviation More Lethal. Retrieved from: <https://www.defenseone.com/ideas/2021/06/make-us-army-aviation-more-lethal/174819/> [Accessed 30 January, 2022].

²¹ Milley, General Mark A. (2018). Foreword. TRADOC Pamphlet P525-3-1. The US Army in Multidomain Operations 2028. p i.

²² Wesley, Major General Eric J. (2017). Commanding General, Maneuver Center of Excellence while speaking at Association of The United States Army Seminar on Future of Movement and Maneuver 2017. Retrieved from YouTube.com: https://www.youtube.com/watch?v=QjAkjknQ_m0&list=PLdbqwk2rR2XIZ_WuarJTvO5nD0wt9ymcg&index=4 [Accessed 30 December 2021].

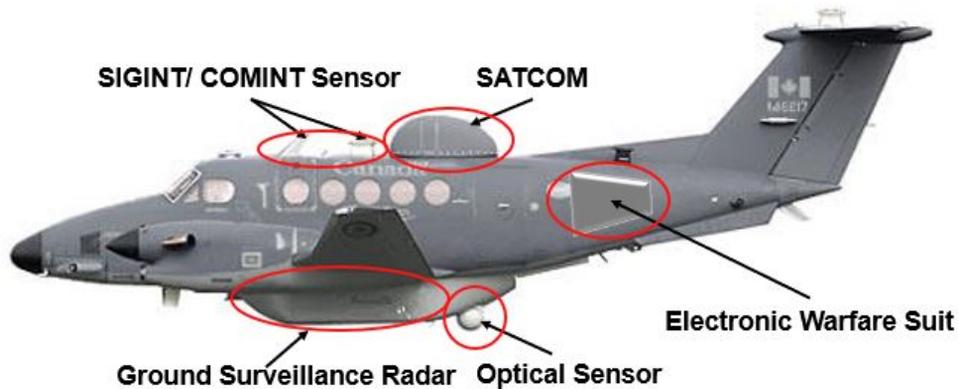


Figure 4: Example of Typical SEMA

Cross-Domain Maneuver and Fires. Aviation is well nested within the maneuver component of BOS and also has the unique ability to allow land forces to carry out cross-domain maneuvers²³. Air assault during amphibious operation is one such venue for aviation to allow land forces to maneuver across the maritime domain. In addition, aviation possesses the capability of cross-domain fires. Attack helicopters can fire short-range air to air missiles, thereby can engage aerial targets while being an element of the land domain. Their guided missiles are equally effective against maritime targets within engagement range. Furthermore, the SEMA can engage cyber and electronic domain targets by jamming. Therefore, aviation is a true cross-domain fire and maneuver tool which can influence threats in all other domains.

Operational Fires. Aviation can play a significant role in operational fires, both lethal and non-lethal, by its range, speed, payload, endurance, and armaments²⁴. Attack and armed helicopters with their Nap of Earth flying technique can reach the enemy's operational depth and deliver lethal fires with relative ease avoiding enemy AD bubble. In addition, EW aircrafts can disrupt, degrade, and neutralize enemy communication and target acquisition spectrum using non-lethal fires. Recently in Eastern Ukraine's Donbas region, an Ukrainian commander was killed by Russian-backed separatists in a dramatic combination of lethal and non-lethal fires. The Russian EW capable surveillance aircraft located the target's location by tracking his cell phone. An immediate artillery fire resulted in his killing²⁵. This incident proves that blending kinetic and non-kinetic weapon systems will be a common trend in the future battlefield, and Aviation will spearhead such a trend²⁶.

²³ Ibid.

²⁴ Maranian, Brigadier General Stephen J. (2017). Commandant of the Field Artillery Fires Center of Excellence Fort Sill while speaking at Association of The United States Army Seminar on Future of Movement and Maneuver. Retrieved from YouTube.com: https://www.youtube.com/watch?v=QjAkjkNQ_m0&list=PLdbqwk2rR2XIZ_WuarJTvO5nD0wt9ymcg&index=4 [Accessed 30 December 2021].

²⁵ Brose, Christian. (2020). *The Kill Chain: Defending America in the Future of High-Tech Warfare*. New York, NY: Hachette Books. p 46.

²⁶ Vego, Milan N. (2009). *Joint Operational Warfare: Theory and Practice*, U.S. Naval War College, Newport, Rhode Island. p VIII-60.

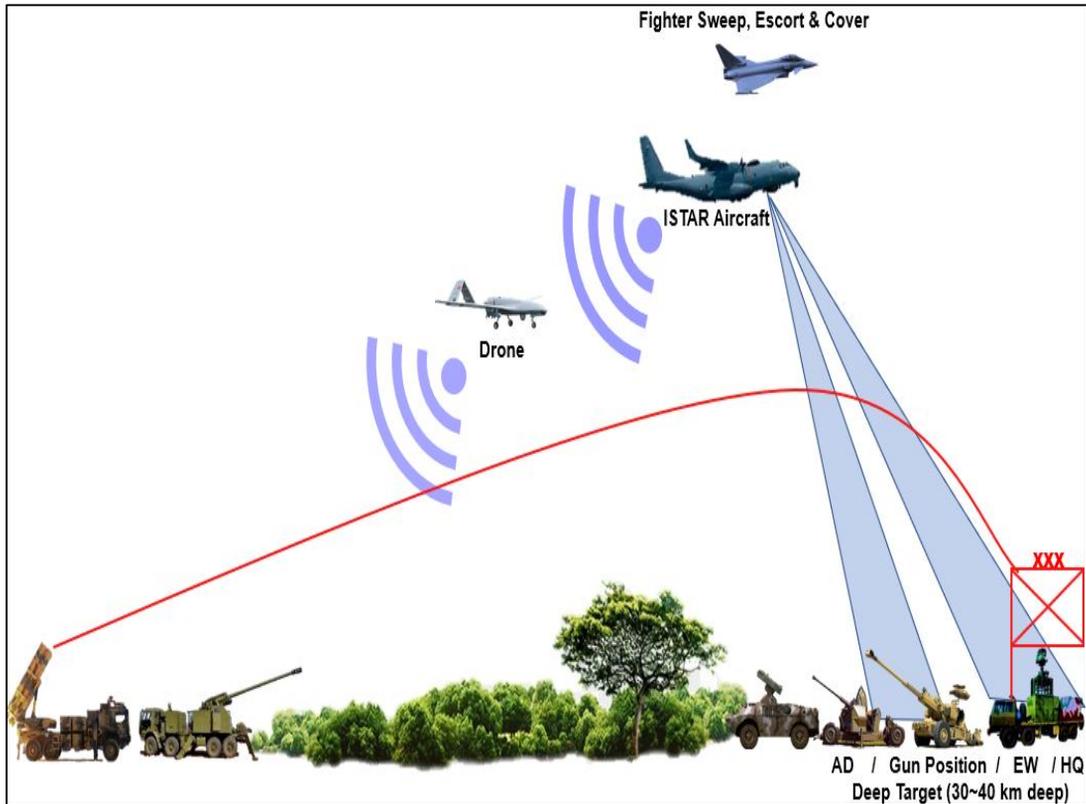


Figure 5: Typical engagement by lethal and non-lethal fire teaming.

Unmanned Aerial Vehicles (UAV) vis-à-vis Sensor Carrying Transport Aircraft.

UAVs have been highly successful in the recent conflicts in ISTAR and remote strike roles. But a quick analysis of their employment reveals that UAVs operated in mostly uncontested airspaces. The USA and her coalition in Iraq and Afghanistan retained complete control of the air and operated UAVs with absolute impunity and freedom of action. In contrast, Turkish drones suffered considerable attrition in the Syrian and Libyan conflict against Russian AD systems. In the Armenia–Azerbaijan conflict, the Azeris used Turkish and Israeli UAVs after creating a permissive AD situation²⁷. The Medium Altitude Long Endurance (MALE) UAVs (e.g. Turkish Byraktar TB-2, Chinese CH-4 etc) are unable to fly above 20,000 feet, which is roughly the Very Short-Range Air Defence (VSHORAD) assets' engagement range (5-6 km). Nowadays, front line troops use these VSHORAD assets as their organic AD. Therefore, such low-flying UAVs will be relegated to flying far behind the Forward Edge of Battle Area. Instead, fixed-wing turboprop and pressurized aircraft flying above 30,000 feet and carrying exactly similar sensor payloads of the UAVs can perform the same tasks staying above enemy VSHORAD range. Therefore, aviation manned platforms are more feasible than MALE UAVs in contested airspace.

²⁷ Gupta, Shekhar. (13 November 2020). The Print: Cut the Clutter. Episode 618. Retrieved from YouTube: https://www.youtube.com/watch?v=KDmDi_QN3kE&t=1024s [Accessed 22 December 2021].

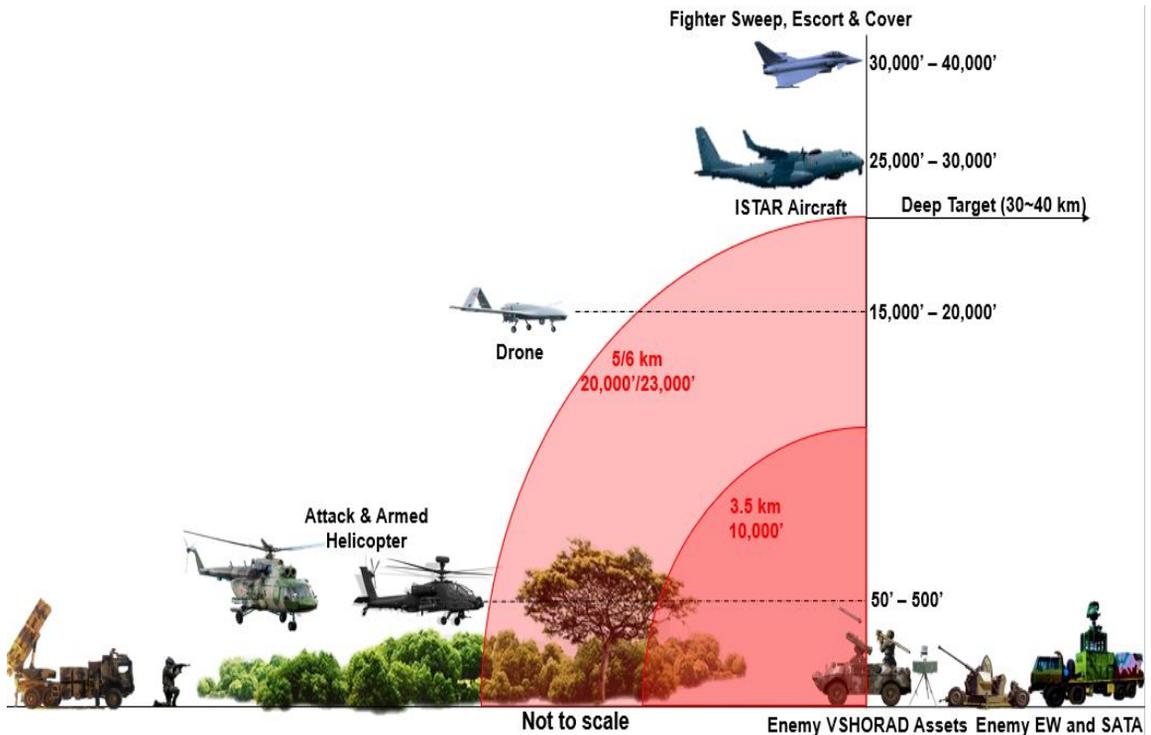


Figure 6: Aircraft operating altitude vs VSHORAD engagement range. (Author's construct)

Aviation in ISTAR Role. Previously, thinking about recce meant only gathering information about the enemy to provide reaction time and space to maneuver commander but now there is an electronic and cyber component of it²⁸. In addition, the land forces desperately need emitter surveillance capability, which can clear a lot of ambiguity about the enemy, including revealing his intentions. As forces today look to extend the battlefield deeper and want to kill the enemy at depth, they need to go beyond Intelligence, Surveillance, and Reconnaissance (ISR) to ISTAR. They need to acquire targets at depth with precision and use technology to route those targets to the systems that will engage them. Electro-optic (EO), electronic, and Ground Moving Target Indicator (GMTI) radar sensors function much more efficiently at higher altitudes because they are not limited to terrain masking. These sensors can be mounted on existing transport aircraft as add-on payload upgrades while the platform retains its original mission-performing capability and becomes multi-mission aircraft. These attributes make aviation the most viable platform for ISTAR sensors.

²⁸ Gayler, Major General William K. (2017). Commanding General of the U.S. Army Aviation Center of Excellence while speaking at Association of The United States Army Seminar on Future of Movement and Maneuver 2017. Retrieved from YouTube.com: https://www.youtube.com/watch?v=QjAkjknQ_m0&list=PLdbqwk2rR2XIZ_WuarJTvO5nD0wt9ymcg&index=4 [Accessed 30 December 2021].



Figure 7: Typical C3ISTAR and EW aircraft modifications on transport aircraft

Aviation for Electronic Intelligence (ELINT) and Battlefield Airborne Communication Node (BACN).

Electromagnetic spectrum (EMS) holds the keys to operational success today. As more and more battlefield elements join the spectrum, it has become imperative to gain and retain effective control over it and deny enemy the same. The force claiming better control over the EMS will enjoy the freedom of action gained through information dominance resulting in decision dominance²⁹. Ground-based electronic sensors are usually cumbersome and require much energy to overcome the terrain masking. On the contrary, airborne sensors are exponentially lighter, smaller, and less power-hungry, as their performance is not limited by terrain. As of now, modern militaries are increasingly investing in technologies that can target EMS³⁰. Hence, it is essential to create robust redundancy in BD Army's communication capability. Since the EW capability primarily targets ground-based communication facilities, it will be prudent to use BACN onboard aviation aircrafts or UAVs (Figure 4). Thus, aviation becomes a suitable platform to leverage ELINT and BACN capability.

Aviation in Enabling Long Range (LR) Fire Assets. BD Army has recently acquired LR advanced rocket artillery systems. For the first time, the operation level commanders can now engage targets up to the Battlefield Air Interdiction (BAI) range, which was previously possible by only the Air Force. In today's hyperactive battlefield, enemy elements within BAI range can influence the close battle area much faster than before. Therefore, such LR weapons are mission-critical at the operational level. It is a matter of concern that, maximum range of these weapons cannot be exploited due to lack of matching target acquisition capability. As Air Force does not possess necessary targeting sensors at present, the Tactical Air Recce (TAR) cannot provide targeting data to the LR fire assets. Moreover, Air Force's photo and visual recce aircraft must return to the base for the image analysis. Thus, it is no longer relevant when the target data reaches the weapon systems. Therefore, adequate matching target acquisition sensors are imperative to exploit these LR assets' maximum ranges. Again, aviation has the perfect platforms that are most suitable to accomplish this mission (See Figure 4).

²⁹ Ryder, Chief Warrant Officer 4 Robert M. (2021). Domain Awareness Superiority Is the Future of Military Intelligence, U.S. Army Reserve, Military Review November-December 2021. p 69.

³⁰ Gopal, Lieutenant Colonel Vivek. (28 June 2021) Electronic Warfare Capability: Establishment of Spectrum Warfare Wing and Roadmap for India. Retrieved from <https://www.claws.in/publication/electronic-warfare-capability-establishment-of-spectrum-warfare-wing-and-roadmap-for-india/> [Accessed 15 January 2022].

Roadmap Beyond 2030 for Bangladesh Army Aviation

Attack and Armed Helicopters. Attack and armed helicopters provide the ultimate ability to the operational level commander to reach and strike deep into the enemy's rear. These platforms can create chaos and panic in the enemy's operational environment and disintegrate the coherence of his forces. With their low flying capability, the attack helicopters can bypass enemy resistance and target the High Value Targets (HVT) and the High Pay Off Targets (HPT) and hasten his collapse. The flexibility offered by fast and low-flying attack helicopters allows simultaneous vectoring of multiple threats at the enemy. Moreover, armed helicopters can provide fire support during any operation. Such event saturation can clog the enemy's decision cycle and shatter his sense of superiority. Therefore, acquiring at least two regiments (12x helicopters each) of attack helicopters (AH-64E Apache, AH-1Z Cobra etc) for geographically stationing may be considered a priority for Bangladesh Army.

Balancing Fixed Wing and Rotary Wing Platforms. It has been explained already that aviation does not only constitute helicopters. Fixed-wing aircraft can perform many essential roles more efficiently due to their flexibility, payload, altitude, and endurance. As such, referring to other countries' practice of helicopters only aviation is nothing but binary and/ or linear thinking³¹. Instead, Bangladesh Army should consider the reality of the state of jointness in the context of BD and equip her aviation with all the necessary platforms to accomplish her mission. On the other hand, the practicality of using fixed-wing aircraft instead of MALE UAVs should also be judged. Therefore, to build a balanced and capable fleet, Bangladesh Army Aviation may consider acquiring tactical airlift capable (20 Ton and below; e.g. C-130J) multi-mission aircraft to offer the operational level commanders the direly needed offset capability.

Meeting Air-lift Capability Requirement. Adequate air-lift capability is a critical enabler for the AB forces (Commandos and Para Infantry). AB forces are not only essential for maneuver, but they also have significant deterrence value. Even a few platoons of airborne infantry, para-dropped behind enemy lines by aviation aircraft, can wreak havoc. AB forces are not effective as deterrent force unless they have adequate (at least one battalion at a time) organic airlift capability. As historically evident, even in advanced militaries, organic aviation assets provide far greater support than non-organic air assets³². Furthermore, the Air Force's rigid rejection of delegating control authority of their aircraft further validates Bangladesh Army's need to acquire sufficiently capable (at least one platoon of paratroopers) transport aircraft. Moreover, transport aircraft (e.g. C-130J) can also move men and materials to and from UN mission areas. Hence, Bangladesh Army Aviation may consider acquiring 8 (eight) to 10 (ten) fixed-wing tactical transport aircraft (20 Ton and below; e.g. C-130J) to enable AB forces to be effective in combat.

³¹ Pietrucha, Mike. (9 December 2019). Slaying the Unicorn: The Army and Fixed-Wing Attack. Retrieved from <https://warontherocks.com/2019/12/slaying-the-unicorn-the-army-and-fixed-wing-attack/> [Accessed 11 February 2022].

³² Hooker, R.D. Jr. (June 18, 2021). Make US Army Aviation More Lethal. Retrieved from: <https://www.defenseone.com/ideas/2021/06/make-us-army-aviation-more-lethal/174819/> [Accessed 30 January, 2022].

Manned Unmanned Teaming (MUM-T) Concept. Militaries around the world are rushing to acquire UAV technology en masse. BD is also not away from this endeavour. Bangladesh Army has small UAVs with limited ISR capability. However, the recent procurement drive aims to acquire MALE UAVs (e.g. Turkish Byrakter TB-2, FALCO etc). Due to their operating altitude limitations, these machines will be relegated to flying away from the enemy VSHORAD range. Furthermore, UAV data link with the ground station is susceptible to enemy jamming. Under such circumstances, aviation aircrafts (C-130J, CASA 295W, Kingair etc) are the most suitable platforms to control these UAVs and overcome their limitations. Thus, it will be possible to offset the enemy's electronic countermeasures (ECM) by either flying high (out of enemy jamming range) or flying low (masked by terrain). Adopting such teaming (MUM-T concept) is practicable because of aviation's unique versatility³³.

Acquiring Aircraft of Open Architecture Design. The development cycle of technology has shortened incredibly in recent years. The validity of a particular technology is short-lived than it was ever before. Nowhere it is more accurate than aviation. Every few years, newer technologies are completely replacing the older technologies. Therefore, it is imperative to acquire aircraft designed with open architecture philosophy to remain technology-wise relevant for a considerable period. Aircrafts need to be upgradable incrementally with ease as and when newer technology arrives. Such an approach for the acquisition will reduce the lifecycle cost for aviation.

Capacity Expansion Options for Aviation. The expansion of aviation is really an expensive affair. The foremost predicament in expanding aviation's capacity is the aircraft procurement's prohibitive cost. As such, exploring opportunities that permit expansion at an acceptable cost is necessary. Bangladesh Air Force (BAF) uses the concept of 'acquisition' rather than 'procurement'. For instance, the USA usually donates its Excess Military Articles (EMA) to friendly and partner countries under Foreign Military Assistance (FMA) programs. In 2001 the USA donated four C130B aircraft to BAF³⁴. These aircrafts have performed extraordinarily in BD and UN missions and are expected to fly for several years more. Moreover, BAF also received their T-37 'Tweet' jet trainers through a similar arrangement. Recently, Croatia and Tunisia acquired OH-58D Kiowa Scout/ Light attack helicopters³⁵, and Nepal Army Air Corps received C145A transport aircrafts³⁶ as FMA. The USA still has a vast number of suitable aircrafts which may be used effectively by Bangladesh Army Aviation for a considerable amount of time. Therefore, such military-diplomatic cooperation may significantly reduce the prohibitive cost of aviation expansion.

³³ US Army FM 3-04 Army Aviation. (April 2020). p 1-3.

³⁴ Interview with Group Captain Md Monirul Islam, BPP, psc, Engg, OC maintenance BAF Base Bashar on 12 February 2022.

³⁵ Carey, Bill. (6 June 2016). Croatia, Tunisia First To Receive U.S. Kiowa Warriors. Retrieved from <https://www.ainonline.com/aviation-news/defense/2016-06-06/croatia-tunisia-first-receive-us-kiowa-warriors> [Accessed on 19 January 2022]

³⁶ Jennings, Gareth. (4 March 2019). Nepal to receive M28 tactical airlifters from United States. Retrieved from: <https://www.janes.com/defence-news/news-detail/nepal-to-receive-m28-tactical-airlifters-from-united-states> [Accessed on 19 January 2022].



Figure 8: USA donated aircrafts to Croatia (1), Nepal (2), and BAF (3, 4).

Conclusion

The world of warfare is going through its 5th generational iteration. The battlefield today is highly chaotic, fast-paced, and lethal. Although aviation is a significant component of land power, there is a shroud of mystery about its integration in operation in BD Army's context. Therefore, it is essential to gain a shared theoretical understanding of BD's operational environment as a precursor. The apparent overwhelming superiority of BD's potential adversaries cannot be overturned without an offset capability. Analysis of the targeting cycle led to discovering those direly needed capabilities; sensors and sensor-shooter coupling. It is clear that aviation is a suitable component that can be exploited to deny adversaries the superiority they have grown. Furthermore, validation through the concept of ends, ways, and means provides ample visualization of aviation's objectives and goals. In addition, aviation's subtle nesting within the BOS framework makes it a force multiplier in the literal and practical sense.

The multi-domain battle concept postulates the primacy of no single domain in accomplishing the ultimate strategic military objective. But a realist would agree that the final victory or defeat is consolidated and manifested in the land domain. In such circumstances, aviation is a historically leveraging tool to set conditions for other domains to be effective. Aviation can deliver cross-domain fires and mobilize maneuver forces across other domains with unmatched versatility. In addition, aviation is the lynchpin in the operational fires for the land commander. The paper has also settled the inflated reputation of UAVs being the solution to all war-fighting puzzles. Other phenomenal contributions that aviation can render in today's battlefield are in the form of ISTAR and ELINT, enabling faster closure of the kill chain. Besides, being the critical enabler for

the recently acquired LR fire support systems, aviation offers additional redundancy to the communication system by surviving it in a contested EMS environment.

Finally, the prospective road ahead for Bangladesh Army Aviation requires visualization. Attack and armed helicopters can become operational commanders' tip of the spear in delivering lethal firepower and maneuver. Adequate fixed-wing airlift capability not only adds deterrence value, it is practical from the UN mission employment potential as well. Last but not the least, the direly needed rapid expansion of aviation can be possible through acquiring assets from friendly countries. With this effort, Bangladesh Army can finally hope to bridge her identifiable capability gaps, accelerate her kill chain, and dismantle her potential adversaries' perceived superiority.

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