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Message from the Chief Patron

It is a pleasure to see that *Mirpur Papers*, Volume-28, Issue-32 the internationally recognized research journal of Defence Services Command and Staff College (DSCSC), Bangladesh has seen the light of the day. This publication reflects the academic acumen and research aptitude of the course participants and faculty members of DSCSC. The research-based writings of the contributors focus on a broad spectrum of national, international and professional related topics.

What forms the striking feature of this particular Issue is that the DSCSC course participants and faculty have contributed insightful articles which have food for thought for the emerging researchers.

To be precise, through wide-ranging rich-in-content research writings this journal has assumed the level of a standard quality publication. I have the firm conviction that the analytical and informative write-ups will prove beneficial to the readers, researchers and analysts.

Last but not the least, I take this opportunity to warmly congratulate and commend the Editorial Board, contributors, reviewers and all those who in one way or other have ensured the smooth publishing of this professional journal of DSCSC.

Major General Ibne Fazal Shayekhuzzaman
BSP (BAR), SGP, afwc, psc
Commandant
Defence Services Command and Staff College

EDITORIAL

The annual professional research journal of Defence Services Command and Staff College (DSCSC), Mirpur, Bangladesh has been published this year also. This publication has included the research-based articles of the course participants of Staff College, session 2021-22 as well as the faculty members of DSCSC. Vol 28 Issue No. 32 of *Mirpur Papers* contains 15 articles encompassing diverse topics.

The first article discusses various requirements for leadership in the Army and analyzes the traits of direct level leaders. The contributor asserts that the direct level leaders must build oneself with a sound image, requisite knowledge and proper conduct. It is further emphasized that in order to become effective leaders the officers ought to inculcate required habits and practices, manners and demeanors.

The 2nd article discusses about Hybrid Warfare (HBW) which has become the ‘New Orthodoxy’ in military through popularizing by the western media. The article emphasizes that Bangladesh Army should be aptly prepared to consider such threats by developing a comprehensive strategy. HBW presents both threat and opportunity for Bangladesh. In this context Bangladesh Army has to pursue a proactive deterrence HBW strategy to safeguard national interests.

The 3rd article is about the application of smart power in combating Non-Traditional Security Threats (NST) in the Bay of Bengal (BoB) from the perspective of Bangladesh Navy. It highlights the development of both smart power and hard power to combat NST in the BoB through collaborative approach with neighbouring navies. The paper also stresses upon strict compliance of maritime laws by Bangladesh Navy.

In the 4th paper the writer highlight the role of Bangladesh Air Force in the requirement of a centralized approach for efficient counter-drone capability. This research has found that Bangladesh is not adequately prepared to counter drones which pose substantial threat to security environment of Bangladesh. It has thus stressed upon developing effective employment of a suitable and centralized counter drone system for Bangladesh.

In the 5th article the author has highlighted the importance of preserving officers’ personal data with adequate care, and emphasized that this process has become intricate in the present day context. It stresses upon adopting an Integrated Officers’ Database System (IODS) for proper profile management by officers. For this purpose developing a cyber-team and improving the network information of Officers’ Database System is the required measures.

Essentially co-related to Army officers’ profession, the 6th article provides a vivid view of how the career of Bangladesh Army officers progresses. It shows that organizational requirements are the prime criterion of officers’ promotion and smooth career progression is a systematic dynamic process. The author points out how the situation has become complex with the introduction of 3 years academic training of the officers in the Bangladesh Army. The paper also evaluates the present trend of mid-level officers’ promotion and qualification and identifies few critical impediments out of many.

Overseas course participant from India has in the 7th write up dwelt upon the growth of Iran-China relations in recent times and the impact on India's regional security and bilateral relations with Iran. It focuses on the geostrategic importance of Iran and shows how India becomes an important investor in various investment project of Iran. It also shows China's interests in Iran as reflected in the 25-year Cooperation Agreement between the two countries signed on 27 March 2021. The researcher focuses on the mutual dependency on Iran-China relations which is the main ingredient of these growing relations. The author hints that India needs to rework its relations with its neighbours in South Asia and the Gulf region.

The 8th article discusses the rise of Sub-Conventional Wars (SCW) and highlights the need for revisiting the training focus of Bangladesh Army. The researcher argues that proper SCW doctrine combined with balanced training module can help in progressively developing the operational capability of Bangladesh Army. For both deterrence and decisive outcome in warfare a well-trained, highly disciplined motivated Army is the need of the time.

The theme of the next write up is about Artificial Intelligence (AI) which has brought sweeping changes in world history. AI has enabled technology to take a giant leap forward for incorporating innovation in every sphere—commercial or military. These stresses upon the ethical concern involved with its maximum military use. In particular, the paper provides an insight on how AI is reshaping global balance of power.

The author of the 10th writing has focused on the point that most of defence procurement is still dependent on foreign sources which has an adverse impact on extensive military industrialization. The researcher underscores the need to develop indigenous defence sector for self-sufficiency and in order to achieve it the Offset Policy has to be introduced whose salient feature is to take initiative to promote local military products by branding and creating a worldwide market through diplomatic efforts.

The next article identifies the potential of Blended Training to enhance the training effectiveness of Officers' Basic Course (OBC). The researcher focuses on the alarming trend that there is no noticeable effort in Bangladesh Army to change the outdated Method of Instruction (MOI) and strongly suggests the need of encompassing new Techniques, Tactics and Procedures (TTP) into the syllabus to meet the organizational goals in the context of fast-changing times.

The 12th writing discusses training on offensive operations in Built Up Area (BUA) from the perspective of Bangladesh. The researcher points out that future battlefield will be influenced by sophistication, technology, complexity and multidimensional BUA. Urban terrain makes manoeuvre difficult. There are also shortcomings of existing training system in the field of BUA. Remedial measures have been suggested which include both individual and group training beginning from unit to formation level.

In the 13th article, the author reflects on Operation Iraqi Freedom vis-à-vis operational art during the major combat operation phase which lasted from 20 March 2003 to 14 April 2003. The commanders of major operation visualized the end at the beginning and thus it

took only 3 months to complete the preparation. Unlike Operation Desert Shield the coalition force surprised the Iraqi force by launching the air and ground offensive simultaneously. The senior military leadership deserves credit for that. However, the lack of fighting from Iraqi side has slightly undermined the operational art of coalition forces.

The 14th article is on Air Defence (AD) which has assumed a greater dimension in the battlefield and specifically highlight that neither Bangladesh Air Force (BAF) nor the Bangladesh Army is adequately organized and equipped to provide effective AD. It argues about the logic as to why Bangladesh Army Air Defence Artillery must possess Low to Medium Altitude Air Defence (LOMAD) and High to Medium Altitude Air Defence (HIMAD) Missiles though there are budget limitations and resource-constraints.

The 15th article is about the dependence on cyberspace in a digital society. It points out how malicious activities of cybercriminals are becoming major concern for digitalized Bangladesh. The author suggests that the concept of cyber-deterrence may be incorporated in the National Cybersecurity Strategy of Bangladesh for which cost-benefit analysis has to be conducted.

Contents

‘Be-Know-Do’ Leadership Requirement Model: A Plausible Way to Become Better Leader at Direct Level Colonel Shams Muhammad Mamun, psc	1-15
Hybrid Warfare: Pursuit of a Comprehensive Strategy for Bangladesh Army Lieutenant Colonel Md Saifullah, SGP, afwc, psc, G+	16-31
Application of Smart Power in Combating Non-Traditional Security Threats in the Bay of Bengal: Bangladesh Navy Perspective Lieutenant Commander Md. Farid Uz Zaman, (TAS), psc, BN	32-44
Requirement of a Centralized Approach for Efficient Counter-Drone Capability: Role of BAF Wing Commander Ashiqur Rahman Mallick, psc	45-60
The Conundrum of Officers’ Profile Management in Bangladesh Army and Necessity of Introducing ‘Integrated Officers’ Database System’ (IODS) Major Md Junaed Zakir, psc, Signals	61-81
Career Progression of Officers in Bangladesh Army: Divergence and Ways Ahead Major Badrul Alam Bulbul, psc, Infantry	82-102
Rise in Iran-China Relations and its Impact on India’s Regional Security and Relations with Iran Major Nitish Tyagi, SM, psc, Indian Army	103-120
Rise of Sub-Conventional Wars: Need for Revisiting the Training Focus of Bangladesh Army Colonel Md Syeedur Rahman, afwc, psc	121-136
Artificial Intelligence: Global Approach in the Wake of Shifting Balance of Power Lieutenant Colonel Mir Kamrul Hasan, psc, G	137-146

Contents

Introduction of Offset Policy in Defence Procurement to Foster Indigenous Defence Sector of Bangladesh: Opportunities and Road Map for Self Reliance Commander S M Tanvir Sin Ard, (L), psc, BN	14-162
Implementation of Blended Training to Enhance the Training Effectiveness of Officers' Basic Course: An Approach to Acclimatize the Future Leaders with the Emerging Trend Major Mohammad Mazidul Haque Reza, psc, G, Artillery	163-177
Training on Offensive Operations in Built Up Areas- Bangladesh Perspective Colonel Sohel Uddin Pathan, PBGM, PBGMS, psc	178-190
Operational Art During the Major Combat Operations (MCO) Phase of Operation Iraqi Freedom (OIF) Colonel Md Mafizul Islam Rashed, afwc, psc	191-199
Requirement of Lomad and Himad Missile for Bangladesh Army: Suitable Options for Induction Lieutenant Colonel Tanveer Ahmed, psc, G+	200-215
The Vulnerability of Today's Cyberspace: An Evaluation on Cybersecurity Preparedness and Strategy Options for Bangladesh Wing Commander Md Mahbub Ur Rahman, acsc, psc, GD(P)	216-230

**‘BE-KNOW-DO’ LEADERSHIP REQUIREMENT MODEL:
A PLAUSIBLE WAY TO BECOME BETTER LEADER AT DIRECT LEVEL**

Colonel Shams Muhammad Mamun, psc

Abstract

An Army leader is anyone who by virtue of assumed role or assigned responsibility inspires and influences people to accomplish organizational goals. There are three levels of Army leadership: direct, organizational, and strategic. Direct leadership is face-to-face or first-line leadership. It mostly occurs in organizations where subordinates are accustomed to seeing their leader at all time: sections, platoons, companies, batteries, squadrons, and battalions fall under this category. A correct set of ‘BE-KNOW-DO’ is always the enduring path leading someone to be a better leader. The development of a direct level leader begins with ‘BE’ – denoting the values and attributes that shape his character. He should be a leader with balanced character, professional appearance and sound intelligence. Next thing is what he must ‘KNOW’ – his roles and responsibilities, his environment and men, tactics and procedures to manage his men and resources to accomplish assigned missions. Final aspect of a direct leader is what he must ‘DO’ – the application of his character and knowledge while accomplishing organizational goals. He must set clear goals, communicate effectively, project loyalty and achieve results. As direct leaders have the direct command of troops, they deliver results by influencing under command on ground, and orchestrate the foundation of victory for the Army; it is of utmost importance to prepare them well. A sound knowledge on what they must BE (character), what they must KNOW (knowledge) and what they must DO (conduct) shall offer them some guidance to inculcate required habits and practices to be effective leaders in future.

Introduction

The word ‘Leader’ means a person who leads or commands a group, organization, or country.¹ An Army leader is a person who by virtue of assumed role or assigned responsibility inspires and influences people to accomplish organizational goals. Army leaders motivate people both inside and outside the chain of command to pursue action, focus thinking, and shape decisions for the greater good of the organization.² There are three levels of Army leadership: direct, organizational, and strategic. Direct leadership is face-to-face or first-line leadership. It mostly occurs in organizations where subordinates are accustomed to see their leaders at all times: sections, platoons, companies, batteries, squadrons, and battalions fall under this category.³

Direct leaders generally experience more certainty, less complexity and less fluidity than organizational and strategic leaders. Hence, becoming a better leader at direct level is seemingly easier and definitive. But the question is how? Leadership growth may well be initiated through the universally accepted simple model: ‘BE-KNOW-DO’,⁴ The development of a direct level leader begins with ‘BE’ – what he must be to become a leader, denoting the values and attributes that shape his character. The next thing is what

he must ‘KNOW’ – his roles and responsibilities; his environment and men; techniques, tactics and procedures to manage his men and resources to accomplish assigned missions. The final aspect of a leader is what he must ‘DO’ – his conduct and handling, the application of his character and knowledge while accomplishing organizational goals.

In this era of information overload, there is no dearth of knowledge on leadership styles and traits. In this ocean of wisdom, finding fitting information is difficult, if not impossible for direct leaders. Some information may even appear confusing and irrelevant at times to the specific military environment and level. However, there are few crucial factors that need to be understood, considered, and applied to become effective direct leaders (battalion commander and below). These factors may not be exhaustive, and surely be debated, but they might be adequate to assist direct level commanders to grow as better leaders. The paper is written considering mid-level officers as the audience, hence company/squadron/battery and unit/battalion/regiment level leadership requirements are more emphasised.

Aim

The aim of this article is to discuss critical factors concerning the character, knowledge and conduct of direct level leaders with a view to assisting them in becoming better leaders.

What Direct Leaders Must ‘BE’

Leader of Character

The essence of great leadership is the influence, not authority.⁵ A character built on honesty, integrity, wisdom, empathy and values can truly affect influence over others. Again, leadership is not a position or title, rather it is an action and example. The position gives the much-needed authority to command, but it does not guarantee spontaneity from under-commands. That’s why building a balanced character is crucial to successful leadership. It helps leaders to differentiate between right and wrong. Character also determines who leaders are and how they act. Army values, empathy and warrior ethos shall build the core of a leader’s character.

a. **Army Values:** Bangladesh Army demands all its members to develop and practice a specific set of values. They consist of the principles, standards and qualities considered essential for successful Army leaders. ‘Bangladesh Army Values’ include Honour and Pride, Honesty and Integrity, Loyalty, Patriotism, Trust and Faith, Respect, Justness, Service before Self, Courage and Comradeship.⁶ They are fundamental to help soldiers, both leaders and led, make the right decision in any situation. These values resolutely bind all members into a fellowship dedicated to serve the nation and the organization.⁷ So, a leader shall develop those values in him and ensure his men possess the same.

b. **Empathy:** Empathy is the propensity/ability to see something from another person’s point of view, to be able to understand another person’s feelings and

emotions. It enables the Army leader to better care for soldiers and their families. Former U.S. Chairman of the Joint Chiefs of Staff General Martin Dempsey observes, “Effective Leaders have a sense of empathy. They listen. In listening they learn. In learning, they become empathetic.”⁸ Like other critical skills, leaders can grow in empathy as they practice it. The direct level leaders must not confuse empathy with ‘going soft’. The goal is to learn what motivates a person or group. Retired U.S. Army General Stanley McChrystal explained, “Empathy is not sympathy. It doesn’t mean that you rub (your soldiers’) bellies and ask them how they feel every morning. What it means is that you can see (the situation) through their eyes.”⁹ While sincere concern and compassion may occur as a by-product, empathy is about gaining understanding, not generating personal feelings.¹⁰ While planning and deciding a direct leader shall always try to envision the impact of that decision on soldiers. Empathetic Army leaders share the hardships with their people to gauge if their plans and decisions are realistic.

c. **Warrior Ethos:** It refers to the professional attitudes and beliefs that characterize all Army soldiers. It echoes through the precepts of the code of conduct and reflects a soldier’s selfless commitment to the country, culture, constitution, army, mission and fellow soldiers.¹¹ Bangladesh Army has developed and published a set of seven ethos which are as follows:¹²

- (1) I am a proud soldier of Bangladesh Army.
- (2) I shall uphold the spirit of our liberation war and the values of the constitution at all times.
- (3) I love my country and ready to make supreme sacrifices to defend her and the constitution.
- (4) I have firm faith in Creator and shall lead a life of honesty, integrity.
- (5) I shall preserve the culture, heritage and traditions of my country and live in accordance with the army values.
- (6) I am a disciplined and trained professional and know my job well to defeat the enemy of my country.
- (7) I shall uphold the honour of my army and the nation at all cost.

The direct level leaders should develop and practice ethos within themselves and ensure the same in their men through discipline, commitment to the ‘Army Values.’ and pride in the Army’s traditions and heritage.

d. **Other Factors:** The direct leaders must be faithful to the under-commands. They must not fake his character, emotion or passion, which when revealed may create permanent mistrust between the leader and the led. Direct leaders must demonstrate positivity no matter what the challenges and odds he or she is facing at a

particular time. They also should be decisive instead of second-guessing on a decision made. For that, they should gather prior information, listen to a range of opinions, and have constructive arguments.¹³

Diagram 1: Components of “What Direct Leaders Must ‘BE’



Source: Author's self-construct

Leader with Presence – ‘Appearance’

By definition, direct level leaders are expected to be around subordinates. But, presence does not mean showing up only, rather it involves the image that leaders project and convey through appearance, demeanour, actions, and words. The leaders' image on his subordinates significantly contributes to the success in leading them. Appearance is a critical aspect of leadership. Thereby, all direct leaders must understand the issues contributing in shaping their image.

a. **Military Bearing:** It implies a possession of impressive presence and projecting a professional image of authority. Pride in self starts with pride in appearance. Army leaders are expected to look and act like professionals. They must know and execute the prescribed dress codes for all events and beyond. Direct leaders must wear uniforms and other dresses appropriately with care and do so with pride. Dull uniform or improper civvies inversely contributes to the leaders' image. Leaders' appearance gives a clear signal on how proud they are of their uniform and organization.

b. **Physical Fitness:** This is one of the most desired traits in direct leaders. At this level, leaders are expected to lead their men from the front, endure and share physical hardship with subordinates, and demonstrate the ways forward to accomplish any task or mission. Hence, the fitness is some undeniable feature direct leaders must possess. Fitness means having sound health, strength, and endurance, which sustain

emotional health and conceptual abilities under prolonged stress. Leaders with physical fitness feel competent, project confidence, handles stress better, work longer and recover faster. Fitness also supports cognitive stability and emotional balance, both essential for sound leadership.

c. **Confidence:** Confidence is the faith on own ability to conduct properly in a situation, even under stress and with little information. Direct leaders shall project self-confidence and also in the unit's/team's ability to succeed in whatever it does. Self-confidence in leaders grows from professional competencies. A confident leader can demonstrate composure through emotional control in a trying situation. The confidence in a good leader is contagious and quickly permeates through the entire team, especially in a dire situation.¹⁴

d. **Resilience:** It means the capacity to recover quickly from difficulties.¹⁵ For the military, resilience is showing the tendency to recover quickly from setbacks, injuries, adversity or stress while accomplishing a mission or organizational goal. Resilience is critical while pursuing a mission/task in an adverse situation and time when giving up is the easier option than finishing it. The resilience in leader rests on their will to fight, inner drive to keep going even when they are exhausted. Direct leaders must inculcate resilience in them and in their subordinates.

Leader with Intellect

Direct leaders must be commanders with the corresponding level of intelligence. Leader's intelligence may be defined as the psychological propensities and intellectual resources that shape conceptual abilities and are applied to one's duties and responsibilities. Conceptual abilities enable sound judgement, before implementing concepts and plans. They assist the leaders to think creatively and reason logically, critically, ethically, and analytically. Few conceptual components of intellect, suitable for direct level leaders, are explained subsequently.

a. **Agility:** Agility is the flexibility of mind, a tendency to anticipate or adapt to uncertain or changing situations. It assists the leaders to break the habitual thought process in the wake of conceptual standoffs and to improvise new approaches or solutions. All direct leaders must possess the appropriate level of agility to deny surprise and setbacks and prudently act when planned actions fail to produce desired effects.

b. **Judgement:** Judgment at the direct level implies the ability to assess situations and draw recommendations/solutions. It encompasses the habit of forming sound opinions and make sensible guesses or solutions, even in the absence of adequate or clear information. This is a must-have quality for all leaders. However, the scale of judgement varies with the level of leadership. At direct level, leaders shall be able to interpret the environment where they are operating and anticipate the resources needed for the mission accomplishment.

c. **Domain Knowledge:** This means essential knowledge leaders need to possess and apply to perform their roles and responsibilities within their domain. It also includes facts, beliefs and logical assumptions in many areas. Common categories of domain knowledge that direct level leaders must have are:

- (1) Tactical Knowledge, which includes doctrine, tactics, battle drills and battle procedures, field crafts etcetera.
- (2) Technical Knowledge, which implies the knowledge on weapons, equipment, related operating systems, and employment techniques.
- (3) Knowledge on operational environment.
- (4) Corresponding level of knowledge on joint warfare.

d. **Innovation:** For direct level leadership, war-time operational environment or peace-time unit environment may always be characterised by multi-dimensional task overload, shortage of strength and resources, tight timing due to ad hoc responsibilities, and demand for excellence everywhere. Although the environment is seemingly chaotic, that indeed lays out the ground for leaders to be creative. Direct leaders must be innovative in planning and executing assigned tasks in a more efficient and faster way. They must be creative in adjusting their plans and mindsets in the face of challenges and adopt quickly to the changing situation.

e. **Interpersonal Skill:** This is mostly desirable for organizational and strategic level leaderships. However, at direct level interpersonal skill denotes coaching, teaching, counselling, motivating and empowering individuals, as well as building teams. Direct leaders must practice self-control to deny flying into a temper tantrum. In the words of Aristotle, “Anyone can get angry, that is easy..... but to (get angry with) the right person, to the right extent, at the right time for the right reason, and in the right way is no longer something easy that anyone can do.”¹⁶ Leaders shall do that by exhibiting emotional balance, patience, positive attitude and calm in the face of danger.

What Direct Leaders Must ‘KNOW’

Know Your Job

Leaders in Army at all levels are entrusted with specific responsibilities, which when illustrated, generate some implied responsibilities too. Direct leaders are expected to have an in-depth understanding on both specific and implied tasks bestowed upon them. Besides, all direct leaders are the tactical commanders of units and sub-units with in-built tasks for both war and peacetime. They must know their roles for leading their units/sub-units in accomplishing those tasks. They must be master on the tactics, techniques and procedures involved for those mission and task completion. At direct level, leaders are also expected to acquire and develop new technical or technological skills for efficient and effective task accomplishment.

Diagram 2: Components of “What Direct Leaders Must ‘KNOW’



Source: Author's self-construct

Know the Source of Motivation

Motivation means finding drive and direction from within. People who are motivated desire to do things and make a difference rather than sit and wait for things to happen.¹⁷ Patriotism, shared values, unit tradition, recognition, unit success, reward are a few common sources of motivation. At direct level, all men are affiliated and identified by their unit, which supports the fulfilment of their basic needs for living: accommodation, food, outfits, education of self/kids, treatment facilities etcetera. Prior to being men in uniform, these needs are materialized by parents. So, unit replaces the parental role in materializing basic needs. Direct leaders must comprehend this fact and ensure the same understanding in their men. This should be the primary source of motivation to serve own organization at direct levels. It is important to know other motivation sources for maintaining own drive and instilling the same in subordinates.

Know your Men

Direct leaders remain engaged with their under-command while executing any assigned mission/task. Knowing them, strengths and concerns, are the key to their effective employment for the successful mission completion. Direct leaders must remain in constant touch of their men, listen to them carefully and exchange views on related issues. Eventually, leaders will comprehensively know them, know their concerns and needs, understand their strengths and weaknesses. Each individual is unique with a varied set of emotions, expertise, and interests. Acknowledging those significantly streamlines a leader's role in achieving any goal.

Be Aware of Limitations

No man is designed by birth with a perfect leadership pack. We all have our set of limitations, some are pertinent to leading own men. Direct leaders must take an account of own limitations, both behavioural and intellectual. Lack of knowledge/skill/fitness, poor anger management, scepticism, perfectionism etcetera are few examples of limitations often resonated at this level. Direct leaders must take comprehensive endeavour to overcome limitations in them, or at least craft styles to minimize the impact of such limitations in team-performances; although easier saying than done. Knowing the limitation of the team as a single unit is another important feature. Understanding the team’s weakness is the first step for the direct leaders to make their teams effective and efficient in mission accomplishment. Knowing and understanding the limit of own jurisdictions is also very important at this level.

What Direct Leaders Must ‘DO’

Deliver Results

Delivering results is the most significant and desired action expected from leaders. Leaders’ ultimate purpose is to accomplish organizational goal. They achieve results by prioritizing tasks, planning, coordinating, monitoring, providing guidance and managing resources. At direct level, leaders get quite specific missions or tasks to accomplish that are often time bound. Direct leaders, therefore, shall do the followings for focused, timely and ethical task accomplishment:¹⁸

- a. Prioritize, organize and coordinate the tasking for the unit/sub-unit.
- b. Identify and account for individual and group capabilities.
- c. Designate, clarify and de-conflict individual roles in a mission/task.
- d. Identify, allocate and manage resources.
- e. Identify challenges and work barriers, and plan to remove them.
- f. If possible, construct specific measures of performance (MOPs) and measures of effectiveness (MOEs).
- g. Monitor and supervise, take feedback and report progress.
- h. Complete task by executing plan, monitoring, readjusting (if needed).
- j. Recognise and reward individual contributions.
- k. Conduct after action review (AAR) and note the ‘lessons learnt’.

Demonstrate Loyalty

Direct leaders must have an in-depth understanding on the definition and the dimensions of loyalty. Although it is covered in ‘Army Values’, loyalty is separately discussed here mainly because of its significance at the direct level leadership and prevailing one-dimensional misconception. Loyalty is not only the allegiance to the superior authority. It is indeed the devotion and faithfulness to a nation, country, cause, philosophy, group, or person.¹⁹ Direct leaders must demonstrate loyalty in multiple dimensions like: loyalty to institution, to superiors and loyalty to under-commands.

a. **Loyalty to Organization/Institution:** This is the most significant dimension of loyalty. Direct leaders, like all members of the Army, must be loyal to the constitution, nation and organization (Army). They should unconditionally submit full efforts in preserving the honour and pride of these institutions and defend them at any cost needed. They must also instil the similar allegiance in their men. Although a remote possibility, in case of any conflict of interests or dilemma amongst dimensions, this dimension shall prevail over other two.

b. **Loyalty to Superiors:** This dimension is the most prevalent and practiced in the Army at all levels. Direct leaders must be loyal to the superior authority/‘chain of command’. They must display proper allegiance to good orders coming from top hierarchy, follow/execute them and expect the same from his men. But, one shall remember ‘no leader ever wins the loyalty of troops by preaching loyalty. It is given to him by them as he proves his possession of other required virtues’.²⁰ Being loyal to superiors does not necessitate one to become a ‘yes man’. Former Indian Chief of Army Staff Field Marshal Sam Manekshaw warned, “A ‘yes man’ is a dangerous man. He is a menace. He will go very far. He can become a minister, a secretary or a Field Marshall but he can never become a leader nor, ever be respected. He will be used by his superiors, disliked by his colleagues and despised by his subordinates.”²¹ Direct leaders must provide honest inputs to their superiors, report truth no matter how unpleasant the issue is, and suggest recommendations considering the wellbeing of the organization and subordinates.

c. **Loyalty to Under-commands:** This dimension of loyalty is least discussed and often ignored. General George S Patton once said, “There is a great deal of talk about the loyalty from the bottom to the top. Loyalty from the top down is even more necessary but much less prevalent. One of the most noted characteristics of great men is who have remained great in loyalty to their subordinates”.²² This dimension is also quite different than the other two. Direct leaders are entrusted with the well-being of their men, which include training, welfare, grooming and treating them fairly. They must be committed and loyal in fulfilling these obligations towards their subordinates.

Communicate Effectively

Direct leaders must learn to effectively communicate, both spoken and written forms, to ensure their subordinates get a clear understanding of what need to be done and why. By actively listening to others, understanding the nature of communication and practicing effective techniques, leaders can relate better to others and be able to translate goals into action. They shall speak ardently with appropriate eye contact, body gesture, timing and pause and maintain listeners’ interest. A leader should also remain concern on cultural sensitivity while communicating.

a. **Set Clear Goals:** Setting clear goals and expectations from under-commands is key to organizational success. When setting goals and objectives for the unit/sub-unit, direct leaders shall listen actively, encourage questions and ideas from others. Including subordinate leaders in goal setting can increase effectiveness and offer a unified goal. A good leader shall also explain the overall goal of the team and how subordinates’ individual actions fit into that equation.²³

b. **Keep People Informed:** Direct leaders must determine and execute information sharing strategies while executing a plan. They shall share necessary information to subordinates while protecting confidential ones. They need to keep related headquarters informed about the progress of the task and mission. Basing on the requirement, direct leaders communicate up, down, across and outside organization to facilitate the mission accomplishment.

c. **Be Authentic:** Direct leaders must speak truthfully and accurately, rather than emotionally, about challenges facing a task or plan, and then give positive recommendations about how to overcome them.²⁴ They shall not hide information and fake any communication, which when unearth can jeopardise the whole mission. Displaying active communication skills and transparency can build trust within team and improve overall morale.

d. **Give Honest Feedback on Performance:** Honest feedback, even if it is criticism, is the best way to guide the under-commands in the right direction. If leaders are not direct, subordinates will never know about the impression about them and their work, and they will never be able to improve. In addition to providing constructive feedback and performance reviews, direct leaders shall also highlight the accomplishment of their men and offer appropriate recognition and reward. Positive recognition instantly creates a productive environment.²⁵

e. **Promote Two-way Communication:** Direct leaders must ensure communication within his team/unit flows in both directions. Leaders and led being very close to each other shall share ideas, exchange views, offer constructive criticism and recommend solutions without fear. When leaders are open to hearing the thoughts of their men is when they truly embrace every possibility and potential. Hence, while solving problems, leaders must encourage team members to provide their insights. When subordinates feel they can openly bring new ideas to the table, effective engagement and success follows.

Diagram 3: Components of What Direct Leaders Must ‘DO’



Source: Author’s self-construct

Develop People

The development includes developing and maintaining a learning environment, self-development and cognitive development of the subordinates.

a. **Create Learning Environment:** Direct leaders are responsible to establish and maintain a healthy relationship and effective work behaviours for their under-commands. In doing so, they must foster teamwork and cohesion, encourage subordinates to exercise initiative and take ownership of the job. Direct leaders must ensure judgement by confirming equal opportunity for all men and sound evaluation of their conduct. They must demonstrate empathy for their men while accepting reasonable failures to create a positive learning environment.

b. **Develop Self:** The time and domain of direct leaders is also the perfect stage for learning and growth. Direct leaders must expand their knowledge in tactical, technical and technological areas by seeking new information from the system, equipment, situation, environment and particularly information technology. They should develop their conceptual and analytical skills by inculcating critical thinking, asking relevant questions, thinking out of the box, and inspiring innovative ideas. At direct level, leaders also shall gradually start learning about the importance of language, resilience, ideas, and beliefs.²⁶

c. **Develop your Men:** According to Mahatma Gandhi (1869-1948), “A sign of a good leader is not how many followers you have, but how many leaders you create”.²⁷ Direct leaders must provide mentorship to instil effective leadership traits in young leaders. They must instigate the intellectual expansions of their subordinates by encouraging them to read, write, debate and seek responsibilities. Leaders at direct level shall design tasks to provide practice in areas of subordinates’ weaknesses and encourage to improve the process.²⁸ Direct leaders shall inspire their men to exploit institutional learning opportunities and facilitate so. Delegating responsibility, accepting limited failure, and related counselling also aid cognitive development of the under-commands.

Direct Level Leadership Requirement Model

Based on the deliberation on the ‘BE-KNOW-DO’, a leadership requirement model for the direct leaders of Bangladesh Army may be conceptualized as shown in Diagram 4 below. However, this is not the only way to pursue excellence in direct level leadership, but it can be an effective tool to become a better leader. This model focuses on the significance not only on the leaders’ conduct, but also on their characters and knowledge that shape their behaviour. The model is a generic one, which can be modified based on the personal or organizational requirement.

Diagram 4: Leadership Requirement Model for Direct Leaders

BE	KNOW	DO
<u>Leader of Character</u> ☐ Values ☐ Ethos ☐ Empathy ☐ Supporting factors	<u>Know Your Job</u> ☐ Specified Tasks ☐ Implied Tasks ☐ Doctrine & Tactics ☐ Technological Issues	<u>Deliver Results</u> ☐ Prioritize, Plan ☐ Accountability ☐ Management
<u>Leader with Presence</u> ☐ Military Bearing ☐ Fitness ☐ Confidence ☐ Resilience	<u>Know Your Men</u> ☐ Strength & Weakness ☐ Concerns ☐ Passion ☐ Interest	<u>Demonstrate Loyalty</u> ☐ To Institutions ☐ To Superiors ☐ To Under-commands
<u>Leader with Intellect</u> ☐ Agility ☐ Judgement ☐ Domain Knowledge ☐ Innovation ☐ Interpersonal Act	<u>Know Your Limitations</u> ☐ Self-Limitation ☐ Team Limitation	<u>Communicate Effectively</u> ☐ Set Clear Goals ☐ Provide Feedback ☐ Be Authentic ☐ Two-way Comm
	<u>Source of Motivation</u> ☐ Patriotism ☐ Shared Values ☐ Unit History, Tradition ☐ Reward/Punishment	<u>Develop People</u> ☐ Learning Environment ☐ Self-development ☐ Develop Your Men

Source: Author’s self-construct

Conclusion

In the words of Donald McGannon, “Leadership is not a position or a title, rather it is an action and example.”²⁹ Having a commanding position does not necessarily make someone leader. To be an effective direct leader, one must build himself with a sound image, required knowledge and corresponding conduct. Direct level leaders should be leaders with balanced character, professional appearance and sound intelligence. Leaders’ character cannot be built overnight, a sound practice of certain traits and behaviours over the period gradually portrait the image of leaders. At direct level, leaders must know his responsibilities, techniques to perform those, understand his men with their strengths and weaknesses. Comprehensive understanding of self and the team guide leaders to constitute their action plans. Direct leaders must lead from the front while executing missions received from higher headquarters by mastering his men and resources meticulously. In doing so they must set clear goals, communicate effectively, project loyalty and achieve results.

“Leadership is not a natural trait, something inherited like colour of eyes and hair. Actually, it can be studied, learned and perfected by practice.”³⁰ As the direct leaders

have the ‘face to face’ command of troops, deliver results by influencing their followers on ground, and orchestrate the foundation of victory for the Army; it is of utmost importance to build them well. A sound knowledge on what they must BE (character), what they must KNOW (knowledge) and what they must DO (conduct) shall offer them some guidance to inculcate required habits and practices to be effective leaders in future.

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Brief Biography



Colonel Shams Mohammad Mamun, psc was commissioned in 1996 with 35 BMA Long Course. He was the recipient of the coveted ‘Sword of Honour’ of his Course. He is a graduate from Defence Services Command and Staff College (DSCSC), as well as from U.S. Army Command General and Staff College (CGSC) in Fort Leavenworth, USA. He completed ‘Strategic Management Course’ from Cranfield University, United Kingdom and ‘Infantry Officers Weapons Course’ from Infantry School, India. Colonel Shams holds two master degrees in Military Science and Business Administration. He stood first in both occasions and received the ‘Chancellor’s Award’ for later. He commanded 22nd Bangladesh Infantry Regiment for more than two years. In instructional capabilities, he served as an Instructor of Tactics Wing in School of Infantry and Tactics (SI&T) and as a Directing Staff (DS) in DSCSC. His staff appointments include Deputy Assistant Military Secretary -1 (DAMS-1) in AHQ, MS Branch, General Staff Officer-1 and Colonel Staff in Armed Forces Division (AFD). At present, he is serving as Colonel Staff in an Infantry Division.

HYBRID WARFARE: REORIENTATING THE MILITARY-STRATEGIC OUTLOOK OF BANGLADESH ARMY

Lieutenant Colonel Md Saifullah, SGP, afwc, psc, G+

Abstract

‘Hybrid Warfare’ (HBW) has emerged as a catch-all phrase for explaining multimodal, multidimensional and complex characteristics of 21st century warfare. To some extent, it has become the ‘New Orthodoxy’ in military thoughts being popularized by the western media. Along with its growing popularity, the concept has been increasingly criticised due to the ambiguity attached to its definition. Many researchers believe that HBW does not meet linear constructs of characterization to be recognized as a separate form of warfare and thereby does not qualify to have a separate doctrine. Amidst the intellectual discourses related to the concept, it is quite certain that HBW is likely to be dominant in all the future conflicts. Bangladesh since her independence was subjected to some forms of hybrid threat. Geo-political realities of the region suggest that such threats are likely to be persistent in future as well. Hence, Bangladesh Army (BA) should be aptly prepared to counter such threats by developing a comprehensive strategy. In this context ‘what would be appropriate response strategy of Bangladesh Army for the emerging hybrid war scenario’ remains as a heuristic problem-solving exercise. To answer this question, the research examined the conceptual paradigm of HBW from Bangladesh Army perspectives. In the process, the research first endeavoured to develop a Bangladesh Army parlance of HBW through extensive content analysis and survey. Then it explored the methodical process of HBW strategy formulation. Findings of the research underscores that Bangladesh Army has certain HBW potentials, which might be leveraged to counter balance adversary’s ascendancy in the conventional capabilities. Hence, HBW presents both threat and opportune for Bangladesh Army. Finally, the research concludes that, in the prevailing context a proactive defensive HBW strategy with nuanced offensive capability would be most appropriate for Bangladesh Army to safeguard national interest of Bangladesh.

Introduction

The 21st century philosophical outlook sees ‘war in the context of everything else’, as opposed to the Clausewitzian belief that- ‘war will always be the same, across the spectrum’. Though nature of war remained same throughout the ages, the warfare evolved through invention and innovation. ‘Hybrid Warfare’ (HBW), possibly, is the latest manifestation of such phenomenon, which is likely to be dominant in all the future conflicts. HBW adds further complexity in the Clausewitz’s conception of ‘fog and friction of war’ because of the inherent ambiguity that exists in its conceptual paradigm. As per the NATO official website, ‘Hybrid threats combine military and non-military as well as covert and overt means, including disinformation, cyber-attacks, economic pressure, deployment of irregular armed groups and use of regular forces. Hybrid methods are used to blur the lines between war and peace, and attempt to sow doubt in the minds of target populations. This particular prism of HBW was extensively used to describe the inner dynamics of recent conflicts, some of which never actually crossed the

threshold of conventional war yet achieved the political objectives. After a short epoch of mono-polar world order, the post 9/11 world had gradually transformed towards multi-polarism with more assertive Russia, emerging China and aspiring India.¹ The resultant chaos due to multi-polarism shattered the liberalist utopia of 'perpetual peace'. 'Neither in a state of war as established by the international norms nor in peace'- this inconceivable quagmire was popularised by the western narratives as HBW, mostly to coverup their indecisive responses in the crises as the custodian of world peace. In the recent conflicts, starting from Lebanon to Syria, both state and non-state actors have resorted to sum of hostile actions with minimal but flexible military components, with different multi-modal asymmetric manifestations. Paradoxically both super-power Russia's actions in Ukraine and non-state actor Hezbollah's fight against Israel were termed as HBW. Amidst the fallacies attached to the notion of HBW, one thing is quite evident that it has become the 'New Normal' which is complex, multidimensional and to some extent paradoxical. Though could not be unanimous on the definition of HBW, military thinkers across the globe in general advocate that countering hybrid threat entails greater emphasis on the broader aspects of strategy other than military, such as diplomacy, economy and technology. This conviction entails a reorientation in the conventional outlook of military strategy.

Drawing analogy to the aforesaid discussion, it can be deduced with certain confidence that since the independence Bangladesh was subjected to some form of hybrid threats from both state and non-state actors. Such threats are likely to be exacerbated in future owing to the growing geo-political tension and presence of ultranationalist regimes in the region. Though the manifestations of hybrid threat yet to pose a 'clear and present danger', it is imperative for Bangladesh Army to devise appropriate strategy to counter such threats. A critical review of recent academic discourses on HBW reveals that conventional wisdom of fighting war falls well short in the hybrid threat scenario. It was quite vivid in NATO's inability to act decisively during Russian annexation of Crimea. Many western military analysts have argued that to remain apt in the hybrid war scenario militaries need to adopt hybrid response strategy. Whether this conception is applicable in the context of Bangladesh or not needs empirical validation. Further, how Bangladesh Army should reorient its military-strategic outlook exploring beyond the horizon of military-orthodoxy remains a heuristic problem-solving exercise for the military thinkers. In this premise, this paper examines the possibility of reorienting strategy, doctrine and concept of operations of Bangladesh Army for likely hybrid war scenario under a broader framework of a 'whole of nation approach'. As HBW is still an evolving concept, a comprehensive understanding of this phenomenon is essential to devise appropriate response strategy. Thus, at the outset, the paper endeavours to develop evidential understanding of HBW to relate it with the context of Bangladesh.

Research Methodology

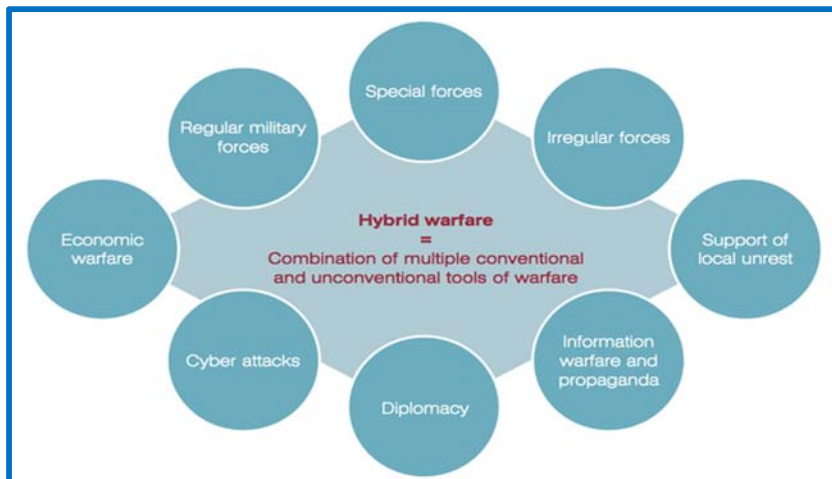
The background research for this paper followed a mixed approach. Secondary sources are used extensively in this paper. Both secondary and primary data were collected through content analysis, survey method, interview and FGD. A non-probability purposive

sampling method was followed to ascertain the perspectives of the officers of Bangladesh Armed Forces on HBW. Sample size was 181 respondents. Among the respondents, 45% were Majors, 35% Lieutenant Colonels and 20% were Colonels and above or equivalent. Objective analysis of the survey responses was the basis for relevant quantitative data. Then all data were organized to construct logical arguments to find out plausible answers to research questions. Both quantitative and qualitative tools were used in data analysis.

Conceptual Origin of HBW Thoughts

Conceptual origin of HBW can be traced back to early 21st century when the term started to appear sporadically in different intellectual discourses. The concept was originated from policy sphere rather than academic circle, and it had retained a strong policy orientation till date. The term was first used by William J. Nemeth in 2002 in a master's thesis titled 'Future war and Chechnya: a case for hybrid warfare', where he claimed Chechen insurgency as a model for HBW.² In 2003, Tatiana Carayannis while describing complex scenario of Africa where civil war, inter-state war, and cross-border insurgencies were intertwined used the term 'hybrid war'.³ The concept initially focused more on the non-state actors. which seemingly changed with the assertion of prominent proponent of HBW Frank Hoffman in 2007. He argued, "HBW can be conducted by both state and variety of non-state actors."⁴ Hence it is quite evident that the concept had undergone both 'broadening and deepening' since its emergence. By 'deepening', it included both state and non-state actors and by 'broadening' it accommodated all forms of warfare in the spectrum. Finally, in 2018 Caliskan argued that "for any conflict to be named as HBW, it requires either a state or a non-state actor to employ the integrated use of military and non-military (conventional-unconventional, hard-soft) tools to achieve a policy goal."⁵ Subsequent discussion in this study will use this understanding of HBW as terms of reference. If we equate this understanding graphically, it would be illustrated as follows: -

Figure 1: What does HBW Entail?



Source: Sazonov Vladimir et al *The Crisis in Ukraine and Information Operations of the Russian Federation*, 2017.

Salient Features of HBW

HBW Actors: Blurring Distinction between Combatant and Non-Combatant: Both state and non-state actors can use HBW. State actors while using HBW may incorporate civilians for blurring the lines between combatant and non-combatant (Russian involvement in Ukraine with the 'Lillete Green Man'). On the other hand, non-state actors with or without states patronage may wage hybrid. For example, in 'Israel–Hezbollah War- 2006' and 'Syrian Civil War' the main adversaries were non-state entities within the state system.

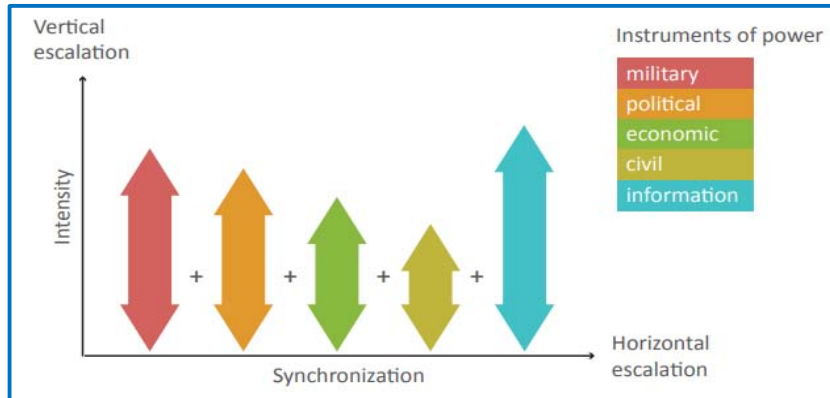
Methods and Tactics: Simultaneity of Conventional and Unconventional Method: In HBW, adversaries use mixed modalities and tactics, which make it difficult to counter. Methods and tactics include conventional capabilities, irregular tactics, irregular formations, terrorist acts, indiscriminate violence, and criminal activities. These methods are used simultaneously across the entire spectrum of conflict with a unified strategy to achieve the political objective.

Expansion of Battle Space: Diminishing level of War: In addition to blurring the distinction between peace, conflict and war, HBW takes battle beyond physical battle space. Traditional battle space is further expanded to spaces such as the political, economic, cultural, cyber, infrastructural etc., which creates effect in cognitive and psychological domain of the adversary without much employment of 'hard-power'.⁶ By simultaneous application across all levels, HBW compresses the traditional levels of war – tactical, operational and strategic.

Targets are Critical Functions and Vulnerabilities: Critical functions are combination of organizations and individuals, key point installations and processes (such as judiciary or electoral process) upon which survivability of state depends.⁷ All the critical functions have their vulnerabilities. HBW depending on its intention targets those vulnerabilities to exploit and thereby create disruptive effect in the system. Example: STUXNET attack in Iranian nuclear facilities by Israel.

Synchronization of Means (horizontal escalation); and Use of all Instruments of Power: Synchronization is the ability of a HBW actor to effectively coordinate instruments of power (MPECI: Military, Political, Economic, Civilian and Informational) in time, space and purpose to create the desired effects. The ability to synchronize both military and non-military means simultaneously within the same battlespace is considered a key characteristic of a HBW actor.⁸ Following is the graphical representation of such phenomenon:-

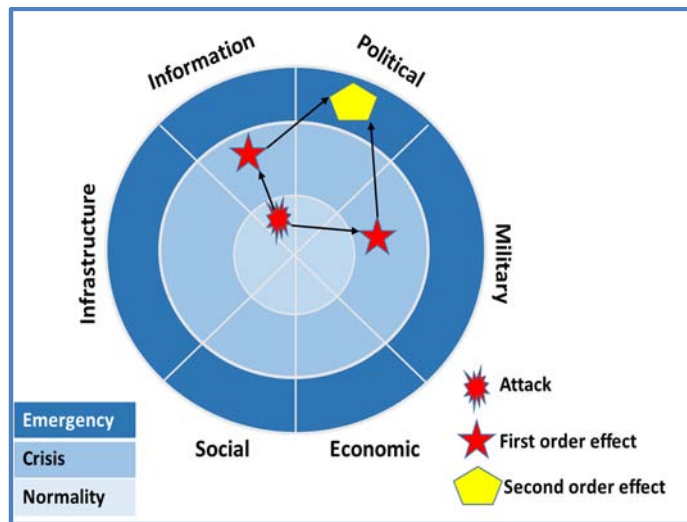
Figure 2: Synchronized Use of Instruments of Power in HBW



Source: MCDC 2019

Effects and Non-Linearity: In HBW, the actors very often synchronize their actions against specific vulnerabilities of a target, which might result into second and third order effect. In such case, it is difficult to discern a linear causal chain of events. The main problem with non-linear effects is that they can only be 'seen' once they have manifested. For example: A defaming deep-fake video of military top brass creates first order effect in information and military domain which might lead into a second order effect in the political domain.

Figure 3: Nonlinearity of Effect in HBW



Source: Prepared by researcher following MCDC 2019 model

Technological Orientation: Technology is a major enabler in HBW. Both state and non-state hybrid actors use technology (especially information age technologies) for disruptive purpose. Cyber-attacks on targeted countries, disinformation campaign and

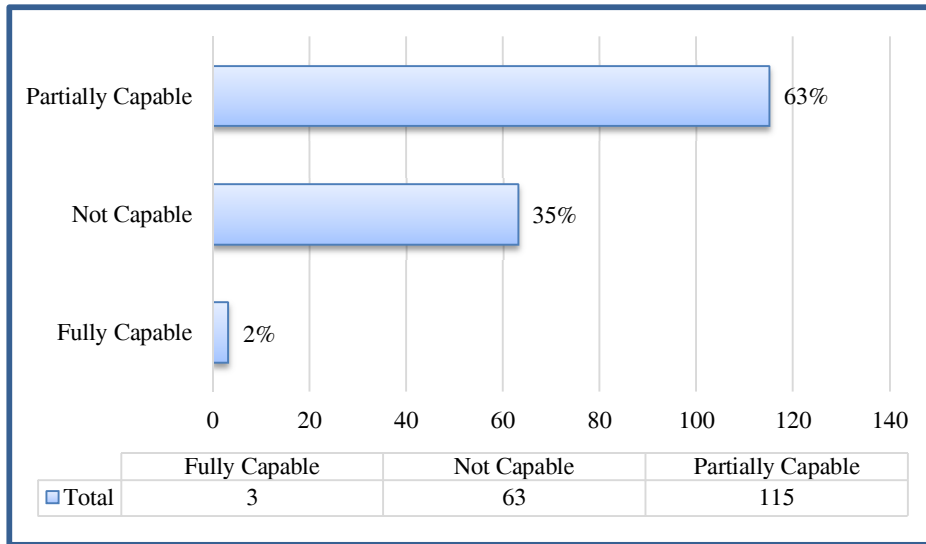
mind manipulation in social media etc., are common features of present HBW. In future, use of technologies like 'Artificial Intelligence', 'Big-Data' and 'Unmanned Fighting System' etc., are likely to be more vivid in HBW.

Strategic Orientation of HBW: Conceptually HBW is the choice of relatively weaker actor in the conflict who wants to counterbalance the conventional superiority of the adversary by using all means at its disposal.⁹ This conception might seem dichotomous while drawing analogy with Russia's action in Ukraine. However, in Ukraine while adopting tactical level hybrid actions Russia was actually countering superior western powers specially NATO at strategic level. On the other hand, stronger actor in the conflict might also resort to HBW basing on the cost-benefit analysis of potential conventional actions. Probably this analogy would justify why Bangladesh is likely to be subjected to hybrid threats.

Vulnerabilities of Bangladesh to Hybrid Threats across PMESII Spectrum (political, military, economic, social, information, infrastructure): In accordance to the aforesaid discussion, it is quite evident that Bangladesh is already subjected to some form of hybrid threats across the entire PMESII spectrum. These threats emanate from both state and non-state actors. While the magnitude of these threats can be argued indefinitely from the perspective biases, the associated vulnerabilities should be recognised unanimously. To an informed reader the vulnerabilities are quite vivid, whereas, to some people only the tip of the iceberg is visible. Whatever is the case, there is a perceptual understanding of these vulnerabilities even among the general mass. However, considering the sensitivity and confidentiality of the associated issues, specific vulnerabilities of the PMESII structure of Bangladesh is kept out of purview of this write-up.

Turning Vulnerabilities into Strength: An Optimist Outlook of HBW: Alongside the vulnerabilities, there are de facto strength in the PMESII structure of Bangladesh, which if transformed through resilience will turn the tide in favour her. To materialize this, Bangladesh needs to look into HBW from two different prism: first guarding against hybrid threats and secondly achieving required potentials to pose hybrid threat to the adversaries. Conceptually HBW being the choice of the relatively weaker actor suits Bangladesh more in the potential conflict scenario.¹⁰ Thus, while guarding the vulnerabilities of the PMESII structure Bangladesh needs to capitalize on her strengths to wage hybrid war against the adversary through a 'whole of nation approach'. As a part of this approach, all elements of national power should be integrated at strategic level under a 'National Counter Hybrid Threat Framework', which will delineate the responsibilities to different stakeholders. Bangladesh Army as a part of the framework should play the pivotal role. However, according to the survey respondents at present Bangladesh Army is only partially capable to undertake this task:

Figure 4: Bangladesh Army's Capability of Conducting HBW



Source: Author's self-construct

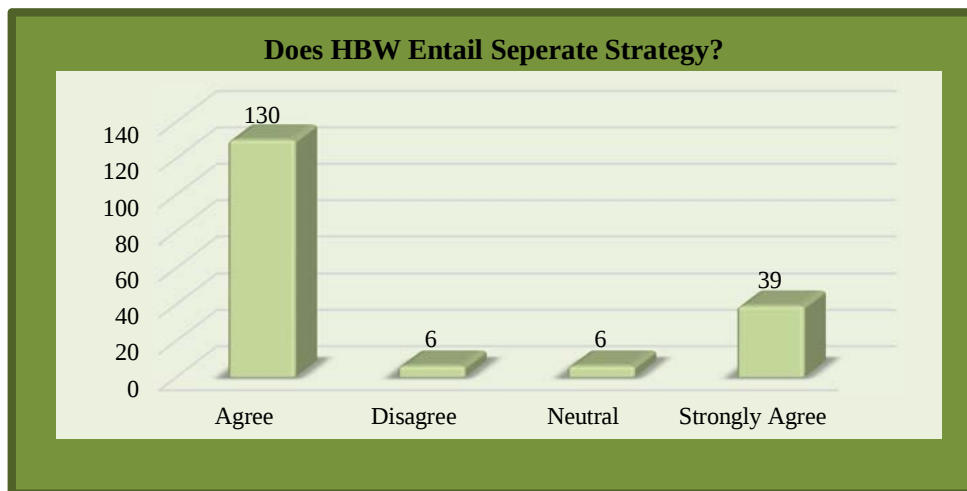
It is expected that with the implementation of forces Goal 2030, this capability gap will be bridged over the time and Bangladesh Army will be able to develop substantial HBW capability.

Developing Pragmatic Response Strategy for Hybrid Warfare Scenario: Bangladesh Army Perspectives

Development of HBW strategy is a complex undertaking as there are multiple facets of hybrid threats. Russian 'Gerasimov Doctrine' by General Valery Gerasimov¹¹ and Chinese 'Unrestricted Warfare' by Qiao Liang and Wang Xiangsui are often referred by the western world as offensive HBW strategy. On the other hand, NATO and EU's response strategies have pseudo-defensive overtone. Military strategists of Bangladesh will have to maintain a delicate balance between these two opposite schools of thought to remain consistent to the grand strategy of the nation. This segment of the study endeavours to provide essential insights, which might help the policy makers in developing a pragmatic HBW strategy for Bangladesh Army.

Does HBW Entail Separate Strategy? Military strategic planning of Bangladesh Army essentially follows an 'interest-based' approach as opposed to 'threat-based'. However, in countering the hybrid threat a dual focus on 'own national interest and strategic behaviours of the potential adversaries' will be required. On the other hand, to counter balance prevailing asymmetry with the potential adversaries Bangladesh Army needs to leverage its offensive HBW potentials. This overall understanding entails a separate military strategy, which would have both defensive and offensive focus. The majority of the survey respondent also agreed with this presumption.

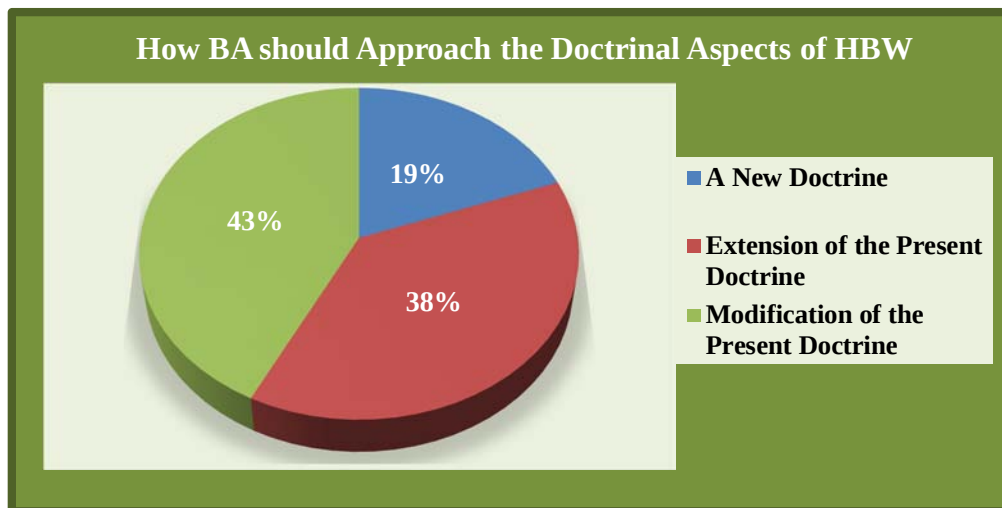
Figure 5: Does HBW entail Separate Strategy?



Source: Author's self-construct

Does Bangladesh Army Need a Paradigm Shift in Its War Fighting Doctrine? Many researchers believe that hybrid threat concept is abstract and yet insufficient to meet linear constructs of characterization and thereby does not qualify to have a separate doctrine.¹² Instead, it requires shift of priority in the prevailing concept of war fighting. With the present doctrine of 'Blending Conventional and UCW' Bangladesh Army has already stepped into the domain of HBW. At this point time possibly little modification and extension of the present doctrine will be required to integrate projected HBW capabilities like cyber warfare, information warfare etc.¹³ The respondents of the survey largely had the same conviction.

Figure 6: How Bangladesh Army should Approach the Doctrinal Aspects of HBW



Source: Author's self-construct

Cardinal Considerations for Formulation of Strategy

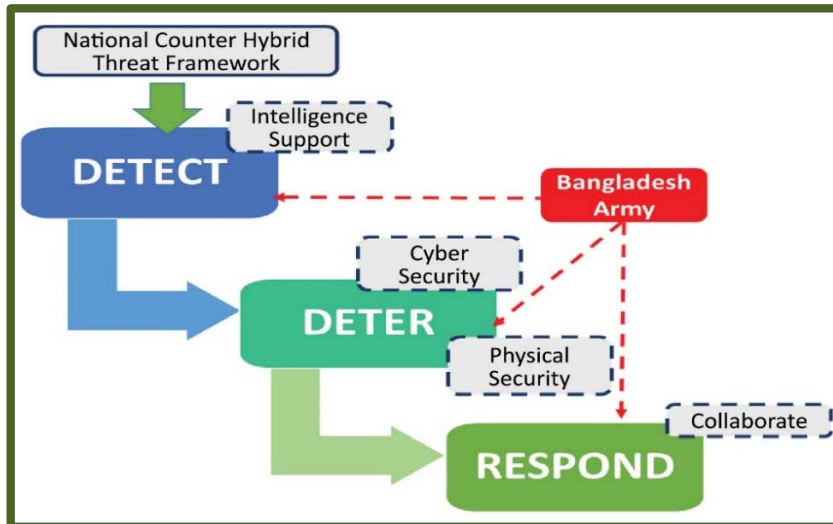
HBW is a strategic choice because it involves other elements of national power, which are beyond the realm of military. Whatever strategic choice Bangladesh will make in regards to HBW, Bangladesh Army strategist will have to correspond to that. Hence, it would be pertinent to examine the strategic options available for Bangladesh for the potential HBW scenario:

- a. **Offensive HBW Strategy:** Offensive HBW might be a tempting option for Bangladesh to counter balance the asymmetry with the potential adversaries in conventional capabilities but it has potential fallouts. In weighing this option, Bangladesh's standing in the regional strategic framework, reputation in the world forum, capability of the agencies to perform this task needed to be looked at comprehensively.¹⁴ Possibly the foreign policy of Bangladesh would also preclude this option.
- b. **Defensive HBW Strategy:** Defensive HBW strategy, on the other hand, is a natural choice for a country like Bangladesh, which is having a strategic geographic position between aspiring regional powers and having a stated nonalignment policy. However, entirely defensive HBW strategy might produce nominal deterrence against potential hybrid aggressors.
- c. **Pro-Active Defensive HBW Strategy with Nuanced Offensive Capability:** In the prevailing context, possibly a proactive HBW strategy with nuanced mix of offensive HBW capabilities would be the most feasible option for Bangladesh in particular for Bangladesh Army. The pro-active HBW would entail deterring the hybrid threat with adequate capability projection in the domain of information warfare and adoption of doctrine like UCW. On the other hand, in the cyber domain required offensive bite has to be achieved not only to deny but also to defuse the hybrid opponent.

Position of Bangladesh Army in the Overall Strategic Framework of HBW:

Position of Bangladesh Army in the overall strategic framework of HBW and its role in gray-zone spectrum of conflict need to be ascertained by the policy makers. Under National Counter Hybrid Threat Framework Bangladesh Army might be entrusted to detect, deter and respond to hybrid threats across the entire PMESII spectrum. However, delicate balance has to be maintained so that *securitization does not turn into militarization*. Following figure shows probable role of Bangladesh Army in National Counter Hybrid Threat Framework in the gray-zone:-

Figure 7: National Counter Hybrid Threat Framework and Role of Bangladesh Army



Source: Author's self-construct

Deciding on the Ends: Does End Justify the Means? In his remarks on HBW former Chief of Defence Staff of Indian Armed Forces General Bipin Rawat (16 March 1958 – 8 December 2021) observes:

In HBW there is difficulty in deciding when the aim will be achieved. What does winning mean and what will be desired end-state? The definition for victory is also vague. Owing to internal inconsistency of the HBW concept, it is difficult to operationalize to coherent line of effort for purposeful gain. The effectiveness of the strategy leaves no room defining success in time; space and end state thus application of such strategy is doubtful.¹⁵

General Rawat's perspective can be questioned drawing the success story of Hezbollah against Israel. However, Bangladesh Army needs to decide a pragmatic end-state of its strategy. If the end-state is decisive victory over the adversary in conventional terms, possibly, HBW is not an option. Nevertheless, if the definition of the victory is translated into 'We win if we do not lose' HBW will emerge as the most appropriate option. Finally, Bangladesh Army should remember When national sovereignty is put into question 'The end justifies the means'.

Clear Choice of Ways: While making a choice of ways for HBW Bangladesh Army should consider the following:

- a. 'Plausible deniability' is the hallmark of HBW.
- b. In the gray-zone of the conflict spectrum, end state should be achievement of credible strategic deterrence. It can be achieved through visible demonstration of HBW capabilities like exercising UCW doctrine, proactive intelligence operations and above all, bold and clear strategic messaging.

- c. For the open war spectrum of conflict, sufficient national resilience should be built for protracted conflict to remain indifferent in the face of tactical defeats.

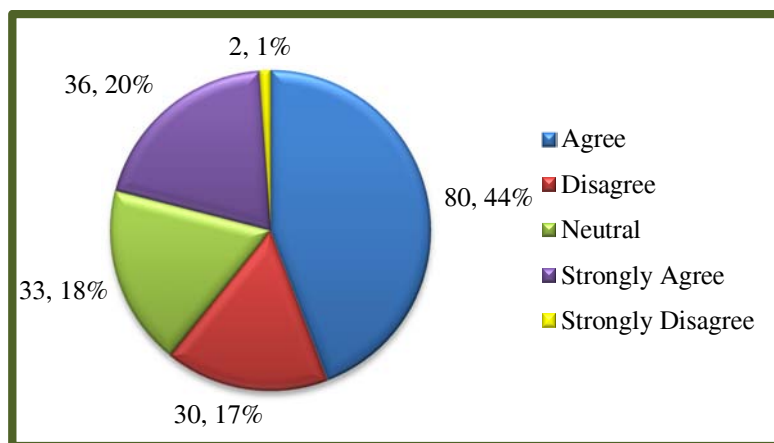
Developing the Means for HBW

Structuring of Force for HBW: Following options might emerge for structuring the force in accordance to HBW strategy:

- a. **Option 1:** Optimizing forces for irregular warfare risking capability in conventional warfare. It might be tempting considering the financial implications. However, it will be prudent to remember the old military dictum that, ‘An armoured division is like a tuxedo. You don't need one often, but when you do nothing else will suffice.’ Possibly, it would not be the risk worth taking.
- b. **Option 2:** Development of segmented specialized force like ‘cyber warfare force’, ‘electronic warfare force’, designated ‘information warfare force’ etc. In this option, prioritization would be a problem because HBW has an inherent threat based focus.
- c. **Option 3:** Development of multipurpose force trained to deal with set of requirements and measured integration of non-combatant/civilian specialists in the force structure. Simultaneously developing the cyber and information warfare capability. This would possibly be the option consistent to existing doctrine with lesser readjustment and cost.

Development of Cyber Warfare Capability: Bangladesh Army needs to develop both defensive and offensive cyber warfare capability for HBW by establishing a cyber-command. The aim should be not only deterring cyber threats but also defusing those if necessary. Though it is a costly affair, the necessity justifies the investment. The majority of the survey respondents also opined the same.

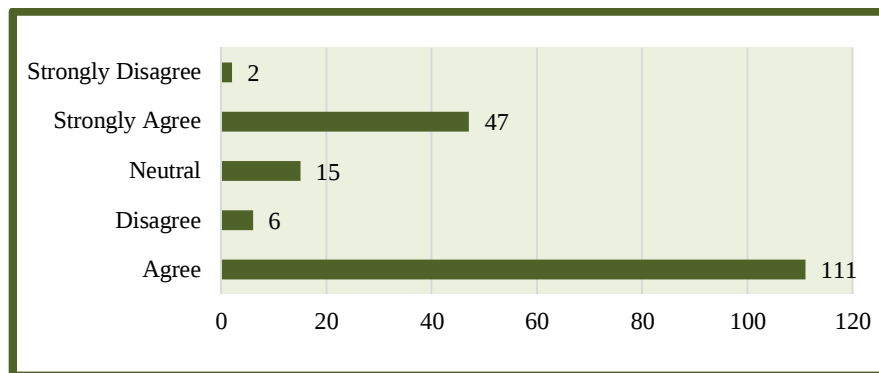
Figure 8: To Attain the Capability of HBW Bangladesh Army should Establish a Cyber Command



Source: Author's self-construct

Development of Information Warfare Capability: Winning the battle of narratives is one of principal missions of HBW. Bangladesh Army needs a paradigm shift in its outlook of information warfare and should give due focus to enhance its capability in this domain.¹⁶ To handle information warfare Bangladesh Army should develop a completely new organization including civilian experts apart from the ISPR. The survey respondents also agreed with this proposition.

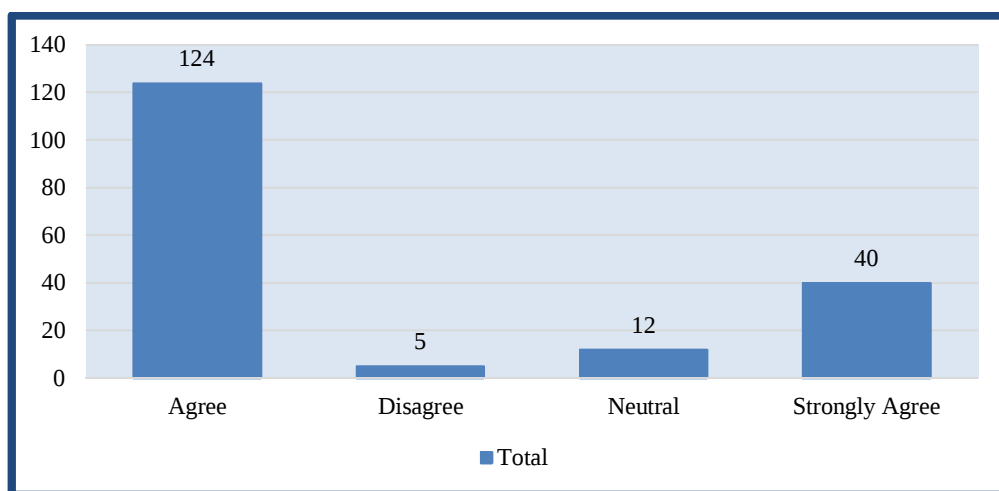
Figure 9: Developing New Organization for Information Warfare



Source: Author's self-construct

Robust Intelligence Architecture for HBW: For HBW Bangladesh Army needs to develop a robust intelligence architecture reorganizing all intelligence outfits under a single umbrella like 'Corps of Military Intelligence'. It will ensure better coordination and synergy. Further, Bangladesh Army should enhance its intelligence capability by induction of military satellite for real-time intelligence and augment intelligence assessment process with artificial intelligence. The survey respondents also supported this proposition.

Figure 10: Need for Reorganizing Present Intelligence Outfits



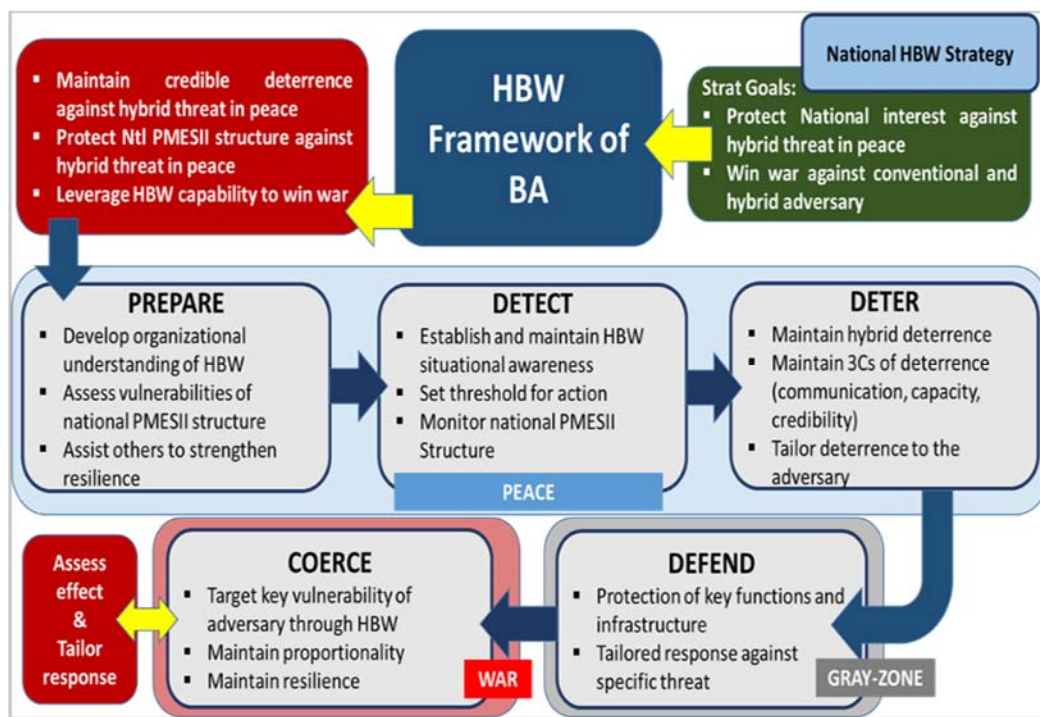
Source: Author's self-construct

Developing Strategic Understanding and Operational Acumen for HBW-Education, Training and Intellectual Discourses: As discussed previously HBW is not a standalone military venture. Development of strategic understanding of HBW therefore is a prerequisite. Without this, strategic response might emerge out of tunnel vision. Intellectual discourses on hybrid threats at strategic and military-strategic level, incorporation of HBW studies in regular and capstone courses in NDC, greater participation of related bureaucrats in the NDC course etc., might be instrumental in this regard. At Bangladesh Army's end, required military education and training should be imparted to the mid-level officers in AFWC and DSCSC incorporating HBW studies in the curriculum.

Stages of Hybrid Response Strategy: Hybrid response strategy should follow following stages:

- a. **Prepare:** In the preparatory stage national awareness campaign on hybrid threat, development of organizational understanding of HBW and capacity building of BA should be the prime focus. Simultaneously, Bangladesh Army in collaboration with other agencies should assess the vulnerabilities of national PMESII structure and assist in building resilience.
- b. **Detect:** As a prerequisite of detection stage, appropriate authority should decide on base line performance indicators of national critical functions and systems (such as Judiciary, National power grid) and threshold for actions. Bangladesh Army at this stage should maintain situational awareness and monitor national PMESII structure to provide required input to the policy makers.
- c. **Deter:** Deterrence of hybrid threats is primarily about convincing potential opponents that the cost of their actions will exceed any reasonable gain. At this stage, Bangladesh Army should maintain hybrid deterrence embedded with 3Cs: communication, capacity, credibility. This can be achieved through cyber dominance, exercising UCW at mega scale, demonstrating readiness of forces and clear strategic massaging on potential responses.¹⁷ However, in specific occasion the deterrence should be tailored to the adversary.
- d. **Defend:** In the initial phase, defence against a hybrid attack might be limited to the instruments used by the attacker, for example in cyberspace. The primary goal is to prevent a hybrid conflict from escalating to the military level. Should such an escalation nevertheless occur, Bangladesh Army should be able to respond militarily. Key functions and infrastructures should be provided with both physical and cyber protection. At this stage, tailored response against specific threat might become essential.
- e. **Coerce:** In the event of war, hybrid actions should go unrestricted yet maintaining proportionality. Bangladesh Army at this stage should integrate all elements of national power to attack key vulnerabilities of the adversary. Peacetime integration Bangladesh Army with other elements of own national power and access to the strategic decision circle will be required for this purpose. Following figure depicts stages of hybrid response strategy:

Figure 11: Stages of Hybrid Response Strategy



Source: Author's self-construct

Conclusion

Bangladesh throughout the episodes of history had experienced hybrid threats from both state and non-state actors. Present indications suggest that in future also similar threats will prevail. There exist inherent vulnerabilities in the PMESII structure of Bangladesh, which might be exploited by the hybrid actors even in peacetime. Intolerant political culture, 'Dutch disease' phenomenon in the economic sector and social divides along multiple fault lines are few prominent vulnerabilities among others. Hence, Bangladesh needs to develop a 'National Counter Hybrid Threat Framework' to safeguard her national interests through a 'whole of nation approach' where Bangladesh Army would play the pivotal role. For performing this role, Bangladesh Army needs to devise appropriate strategy with dual focus on 'own national interest and strategic behaviour of the adversaries'. It also needs necessary extension and modification of the present doctrine to integrate all elements of national power. In this premise, Bangladesh Army needs to develop a 'Proactive-Defensive HBW Strategy with Nuanced Offensive Capability' considering Bangladesh's standing in the regional strategic framework, reputation in the world forum and its organizational capability of conducting HBW. However, while developing HBW strategy Bangladesh Army should not shift entire focus from the conventional capabilities, because conventional capabilities are the pivots where hybrid capabilities are hinged upon. As a part of whole of nation approach of HBW,

Bangladesh Army also needs to assist other elements of national PMESII structure with consultancy in vulnerability assessment and in building resilience against hybrid threats. The principal aim of the strategy should be achievement of hybrid deterrence basing on 3Cs; that is 'credibility, capacity and communication' to prevent a hybrid conflict escalating to military level. Should such an escalation nevertheless occur, Bangladesh Army should be able respond promptly, boldly and with firm conviction in the heart that 'we win if we do not lose'. Strategist in the history have won wars for the nations while being outnumbered and outgunned. Has Bangladesh Army produced such 'strategic-maestro' to orchestrate a winning symphony?

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Brief Biography



Lieutenant Colonel Md Saifullah, SGP, afwc, psc, G+ was commissioned in the Regiment of Artillery in June 1999 from Bangladesh Military Academy. Apart from mandatory courses at home, he attended Internal National Battery Commanders Course in United Kingdom, Inter Agency Operational Planning Concept Course in Indonesia, Peacekeeping Military Intelligence Course in Uganda and Armed Forces War Course in Bangladesh. He is a graduate of Defence Services Command and Staff College, Bangladesh and Army Command and Staff College, Nepal. He commanded an Air Defence Artillery Regiment. He served as a Directing Staff in Defence Services Command and Staff College and Instructor Gunnery in Artillery Centre and School. His Staff assignments includes Brigade Major in an Infantry Brigade, Staff Officer Operations in UNMIS and Chief Military Information Officer in Northern Sector MONUSCO. He holds three Masters Degree in ‘Strategic Studies’, ‘Military Studies’ and ‘Military Technical Studies’ respectively. For his academic excellence, he was awarded with Dr. ‘Shahidullah Gold Medal and Birshreshtha Mostafa Kamal award. Currently he is undertaking research on ‘Terrorism and Human Security’ under MPhil programme at Bangladesh University of Professionals.

APPLICATION OF SMART POWER IN COMBATING NON-TRADITIONAL SECURITY THREATS IN THE BAY OF BENGAL: BANGLADESH NAVY PERSPECTIVE

Lieutenant Commander Md. Farid Uz Zaman, (TAS), psc, BN

Abstract

Bay of Bengal is beset with numerous security challenges, which are mostly non-traditional in nature. As military coercive posture is insufficient to deal with the non-traditional security threats in the Bay of Bengal, it is prudent for Bangladesh Navy to take a holistic approach by embracing the essence of smart power (combination of hard and soft power). As such, the objective of this research is to recommend a few plausible options for Bangladesh Navy to improve upon its smart power with a view to eradicating NTS threats effectively in the Bay of Bengal. A descriptive non-experimental design comprising mixed methods (Quantitative and Qualitative) has been applied in validating the hypothesis. A set of survey questionnaires, interviews and FGD of concerned professionals have been used as primary data. The research has identified that the coastal inhabitants are primarily responsible for posing NTS threats in the Bay of Bengal. Patronizing the socio-economic development of these targeted population, facilitating education, instilling social values among these people, conducting special medical campaigns etc. will foster soft power potentials of Bangladesh Navy immensely. Such activities will motivate and sensitize the coastal communities in order to prevent any organized criminal activities at sea. Besides, Bangladesh Navy may strengthen its hard power attributes through military cooperation with neighbouring navies, enhancement of surveillance and intelligence network etcetera to combat non-traditional security threats effectively.

Introduction

Over the last few decades, the nature of threats and security discourses has changed dramatically.¹ Although the risks of major armed conflicts and interstate wars are now on the decline, the world is increasingly confronted with a number of security challenges, which are non-traditional in nature.² Components of non-traditional security (NTS) threats in the maritime sector are multicoloured and difficult to identify. Traditional responses to such a special pattern of NTS threats become ineffective at times. The rise of NTS issues, therefore, presents new challenges that demand for developing new security architecture to ensure the national security.³

Bay of Bengal (BoB) is beset with numerous security challenges. Among those, illegal fishing, arms & drug smuggling, human trafficking, seaborne pollution, and acts of robbery and piracy are mention worthy.⁴ The present security environment of BoB demands a dynamic response to combat these unique featured NTS threats. The only way to grapple with the evolving security scenario is through cooperation with others and that requires smart power- a strategy that combines the soft power of attraction with the hard power of coercion.⁵ In fact, the evolution of the concept of smart power has changed the perception of international communities towards the respective national security framework.

Bangladesh Navy (BN) has been involved in combating NTS threats in the BoB since its inception. However, the changing dynamics in the BoB, geopolitical complexities in the region etcetera have made the effort of combating NTS threats more difficult. It is noteworthy that the combined application of both coercive and co-optive behaviour patterns in the form of smart power by Bangladesh Navy has not been observed so far while dealing with NTS threats in the BoB. Besides, no research/ study has been conducted yet concerning the application of smart power by Bangladesh Navy. As military coercive posture is insufficient in dealing with the NTS threats in BoB, it is prudent for Bangladesh Navy to take a holistic approach by embracing the essence of smart power in such circumstances.

This paper is an abridged version of the research that is aimed to analyse the evolving challenges owing to NTS threats in the BoB and recommend a few plausible options for Bangladesh Navy to improve upon its smart power with a view to eradicating these threats effectively. Accordingly, the alternative hypothesis of this research paper is “Application of smart power by Bangladesh Navy can effectively contribute to combating NTS threats in the BoB”. Besides, the null hypothesis is “Application of smart power by Bangladesh Navy has no effect in combating NTS threats in the BoB.”

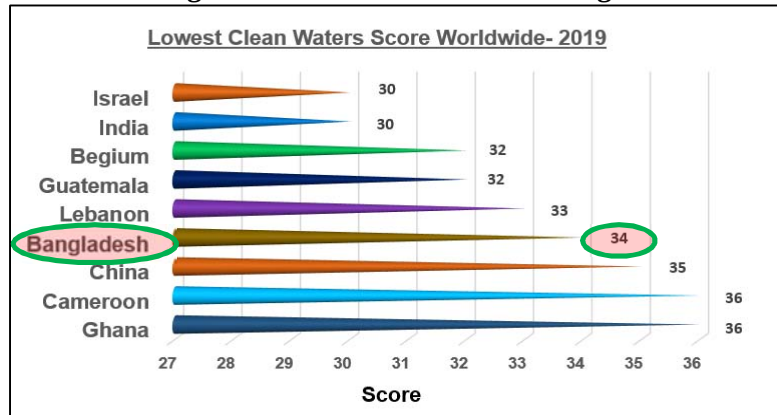
Nexus between Smart Power and NTS Threats in the BoB

NTS threats in the BoB and Associated Challenges

Despite having vast potential, BoB is entangled with numerous security concerns. Major NTS threats in the BoB are as follows:

- a. **Illegal, Unreported, and Unregulated Fishing:** As of 2019, Bangladesh has been positioned 47th on a new global index that ranks countries in terms of their vulnerability, prevalence, and response to illegal, unreported, and unregulated (IUU) fishing.⁶ Besides, IUU fishing activities in the BoB are also a great concern for Bangladesh in terms of achieving Goal-14 of SDG.
- b. **Maritime Terrorism including Piracy:** Bangladesh was a pivotal point of maritime piracy and armed robbery previously. Due to the proactive actions of Bangladesh Navy and Bangladesh Coast Guard (BCG), the number of such activities has been reduced drastically. However, considering the geopolitical context and increased sea-borne economic activities, the future potentiality of maritime terrorism including piracy in the BoB cannot be ignored.
- c. **Marine Pollution:** Marine pollution has become an acute concern in the BoB. The upstream rivers carry river dumps and industrial waste in the bay which is dangerous for living and non-living beings and resources. Besides, injurious waste discharge from the vessels is also polluting the water and damaging the ecosystem and biodiversity. According to a global survey, Bangladesh bears one of the lowest clean water scores (34), as of 2019.⁷

Figure 1: Clean water score of Bangladesh



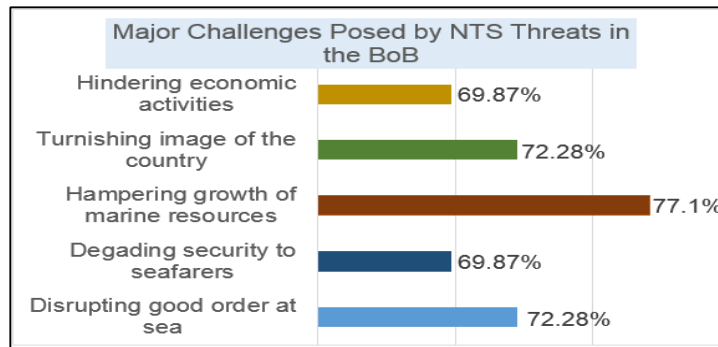
Source: Tiseo, 2021

d. **Drug Trafficking:** Sea route is convenient for drug trafficking, as it is easier to carry drug by ships and trawlers. BoB has emerged as one of the important transit routes for trading narcotics from the Golden Triangle to the western countries.⁸

e. **Human Trafficking:** Human trafficking and Illegal Migration have become a widespread organized non-traditional crime in the BoB region. According to a report, approximately 200,000 Bangladeshi were taken out of the country over the last decade.⁹ Such unlawful act is not only threatening the lives of the victims, but also tarnishing the country's image.

Considering the effect of the major NTS threats, a survey question has been formulated to take the opinion of the respondents concerning the major challenges posed by those threats in the BoB. The respondents mostly agreed that NTS threats in the BoB are posing challenges to the good order at sea, security of the seafarers, sustained growth of marine resources, up keeping positive image of the country as well as the uninterrupted economic activities. The response in percentage is given below:-

Figure 2: Major challenges posed by the NTS threats in the BoB



Source: Survey by Researcher

The Conceptual Aspect of Smart Power

a. **Definition and Components of Smart Power:** Smart Power is defined as strategies that combine both the hard and soft power attributes of a country in differing contexts.¹⁰ Hard power is the ability to get others to act contrary to their desires and preferences using threats and force.¹¹ It involves military power and economic sanction to intimidate other countries as well as to secure national interests. On the contrary, soft power is the ability to shape or reshape preferences without resorting to force or payment.

b. **Application of Smart Power by Naval Forces:** Usually, one might think that Navy is purposefully developed only to fight a country's war or to undertake coercive measures. In the post-cold war era, global navies are found to perform many non-military responsibilities including humanitarian assistance and disaster relief operations (HADR), naval diplomacy, protection of marine pollution, etc. that are completely different from the traditional perception of navies' primary role of war fighting. Such diversified employment of naval forces portrays the unique capabilities of Navy to perform both military and non-military functions. For instance, the US Navy is applying or demonstrating smart power attributes in the South China sea for fighting piracy as well as maintaining the freedom of navigation in the international waters.¹²

Deriving Nexus between Smart Power and NTS Threats

a. Due to excessive preoccupation with the traditional dimension of maritime security, a littoral country's concern for the non-traditional maritime security somewhat remains one of indifference.¹³ Bangladesh is also no different in terms of addressing NTS threats. Despite significant success in curbing piracy in the BoB by Bangladesh Navy and Bangladesh Coast Guard over the last couple of years, many other NTS threats remain unaddressed.¹⁴ Mostly NTS threats originate from land and may range from inland waters to high sea.

b. Security policy options so far followed by Bangladesh including military deterrence and short-term political arrangements have rendered inadequate in addressing some of the more pressing NTS issues.¹⁵ Hence, an appropriate combination of hard and soft power might be effective in combatting NTS threats in the BoB. In this connection, the coastal inhabitants could be the primary target population in terms of soft power application. In addition, hard power capability enhancement by Bangladesh Navy might increase the potentiality in dealing with NTS threats in the BoB.

Capabilities and Challenges of Bangladesh Navy for Combating NTS Threats through Smart Power

An Insight into the Application of Smart Power by Bangladesh Navy for Combating NTS Threats

a. Application of Hard Power by Bangladesh Navy

i. The term 'Hard Power' has not yet been used by Bangladesh Navy while interpreting application of coercive measures for eradicating NTS threats. However, Bangladesh Navy possesses considerable hard power strength for

countering NTS threats in the BoB. Due to relentless effort, dominant posture, vigilant presence and prompt actions of Bangladesh Navy and Bangladesh Coast Guard ships and crafts, number of piracy activities have significantly reduced over the last couple of years. Furthermore, no piracy has been reported in the present calendar year so far.¹⁶ Though the piracy and smuggling activities have been reduced, the potentiality of such activities and other NTS threats always persists in the BoB for which Bangladesh Navy needs to maintain a certain state of readiness round the clock.

ii. Apart from the regular anti-piracy and anti-smuggling operations, Bangladesh Navy has started conducting coordinated patrol, along the international maritime boundary line, with Indian Navy since 2018. However, this coordinated patrol is carried out occasionally only for 3-7 days per year which became more of an annual bilateral event. The conduct of 24/7 coordinated patrol in the BoB by both Bangladesh Navy and Indian Navy ships could enhance the capability of combating transnational maritime NTS threats.¹⁷

b. Soft Power Outlook of Bangladesh Navy for Combating NTS Threat: Bangladesh Navy, since its inception, has been engaged in many soft power engagements.¹⁸ However, the application of soft power for combating NTS threats in the BoB has not been observed much so far. Since the coastal inhabitants are mostly responsible for NTS threats in the BoB, extensive application of soft power targeting the coastal communities needs to be considered. The humanitarian assistance and disaster relief (HADR) operation, Ashrayan Project and similar activities by Bangladesh Navy in the coastal areas, as part of rendering assistance to civil administration (in aid to civil power), have soft power connotations.

Challenges Associated with the Application of Smart Power by Bangladesh Navy

a. **Maritime Surveillance:** Enhanced maritime surveillance and reconnaissance is a predominant factor in ensuring maritime security against NTS threats. The existing surveillance is having a good number of limitations which is hindering Bangladesh Navy's performance in ensuring maritime security.¹⁹

b. **Making a Balance between Hard and Soft Power Involvement:** Historically, the primary purpose of naval forces is fighting the war at sea to safeguard the sovereignty of the country on the maritime front.²⁰ Hence, overemphasizing the soft power involvement might deviate the focus of Bangladesh Navy from its primary role of war fighting as per FGD, 2021. Therefore, maintaining a balance between the soft power and hard power engagements to combat NTS threats in the BoB remains a major challenge for Bangladesh Navy.

c. **Legitimacy of Soft Power Engagements in the Coastal Areas:** Unlike Bangladesh Coast Guard, Bangladesh Navy cannot operate independently in the coastal areas unless tasked by the government to support the civil administration when called for.²¹ Therefore, there is a question of legitimacy to undertake Bangladesh Navy self-initiated soft power engagements in the coastal areas.

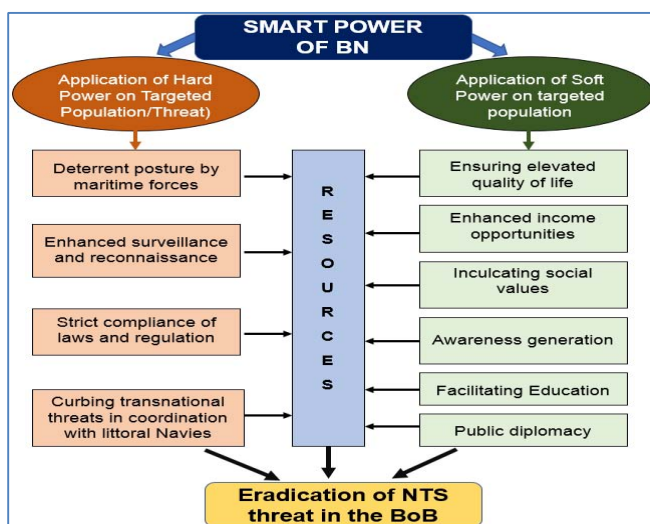
d. **Transnational Security Threats.** Many of the NTS threats are transnational in nature like IUU fishing, drug trafficking, human trafficking etcetera. Effective collaboration between the navies and coast guards of neighbouring countries is inevitable for ensuring maritime security effectively. However, the present diplomatic relation of Bangladesh with Myanmar, centering on repatriation of Forcefully Displaced Myanmar Nationals (FDMNs), is a great barrier for entering into any such bilateral collaboration to address the NTS threats in the BoB.

e. **Emerging Challenges.** As many as 1.7 million FDMNs are sheltered in Cox's Bazar out of which about a hundred thousand have been planned to relocate in Bhasan Char.²² This huge volume of FDMNs, if not repatriated and well rehabilitated in near future, may indulge in various sea borne illegal activities like piracy, drug trafficking, smuggling, etc.²³ Therefore, the FDMNs bear looming NTS challenges to maritime security and a balanced smart strategy to deal with such challenges might be a major concern for Bangladesh Navy.

Options For Developing Smart Power of Bangladesh Navy for Combating NTS Threat In The BOB

a. **Framework for Development of Smart Power:** Considering the necessity, the proposed framework for developing the smart power attributes of Bangladesh Navy is appended below (Figure 3). This framework has two distinct connotations for Bangladesh Navy. At one end, the interpretation of this framework will assist Bangladesh Navy to opt options of applying soft power attributes to combat NTS threats. Besides, these options will cumulatively act as smart power resources to influence the targeted population which will, in turn, enhance the smart power attributes of Bangladesh Navy.

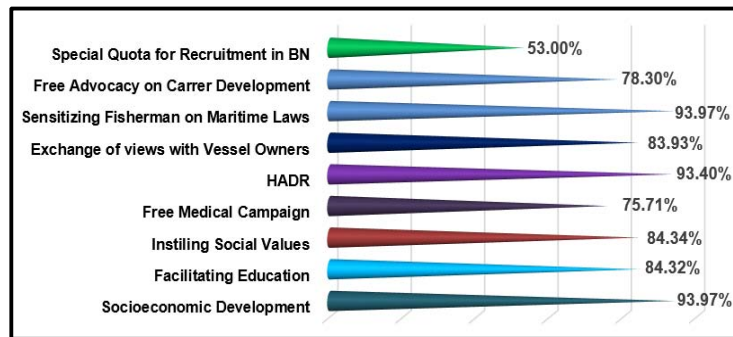
Figure 3: Framework for Smart Power development of Bangladesh Navy to address NTS threats



Source: Researcher's self-construct

b. **Options to Fostering Soft Power Attributes of Bangladesh Navy:** A survey has been carried out to identify the possible options for developing soft power attributes of Bangladesh Navy. Figure 4 portrays the percentage of the respondent who have vowed for the options to develop soft power attributes of Bangladesh Navy in relation to the eradication of NTS threats in the BoB. Besides, the framework for development of smart power as mentioned in Figure 6 has been also considered for identifying plausible options for Bangladesh Navy to foster smart power attributes which will, in turn, facilitate in addressing NTS threats. Various options to foster soft power attributes are appended in the subsequent paragraphs.

Figure 4: Respondents' opinion concerning the options for developing soft power attributes of Bangladesh Navy



Source: Author's self-construct

c. **Patronizing Socioeconomic Development in the Coastal Areas:** Patronizing socio-economic development of the targeted population in the coastal area in collaboration with Bangladesh Coast Guard and local administration might enhance soft power capabilities of Bangladesh Navy which would leverage the effort of Bangladesh Navy for combatting NTS threats effectively. Since, Bangladesh Navy has no jurisdiction to conduct such activities on land unless directed by the government, Bangladesh Navy may approach the government holistically through AFD and patronize the development work in coordination with Bangladesh Coast Guard and local administration.

d. **Facilitating Education for Poor People in the Coastal Area:** Bangladesh Navy in coordination with Bangladesh Coast Guard may endeavour to operate school, Madrassa for the poor people in the coastal areas. It might render a two-way effect. Firstly, it will generate influence of Bangladesh Navy and Bangladesh Coast Guard among the coastal communities. Secondly, literate community will have an inherent awareness that will keep them away from indulging into criminal activities at sea. Such initiatives will facilitate to generate soft power attributes of Bangladesh Navy among the targeted communities.

e. **Instilling Social Values and Responsibilities:** Undertaking steps for preventing illegal activities such as reduction of marine pollution, observing the fishing and other maritime regulations etcetera are the social responsibilities of all concerned, whether directly or indirectly involved in the seaborne activities. Arrangement of such campaigns

by Bangladesh Navy is an option which has coherence with the soft power development of Bangladesh Navy.

f. **Free Medical Service:** Pakistan Navy has established a hospital namely PNS DARMAAN JAH in the coastal area ORMARA under Baluchistan province which is providing medical treatment among the population of the coastal belt.²⁴ Such initiative has certainly enhanced the soft power attributes of Pakistan Navy in that area. Likewise, Bangladesh Navy may also conduct free medical campaign at regular interval in the coastal area.

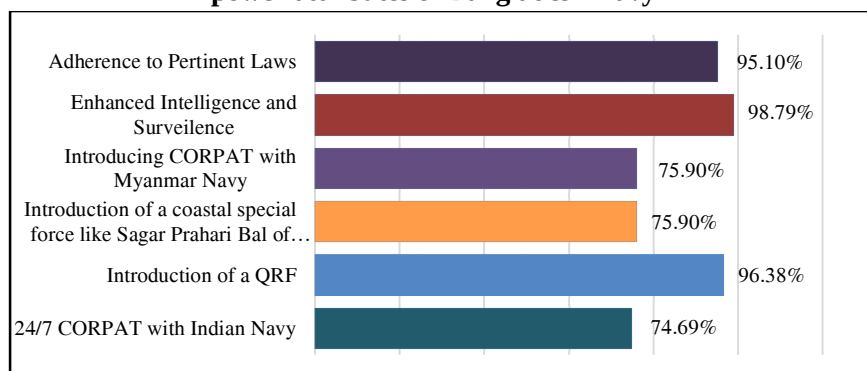
g. **HADR:** HADR operation may help Bangladesh Navy to develop its soft power attributes. However, Bangladesh Navy may focus on capability enhancement in terms of effective contribution to such HADR operations.²⁵

h. **Exchange of Views with Cargo and Fishing Vessel Owners:** Bangladesh Navy in coordination with Bangladesh Coast Guard may organize programs for exchanging views with the cargo and Fishing vessel owners. Besides, fishermen and other seafarers may be sensitised time to time on the pertinent maritime laws and regulations.

j. **Special Quota for Coastal Population for Recruitment in Bangladesh Navy:** Bangladesh Navy may consider introducing a special quota for coastal inhabitants for enrolment in the naval services. Besides, Bangladesh Navy in coordination with Bangladesh Coast Guard may also arrange free advocacy sessions on career development in school and colleges along the coastal belt.

k. **Options for Development of Hard power by Bangladesh Navy:** A survey has been carried out to identify the possible options for developing the hard power attributes of Bangladesh Navy. Figure 8 portrays the percentage of the respondent who has vowed for the options to develop hard power attributes of Bangladesh Navy in relation to the eradication of NTS threats in the BoB. However, among these options, introduction of a quick response force, as well as a coastal special force, is not applicable for Bangladesh Navy considering the force structure, role, and mission.²⁶

Figure 5: Respondents' opinion concerning the options for developing hard power attributes of Bangladesh Navy



Source: Author's self-construct

l. **24/7 CORPAT with Indian Navy:** Presently Bangladesh Navy is conducting CORPAT with Indian Navy on an occasional basis. However, the actual purpose will not be served unless the CORPAT along the IMBL is conducted 24/7 round the year. According to the survey, 74.69% respondents (Figure 5) believe that 24/7 CORPAT between Bangladesh Navy and Indian Navy may enhance the hard power attributes of Bangladesh Navy which will in turn help to eradicate NTS threats in the BoB significantly.

m. **Introducing CORPAT with Myanmar Navy:** The diplomatic relationship between Bangladesh and Myanmar has been dwelling because of the Rohingya issue. Despite such instances, Bangladesh Navy may seek for opportunity to make an endeavour to arrange CORPAT with Myanmar Navy. 75.9% respondents (Figure 5) during the survey have vowed that CORPAT between Bangladesh Navy and Myanmar Navy may reduce the transboundary NTS threats between Bangladesh and Myanmar on the maritime front.

n. **Enhance Intelligence and Surveillance Network:** Bangladesh Navy may endeavour to enhance its surveillance and intelligence network across the BoB as well as in the coastal areas. As per the survey record, 98.79% respondents (Figure 5) opined that good surveillance and intelligence network will certainly help Bangladesh Navy to exert its hard power attributes in order to combat NTS threats in the BoB.

p. **Strict Adherence to Maritime Laws and Regulations:** Maritime laws and regulations help to regulate the conduct of the seafarers including operation/ activities at sea in an orderly manner. 95.1% respondents (Figure 4) believe that ensuring strict adherence to maritime laws using the naval ships patrolling at sea may help Bangladesh Navy to develop its hard power attributes.

Conclusion

The maritime front of Bangladesh is entangled with numerous NTS threats which are mostly transnational in nature. Among these threats, Illegal fishing, arms & drug smuggling, human trafficking, seaborne pollution, acts of robbery and piracy are mention worthy. Besides, a few NTS threats like Rohingya influx and Yaba trafficking through maritime routes are predominantly state-sponsored. Due to the unique dynamics of NTS threats, traditional responses like coercive measures by the maritime forces may not be adequate. Bangladesh Navy, being the primary maritime security force, has been tasked by the government to combat these NTS threats in the BoB. As coercive posture alone is inadequate to address the NTS threats, a comprehensive approach is required by Bangladesh Navy to mitigate the challenges posed by those threats. In fact, a smart strategy comprising mixed versions of cooperative and coercive measures is presumably best suited in such a complex scenario. It is noteworthy that the combined application of both coercive and co-optive behaviour patterns by Bangladesh Navy has not been observed so far while dealing with NTS threats.

Smart power, a comparatively new concept, has been coined by the American political scientist J. S. Nye. Smart Power is the combination of hard and soft power strategies. Hard power is the ability to compel others to act as per own desire through the use of coercion or force. On the contrary, soft power is the ability to influence the behaviour pattern of others without utilizing any coercive means. Usually, military forces are acquainted with exhibit coercive posture. However, due to having a few inherent attributes, naval forces can involve in various benign events during peacetime. Such involvement has a similar connotation to soft power to some extent.

Realizing the significance of smart power attributes, it is presumed that application of smart power by Bangladesh Navy might be effective in combatting NTS threats in the BoB. The coastal inhabitants, due to the poor socioeconomic portfolio, are primarily responsible for posing NTS threats in the BoB. Hence, the coastal inhabitants should be the primary target population for applying soft power attributes. Besides, fostering hard power attributes of Bangladesh Navy might increase the potentiality to deter NTS threats in the BoB. In fact, application of a judicious combination of hard and soft power attributes by Bangladesh Navy is necessary to combat NTS threats in the BoB effectively.

So far, Bangladesh Navy has applied the hard power attributes only to combat NTS threats in the BoB. Due to proactive measures and round the clock vigilance of Bangladesh Navy and Bangladesh Coast Guard, number of piracy activities have reduced drastically in the recent past. However, the potentiality of such activities is likely to persist always in the BoB for which Bangladesh Navy needs to maintain adequate preparedness. On the other hand, Bangladesh Navy has been engaged in many soft power engagements like Goodwill visit, participation in bilateral and multilateral exercises, conducting maritime search and rescue operations etcetera since its inception. However, application of soft power for combating NTS threats in the BoB has not been observed much so far.

Bangladesh Navy possesses either moderate or less capability in terms of exhibiting soft power attributes to curb NTS threats in the BoB. However, overemphasizing the soft power involvement might deviate the focus of Bangladesh Navy from its primary role of warfighting. Therefore, maintaining a balance between the soft power and hard power engagements to combat NTS threats in the BoB remains as a major challenge for Bangladesh Navy. Other challenges include absence of strong surveillance and reconnaissance, emerging challenges owing to FDMNs crisis, collaboration with neighbouring countries for addressing transnational threats etcetera.

Patronizing socio-economic development of the targeted population of coastal areas in collaboration with Bangladesh Coast Guard and local administration might be an effective option for Bangladesh Navy to keep them refraining from indulging in illegal activities at sea. The research has marked that facilitating education for the coastal inhabitant will strengthen influence of Bangladesh Navy among the coastal communities. Undertaking special campaign for instilling social values among those people, conducting special medical campaigns, exchange of views with fishing and cargo vessel owners,

conducting HADR activities will foster soft power potentials of Bangladesh Navy immensely. Such activities will motivate and sensitize the coastal communities in order to prevent any organized criminal activities at sea. Besides, Bangladesh Navy patronized activities in the coastal belt will increase its influence among the mass population in that area which shall contribute to developing soft power generation.

Bangladesh Navy may strengthen its hard power attributes through a collaborative approach with neighbouring navies in order to curb transnational threats. Presently Bangladesh Navy is conducting CORPAT with Indian Navy on an occasional basis. However, aim of the CORPAT will not be achieved unless it is conducted 24/7 round the year across the IMBL. 24/7 CORPAT between Bangladesh Navy and Indian Navy may enhance hard power attributes of BN which will in turn help to eradicate NTS threats in the BoB significantly. On the other hand, military cooperation with Myanmar like CORPAT between Bangladesh Navy and Myanmar Navy is unlikely in near future due to ongoing FDMNs issue. Despite such instance, Bangladesh Navy may seek for opportunity to make an endeavour to arrange CORPAT with Myanmar Navy. Other options of developing hard power attributes include enhancement of surveillance and intelligence network across the BoB and ensuring strict compliance of maritime laws.

Recommendations

Based on the research findings, following recommendations are made to enhance the development of smart power potentials of Bangladesh Navy as well as to ensure its appropriate application with a view to combatting NTS threats in the BoB:-

- a. Bangladesh Navy may formulate a doctrine for development and application of smart power attributes, in light of the framework mentioned in figure 6, in order to address the NTS threats in the BoB effectively.
- b. NHQ may pursue concerned ministries through AFD to enhance the socio-economic development of the coastal inhabitants, where Bangladesh Navy may actively take part under the mandate of “in aid to civil power.”
- c. Bangladesh Navy may endeavour to increase the frequency of CORPAT with Indian Navy as well as pursue similar military cooperative engagements with Myanmar Navy to eradicate transnational NTS threats. This may foster the hard power attributes of Bangladesh Navy.
- d. Further research may be carried out to determine the means and ways of integrating Bangladesh Navy, Bangladesh Coast Guard, and civil administration in addressing the NTS threats in the BoB through the application of smart power.

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Brief Biography



Lieutenant Commander Md. Farid Uz Zaman, (TAS), psc, BN was commissioned on 01 December 2006 in Executive branch from Bangladesh Naval Academy. He completed his Executive Officers Basic Course from BNS ISSA KHAN and Junior Command and Staff Course from SI&T Sylhet. He successfully completed his specialization course on Torpedo Anti-Submarine from BNS ISSA KHAN. His other courses include Potential Platoon Commander Course (PPCC) from Bangladesh Military Academy and Young Officers' Training Course from College of Defense Studies, Beijing, China. He served onboard various ships of Bangladesh Navy in different capacities. Some of his onboard appointments include Torpedo Anti-Submarine Officer of BNS BANGABANDHU, Executive Officer of BNS GOMATI etcetera. He also served as Instructor (Seamanship) at Bangladesh Naval Academy. His staff appointment includes Staff Officer (Intelligence) in Naval Headquarters. He completed his UN mission as Staff Officer (Ops) at Sector Headquarters, MINUSCA, Central African Republic. During his service tenure, he has visited India, Sri Lanka, Singapore, Malaysia, China, France, and Italy.

REQUIREMENT OF A CENTRALIZED APPROACH FOR EFFICIENT COUNTER-DRONE CAPABILITY: ROLE OF BAF

Wing Commander Ashiqur Rahman Mallick, psc

Abstract

Proliferation of small drones pose a serious threat to national security on multiple levels. These drones are commercially available and easily modifiable. Furthermore, traditional defences are not suitable against them and rapid technological obsolescence work against acquiring an effective counter-drone capability. The aim of this paper is to identify requirement of a centralized approach for counter-drone capability in Bangladesh, to evaluate the role of Bangladesh Air Force in the effective counter-drone employment and to provide suggestion on mitigating the likely challenges. This research was conducted by mixed-method. At present, personnel with practical experience in this field is scarce. Higher leadership with proper decision-making authority was interviewed to obtain a primary data. The reliability of the data for this research was done through the triangulation method. The collected data was analyzed through the content analysis and data analysis process to formulate a credible finding. It was found that Bangladesh was not adequately prepared to counter the drones posing substantial threats to Bangladeshi security environment. The study proved that an increased level of cooperation and coordination between agencies or organizations would result in an increased level of effectiveness for national counter drone activities. The challenges to such system would be delineation of responsibility, standardized technology or systems and integration with AD system. The findings of this paper can contribute to the effective employment of a suitable and centralized counter drone system for Bangladesh to enhance capability and to address the potential drone threats.

Introduction

Unmanned Aircraft Systems (UAS) have proliferated rapidly and have become readily available to state and non-state actors, and individuals alike. The commercial ones, commonly known as drones, are inexpensive, easily available, and modifiable. The drone technology will evolve further and its exploitation are likely to become more complex and wider in future. As such, these can be used for various lethal and intelligence actions by various actors or individuals against Vulnerable Areas (VA), Vulnerable Points (VP) and Key Point Installations (KPI).¹ The emerging threats and lack of complete suite of counter measures means that the attackers have the advantage at present and only a robust and efficient approach can effectively deal with these threats.

Bangladesh Air Force (BAF) is responsible for air defence (AD) of territorial airspace of Bangladesh. Recent examples demonstrate deficiencies of the traditional defence system to counter-drone threats. As such, Bangladesh Air Force needs to build up capability to counter full spectrum of UAS threat to contribute to the national counter-drone activities as the primary AD organization of the country. Nonetheless, even the most advanced

militaries are experiencing challenges in regards to appropriate counter-measures, efficiency, policy, plan, organization and doctrine.²

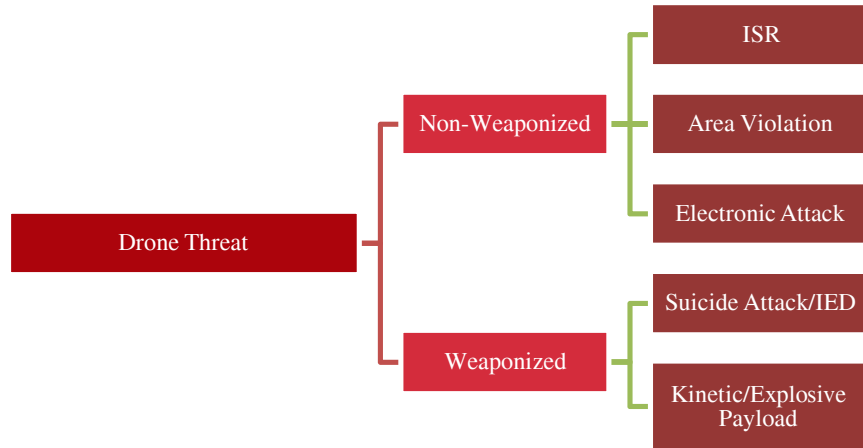
At present, there is no active counter-drone system in place except for a Drone Registration and Operation Policy by Ministry of Civil Aviation and Tourism (MoCAT) and a circular by Civil Aviation Authority of Bangladesh (CAAB). Besides, several agencies are in the process of acquiring counter-drone systems to protect their individual infrastructure or area concerned. In absence of a centralized control arrangement over the whole counter-drone system of services and organizations, there are possibilities of mishandlings, duplications and inefficient utilization of these assets. Thus, the requirement of a centralized approach for employing these systems cannot be overstated. At the heart of the approach would be a central authoritative body to coordinate and control all counter-drone activities. A unity of effort would, thus, be promoted by aligning the strategy, organization and activities with the national policies. Bangladesh Air Force's role would be significant in any such centralized approach as Air Defence Operation Centre (ADOC) is the Command centre for air defence against drones of any classification as directed by policy as well.³

Drone Threats and Suitable Countermeasures

These are discussed briefly below:

- a. **Identifying Drone Threats:** There are numerous threats that drones pose in the hands of the criminal or terrorist users. These threats can range from violating privacy, collecting information to carrying out attacks with payloads of different yields etc. In either way, military installations, VA/VPs, KPIs, critical infrastructure or VVIPs is increasingly becoming vulnerable to drone attacks.
- b. **Threat Classifications:** Drones can be classified broadly into two types based on the threats presented by them which are non-weaponized and weaponized threats (Fig-1):
 - i. **Non-Weaponized Threats:** In the Bangladeshi context, the drones can be used for collecting Intelligence or for surveillance as commercially available drones can provide real time video of an area or an individual.⁴ This is a threat to personal privacy at an individual level or national security.⁵ Unauthorized flight of drones has been found to be a serious flight safety hazard around the airfields and several such incidents took place in Jessore, Dhaka and Cox's Bazar between 2016 to 2020. Miscreants may also fly drones inside any Military Installation or VA/VPs for various purposes.⁶

Figure-1: Drone Threats Classified



Source: Author's self-construct

- ii. **Weaponized Threat:** Modifications may enable a drone to carry explosive pay loads of different degrees of yields. As such, drones may be utilized as an IEDs or to carry combustibles/explosives for kinetic attack.⁷

Available Counter Drone Measures

These are as follows:

- a. **Counter Drone Measure Concepts:** There are as many as 39 unique 'UAS defence' concepts including counter-drone concepts. These concepts were assessed and organized into a cumulative defence-in-depth model as in Figure-2 and briefly discussed below:

- i. **Prevention:** The drone threats can be monitored by mandatory permission that is required to fly any drone more than 5kgs of weight.

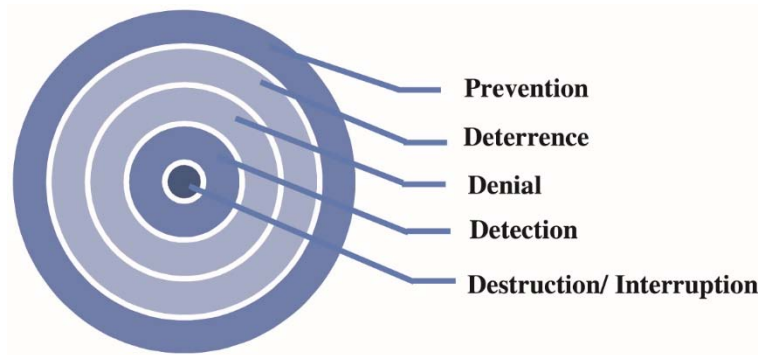
- ii. **Deterrence:** Deterrence can be achieved by establishment of civil and criminal penalties for illegal drone use in violation of the policy (MoCAT, 2020). However, deterrent measures are considered ineffective in the event of terrorism or criminal activity.⁸

- iii. **Denial:** Denial is the encoding of drone navigation software to prevent its use in certain designated areas which is called "geo-fencing." Drone producer DJI currently uses geo-fencing to prevent its drones from operating in Bangladeshi restricted or prohibited airspace including the airports. DJI also proposed to cooperate by installing geo-fencing measures in its drones as per Bangladesh's requirement.⁹

- iv. **Detection:** Detecting drones need newer technologies and systems which are still evolving and probably years away from perfection.¹⁰ This in turn is as follows:

(1) **Active Detection:** It depends on specially modified radars like Squire multipurpose radar system (Thales) to differentiate low flying, low RCS and slow targets like drones from birds or vehicles.¹¹

Figure-2: Five Rings Counter Drone Concept



Source: Author's self-construct

(2) **Passive Detection:** Passive detection includes Visual, Acoustic, Optical and radio. Most commercial drones (approximately 95%) operate 2.4 Ghz or 5.8 Ghz frequencies. In radio detection method, sensors are used to detect, identify, and locate the presence of drone by scanning those possible frequencies.¹²

v. **Interruption:** As active measures, interruption defences are designed to prevent a drone from carrying out a hostile action which are as follows:-

(1) **Operator Interruption:** In case of a criminal activity, the operator needed to be located first for interruption to take place.¹³

(2) **Jamming:** Jamming by high power RF frequency can disable a drone where it will descend or fall. Alternately, GNSS (GPS/GLONASS) jamming may trigger the "return home" function of a drone to send it back to pre-set location. As most commercial drones are operating at two frequencies, jamming those frequencies should prevent 95% of this type of threats.¹⁴

(3) **Spoofing:** In Spoofing, an operator sends false data to a drone and imitates as legitimate data to take over the control. Then, it can be brought down and thus, preventing any criminal activity.¹⁵

vi. **Destruction:** Destruction mostly deals with kinetic options of countering a drone. This is broadly achieved by following methods:-

- (1) **Projectile Weapons:** Hard kill systems like rapid fire guns and machine guns may cause collateral damage in the urban areas as drones are likely to fly low.¹⁶
- (2) **Guided Munitions:** Guided munitions like a missile would be an overkill unless the threat posed by the drone attack is too high.¹⁷
- (3) **Directed Energy Weapons (DEW):** Parts of drones can be destroyed by the directed energy weapons causing it to crash.¹⁸
- (4) **Interceptions:** This method involves striking a drone with another drone or bird. A net gun or a drone may be employed to shoot a net to capture the drone.¹⁹

International Standard: Case Studies

These are discussed briefly below:

- a. **Malaysia:** In general, drones are not being allowed to be flown during certain events without prior approval from the Civil Aviation Authority of Malaysia (CAAM). Malaysian counter drone systems are deployed by police (PDRM) as the lead agency and National Task Force (NTF) is oriented towards countering terrorism with all the Armed Forces involved in it. This task force is directly involved in the UAV and counter-UAV programmes, but these systems are not integrated with national AD organization as the major goal is to prevent criminal activities and threats to internal security.²⁰
- b. **USA:** USA categorizes drones as part of small UAS with maximum take-off weight of upto 20 lbs, speed upto 100 kts and operating height of less than 1200 ft. The US counter drone efforts resulted in many non-integrated, redundant solutions. To address these challenges, the Joint C-UAS Office (JCO) was established to lead, synchronize, and direct C-UAS activities to facilitate unity of effort across the Department.²¹ Even after this, there were several challenges observed by the Congressional Research Services. These included whether DOD was coordinating with other concerned departments and aviation agencies and whether C-UAS has implications of airspace management or military air operations.

Analysis of Case Studies

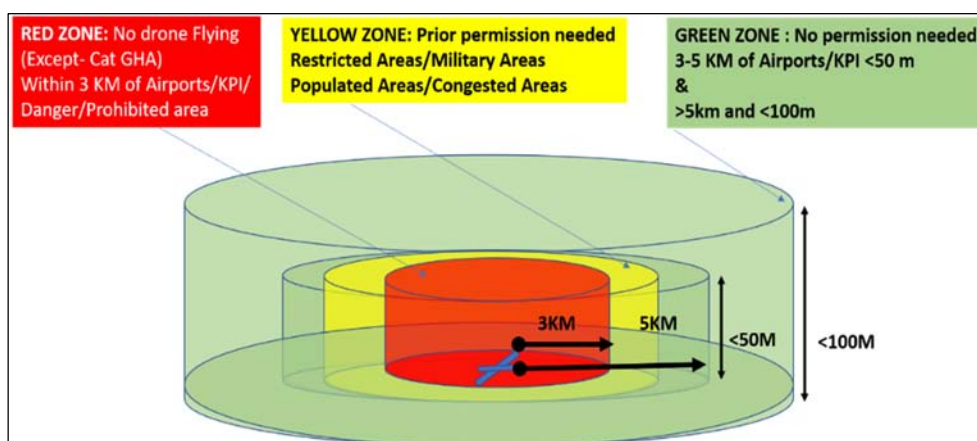
The divergent approaches between Malaysia and the USA not only emerges from two different perspectives or situations but also from the fact that there is no world standard set yet when it comes to counter-drone activities. It could be operated by a law enforcing agency as seen in Malaysia. It could be employed by many agencies/services like in the case of the USA. However, the question of required level of coordination, integration and de-confliction on various conceptual, administrative and operational levels remains. Hence, there is no international standards that exist for the use of counter drone systems.

Countering Drones: Capabilities and Preparedness

Present Counter-drone measures adopted by Bangladesh are as follows:

- a. **MoCAT Policy (2020) Excerpt:** The Drone policy of MoCAT is aimed at preventing unauthorized drone operation as a measure of reducing threats. It outlined three zones for operating drones (Fig-3). A 'No-Objection Certificate' (NOC) from Ministry of Home Affairs (Public Security Division) would be needed for importing drones with payload of less than 5kg (Category-Ka).

Figure-3: Operating Zones for Drones (MoCAT)



Source: Author's self-construct

Whereas, a Ministry of Defence (MoD) clearance would be required for importing any drones with payload of 5kg or more. The policy also outlines that, violators will be subject to legal actions. Finally, the policy mentions the following- "If drones operate without prior permission or interrupt security/air defence system, Air Defence Operations Centre will reserve the right to counter that drone as per existing regulations; nevertheless, any KPI/Special KPI may establish its independent drone prevention system in coordination with Air Defence Operations Centre."

- b. Excerpts of CAAB Circular (2019) are given below:
 - i. **Preventive Measures (Passive):** The Civil Aviation Circular (CAC) on Operating Remotely Piloted Aircraft Systems (RPAS) outlines the requirements of drone operations in terms of CAAB permission, operators' responsibilities and qualification etc. CAAB was in discussion with several agencies like DJI to evaluate further built-in restrictive features to prevent the uncontrolled drones and unauthorized intrusion.²²
 - ii. **Active Measures:** CAAB is evaluating counter-drone system that would be able to interrupt the control of the drone by the means of jamming. As mentioned earlier, a system capable of jamming at 2.4 or 5.8 Ghz may be effective for 95% of

the drones available commercially unless modified. The issue of countering the rest 5% is much more difficult considering the cost and technology. Moreover, a costlier system may become technologically obsolescence quickly. CAAB's counter drone system is not intended to be integrated with any other systems.

The Role of Bangladesh Air Force and Its Counter Drone Capability

This is described as follows:

- a. **Role of Bangladesh Air Force:** Bangladesh Air Force is responsible for the AD of territorial airspace of Bangladesh. Chief of Air Staff (COAS) is also by appointment the Air Defence Commander (ADC). As per Defence Policy, 2018 ADC is also vested with the command of ADOC. Apart from its responsibility to defend the airspace, Bangladesh Air Force may find itself facing against potential misuses by drones in ISR and other subversive activities.²³
- b. **Bangladesh Air Force Present Capability:** The present Bangladesh Air Force capability has to be evaluated along two broad capabilities which are Detection (and/or monitoring) and Interruption/Destruction. In turn these are sub-divided as follows:
 - i. **Active Detection:** Bangladesh Air Force is the primary user of AD radars. Some of the present radar have the capability to detect drones of very low RCS. Bangladesh Air Force has also detected some drones in Jessore and Cox's Bazar. However, these detections were sporadic to prove any reliable capability in this regard. Moreover, such detection is only possible when drones are flying above approximately 100 ft.²⁴ The low looking radars' dataset contains information on different UAVs. The radar is expected to detect and classify several drones like DJI Phantom 4 Pro, DJI Mavic Pro, Helicopter Kyosho, Parrot AR drone and Tricopter HMF600 etc.²⁵
 - ii. **Passive Detection:** At present Bangladesh Air Force does not have any passive detection system that can detect drones. More than 1000 trained MOU could be a useful asset and Bangladesh Air Force is planning to include visual drone detection lessons in MOU training syllabus.²⁶
 - iii. **Interdiction:** Bangladesh Air Force has plans on procuring a counter-drone system. Several systems from Europe were evaluated. Bangladesh Air Force intends to procure at least two systems initially. The initial focus is to achieve soft kill capability (interruption), and then hard kill (destruction). The systems are likely to provide point defence solution. Such systems are not likely to be able to integrate with existing conventional AD system.²⁷

Counter Drone Capability of Other Services and Agencies

Bangladesh Army or Bangladesh Navy have plans to procure counter drone systems. On the other hand, there was no confirmed information on any other agencies of Bangladesh possessing counter drone capabilities.

Evaluation of Current Capability and Preparedness

At present there are National Drone Policy and CAC which serve both as a preventive and a deterrent measure, which are the first two steps in counter drone concept. However, it is unlikely that established penalties will be effective in deterring criminals, terrorists or Hostile Intelligence Services (HIS). On the other hand, none of the branches of Armed Forces or any Government agencies are known to possess any counter-drone systems to interdict (interrupt or destroy) drones. The conventional AD systems employed by the Armed Forces are not suitable to counter the drone threats effectively.²⁸ Other AD weapon systems ranging from anti-aircraft artillery to small arms could be used if a drone was detected but these are unsuitable for destroying a drone.

Choosing a right strategy to counter drones is becoming increasingly difficult as all the counter-drone options have pros and cons. The rapid evolving technology and concepts may make one counter-drone system relevant today and outdated the next day. The Armed Forces and other agencies are also yet to come on a single platform as far as strategic planning is concerned. The individual services are planning on their own catering for respective requirements.²⁹ The VP/ Military installations can be protected by systems employed by respective services; however, the areas of responsibilities are yet to be formally delineated. Overall, there are inadequacies in terms of counter drone capabilities.³⁰

Effective Employment of Counter-Drone System

Requirement of Detection and Interdiction Measures is applied in the five-step concept of countering drones, regulations like MoCAT policy or CAC may act as a preventive and/or a deterrent measure. Such policies need to be supported by active counter drone measures that can detect, track and if necessary, interrupt or destroy. These are the pre-requisites of an effective counter drone system.³¹

Evaluation of a Suitable Counter Drone System

Off-the-shelf counter drone systems are of different platform types and of differing detection and interdiction effectiveness. At present, rarely any system can provide a full-proof solution against a drone threat.³²

Counter Drone Platform Types

These are follows:

- a. **Ground-based Systems:** These are stationary or mobile systems and are more suitable for point defence and protecting military installation like a Base.
- b. **Hand-held Systems:** Many of these systems resemble rifles or other small arms.³³ These are more suitable for protection of VVIP or law enforcing agency with enhanced mobility.

- c. **Drone-based Systems:** Interdiction elements (like nets) are mounted on drones to be employed against target drone.³⁴

Detection Effectiveness: Every detection system has drawbacks. Electro-optical systems can only operate during daytime, and might confuse a drone with a bird or an airplane (combining these sensors with other elements may help mitigate this problem). EO and IR systems, as well as certain RF systems, must have a direct line of sight with the intruding drone. Acoustic sensors and RF detection systems rely on a library of sounds emitted or frequencies used by known drones only. Given the rapid rate at which drones are emerging on the market and proliferating, even libraries that are updated often will never cover 100% of the drones that might be operating at any given time.³⁵

Interdiction Effectiveness: No interdiction system is apparently 100% effective according to a report based on a practical exercise and the drones were generally found “very resilient against damage”. Indeed, the proliferation of counter drone technology might even accelerate the development of technologies (military drones specifically) that will render counter systems ineffective.³⁶

Features of a Suitable System

This is described as follows:

Analysis of the Centre for the Study of the Drone database makes it clear that most of the counter drone systems is based on single sensor (Radar, RF detection and EO Sensors) and most available interdiction method is Jamming.³⁷ Though kinetic measures are less available and may come as a redundant measure on the systems already deploying Jamming. A good detection capability and an Interruption capability were found to be the most important features of a suitable counter system, whereas, ability to integrate with AD and ability to integrate with other counter drone systems were also desirable.

For drone Interdiction, RF Signal Jamming or Spoofing was considered to be the most suitable method. However, having 2 or 3 methods side by side would be most effective.³⁸ It is seen that no international standards exist for the proper design and use of counter-drone systems. This is an important issue, as it means there may be significant variances between the performance and reliability of systems that might appear to be very similar as per advertised specifications. Several counter-drone systems that Bangladesh Air Force and CAAB evaluated failed to meet the requirement and/or perceived standard.

Options for Effective Employment of Counter Drone System

These option are discussed below:

- a. Independent Systems.
 - i. **Armed Forces:** Armed forces need to employ counter drone system specially to protect military installations against hostile ISR or subversive attacks. The lack of a proper detection system also results in inability to reflect

such attempts in a measurable way. The most systems available at present can cover a small radius and able to provide point defence only. It would not be possible to employ counter drone systems in all the military installations nor all points/areas of interests. As such, the Armed Forces employment of counter drone system will be prioritized and dictated by threat assessment. Respective services could employ their own counter-drone systems as part of point defence. For overlapping areas, the services need to coordinate amongst themselves to de-conflict area of operations.³⁹

ii. **Other Agencies:** CAAB would be inclined towards getting a round-the-clock detection capability with RF jamming interruption system to ensure safety around airports. Other agencies like Police, BGB, RAB may procure such systems for providing security and countering terrorist activities. The interruption (jamming, spoofing etc.) capabilities are most appropriate for the nature of the threat. Such systems may be deployed independently without detailed coordination with other agencies, especially the Armed Forces. On the other hand, for countering drones of a sophisticated enemy who are capable of modifying commercial drones, use drone swarms etc. a destruction method (gun) may also be needed. However, such threat is low right at this moment. Procuring hard kill solution by these agencies would require increased level of coordination for employment primarily due to air space management issues.⁴⁰

b. **Integrated System:** At present most effective counter-drone systems are the ones using interruption (jamming) method. Most of these systems again jam RF signals of 2.4 and 5.8 GHz (frequency that most commercial drones use). However, modified-drones and drones not operating in these frequencies (e.g., military drones) are not susceptible to these systems. These systems operate below 1000 feet including the ones that employ LASER and gun. Therefore, a detailed integration of these point defence weapons with AD network may not be practical. However, all the interviewee agreed that information of counter drone system employment should be shared amongst the stakeholders. From, AD perspective, this will improve airspace management. If the effort is not planned centrally this would not be effective. A coordination between services should be there to select type of system to buy. Armed Forces Division (AFD) may delineate responsibility, to help standardize procurement to enhance interoperability. AFD can also coordinate with civil counterparts like Home Ministry (or any ministry) or police, RAB and BGB. As the responsible organization for national AD, BAF may formulate policy affairs in coordination with AFD. The interoperability would reduce the cost of training. If the agencies, military or civil alike, use same system, interoperability would reduce maintenance cost. Though, interoperability is possible through coordination of procurement, training etc, integration with AD weapon may not be required. First, these are point defence assets and operate in a smaller than local area. Moreover, many of the systems are soft kill (jamming; interruption) systems. Secondly, integration with conventional AD weapon or assets may not be possible due to technical limitations. Thirdly, from operational perspective, those points may be declared 'guns free' and brought under

procedural control. Though, counter drone systems employed by different agencies may not be integrated, a centralized approach is a necessity. It would streamline many of the perceived challenges existing right now.⁴¹

Challenges and Mitigation

Likely challenges and mitigations are as follows:

- a. **Absence of a Central Organization:** The biggest challenge to effective counter drone capability would be the absence of a central body to coordinate and integrate all the counter drone activities. Counter drone capabilities can be developed by individual agencies but that would lead to other major challenges like duplications, redundancy and interoperability etc.⁴²
- b. **Mitigation:** A central coordinating organization is essentially the only mitigating measure to this problem. Military would be the obvious primary users of counter drone systems and Armed Forces Division would be the coordinating agency for the Armed Forces. Bangladesh Police, Bangladesh Coast Guard and Border Guard Bangladesh (BGB) are under Ministry of Home Affairs (MoHA). Whereas, other users like SSF (PMO), NSI (PMO) and CAAB (MoCAT) are under different offices/ministries. Thus, the central coordinating body need to carry out inter-ministerial coordination. Armed Forces Division is the most suitably positioned organization to take that role.⁴³ This central organization would look after proper strategy, doctrine formulation, procurement, standardization and responsibility delineation etc.
- c. **Standardized Technology/System:** Evolving technology along other reasons mentioned have made a counter drone system providing 360° protection prohibitively expensive.⁴⁴ In previous research, approximately 25% of respondent uniquely identified Technology and Cost as the main challenge to acquiring a counter drone capability. Acquiring an appropriate and standardized technology or system that is interoperable would be very challenging given the diverse requirements of different users. Adapting to such sophisticated technology would also be very challenging. The central coordinating organization might standardize systems that would be procured to resolve the issue of technological challenges. Acquiring similar technology or system would help reduce the issue of adaptability with a knowledge sharing approach.
- d. **Responsibility Delineation:** Different users with respective unique threats, vulnerable points and counter drone systems may be given designated areas to defend. A possible solution is to delineate specific areas of responsibility to different users for countering drones. For example, Army, Navy and Air Force would be responsible for defending their respective Bases, installations and assets.
- e. **Integration with AD System:** Drone and counter drone system may have implications for AD system of Bangladesh. How future Counter-drone technology would fit in the AD system would have to be addressed while adopting a centralized approach. Integration of convention and counter drone system would be quite challenging. The delineated AOR could also be challenging in terms of integrating

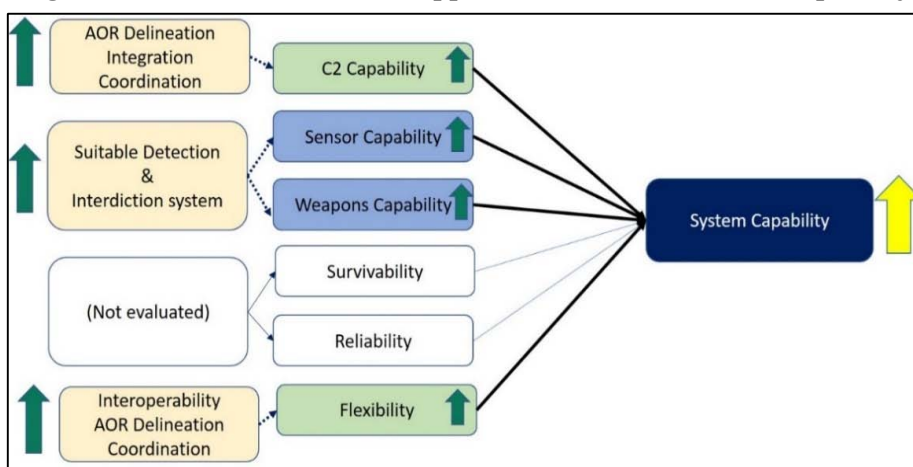
with national AD system. As a point defence system, not all counter drone systems need to be integrated to AD system. Delineated AOR may not be conflicting with AD system. However, ADOC may be coordinated with for the disposition of such systems as promulgated by the MoCAT policy. In future, with advancement of technology such integration may be possible. All agencies using counter drone systems may work closely with ADOC for necessary coordination.

f. **Coordination:** Armed Forces Division could become the coordinating organization for a centralized approach of national counter drone activities. However, detailed coordination, specialized and expert management may emerge as a challenge. This could be mitigated by designating a lead agency in counter drone activities. AD of Bangladesh is the primary responsibility of Bangladesh Air Force. The MoCAT policy already empowered ADOC to take action in case of a breach. Bangladesh Air Force has experience and technical expertise to deal with such responsibility. As such, Bangladesh Air Force could be a suitable lead agency for centralized drone activities under designated organization (i.e Armed Forces Division), if so decided by the Government. 89% of the survey respondents believed that Bangladesh Air Force could be the lead agency.

Improved Capability in a Centralized Approach

The relationship based on effective AD capability (Fig-4) shows the relationship between a centralized counter drone approach and improved capability. From the research conducted for this paper, it was learned that a centralized approach would improve coordination while separated AOR could be adopted. This would improve C2 as an enabler to an improved capability as per the model. Similarly, improved sensor capability, weapons capability and flexibility through centralized approach would improve overall counter drone capability. Finally, majority survey respondent opined that Bangladesh Air Force could be a lead agency in the counter drone activity which was supported by the interviewees.

Figure-4: Effect of Centralized Approach on Counter Drone Capability



Source: Effective AD Capability, National AD Plan 20211 (Draft)

Conclusion

In the context of Bangladesh, drone threat would encourage procurement of counter systems by the branches of Armed Forces and other security agencies. However, without a unity of effort, the employment of counter-drone system would have complications in respect of delineating the area of responsibility, a command-and-control (C2), redundancy interoperability. The deficiencies of the traditional defence system and present counter-drone capability make it imperative for Bangladesh Air Force to build up adequate capability to counter full spectrum of UAS threat. As the primary AD organization of the country Bangladesh Air Force would be a critical agency in the centralized counter drone activities.

This research found out that, the preparedness of Bangladesh against potential drone threats is inadequate. Presently, Bangladesh is dependent on the lone policy by MoCAT to regulate drone operation as a preventive measure. Bangladesh Air Force AD radars are not capable of detecting drone consistently due to technical limitations and conventional AD weapons systems are also not suitable for destroying drones. MoCAT policy permits different organizations to possess independent systems for protecting their own areas in coordination ADOC and these areas are not yet delineated.

Most of the counter drone systems available around the world at present have technological limitations to be effective and does not provide a complete protection. The main problem lies with acquiring a perfect detection solution. As of now, jamming seems to be the most appropriate interdiction method. The future systems by different agencies may not be able to integrate with existing AD system due to technological limitations.

However, the study proved that an increased level of cooperation and coordination would result in an increased level of effectiveness for national counter drone activities.

Implementation and acquiring required capability for a centralized counter drone approach might come across some challenges. Inexperience and adapting to a new technology may be mitigated by standardized systems and knowledge sharing. In Bangladeshi context, Armed Forces Division could be the coordinating organization bridging gaps between all the agencies involved at ministerial level. Such central body would remove many other barriers like duplications and interoperability etc. This research found that, agencies may employ respective counter systems to protect delineated areas with close coordination with ADOC. Such point defence systems may not be able to integrate with AD system. Due to the prominence and experience of AD matters Bangladesh Air Force could be the lead agency for coordinating various counter drone issues. Finally, this paper concluded that, a centralized approach under a central body would reduce drone threats by increasing effective counter drone capability with Bangladesh Air Force playing the role of the lead agency.

Recommendations

Based on the findings of this research following recommendations are made for consideration:

- a. Suitable counter drone system(s) may be procured by Bangladesh Air Force to develop capability and formulate necessary procedure in line with policy to accommodate counter drone systems in overall AD network.
- b. A committee may be formed under Armed Forces Division including other stakeholders to develop and implement a centralized counter drone system.

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Brief Biography



Wing Commander Ashiqur Rahman Mallick, psc was commissioned in General Duties (Pilot) branch of Bangladesh Air Force on 29 December 2002. He obtained his BSc (Aeronautics) degree from Bangladesh National University. He also has a Masters in International Relations from Dhaka University. He has completed various professional courses at home and abroad, like Fighter Pilot Training, International Flight Safety Officers' Course, Junior Command and Staff Course, Squadron Officer's Course etc. He has served as flying instructor, flight commander and staff instructor in various flying squadrons of BAF. His staff assignments include working as the Personal Secretary to Principal Staff Officer (PSO), Armed Forces Division. Wing Commander Ashique also served with UN in MONUSCO and UNAMID. Prior to joining Air Staff Course, he served as the Staff Instructor of 35 Squadron BAF.

THE CONUNDRUM OF OFFICERS' PROFILE MANAGEMENT IN BANGLADESH ARMY AND NECESSITY OF INTRODUCING 'INTEGRATED OFFICERS' DATABASE SYSTEM' (IODS)

Major Md Junaed Zakir, psc, Signals

Abstract

Historically, in the military, officers' personal data is preserved with adequate care and great importance. In the present-day context, the need for multi-dimensional information has made the officers' profile management intricate. Therefore, a departure from the traditional paper-based documentation method and incorporating Information Technology to manage data is the best solution for Bangladesh Army. In the contrary, discrete effort to manage officers' database often increases the work load of the officers. Considering all these realities, adopting an Integrated Officers' Database System (IODS) to maintain officers' data is a need of time. However, implementing such an integrated database would not be possible until the data-owners gain confidence in security organisations. Developing a cyber-team and improving the network infrastructure are also necessary pre-condition to implement such an integrated system. If an integrated approach is adopted to maintain officers' profiles by taking all the required measures, it will contribute to organisational efficiency by saving valuable time, human effort and cost.

Introduction

Data is treated as 'New Oil' in the present day.¹ In the corporate organisations, it is believed that business success depends not only on the possession of resources, but also on the efficient utilisation of resources i.e. data and information. Human resource, being the most vital resources among all, need to be engaged efficiently with a view to achieving better organisational efficiency. Therefore, managing an employee database (DB) as a resource is an important managerial task in today's corporate world. Same reality is applicable for Bangladesh Army, too. Ever increasing dimensions of analysing officers' information has made the data management task difficult. Adopting Information Technology (IT) to manage the data efficiently would be a pragmatic solution.

Bangladesh Army has invested a significant amount of money and effort in enhancing its IT capability. Creation of Army IT Support Organisation (AITSO) has enabled Bangladesh Army to develop and maintain the IT backbone. Under the leadership of IT Directorate, AITSO has ensured the inter-connectivity between the units and HQ through Army WAN. Moreover, Bangladesh Army has become the trailblazer by establishing a sophisticated Data Centre among the services and forces. However, despite all these capabilities, Bangladesh Army is yet to develop an efficient officers' profile management system. Lack of coordinated effort among the various parts of Bangladesh Army while managing officers' data has imposed manifold weaknesses in the existing system. These weaknesses are affecting Bangladesh Army by reducing the organisational efficiency. Therefore, adopting the Integrated Officers' DB System (IODS) is the need of time to ensure an efficient working environment in the entire organisation.²

With this backdrop, this paper will attempt to identify the weaknesses of existing officers' profile management system of Bangladesh Army and will describe the necessity of introducing IODS for achieving better organisational efficiency. In doing so, a detail evaluation of the existing system will be done to identify the weaknesses of present arrangement of maintaining officers' data. Desired features of IODS basing on different categories of users will be discussed next to overcome the existing weaknesses. Finally, few measures would be suggested which Bangladesh Army would undertake to establish IODS effectively.³

Aim

The aim of this paper is to identify the weaknesses of existing officers' profile management system of Bangladesh Army and evaluate the necessity of introducing IODS with a view to achieving organisational efficiency.

Present Arrangement of Maintaining Officers' Data in Bangladesh Army

Bangladesh Army has taken lots of endeavours to manage officers' personal information efficiently. Different organs of the Bangladesh Army have developed sundry means to manage officers' profiles. Effectiveness of the existing system needs to be reviewed considering the progress of IT sector with a view to achieving better organisational efficiency.

Bangladesh Army starts preserving individual data right from the cadet life of an officer. Bangladesh Military Academy Form-4 (BMAF-4) is the basic bio-data form filled by a cadet immediately after joining to Bangladesh Military Academy (BMA). This form, along with the cadets' dossier, is preserved in BMA Archive after the Passing out Parade. In Bangladesh Army, MS Branch and MI Directorate maintain the most significant officers' DB for their day-to-day functioning. CORO maintains a separate automated system for maintaining both serving and retired officers' data. Despite the fact, CORO is an extension of the MS Branch; there is no connectivity between these two parts of the same body. As a result, MS Branch cannot fully exploit the capability of CORO in times of urgent need. Moreover, officers are to update their profile in Personal Information Database (PID) and Combo ID Card electronically using Army WAN infrastructures. Besides all these arrangements, CMH, Dhaka is maintaining PMD which will be implemented in all other CMHs shortly.⁴

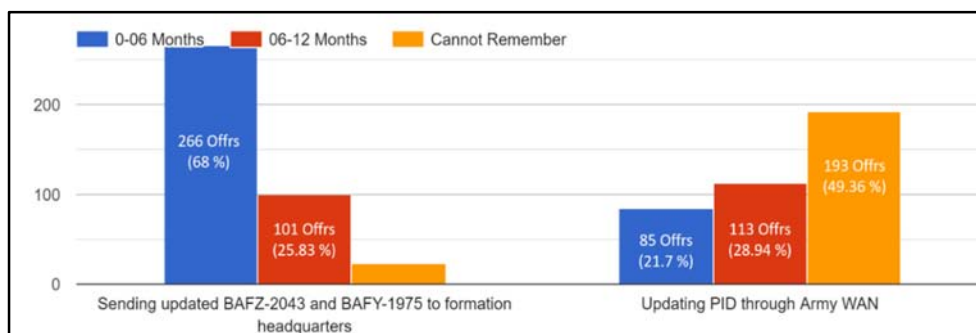
Officers' Profile Management by MS Branch and MI Directorate

AHQ, MS Branch and AHQ, MI Directorate maintain separate electronic DB for maintaining the officers' profile. Both of these offices depend on hard copies of biodata, which are periodically sent by the officers. MS Branch is primarily dependent on BAFZ-2043, whereas MI Directorate relies on BAFY-1975. A significant amount of time and human effort are required to update these DBs. To reduce the clerical load, MI Directorate launched PID in 2012, allowing remote users to update their profiles through Army WAN.⁵

According to policy, all officers are supposed to send their updated BAFZ-2043 and BAFY-1975 to MS Branch and MI Directorate immediate after change in any of the personal information. However, the survey dictates that only 68% of officers have sent their updated

particulars to concern headquarters and branch/ directorate within the last six months, whereas 25.83% of officers sent their updated profile six months before. Besides these, 6.14% of officers cannot remember when they sent their updated information to any of these stakeholders. In case of PID, around 49.36% officers cannot remember when last they updated their profile. Survey result has showed that only 21.7% of officers updated their PID within the last six months. Details of the survey are shown in Chart 1.

Chart 1: Showing the Trend of Sending Updated Profile by the Officers

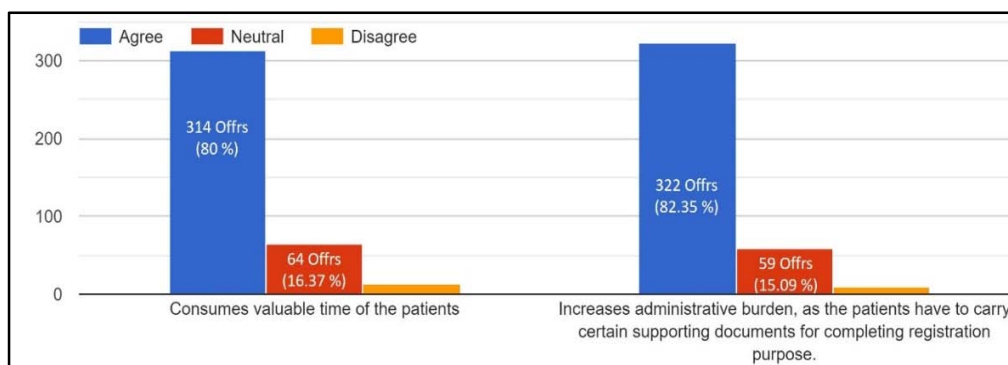


Source: Author's Construct Based on Survey

Profile Management Data (PMD) by CMH, Dhaka

PMD is designed to preserve all medical history of officers and families on a digital platform. The purpose of this initiative is to provide faster medical service to patients. Patient registration in PMD is mandatory for availing treatment in CMH, Dhaka. However, as per the survey findings, only 15% of military personnel have completed their registration using this platform. Rest 85% of officers have had to complete physical registration standing in a queue. According to 80% of officers, the existing patient registration system is time-consuming. Moreover, 82.35% of officers think that such a registration process has increased administrative difficulties for the patients.⁷ (Chart 2).

Chart 2 Showing the Response of Officers on the Existing Registration Process of PMD

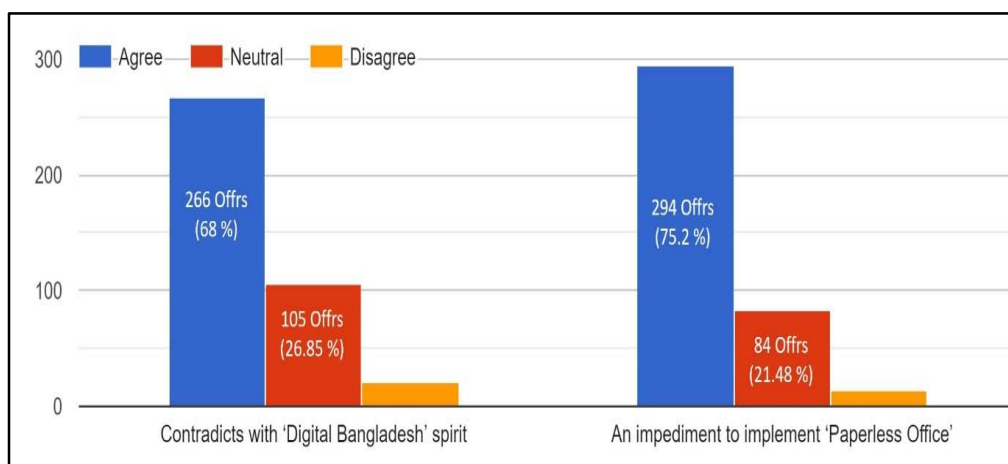


Source: Author's Construct Based on Survey

Besides these major officers' DBs, few other DBs store data related to officers. Personal Secretariat (PS) Directorate of Army Headquarters, Canteen Stores Depot (CSD), Army Officers' Club etcetera are few entities which deal with officers' profile.

Basing on the above discussion, it is evident that maintaining various DBs within Bangladesh Army without any centralised control has manifold weaknesses. According to the survey, 75.2% of officers have agreed that the concept of existing officers' profile management system impedes to implement 'Paperless Office' in Bangladesh Army. Moreover, 68% of officers think that the existing system contradicts the 'Digital Bangladesh' concept⁸ (Chart 3).

Chart 3 Showing the Response of Officers on the Conceptual Limitations of the Existing Officers' Profile Management System



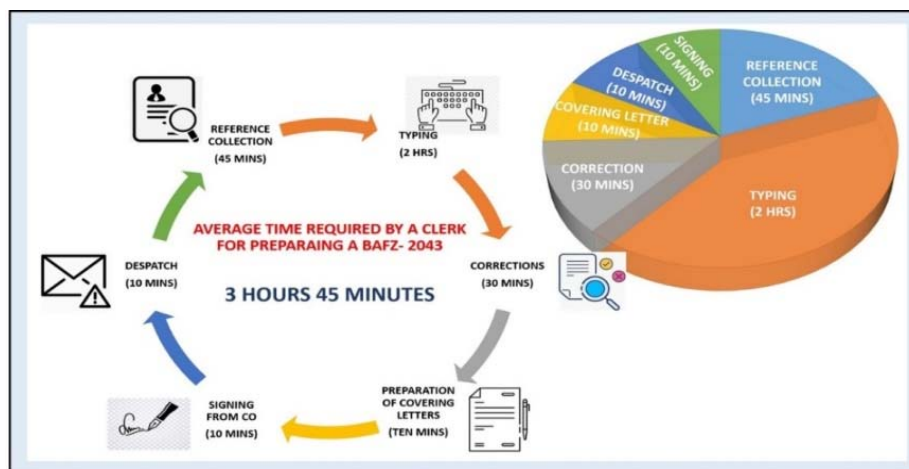
Source: Author's Construct Based on Survey

Weaknesses of Existing Officers' Profile Management System

Existing system of maintaining officers' data poses several difficulties to both the individual and organisation. Weaknesses of the current system are appended as follows:

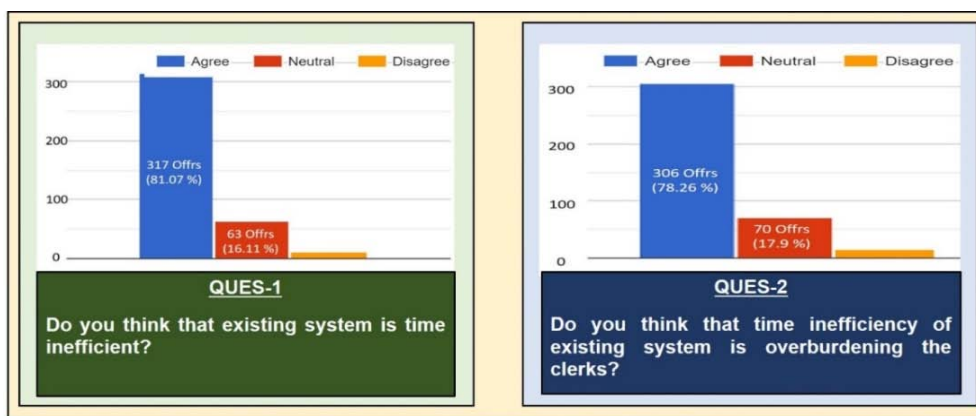
- a. **Time Inefficient:** The existing officers' profile management system is time inefficient from both the individual and organisational points of view. According to the survey, 81.07% of officers have opined that the existing system is time inefficient as they have to fill up same information in multiple places by spending their valuable time (Chart 4). Moreover, it has been observed during field survey that for completing a BAFZ-2043 of forty-four fields, an experienced clerk (five years of service length) needs three hours and forty-five minutes time on average (Figure 1). This time inefficiency is overburdening the clerks quite adversely which has been acknowledged by 78.26% of officers during the survey⁹ (Chart 4).

Figure 1: Average Time Required by a Clerk for Preparing One BAFZ-2043



Source: Author's Construct Based on Field Survey

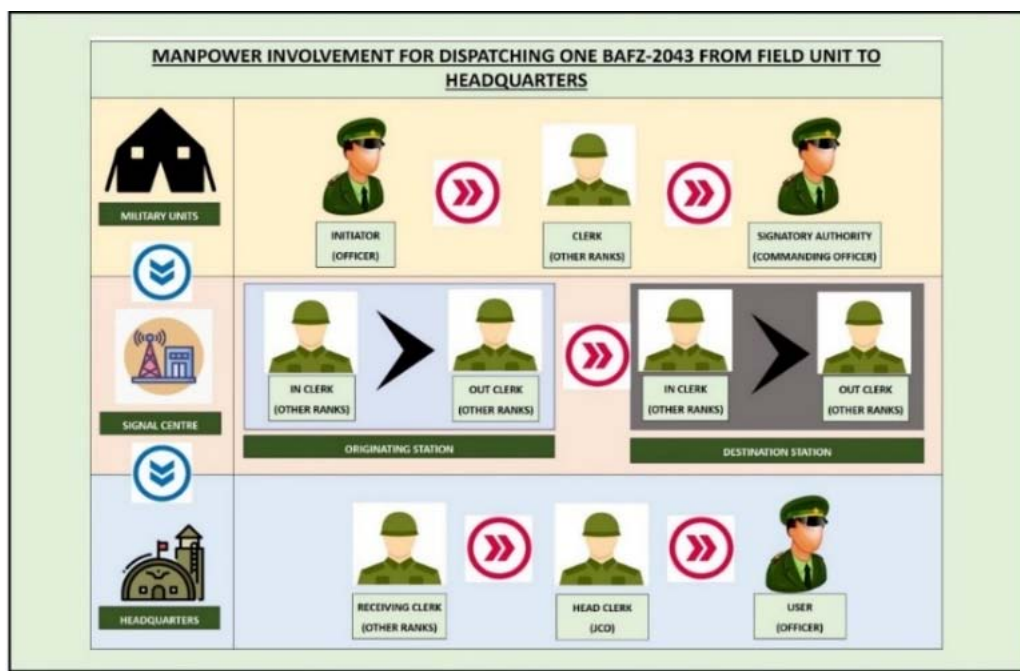
Chart 4: Response of Officers on the Time Inefficiency of the Existing Officers' Profile Management System and Its Impact on the Clerks



Source: Author's Construct Based on Field Survey

b. **Draining Human Effort:** According to the field survey, the existing system involves ten persons in three different layers to complete the entire procedure of sending a profile (BAFZ-2043/ BAFY-1975) from units to any headquarters through signal centre (Figure 2). 79.02% of officers during survey agreed that such manpower involvement unnecessary drain human effort (Chart 5). Moreover, it puts additional stress to the headquarters and units which are working with limited manpower.¹⁰

Figure 2: Manpower Involvement for sending one BAFZ-2043 to the Higher Headquarters according to Existing Officers' Profile Management System



Source: Author's Construct Based on Field Survey

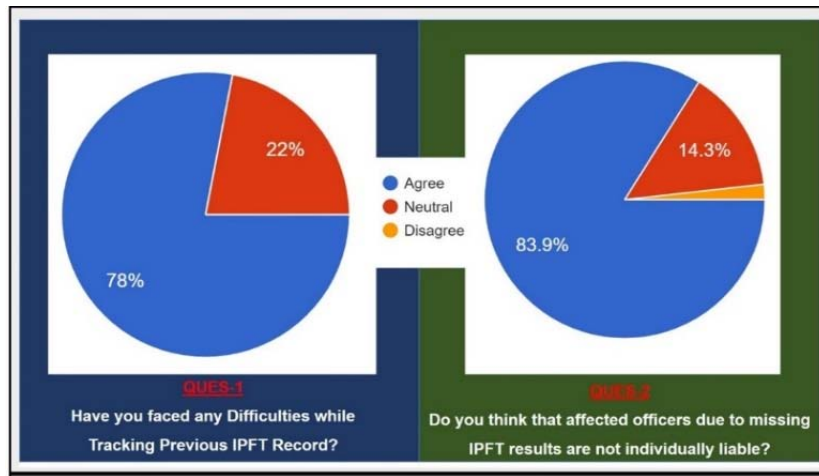
c. **Inefficient Resource Utilisation:** Presently, multiple DBs are prepared and maintained by different offices within the army. Installing, maintaining, and updating these DBs require significant financial involvement. On the contrary, infrastructure developed by AITSO is under-utilised. At present, Army Data Centre is running by utilising only 50% of its capacity. Lack of integration between MS Branch and CORO and incorporating a new DB for Combo ID Card by MI Directorate despite having a PID platform are consummate examples of inefficient resource management.¹¹

d. **Lacks Security and Privacy:** Figure 2 demonstrates that updating a BAFZ-2043 involves ten different persons. As a result, the on-going system cannot offer absolute security to personal information. Moreover, it is difficult to ensure that softcopies of BAFZ-2043 and BAFY-1975 are not falling into some unauthorized agencies due to unrestricted use of flash drives. Another security concern is sending these forms using sundry open sources like Gmail, Yahoo Mail, Viber, WhatsApp, etcetera. Dependency on clerks to prepare service particulars contradicts the privacy issues. Disclosing sensitive information like details of punishment, reason for divorce often put officers into discomfiture. Such breach of privacy at times negatively impacts the command environment.¹²

e. **Data Inconsistency:** Myriad of DBs needs simultaneous, synchronised, and systematic data input. Due to the complex environment, this principle of data management cannot be applied. As a result, different DBs show different information of a particular officer. Difference in information is much prominent in the case of rank and unit. Presence of myriad platforms and unavailability of updated profiles in the headquarters are the main reason for such inconsistency.¹³

f. **Indigent Record Management at Formation Level:** Formation orders are not preserved for more than five years according to policy. As a result, essential orders related to IPFT, RET, driving license, etcetera cannot be retrieved if these are older than the said period. During the survey it is observed that 78% of officers have encountered difficulties in recovering their previous IPFT results. Moreover, 84% of officers have expressed that non-availability of IPFT Division Order often affects the officers' career for which individual is not responsible¹⁴ (Chart 6).

Chart 6: Response of Officers on the Non-Availability of IPFT Result



Source: Author's Construct Based on Field Survey

g. **Impediment to Precise Decision Making Process (DMP):** Dependency on the printed version officers' profile is the biggest limitation of exiting officers' data management system. Unavailability of updated profiles at MS Branch and MI Directorate often create trouble while making precise decisions.

h. Figure 3 demonstrates the weaknesses of existing officers' profile management system that have been discussed above. Considering the limitations mentioned above, 77.5% of officers have opined that the weaknesses of existing officers' profile management of Bangladesh Army leads to an inefficient working environment.¹⁵

Figure 3: Weaknesses of Existing Profile Management System Which Lead to Organisational Inefficiency



Source: Author's Construct Based on Field Survey

Desired Features of IODS for Better Officers' Profile Management

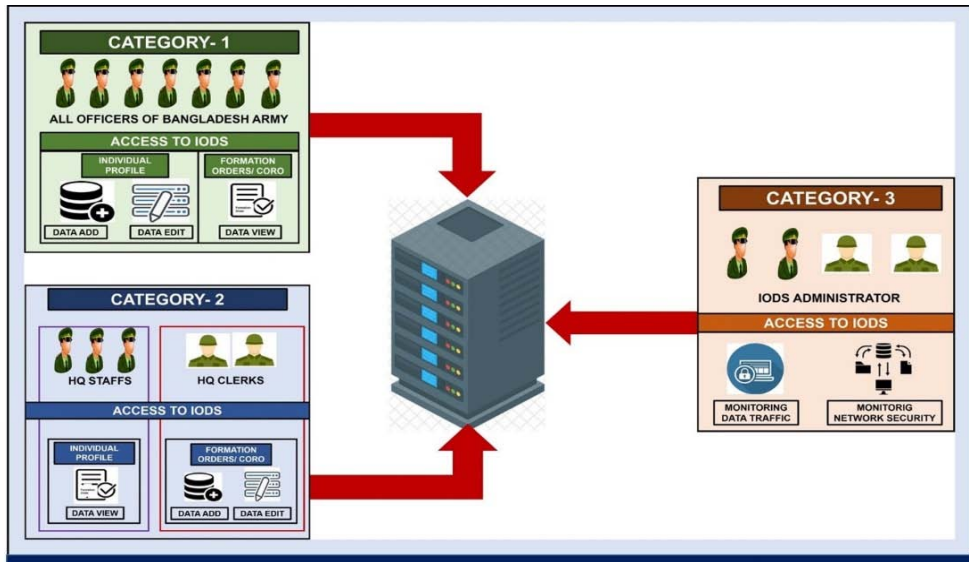
In today's IT-dominated world, departure from paper-based officers' data management system and adopting an absolute automated and integrated DB in Bangladesh Army is the demand of time. Existing cyber threat should prioritize the security issues while designing any information management system.¹⁶

Category of IODS User

There are three categories of IODS users. Details of these categories are discussed as follows:

- a. **Category-1:** All officers of Bangladesh Army will belong to this group. Category-1 users will be able to view their entire profile and will be able to update selected data field.
- b. **Category-2:** Category-2 users will access the IODS for data analysis purposes. Selected staff officers and clerks from specific branches/ directorates of different headquarters will fall under this category. Staff officers will be able to view the profiles of Category-1 basing on their assigned purview. At the same time, clerks will be allowed to publish various orders against individual officers.
- c. **Category-3:** The third category of users will act as the System Administrators. They will use IODS to monitor the security issues besides performing regular maintenance work. Category-3 users will not have any access to data.¹⁷

Figure 4: Different Categories of IODS Users



Source: Author's Construct Based on Field Survey

Desired Features of IODS

Desired features of IODS vary with category of users. Suggested features of IODS are discussed as follows according to different categories:

a. Desired Features for Category-1 User

- i. **Single User Platform:** Too many platforms often create apathy to the officers for updating their profiles regularly which leads to the data inconsistency. Therefore, IODS should allow updating of the personal information in all possible locations of Bangladesh Army with a single entry. It will also ensure better security of personal data than the existing system.
- ii. **User-Friendly Interface:** IODS should be simple and user-friendly. The interface of IODS should allow an officer with workable IT knowledge to update his/ her profile independently without any clerical assistance. Interface of Facebook may be a good example in this regard.
- iii. **Linking of CORO/ Army Orders:** Linking of IODS with CORO/ Army/ Formation orders will automatically update various fields like posting, appointments, courses, rewards, etcetera which will reduce officers' workload in maintaining their profiles. Minimum user input will encourage the officers to update their profiles regularly. 95.4% of officers have expressed during the survey that linking various CORO/ Army orders with IODS will save the valuable time. Furthermore, integrating formation would eliminate the existing crisis of missing IPFT results.¹⁸

iv. **Integration of PMD:** PMD would be updated automatically with IODS if necessary integration is done. This arrangement will eliminate the need for a separate registration at CMHs. It would save the valuable time of category-1 users.

v. **Limited Access to Formation Commanders:** Accessing under-commands' profile in this twenty-first century should be few clicks away for a formation commander instead of waiting for printed copy of BAFZ-2043. Therefore, 75.4% of officers have opined during survey that commanders should have access in the selected fields of IODS with a view to saving valuable time. It will also allow the commander to know his 'men' by learning about their details.

vi. **Integration with Utility Services:** IODS can be converted into an attractive platform if various daily administrative issues like ration, milk coupon, 'resell to officers', 'on payment' vehicle service, canteen Stores Depot (CSD), officers' club, etcetera are integrated. Publishing CORO of marriage/ child will automatically update IODS as per the proposed system. This updated information will up-to-date the servers of other DBs in turn as mentioned above. It would assist the Category-1 users by reducing the processing time and administrative difficulties.

b. **Desired Features for Category-2 Users.**

i. **Highest Degree of Data Integrity:** Maintaining data integrity of the highest order should be the prime concern of IODS architecture with a view to ensuring impregnable DB security. Data Integrity is a process or a set of practices that ensure the security, accuracy, and overall quality of data. It is a broad concept that includes cybersecurity, physical safety, and DB management.¹⁹

ii. **Stringent Data Compartmentation:** Integration of DBs should be planned meticulously so that, Category-2 users of one branch/ directorate/ headquarters will not be able to see the data of another branch/ directorate/ headquarters. Adequate firewalls must be placed in between the servers of various branches/ directorates to avoid any attempt of intrusion. Such arrangement would ensure the data security of different stakeholders.

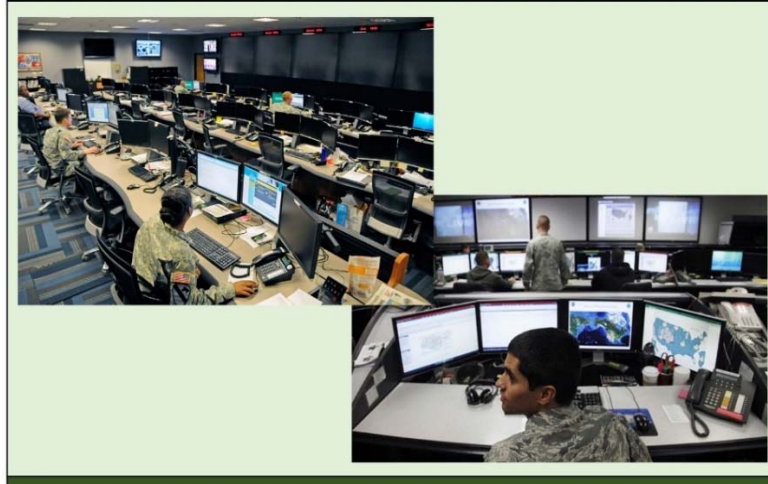
iii. **Access to National ID (NID) Server:** Access to the NID Card server will offer a great opportunity to MS Branch and MI Directorate by allowing quick security clearance. It would significantly reduce the processing time. Many government and non-government agencies like passport authority, BRTA, banks/ financial organisations, etcetera are already using National ID Server to verify required data.²⁰

iv. **Formatted Interface:** IODS should offer the formats of various orders to assist the Category-2 users, primarily the clerks. It would reduce the workload of the clerks in a great extent by saving their time. Moreover, availability of same formats will assist in maintaining the uniformity, too.

c. **Desired Features for Category-3 Users.**

i. **Central Monitoring System (CMS):** Category-3 users should be able to monitor the entire system from a single platform. It will allow them to see the overall performance of IODS, analyse the data traffic, and conduct troubleshooting. Such arrangement would ensure stability in IODS performance.²¹

Image 1: CMS of Pentagon



Source: <https://www.cfr.org/blog/cyber-attacks-and-pentagon-responses>

ii. **Central Alarm System:** IODS should be able to generate alarm during any incident of the security breach. This alarm system would be linked with CMS to ensure quick reaction by the concerned persons. This system would contribute in protecting the IODS from unwanted security hazard.

iii. **Biometric Access System:** Multiple layers of authentication systems with biometric features are required to prevent unwanted access to the system. IODS server should also be able to generate the 'Activity Log' to impose a 'check and balance' of Category-3 users.

Contribution of IODS in Achieving Better Officers' Profile Management

This is discussed below:

a. **Better Security:** Single user platform will reduce the number of separate DBs. Instead of ensuring the security of many DB servers, Bangladesh Army can concentrate all efforts into a single effort, thereby better security of officers' personal information may be achieved. Moreover, reduced dependency on clerks and avoidance of open sources for transferring the softcopies of service particulars will also contribute to maintaining data security.

- b. **Time Efficient:** IODS will be time-efficient in two counts. First of all, Category-1 users will need to give only basic personal information as input. Most of the service-related information will be synchronized from other sources like Army/ CORO/ Division orders. Moreover, preparing and sending various forms in multiple places will no longer be required. Secondly, Category-2 users will be able to analyse the uploaded data of Category-1 users at the shortest possible time without spending time for further data processing.
- c. **Better Record Management:** IODS will add significant value to the record management system at the formation level. Integrating formation orders in IODS will enable the HQ to preserve data for a more extended period. Running for old records from one HQ to another will end.
- d. **Data Consistency:** A single integrated platform will ensure that the same data is transmitted everywhere. This single platform will contribute to data consistency. Availability of accurate data will substantially benefit Category-2 users.²²

Figure 5: Contribution of IODS in Achieving Better Officers' Profile Management



Source: Author's Construct Based on Field Survey

Things to Do For Bangladesh Army for Implementing IODS to Achieve Better Organisational Efficiency

Bangladesh Army has already invested a significant amount of money in IT sector. It owns a sophisticated Data Centre and robust Wide Area Network (WAN). Therefore, base resources are already laid, only coordination, integration, and management are required to implement IODS. 83.9% of officers who participated in the survey have opined that AHQ should take immediate steps to implement IODS to eliminate the conundrums of the existing profile management system.

Challenges for Bangladesh Army in Implementing IODS

These are as follows:

- a. **Lack of Mutual Trust:** Lack of mutual trust between the Category-2 and Category-3 users is the biggest impediment in implementing IODS. Major stakeholders, especially MS Branch and MI Directorate, are spectre of breaching confidential data if these are shared in an integrated platform. Accessing highly classified data by an unauthorised person may cause irreparable damage to the military organisation. Therefore, significant stakeholders do not want to overrule the slightest possibility of breaching the integrity of their classified data, even by the other stakeholders
- b. **Selecting the Implementing Agency:** Frequently updating the IODS due to encountering ever-changing security threats and delivering effective service to the stakeholders are even bigger challenges than the implementation. Therefore, selecting the most appropriate agency for implementing and operating IODS would be crucial. During the survey, 48% of officers have expressed that MS Branch would be the most appropriate agency for implementing IODS, whereas 43.4% of officers have opined for IT Directorate. Implementing and managing IODS by the MS Branch would be onerous task for MS Branch, which may adversely affect its day-to-day function. On the other hand, IT Directorate can implement IODS by AITSO considering its flair and exposure in the technical domain.
- c. **Weak Local Area Network (LAN):** Weak LAN infrastructure is likely to create trouble for IODS users of all categories. This reality may create apathy to the users of all categories in using IODS. Due to this limitation, doctors at CMH, Dhaka, often suffer while using the PMD. If the same problem exists, users may lose interest in updating their profile regularly.
- d. **Clerk-Dependent Culture:** Units are still dependent on clerks for maintaining officers' profiles. IODS accentuates input by the individual, not by the clerks. Periodical checking of IODS by the concerned officer will ensure the availability of accurate data in the system. Dependency on the clerk in this regard may go against the spirit of IODS. Therefore, a cultural- shift is required to depart from traditional dependency on clerks and to develop a habit of maintaining own profile through IODS.
- e. **Lack of Cyber Security Expert:** Bangladesh Army lacks qualified cyber-security experts. Before implementing IODS, Bangladesh Army must create a sizeable team capable of Data Centre management and encountering network security issues. However, peculiarities of military services like course/ cadres, frequent posting, UN assignments may disintegrate the team quite frequently. Therefore, keeping the team intact would be another challenge for the concerned authority.

Things to Do for Bangladesh Army while Implementing IODS

Bangladesh Army has taken many steps so far to adopt the digitization process. In most cases, these discrete efforts are ineffective due to a lack of coordination and foresight. IODS may also turn futile if careful planning and coordination are not done before its implementation. Following steps may be taken by Bangladesh Army to mitigate the challenges discussed above:²³

- a. **Confidence Building among the Stakeholders:** Confidence of the stakeholders of IODS cannot be built from the vacuum. It will entail three significant steps. Designing a sophisticated and robust system with the latest security features would be the first step to attract the users. Secondly, continuously updating the security features of IODS to encounter ever-changing security threats will spread a sense of security among all users. Finally, arranging a central presentation or briefing for the stakeholders on the security features would eliminate users' apprehension. The popularity of present-day mobile and online banking would be a perfect example in this regard. Initially, the users were apprehended regarding the security issues of these platforms, but financial organisations have created confidence among the users by investing a significant amount of budget and effort. As a result, billions of dollars are transacted every day presently.
- b. **Defining a Model:** Defining a model for IODS would assist both implementing agencies and stakeholders to comprehend what should be done and how it should be done. The experience of working at United Nations (UN) in a paperless office environment will surely assist the officers to adjust with IODS. Enterprise Resource Planning (ERP), popularly used in the present corporate world, is an integrated software that binds all the business functions like accounting, procurement, project management, risk management, compliance, and supply chain operations in a single software. In this context, implementing agency may consider the UN experience to analyse the adaptability of users with IODS; and ERP to integrate various dimensions into IODS.
- c. **Policy Issues:** Following policy issues need to be specified before implementing IODS:
 - i. The method of data compartmentation which has to be approved by all stakeholders.
 - ii. Degree of access of the Category-3 users in the IODS cloud.
 - iii. Actions taken by the implementing agencies and different stakeholders during any security hazards.
 - iv. Specific guidance on financial issues.
 - v. Provisions of administrative actions against irregular profile updates.

d. **Improving LAN Infrastructures up to Unit Level:** It is vital to ensure the users' comfort by providing them with steady connectivity up to their doorstep. It will allow the users to update their profile at their convenient time, at a convenient place. A sizable team at the formation level needs to be formed for this purpose. A concentrated effort by IT Directorate, Signal Directorate, and AITSO may positively improve the connectivity issue.

e. **Integration with National ID (NID) DB:** Access to the NID DB would assist the MS Branch and MI Directorate to validate the accuracy of given personal information by the officers in the shortest possible time. Integration of IODS with NID may be done using the Application Programming Interface (API) with minimum effort and maximum security.

f. **Arranging Open Competition for Hacking IODS to Strengthen Security:** In the present day context, no security features are enough to provide absolute security from hacking. Keeping this fact in mind, in 2016, the Defense Digital Service (DDS) of the United States launched 'Hack the Pentagon' contest. Hundreds of ethical hackers usually participate in this initiative to legitimately uncover and reveal vulnerabilities in Department of Defense (DoD) equipment. Bangladesh Army may also adopt such endeavour with a view to protecting the IODS from hacking attempt.

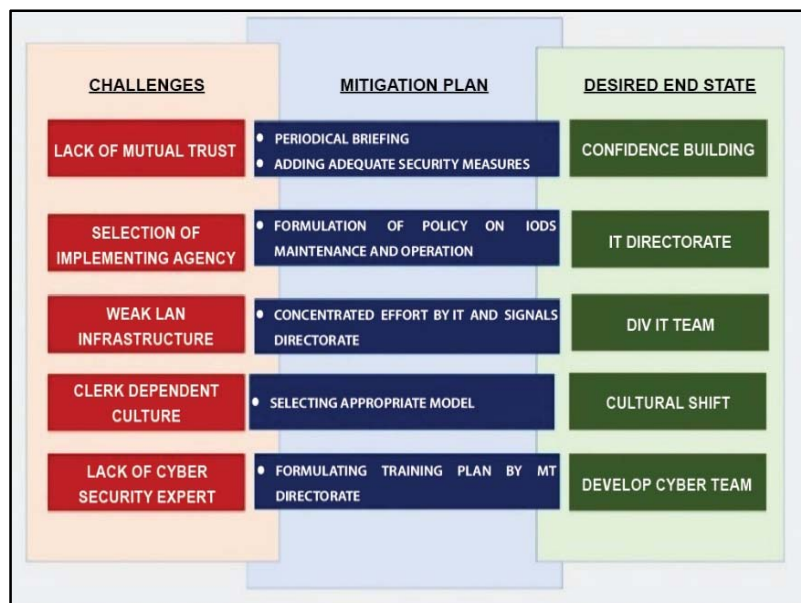
Image 2: Ethical Hacker Jack Cable Presents to A Group of Marines and Fellow Hackers on the Vulnerabilities of Existing System of US Marine Network



Source: <https://www.usds.gov/projects/hack-the-pentagon>

Basing on the above discussion, Figure 6 shows the challenges of Bangladesh Army and their mitigation plan to reach the desired end state.

Figure 6: Challenge Mitigation Plan of IODS to Achieve Desired End State



Source: Author's Construct Based on Field Survey

IODS and Organisational Efficiency

Table 1 shows the how the features of IODS would assist Bangladesh Army in achieving organisational efficiency. Details are discussed as follows:

- Better Security:** The biggest advantage of IODS will be its security features. Single user platforms, ensured data integrity, strict data compartmentation will enhance the organisational efficiency by giving discrete security efforts in multiple places. Moreover, arrangement of CMS, Biometric Access System and central alarm system will ensure central security measure to protect the data of entire Bangladesh Army.
- Time Efficient:** IODS will provide better output by taking lesser time than the present system which will contribute in achieving organisational efficiency. IODS will save the valuable time of the officers and clerks by eliminating the need of maintaining multiple forms. Moreover, it will reduce the processing time in many of the occasions in day-to-day professional activities.
- Reduced Human Effort:** The one-to-one platform offered by IODS would curtail the necessity of employing almost ten persons to deal with one personal profile. Reduced employment of clerks would allow them to be engaged in other priority jobs. Therefore, better output in terms of data management would be achieved by engaging minimum human effort, contributing to achieving better organisational efficiency.

d. **Cost Efficient:** IODS would be a cost-efficient venture. It will curtail the development and maintenance expenditure of several other DBs of similar kinds. Stationary costs will also be curtailed in a significant rate.

e. **Accurate DMP:** Not searching the updated data through physical means will enable the staffs to make quick decisions than ever. Moreover, IODS would allow the staffs to be more analytical in their planning which will eliminate the frequent changing of decision.²⁴

Table 1: Contribution of IODS Features in Achieving Desired Organisational Efficiency

IODS Features	Efficiency Indicator	Better Security	Time Efficient	Reduced Human Effort	Cost Efficient	Accurate and Swift DMP
Single Platform		✓	✓	✓	✓	
Linking of CORO/ Formation Orders			✓	✓	✓	
Access to Formation Commander			✓			✓
Integration with Utility services			✓	✓	✓	
Data Integrity		✓				✓
Data Compartmentation		✓				
Access to NID			✓	✓		✓
Formatted Interface of Various Orders			✓	✓		
CMS		✓				
Alarm System		✓				
Biometric Access System		✓				

Source: Author's Construct

Conclusion

Officers' Profile Management has always been a challenging task in Bangladesh Army. Maintaining, preserving and utilising these data efficiently by various stakeholders like MS Branch and MI Directorate are vital to make swift and accurate decisions related to officers. Relying on IT to mitigate the challenge of managing ever-increasing data of officers could have been a better solution. Despite acquiring significant IT infrastructures, Bangladesh Army is still facing myriad of challenges to maintain officers' profiles efficiently. While looking for the root cause, it has been identified that presence of manifold uncoordinated arrangements is the main reason for such unpleasant reality.

Presently, officers' profile is maintained in different facets, using various methods. Hardcopy-based BAFZ-2043 and BAFY-1975 are completed manually. On the other side, individual profiles in PID and Combo ID Card are updated electronically using Army WAN. Presently, different stakeholders are maintaining different databases without any coordination. Analysis of the existing system dictates that the buzzword 'Unity of

Effort' between multiple arrangements is entirely missing. Such reality has posed significant weaknesses in the ongoing profile management system. Time-inefficiency is the most significant weakness which overburdens the clerks by consuming their valuable time. Existing system also drains human effort unduly. Engaging too many persons for profile management often contradicts with privacy issues of the officers, which often affects the command environment. Moreover, dependency on paper-based profile management despite acquiring sophisticated IT infrastructure is an example of poor resource utilisation. Lack of data security is another point of concern of the existing system. Furthermore, officers cannot find various necessary orders related to IPFT, RET, course results, etcetera due to the indigent documentation method specially at the formation level which penalises the officers in many ways. Finally, all these weaknesses become predominant while making important decisions.

Introducing IODS may be a good solution to eradicate the present weaknesses. There are three types of officers who will be using IODS. Expectations from IODS vary with the pattern of users. All officers of the Bangladesh Army belong to Category-1 who will possess an individual profile in IODS. Category-1 users demand a single user-friendly platform which will ensure the updated personal information in all possible locations with a single entry. Linking up IODS with different DBs like CORO, PMD, and other utility services like ration, milk coupon, CSD, etcetera would make the IODS profile more dynamic and versatile. It would eradicate the sufferings of officers due to the missing formation orders. On the contrary, Category-2 users are primarily the HQ staffs who will utilise IODS for official purposes. They expect the highest degree of Data Integrity which can be ensured by compact physical safety, strict cyber security, and well-coordinated DB integrity. Ensuring stringent data compartmentation between different DBs would make the trespassing among the servers by unauthorized persons almost impossible. Creating a secured link between IODS and NID server will make the DMP faster by reducing the processing time. Moreover, allowing the clerks to publish various army/formation orders, CORO, etcetera using IODS will update individual profiles concurrently. On the other hand, Category-3 users will act as the system administrator. Provisioning of CMS and alarm system would enable them to act promptly during any security hazard. Availability of Biometric Profile Matching access control and activity log would strengthen the entire security arrangement even further. All these features of IODS would contribute to better profile management by providing better security, data consistency, time efficiency, and better record management.

Bangladesh Army has to face few challenges to implement IODS. Lack of mutual trust between various stakeholders, selecting a suitable implementing agency, weak LAN infrastructure at the unit level, the lack of cyber security experts in the Bangladesh Army, and clerk-dependent culture in maintaining the personal profile are the biggest impediment. Bangladesh Army should plan the necessary steps considering these challenges while implementing IODS. Defining a model, developing a team of cyber security expert, arranging open competition among the ethical hackers, integrating IODS with NID, and developing robust LAN infrastructure are necessary for effective implementation of IODS. Above all, a stringent policy must be formulated by AHQ

addressing the security, finance, and disciplinary actions would act as a guideline for maintaining IODS after establishing it. All these steps would assist Bangladesh army in achieving organisational efficiency by eliminating unnecessary processing time, reducing human engagement, maximising resource utilisation, and ensuring accurate DMP.

Recommendations

The following recommendations are made basing on the findings of above discussions:

- a. Bangladesh Army may take immediate steps to implement IODS with a view to eradicating the present conundrums of officers' profile management.
- b. A Board of Officers (BofO) may be formed under AHQ, General Staff Branch to identify the specific points of mistrust between different stakeholders and implementing agency. This board may also act as a mediator between implementing agency and different stakeholders to mitigate the mistrust issues. Considering the sensitivity of the issue, it is also recommended that this BofO may be headed by the Chief of General Staff (CGS) to expedite the critical decisions and policy making issues.
- c. Military Training Directorate along with Signals and IT Directorate may create a roadmap to increase the number of cyber security expert by imparting adequate training. As a technical training outfit, School of Signals may take the lead role in generating the team of 'cyber warriors'. Training package may include the courses offered by renowned civil institutes both at home and abroad.
- d. AITSO may form detachments in each formation in coordination with the Division Signal Battalion to establish a robust LAN with a view to offering a user-friendly experience.
- e. MS Branch and Personnel Administration (PA) Directorate may carry out detail study to limit the frequent posting of IODS personnel with a view to ensuring consistent service to the users of different categories.

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Brief Biography



Major Md Junaed Zakir, psc, Signals was commissioned from Bangladesh Military Academy (BMA) with 56 BMA Long Course in the Corps of Signals on 20 June 2007. Maj Junaed has served in four Signal Regiments of Bangladesh Army under different capacity. His instructional appointments include Acting Instructor Class B at School of Signals, Jashore and Platoon Commander of Bangladesh Military Academy. As staff, he served as Aid-de-Camp (ADC) to the Director General of Directorate General of Forces Intelligence. Maj Junaed is a graduate on Electrical, Electronic, and Communication Engineering discipline from Military Institute of Science and Technology. He has participated in United Nations Peacekeeping Mission in Ivory Coast as a contingent member. He has successfully completed Staff Course 2021-2022 session in Defence Services Command and Staff College, Mirpur, Dhaka.

CAREER PROGRESSION OF OFFICERS IN BANGLADESH ARMY: DIVERGENCE AND WAYS AHEAD

Major Badrul Alam Bulbul, psc, Infantry

Abstract

Army officers' seamless career progression necessitates a scientific approach and constant improvement in the planning process. The goal of an army officer's career development is to provide the most capable and motivated officers' corps to lead their subordinates on the battlefield.

As a result, the purpose of this research is to come up with practical remedies to the negative repercussions of the current promotion and qualifying timeframe of mid-level officers. A mixed-method qualitative and quantitative analysis includes a focus group discussion (FGD) and many expert interviews. While a substantial amount of the analysed data is provided during the report's production, the researcher keeps the details. An overview of the current promotion and qualification timeframe for officers was first given. Then, due to the existing promotion and qualification timeframe, detrimental impacts on the smooth career progression on mid-level officers were discovered. Following that, the researcher proposed two timeframe models for mid-level officers' seamless career progression.

Finally, the researcher proved the hypothesis: 'Readjusting the timeframe for promotion and qualification of mid-level officers will enhance their career progression for optimal organisational efficiency'. However, in the end, few recommendations were made for modifying the existing promotion and qualification timeframe for mid-level officers for their smooth career progression resulting in better organisational efficiency.

Introduction

The modern Army is a highly skilled and multifaceted vocation. Officers are its backbone, providing leadership in both war and peace. Officers' career growth is influenced by two key factors: organisational structure and officers' aspiration to develop themselves for future challenges. The Military Secretary's (MS) Branch of the Bangladesh (BD) Army plays the pivotal role in formulating, planning, and developing the officers' careers at the organisational level. Officers' aspiration combined with a proper organisational structure is sine qua non for officers' smooth career advancement.

The primary function of the MS branch is to post appropriate officers in the deserving appointments at the correct time of their career. However, due to revised qualification parameters, promotion from Captain (Capt) to Major (Maj), the MS branch faces an acute predicament to select the officers for the appointment of Grade-3 (G3) after Junior Command and Staff Course (JC&SC). At present, the service length requirement to become a Maj is around six and a half years. As a result, after completing JC&SC,

officers become Maj within a short time without having exposure to G3 experience. The same is the case with Grade-2 (G2) appointments. Primarily Staff College (SC) qualified officers are meant to be the G2 officers at the brigade, division, or army headquarters (AHQ). However, after completing SC, most officers have significantly less time performing G2 appointments before the next higher rank.

In Bangladesh Army, an officer's career can be divided into four stages. These are the foundation, mid-career, selective, and higher command and staff.¹ Current officers' career planning has improved significantly over time due to several trials and errors. However, recently introduced (in 2015), three-year academy training for the officers takes a substantial time from the officers' foundation building period. This change to a three-year training period may result in a considerable imbalance in officers' career planning. Furthermore, it is well perceived that these officers will even get lesser scopes to perform G3 and G2 staff appointments soon. Therefore, it is pertinent to scrutinise mid-level officers' promotion and qualification timeline to ensure their smooth career progression for better organisational efficiency.

Aim

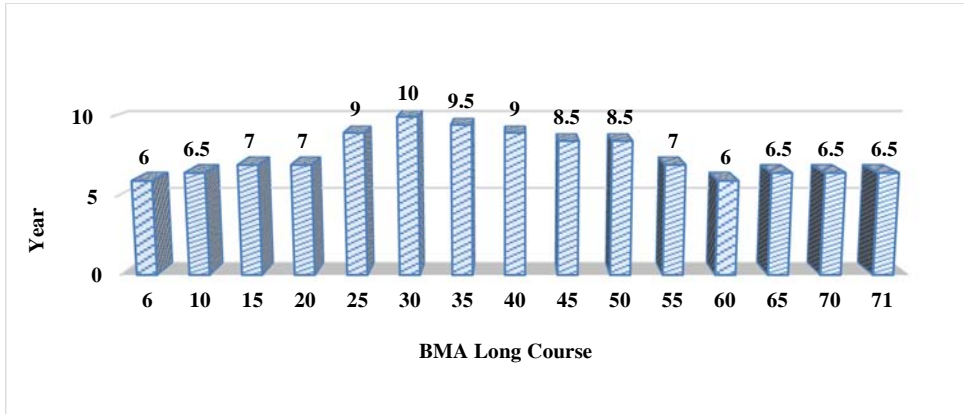
The aim of this paper is to suggest plausible readjustment in the mid-level officers' promotion and qualification timeframe to enhance their career progression for better organisational efficiency.

Evaluation of the Present Trend of Mid-Level Officers' Promotion and Qualification

Officers' promotion and qualification system of Bangladesh Army went through different trials and errors over the years. Bangladesh Army has also made a paradigm shift in cadet training at Bangladesh Military Academy (BMA) since 2015. The training term was extended from two to three years, revamping the academy curriculum. However, the rapid change from two to three years of training was partly due to a lack of preparation and understanding of the long-term implications for Cadet development.² The SI&T was not constructed to accommodate the current intake of officers in an equal manner. Consequently, to qualify officers of any long course in any mandatory course takes longer than before. Officers previously completed JC&SC within three years of service. However, session congestion in mandatory courses emerged due to the increased officers' intake.³

Since 2014, MS Branch has sanctioned course clearance for officers with six and a half years of service to become Major. The timeframes for promotion and qualification for different BMA Long Courses vary.⁴ Figure 1 illustrates the various timeframes for promotion to Major for long course officers.

Figure 1: Commissioned service for becoming Major of different long courses



Source: MS Branch, 2021

Present Qualification Trend of Mid-level Officers

a. **Qualification for Promotion:** Presently, Bangladesh Army officers must complete four mandatory courses of varying duration. To become Capt, officers must complete either the Officer Basic Course (OBC) or the Officer Weapon Course (OWC). This requirement is waived for engineering faculty officers (77 BMA Long Course and onward) who spend a minimum of two years at the Military Institute of Science and Technology (MIST). Officers must complete JC&SC before becoming Maj. In contrast, India and Pakistan have only two mandatory courses (OBC and mid-career course) to become Maj.⁵

b. **Timeframe of Attaining Qualification:** Primarily, the MS Branch regulates the selection of officers for various courses. Two years BMA training (T1) officers completed OBC in the second year and OWC and Basic Commando Course (BCC) in the third year after their commission. These officers generally complete JC&SC at the sixth or seventh service year. Engineering faculty officers of 77 BMA Long Course will take a minimum of two years to graduate after commission. The graduation timeline will extend if any officer gets a level drop in an academic semester.⁶

Analysis of the Timeframe

a. **Lack of Unit Service:** T1 officers join units after commission and serve there for one year without any interruption, and they typically have three to four years of unit service during their foundation building period. However, the unit service of three years BMA training (T2) officers (engineer faculty) has drastically reduced to half due to their academic curriculum.

b. **Lack of G3 Experience:** JC&SC qualified Capts are rarely available for G3 appointments, and non-qualified officers fill these vacancies. T1 officers typically get a maximum of six months after completion of JC&SC before becoming Maj. As a

result, these officers will not have the required skill and experience to deal with future assignments/ challenges. This impedes the objective of developing Capts into competent G3 staff officers and company commanders.⁷

c. **Lack of G2 Experience:** According to the MT Dte's most recent policy (19 January 2021), officers with a service duration between seven and twelve years are eligible to appear Staff College Entrance Examination (SCEE). Therefore, qualified officers do not have scopes to perform G3 and G2 appointments. Furthermore, for instance, 125 officers graduated from SC 2019-2020, and 42 (34%) officers were nominated for the second UN mission. A similar pattern is seen in SC 2020-2021, where 33 (26%) officers were selected for the second UN mission out of 127 officers (MS Branch, 2021).

d. **Bipolar Career Prospect:** Unlike T1, T2 includes engineering and honours subjects in the academic curriculum. Honours faculty officers can complete their academic curriculum by three and a half years, but engineering faculty officers need five years to complete it.⁸ For example, two officers of 76 BMA Long Course of different academic disciplines were posted to 32 Field Regiment Arty. Officer A (honours faculty) served in the unit for more than two years (as of October 2021) while officer B (engineer faculty) is yet to return from MIST.⁹

e. **Lesser Competency for Future Command Challenges:** An officer must complete all necessary appointments to have the requisite on-the-job experience to advance in the Army. For instance, a Commanding Officer (CO) must have served at least one year as 2IC or two years as senior Maj in the unit. An officer with insufficient experience will never feel secure in command.¹⁰

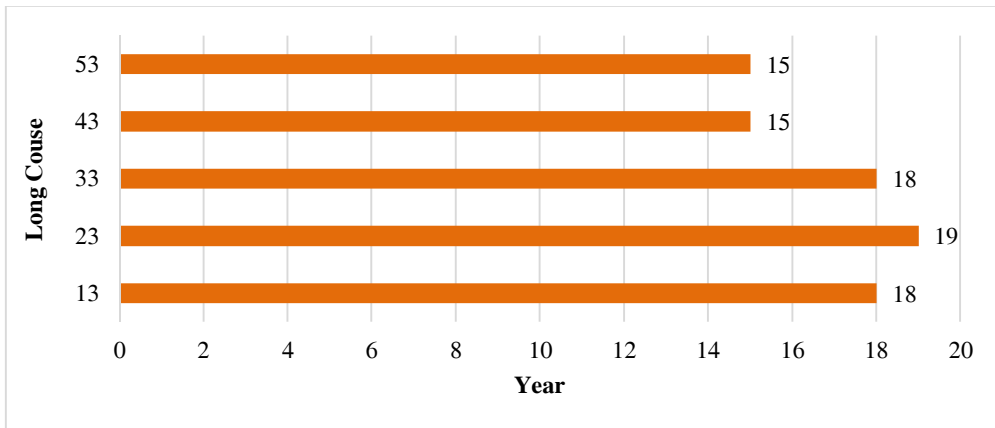
f. **Promotion:** Since 2014, officers have been generally promoted to Maj after six and half years and Lt Col after fifteen years of service. First, this timeline helps to fill up the shortage of Maj promptly in the Bangladesh Army. Second, the role of fighting and supporting arms CO is to lead his/ her subordinates directly. This leadership style necessitates an agile and physically fit CO.¹¹

Promotion Trend of Mid-level Officers

a. **Promotion Requirements to become Maj and Lt Col:** The Promotion Policy for Bangladesh Armed Forces-2003 specifies officers' promotion criteria to the next rank. Except in a few unusual situations, qualification in JC&SC is and has always been a condition for promotion to Maj. Officers are promoted to the rank of Lt Col through an AHQ-level selection process. To be considered for discussion at the selection board, a Maj must attend either the SC or the Unit Command and Staff Course (UCSC).¹²

b. **Timeframe to become Maj and Lt Col:** Figure 1 and Figure 2 depict the varying timelines for promotion to Maj and Lt Col over the past years. T2 officers are now commissioned as Lieutenants in the Army. AHQ convened several discussions with representatives from selected HQs/ institutions/ directorates to develop an appropriate policy for officers who completed three years of academy training.¹³ Shortly, Capts will become Majs after seven years of service, which will be eight years from 2022.¹⁴

Figure 2: Commissioned service before becoming Lt Col

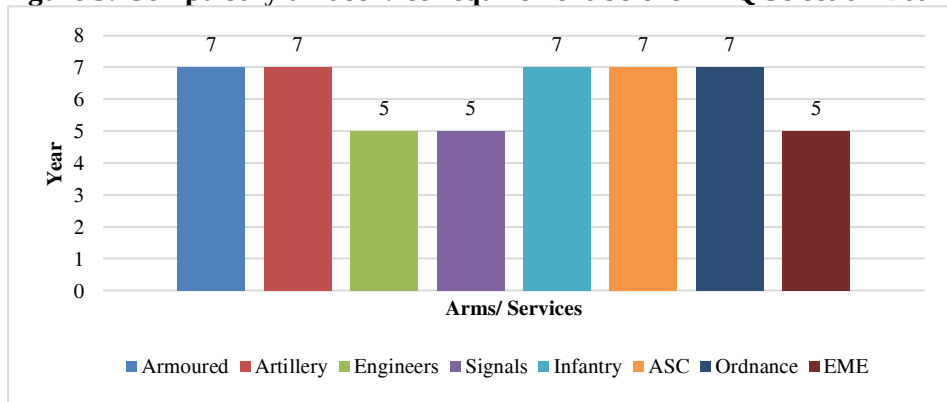


Source: MS Branch, 2021

Service Pattern

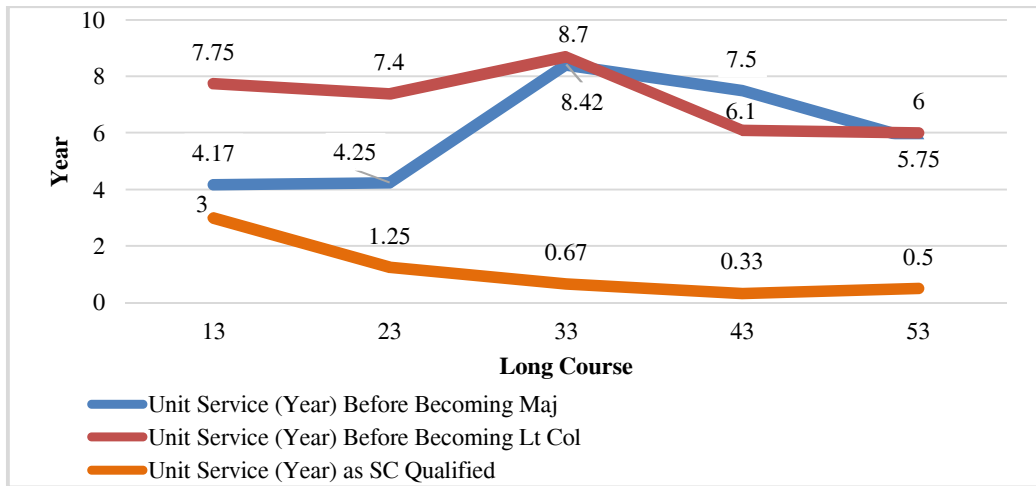
a. **Unit Service:** The career pattern of an officer should aim at making him a competent regimental officer'.¹⁵ AHQ issued a policy letter in 2012 stating that officers must complete mandatory unit service before being considered by the AHQ selection board. According to the policy, officers must serve in units according to their arms and services, as illustrated in Figure 3. Figure 4 shows that unit service before becoming Lt Col has reduced significantly over the years, so as the service duration as SC qualified Maj.

Figure 3: Compulsory unit service requirement before AHQ Selection Board



Source: AHQ Policy, 2012

Figure 4: Officer's unit service



Source: MS Branch, 2021

b. **Prospect of G3, G2, Class C, and Class B Instructor:** JC&SC qualified officers become Maj quickly, resulting in maximum officers not being able to be assigned as G3 and class C instructors. Consequently, officers who are yet to do JC&SC are posted as G3 and instructor appointments without JC&SC overlooking the appointment's requirements. In addition, officers' G2 and 2IC services are insufficient as they get less time after SC and before becoming Lt Cols.¹⁶

c. **Comments on Present Service Pattern:** The current promotion and qualification timeline imposes different impediments to officers' seamless career progression. Officers' unit service has gradually decreased, and qualified officers get lesser scopes to perform required appointments for a considerable time. Moreover, T2 officers will have even lesser unit service during their foundation building period.¹⁷

Officers' Career Management of Neighbouring and Modern Armies

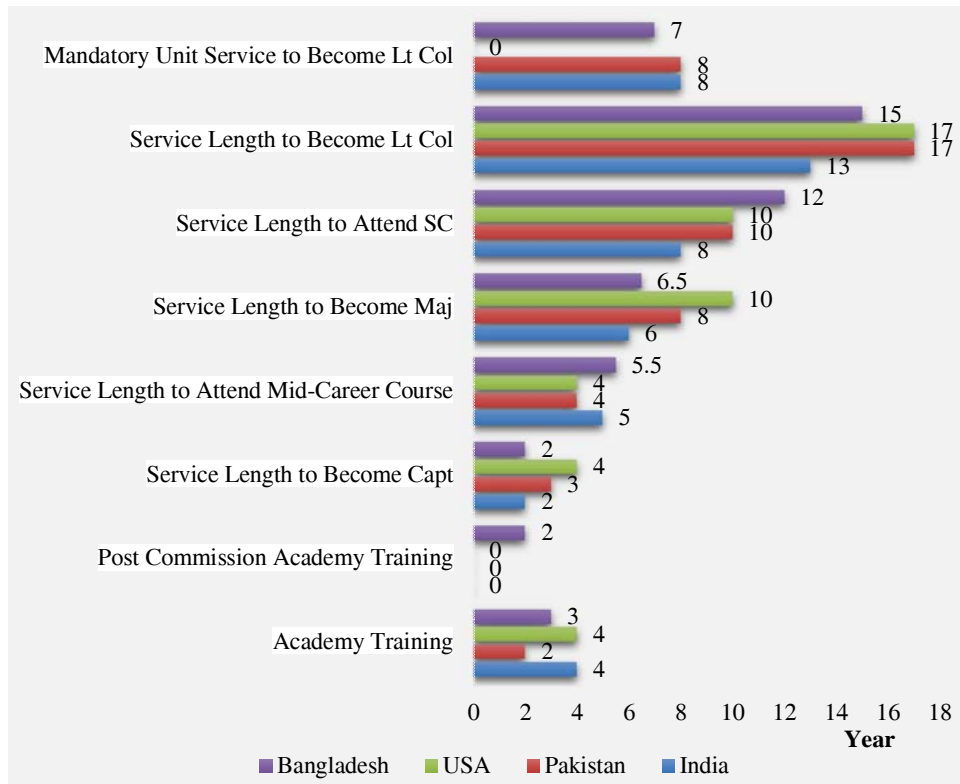
a. **Indian Army:** Mainstream cadets are trained for four years. After commissioning as Lieutenants, officers become Capt by two years. After completing six years of service, officers become Maj and Lt Cols after completing thirteen years. In general, officers have seven to nine years of unit service before becoming Lt Cols by default. They have only two mandatory courses to become Lt Cols; Young Officers' (YO) Course and Junior Command (JC) Course.¹⁸

b. **Pakistan Army:** Officers in Pakistan Army undergo two years of military training in the Pakistan Military Academy and get the commission as Second Lieutenant (2Lt). Officers become Capt after three years of service and become Maj after eight years of service. Officers complete Mid-Career Course by the

eighth year and become Lt Cols after seventeen years of service and are either SC, Intelligence SC, or Logistics SC qualified. There is no specified policy for mandatory unit service. However, an officer completes a minimum of eight years (six years before becoming Maj and compulsory two years as Maj) unit service before becoming Lt Cols.¹⁹

c. **USA Army:** West Point officers are trained for four years and commissioned as 2Lt. Officers complete Basic Course and become Capt after total four years. Officers complete Capt Career Course immediately after they become Capt and serve another six years before they become Maj. Majs undergo Command and General Staff College (CGSC) when promoted to Maj. Promotion to Lt Col starts from seventeen years of service.²⁰ Figure 5 shows comparative statistics of various timeframe related to mid-level officers' careers of different armies.

Figure 5: Mid-level officers' career timeframe comparison among countries



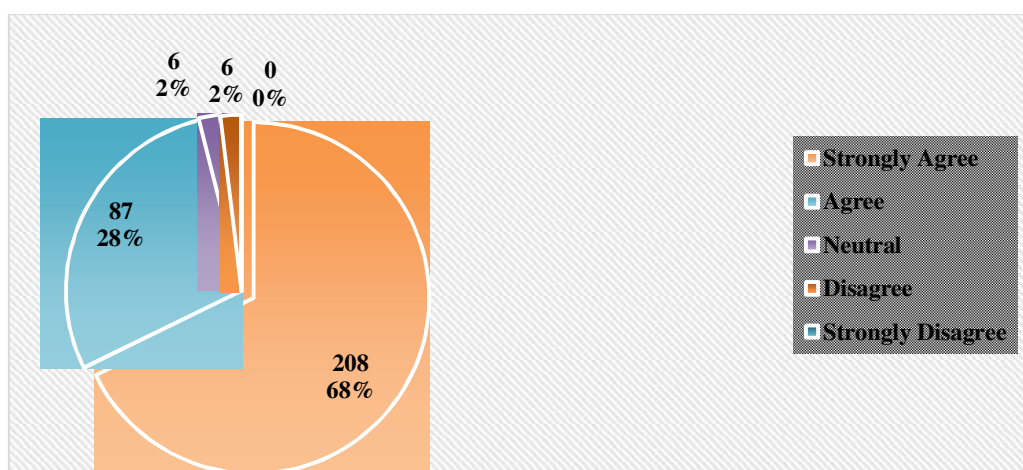
Source: Interview, 2021

Impediments to Career Progression Imposed by the Promotion and Qualification Trend among Mid-Level Officers

Impediments to Organisation Indirectly Affecting Officers' Career Progression

a. **Impediments to Units:** Units are the most sufferer entities due to multiple reasons. The most notable reasons are the shortage of officers, local adjustment of young officers to HQs, absence of SC qualified officers in units, absence of posted 2IC, etcetera.²¹ T2 officers stay lesser time in units compared to T1 officers. As shown in Figure 6, 96% of the survey respondents agreed that the shortage of officers is a barrier to mid-level officers' smooth career progression.

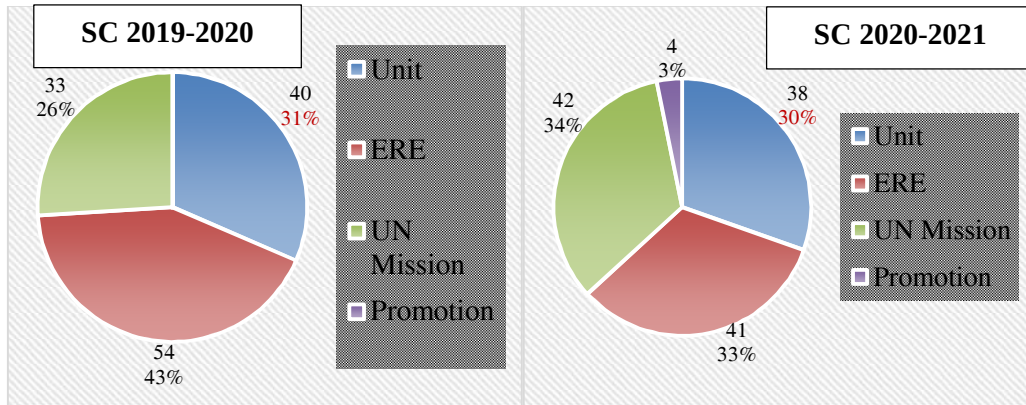
Figure 6: Survey result showing insufficient unit service as a barrier



Source: Survey, 2021

b. **SC Qualified Officers' Inadequate Service in the Units:** Officers, after completion of SC, get very little time before they are discussed in the AHQ selection board. More so, many officers become eligible for second UN missions within this short period. Due to this delayed timeframe of attending SC, only a few qualified officers are posted to units after posting to various HQs, ERE organisations, and UN missions. Figure 7 shows SC qualified officers' posting pattern after completing SC 2019-2020 and 2020-2021.

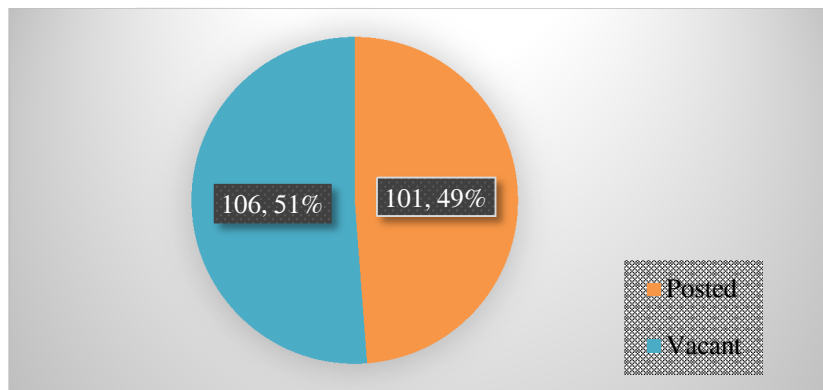
Figure 7: Officers' posting pattern after completion of SC (2019-2020, 2020-2021)



Source: MS Branch, 2021

c. **Absence of Posted 2IC in Units:** Presently, 101 out of 207 units of Bangladesh Army have posted 2IC. Among them, eighteen (17%) could not do SC. Figure 8 shows the posted 2IC state of the Bangladesh Army in August 2021. Consequently, young officers do not get adequate career counselling and are less supervised in shaping their military bearing. Often, aspiring young officers' careers are derailed due to seniors' lack of clear guidance and mentoring.²²

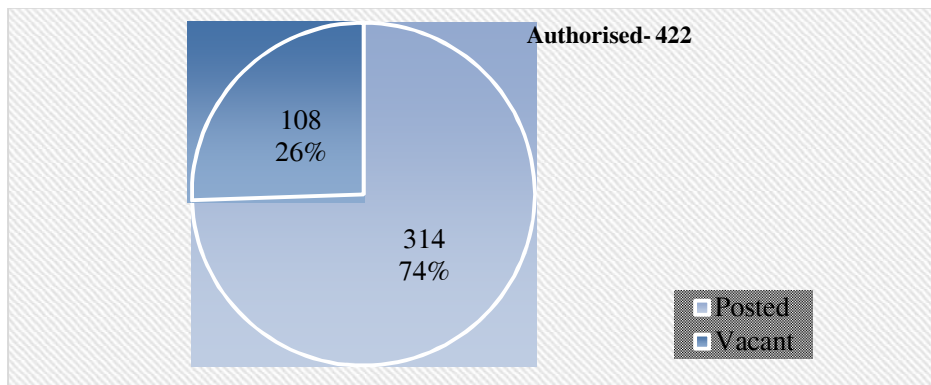
Figure 8: State of posted 2IC in the units



Source: MS Branch, 2021

d. **Impediments to HQs:** HQs are essential links in coordinating all affairs down to the units. The efficiency of HQs is determined by the staff's ability to plan and coordinate with horizontal and vertical HQs. Efficient staff officers also assist commanders in making decisions by providing accurate and timely inputs, facts, and suggestions.²³ Figure 9 shows the G2 staff officers' state of the Bangladesh Army. These vacant appointments are locally filled by officers who are yet to undergo JC&SC and SC, respectively.

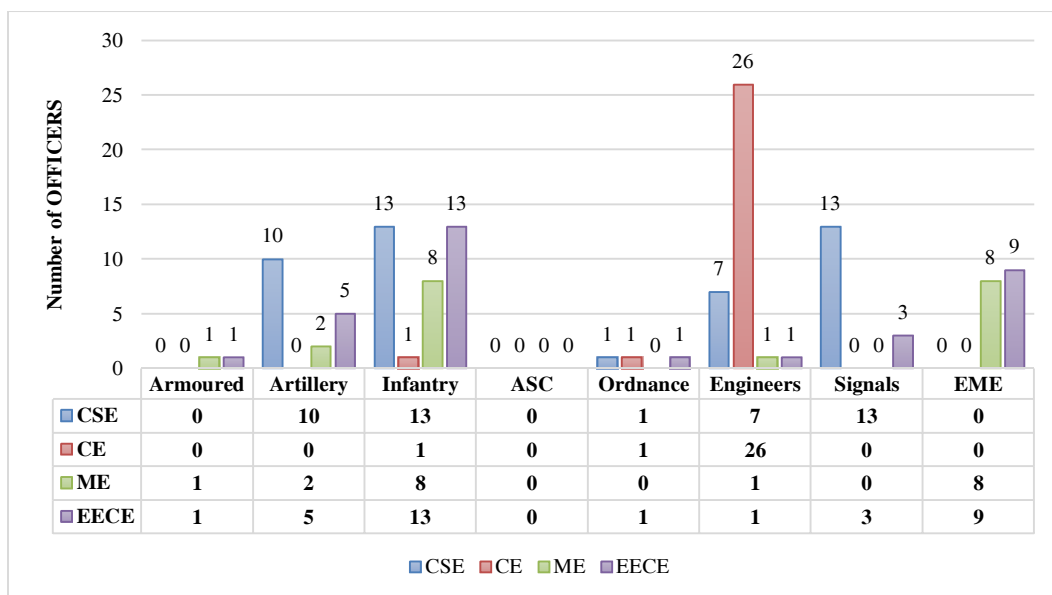
Figure 9: Stats of G2 staff officers' Bangladesh Army (August 2021)



Source: MS Branch, 2021

e. **Impediments to Officers' Career Planning by MS Branch:** The MS branch has limited flexibility in sustaining officers' long-term career plans. The arms and services of the engineering faculty officers (a total of 125) of the 75 BMA Long Course are depicted in Figure 10. Most of these officers are unable to utilise their four years of engineering education in nontechnical arms, and all of FGD-1 participants saw this as a loss both for the Army and individual officers.

Figure 10: Arms and services of engineer faculty officers of 75 BMA Long Course



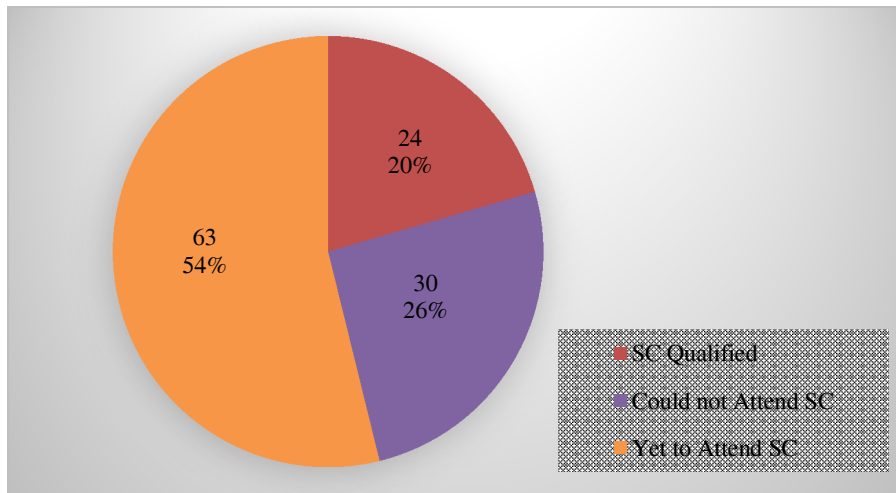
Source: MS Branch, 2021

Impediments Directly Affecting Officers' Career Progression

a. **Incomplete Young Officers' Regimentation:** Regimentation in a traditional sense in Bangladesh Army means two months of intimate learning in the units. Perhaps, it stresses out even more. It ensures that an officer is fully militarised, deeply attached to the regiment's affairs, and confident in leading troops.²⁴ However, the current qualification timeframe, number of courses, and extended academic curricula take away valuable time from officers' foundation building period.²⁵

b. **Premature Posting:** All participants of FGD-1 agreed that young officers who performed well in BMA training are posted out of units earlier than the rest. Except for a few unusual situations, the Army previously did not consider any officer to be mature for posting before the completion of JC&SC.²⁶ The current state of G2 staff officers at AHQ confirms the researcher's statement, as illustrated in Figure 11.

Figure 11: Stats of G2 staff officers posted at AHQ (August 2021)



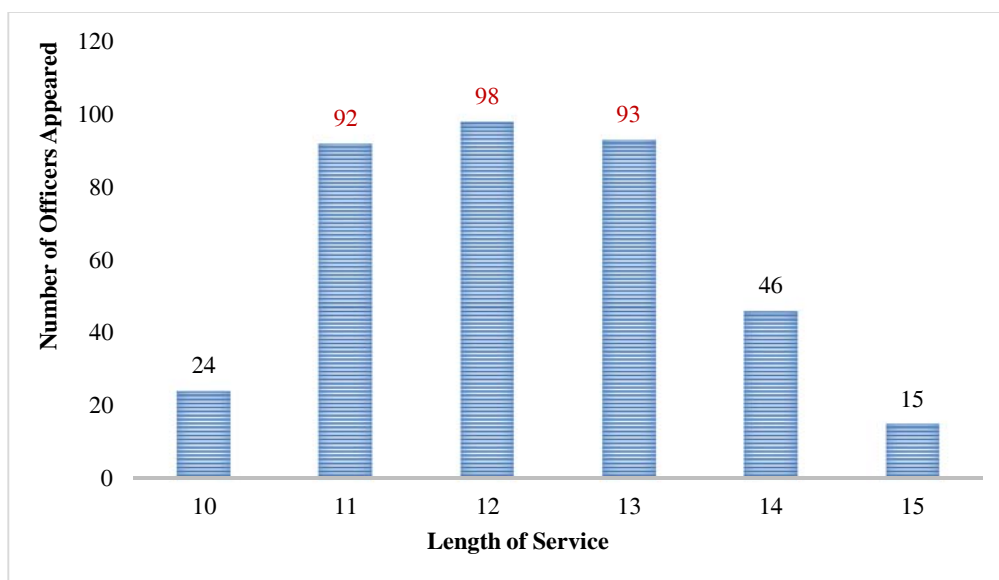
Source: MS Branch, 2021

c. **Inability to Perform G3 After JC&SC:** Participants of FGD-1 stated unequivocally that as CO, they do not select JC&SC qualified officers for Adjutant and QM. The primary reason is that these officers have limited time to contribute as Adjutants and QMs before being promoted to Maj. MS branch also tries to select JC&SC qualified Capts as G3 for operational brigades of 24 and 10 Infantry Divisions. However, non-qualified Capts are frequently posted because they can serve more than JC&SC qualified Capts.²⁷

d. **Officers' Tendency to Appear SC as Late as Possible:** 89% of SCEE examinees in 2021 chose to participate during their 11th -14th years of service despite having the option of appearing SCEE in their ninth year of service (Figure 12).

The youngest lot of officers' (6.5%) service length is ten years. An officer should have a minimum of four years gap between JC&SC and SC for two primary reasons: first, he needs to have considerable service experience and maturity, and second, the officer should be able to perform one ERE appointment in between these two courses.²⁸

Figure 12: Officers' service length (Candidates of SCEE-2021)



Source: MS Branch, 2021

e. **Inability to Perform G2 and 2IC After SC:** Officers get significantly less time after completion of SC. There have been cases where officers have been approved while undergoing SC. For example, the AHQ selection board approved four officers in 2019 while undergoing SC 2019-2020. These officers could not perform any G2 and 2IC appointments before becoming Lt Cols. The window becomes narrower if the officer becomes eligible for a second UN mission. Statistics show that 25-35% of officers become eligible for a second UN assignment during this period as shown in Figure 7.

Readjusting Qualifying Timeframe

a. **Post Commission Academic Training (PCAT):** Engineering faculty officers spend two years at MIST for PCAT shortly after commission. Newly commissioned officers must spend significant time with their troops to develop professional competence early in their careers.²⁹ Deprivation of unit service due to PCAT in the foundation building period is the primary concern at this stage. Consequently, the fallout effect delays officers' selection for mandatory courses. Few future action plans may comprise:

- i. No PCAT to be conducted, customising the academic curriculum according to the need of the Army.
 - ii. Shifting the main campus of MIST and BUP at BMA for a better academic environment.³⁰
 - iii. Allotting minimum vacancies (in consultation with MS Branch) to engineering faculty for BMA long course cadets. Most of the cadets in BMA will undergo an honours curriculum.
- b. **Mandatory Courses:** The current timeframe for mandatory courses is contradictory to desired posting pattern. Officers should be selected for mandatory courses as early as possible to provide better quality service to the organisation for a longer duration. In addition, MS Branch should aim for officers' smooth career progression to increase organisational efficiency by balancing timely qualification and unit service.³¹
- c. **Basic Course:** Officers are sent to attend PCAT within the first year of service instead of serving the units ignoring the Armed Forces Division's (AFD) policy. The duration of the basic course may be revisited, keeping only the essential lessons, thereby reducing the course duration. 83% of survey respondents opined to customise the basic course syllabus.
- d. **OWC and BCC:** OWC and BCC have a connection to BMA training. For example, BMA also imparts training on small arms handling, minor ops, and physical endurance. However, neighbouring countries like India and Pakistan do not have courses like OWC and BCC. Therefore, the necessity of OWC and BCC for Bangladesh Army officers needs to be revisited. The formation may also conduct OWC as a formation level course. BCC may be discontinued for the officers.³²
- e. **JC&SC:** A JC&SC qualified Capt can develop his cognitive domain better if he can be posted to staff appointments at any level after the course. Presently, officers become Maj shortly after they complete JC&SC and are unable to cement theoretical learning of JC&SC through practical experience. This hampers the officers' professional development. Like USA Army, Bangladesh Army may also select officers to undergo JC&SC immediately after becoming Capt.
- f. **SC:** More than 89% of officers appear SCEE at their 11th- 14th year of service. The majority of officers hardly get any scope to serve in the units and G2 appointments in different headquarters after completing SC as Maj. This situation can be improved if officers can appear in the SCEE immediately after they become Maj. Both individual officers and the Army will benefit equally from this readjustment of timeframe.

Readjusting Promotion Timeframe

Understanding the appropriate time an officer may be promoted to the next rank needs systematic evaluation and can be determined by ascertaining the requirements at upper ranks. Table 1 shows the tentative employments of officers at various ranks and the Army's need to retain experienced officers at higher appointments. Various employments of officers at different tiers are rank-specific experiences that he must go through to become suitable and efficient for upper rank.³³

Table 1: Service requirements of officers at different ranks

Rank	Maximum service length before retirement (year)	Should be promoted by (year)	Suitable duration of service in the rank (year)	Tentative employment (year)
Lt Gen	33	31	2	
Maj Gen	31	26	5	Division Command- 2 AHQ Staff/ Head of Institution/ Deputation- 3
Brigadier General (Brig Gen)	29	22	4	Brigade Command- 2 AHQ Staff/ Deputation- 2
Colonel (Col)	28	20	2	Col Staff/ Col Administration/ UN Assignment- 2
Lt Col	26	15	5	CO- 2 G1/ Instructor Class A- 2 UN Assignment- 1
Maj	25	8	7	Unit- 4 G2- 2 UN Assignment- 1

Source: KII, 2021

Timeframe is briefly described below:

a. **Lt to Capt Timeframe:** The majority of the respondents of FGD-1 opined that officers should be commissioned as 2 Lt and serve at least three years to become Capt. These three years are crucial as officers will take on the challenges of military life for the first time in everything. i.e., unit life, adaptation with cantonment environment, course, and so on.

b. **Capt to Maj Timeframe:** Considering the importance of the officers' promotion timeframe, AHQ has already started to address the issue. Recently, on 04 August 21, AHQ decided during the Formation Commanders' conference that officers will become Maj after seven years of service and eight years from 2022. Table 1 also suggests a similar timeline.

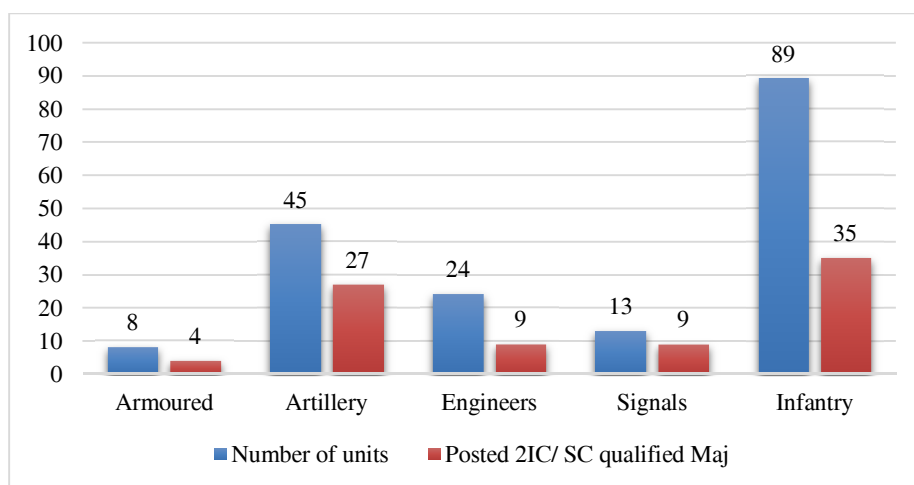
c. **Maj to Lt Col Timeframe:** Table 1 shows that officers becoming Lt Cols after fifteen years is suitable in Bangladesh Army considering officers' future employments in different ranks. However, during the same conference, which is stated in paragraph 45, AHQ agreed to a proposal to extend the service length to become Lt Col to allow time for enhancing officers' maturity and professionalism. If the timeframe of becoming Lt Col increases, Bangladesh Army may have to compromise with senior officers' progressive employment as stated in Table 1.

Residual Adjustments

a. **Unit Service:** As stated in the AHQ policy, compulsory unit service (Figure 3) must be maintained at any cost. This policy may be further elaborated by stating the time segments of unit service. For example, an infantry officer needs to have seven years of unit service before his first AHQ Selection Board, but the policy does not explain at which level of his service length.³⁴

b. **Presence of Posted 2IC and SC Qualified Officers in Units:** Posted officers at the unit of varying service length have a different role in the moulding process of young officers. The present state of posted SC qualified Maj and 2IC in the units is shown in Figure 13. Fifty-four infantry units (61% of total units) do not have posted 2IC or any SC qualified Maj posted in it. Thus, the progressive grooming of the young officers posted in those units is indeed being hampered.

Figure 13: State of posted 2IC and SC qualified officers in units



Source: MS Branch, 2021

c. **Capacity Development of Training Institutions:** The capacity of training institutions was not revamped compared to the intake of officers. Session congestion occurred due to the lack of capacity of training institutions. Though recently SI&T started training more officers in courses, there should be a dedicated organisation, i.e., ARTDOC or MT dte, for the timely forecast of such events.

Proposed Readjusted Timeframe for Mid-level Officers' Qualification and Promotion

Pragmatic promotion and qualification timeframe will be guided by a few factors requiring AHQ command decision. Three fundamental questions need to be answered to formulate the timeframe models. Timeframe Model A will take all affirmative answers from these questions, whereas Timeframe Model B will take negative answers for all of them. The fundamental questions are:

- Will PCAT be discontinued?
- Will OWC and BCC be discontinued/ integrated with BMA training?
- Will the officers be commissioned as Lt?

These are briefly discussed below:

- Timeframe Model A:** Model A will consider that PCAT will not continue in the future; OWC and BCC will either be discontinued or integrated within BMA training, and officers will get commission as 2 Lt.

Figure 14: Timeframe Model A

Service Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Rank Tenure	2 Lt	Lt		Capt					Maj							
Service in the Rank	1	2		5					7							15
Course		OBC		JC&SC					SC							
Unit	1	1.5		1.5					1		2					7
ERE					3				1		2					6

Source: Author's self-construct

Salient Aspects of Model A:

- Officer's unit service according to policy is achievable.
- Officers are not selected for ERE before completion of JC&SC.

- Timeframe Model B:** Model B will take negative answers to all the three fundamental questions into consideration. PCAT, OWC and BCC will continue in the future. Officers will get commission as Lt. Model B will have two variants: Model B1 (for honours faculty officers) and Model B2 (for engineer faculty officers).

Figure 15: Timeframe Model B

Service Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Rank Tenure	Lt			Capt					Maj							
Service in the Rank	3			5					7							15
PCAT/Course	PCAT			OBC, OWC BCC	JC&SC				SC							
Unit	-	1		2.5					1			2.5				7
ERE						1			1			1.5				3.5

Source: Author's self-construct

Figure 16: Timeframe Model B2

Service Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Rank Tenure	Lt			Capt					Maj							
Service in the Rank	3			5					7							15
PCAT/ Course	PCAT	OBC	OWC and BCC	JC&SC					SC							
Unit	.5	1		2.5					1			2				7
ERE					2				1			2				5

Source: Author's self-construct

c. Salient Aspects of Model B2:

- Unit service will start after two years of commission, but the third year will be purely unit service. Fourth-year will mostly be the course year. Officers will undergo JC&SC in the second half of the fifth year.
- Posting in ERE organisations will not start before the sixth year.
- Unit service can be maintained according to policy, but ERE service for engineer faculty officers will be challenging.

Conclusion

BD Army has evolved rapidly over the years since the independence of BD. It started from a scratch and gradually emerged as a professional Army. Bangladesh Army officers' promotion and qualification is a systematic dynamic process. Organisational requirements get precedence above all in deciding the promotion timeframe. For the last

few years, harmony seems to be absent in mid-level officers' smooth career progression due to many reasons. The situation became more complex with the introduction of three years of academy training in the Bangladesh Army. This divergence caused mid-level officers' promotion and qualification timeframe to be upset.

This paper endeavoured to evaluate the current trend of mid-level officers' promotion and qualification. Presently, officers are delayed in attending mandatory courses resulting in late attainment of qualification. As such, divergence is seen in mid-level officers' smooth career progression. More so, many officers lack adequate unit service before their selective rank. Units are facing tremendous difficulty as the number of posted officers is significantly less. Shortage of officers coupled with officers' local attachment to higher HQs impedes the unit functioning efficiently. Most units are devoid of posted 2IC and SC qualified Majs hampering the young officers' grooming significantly. This paper identified only a few critical impediments out of many.

Finally, this paper suggested two timeframe models for mid-level officers' promotion and attaining qualification for officers' seamless career progression to optimise organisational efficiency. Keeping three guiding questions in mind, timeframe models took into cognisance PCAT timeline, readjusted timeline for mandatory courses, SC, and promotions. To address the promotion and qualification timeframe, few residual adjustments are also required. Model A is more flexible and seems better than model B, but it needs AHQ command decisions.

Recommendations

Basing on the findings of the paper, following recommendations are made:

- a. ARTDOC may form a board for a feasibility check on the following issues:
 - (1) Customising the three-year academy training syllabus according to Bangladesh Army's requirement (from a functional point of view).
 - (2) Majority of cadets will undergo an honours curriculum in BMA.
- b. MS Branch may carry out a feasibility analysis regarding the following aspects to seek decisions from the Chief of Army Staff:
 - (1) Officers are commissioned as 2 Lt after three years of BMA training. To become Capt officers will put on three years of service.
 - (2) Officers will not be posted to ERE before the completion of JC&SC.
 - (3) Officers must complete SC by the eleventh year of service.
 - (4) Thirteenth and fourteenth year will be purely unit service for all officers.
- c. MT Dte may ascertain the requirement of OWC and BCC by a officers' board.

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3. Lieutenant Colonel Forhan Haider Rahman, psc. Commanding Officer, 15 East Bengal Regiment 9 Infantry Division, through cellular call, 26 August 2021.
4. Major Ruhul Quddus, Deputy Assistant Military Secretary, Military Secretary Branch, Army Headquarters through interview in person, 18 August 2021.
5. Major Umair Ahmed Pannu, psc, Overseas Course Participant, Defence Services Command and Staff College, Mirpur through interview in person, 24 August 2021.
6. Major Ruhul Quddus, Deputy Assistant Military Secretary, Military Secretary Branch, Army Headquarters through interview in person, 18 August 2021.
7. Major General Mohammad Humayun Kabir, SUP, rcds, psc. Former Area Commander, Logistics Area through cellular call, 19 August 2021.
8. Brigadier General Md Nazim-Ud-Daula, psc, Brigade Commander, 71 Mechanized Infantry Brigade through WhatsApp, 18 August 2021.
9. Major Mir Sharfaraz. Battery Commander, 32 Field Regiment Artillery through cellular call, 28 August 2021.
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Brief Biography



Major Badrul Alam Bulbul, psc, Infantry was born on 21 July 1986 in Dhaka. He passed both Secondary School Certificate and Higher Secondary Certificate Examinations from Jhenidah Cadet College. He was commissioned from Bangladesh Military Academy (BMA) with 57 BMA Long Course in the Corps of Infantry on 13 December 2007. His military career includes service in three infantry battalions in all possible appointments, Aide-de-camp to General Officer Commanding of an infantry division, Platoon Commander in Bangladesh Military Academy, and Deputy Assistant Military Secretary at Army Headquarters. Apart from the mandatory courses, he attended the Basic Para Course, Potential Platoon Commanders' Course, Junior Command Course (India). In addition, he participated in United Nations Peacekeeping Mission in D R Congo as a contingent member. He has successfully completed Staff Course 2021-2022 in Defence Services Command and Staff College, Mirpur, Dhaka.

RISE IN IRAN-CHINA RELATIONS AND ITS IMPACT ON INDIA'S REGIONAL SECURITY AND RELATIONS WITH IRAN

Major Nitish Tyagi, SM, psc, Indian Army

Abstract

India and Iran are age old friends. The relationship has mostly been cordial between the two nations. But in the recent past the relationship has seen a downfall. This has mostly been due to the sanctions put by the USA and UN on Iran and also because India had to side with the USA and vote against Iran in International Atomic Energy Agency (IAEA) conference twice. There is one more reason which needs to be understood, that is the growing relationship between China and Iran. At this context, there is a need to research and highlight the impacts of rise in relations between Iran and China and its impact on India's regional security and relations with Iran and Central Asian Region countries. To find out the impacts, existing literatures mostly the books, articles, previous researches, journals and newspaper articles were referred. Besides, one survey questionnaire was given to experts on the subject matter and three subject matter experts were interviewed over cellphone. The survey and interview helped in bringing out the correlation among the independent and dependent variable which got further proved mathematically. In the end, the primary hypothesis regarding the adverse impact of growing relations between Iran and China on India's regional security and its relations with Iran and Central Asian Region countries was proved. This research highlighted that India should start working on independent foreign policy framework which is free from external influences, should complete its infrastructural projects in Iran should work on its soft power diplomacy in the region, in order to maintain its relations with Iran and to secure its interests in Afghanistan and Central Asian Region countries.

Introduction

Iran has a geo-strategic importance in the Gulf region. The country serves as a land bridge between Persian Gulf in South to Caspian Sea in the North. It shares the border with Iraq to its West and Turkey to its North-West. It further gives land passage to Armenia and Azerbaijan onto its North. Towards East it has Pakistan and Afghanistan and Central Asian Region (CAR) Nations onto its North-East. India and Iran are culturally related to each other since ages. During Mughal period in Indian history, there have been cultural and linguistic links happened between the two countries, which are still visible in India, as India has considerable Parsi population.

Iran is important to India both from strategic and economic point of view. Iran acts as a gateway between India and Central Asian Region (CAR) countries. India has heavily invested in Iran in the last two decades both in energy as well as infrastructure sector. There are several Indian projects running in oil sector as well as infrastructure sector in Iran. India's relations and projects with CAR nations are also dependent on its access via

Iran. Projects like Iran-Pakistan-India (IPI) gas pipeline, International North South Transport Corridor (INSTC) and Chabahar Port, all are dependent on cordial relations with Iran. In this multipolar world, Iran holds an important position in India's Central Asian foreign policy making.

China though, ideologically different from Iran, has suddenly started taking a lot of interest in Iran with respect to trade as well as infrastructure development. China has taken a lead in coming forward for Iran and its economy. China and USA are undergoing a trade war which resembles the Cold war but in economic terms. China keeps showing its presence in Middle East and CAR nations in order to subdue USA's influence in these regions. China's ongoing Belt and Road Initiative (BRI) project and now the latest 25 year deal with Iran are indicators of China's growing interest in Iran.

Hence, it is essential to determine whether Iran's sudden disinterest in India is due to growing Chinese influence or due to India's incapability in itself to keep up its relations with Iran. Furthermore it is necessary to highlight the regional security issues which will arise for India because of increased Chinese military presence in Iran.

Geopolitical Importance of Iran and India-Iran Relation

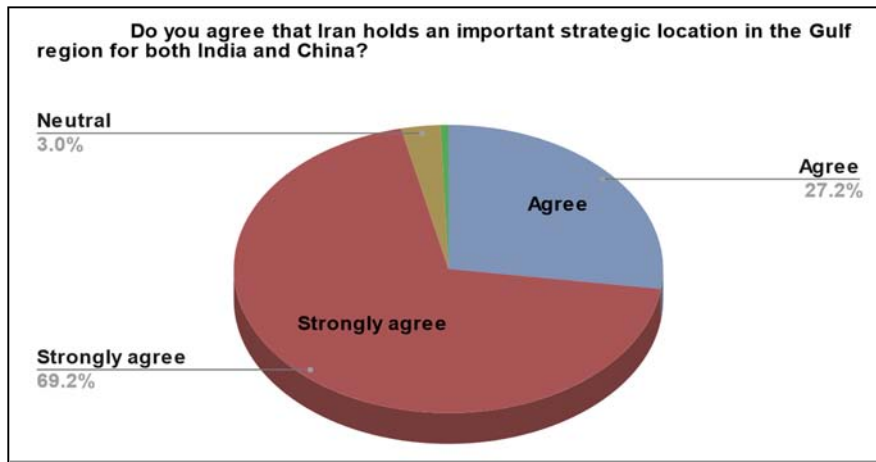
Iran is a part of Gulf Region. India and Iran relations are centuries old. Both countries are related to each other culturally and linguistically. Since ages India has trade relations with Iran. In today's scenario the relations are not only dependent on trade but also energy requirements, regional security and many other national interests.

Geostrategic Importance of Iran: An Analysis

- a. **Geographical:** Iran is located at a very important location in the Gulf Region. It serves as a land bridge between Caspian Sea in north and Persian Gulf in south. It also has a strong hold over Strait of Hormuz, because of which it can actually affect the movement of oil tankers in this region. It shares border with Afghanistan and Turkmenistan in north and Pakistan in east and gives easy access to Middle East onto its west. Hence, it gives land access to Middle East, Central Asian countries and Afghanistan. 69.2% of respondents strongly agreed to the fact that Iran holds a strategic location in the Gulf region for both China and India.¹

Therefore, for a country in Indian subcontinent or in South Asia, in order to have access and good relations with Central Asian countries and Afghanistan, it is important to be in good terms with Iran.

Figure 1: Response showing the importance of Iran in Gulf Region



Source: Researcher's Construct Based on Survey Result

b. **Oil and Natural Gas Reserves:** In today's world, all growing economies has large demands of both of these resources to meet their never ending energy requirements. Iran holds control of its oil reserves in total as compared to other oil producers in the region and it has second largest reserves of oil and gas in the world. Therefore, Iran is important for nations like India and China.

c. **Economic:** Iran holds an aspiration to play an important role in the global energy market. It has a growing population and ever increasing market for trade and infrastructure projects. Hence, Iran is a highly eligible nation in terms of bilateral trade relations and it also makes available great opportunities in terms of infrastructure projects for any nation to participate.

d. **Regional Security:** Iran shares border with Afghanistan and other countries. It has access to Arabian Sea via Strait of Hormuz. It holds an important place in fighting against Taliban in Afghanistan and also curbing the terrorism in Central Asian Region. It also has a strong say in Pakistan led activities in the region. In the Middle East Iran plays an important role in Iraq, Syria and Yemen by its Revolutionary Guard forces. Hence, healthy foreign relations with Iran assure other nations of safe regional passage through Strait of Hormuz and also a strong hold in Middle East.

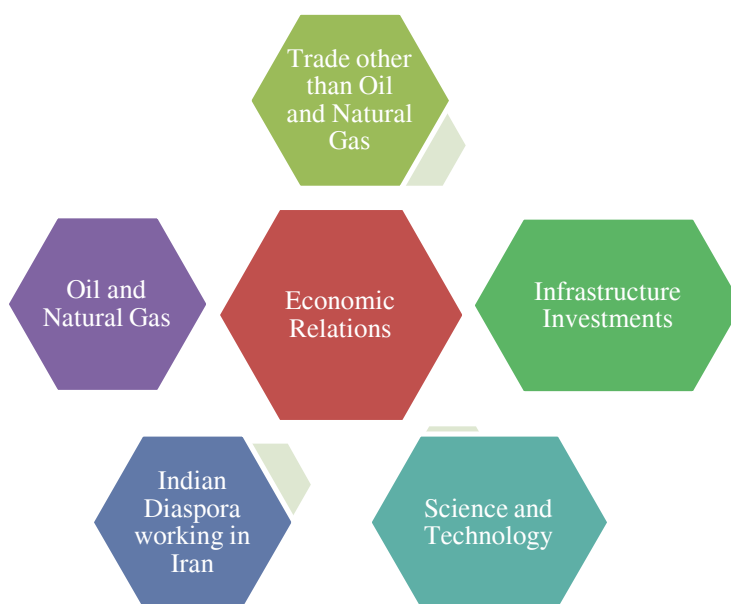
India-Iran Relationship and Importance of Iran for India

Importance of Iran for India

a. **Economic Relations:** Both nations are complementary to each other in the energy sector. Iran surpassed Saudi Arabia in 2016 and became India's top oil supplier. Iran has world's largest natural gas reserves. India's domestic demand is more than 170mcm per day but its own reserves are far less. India's per day

requirement is approximately 100mcm per day, which is to be imported. On 9 Dec 2015, Iran had a talk with Indian officials regarding an underwater natural gas pipeline to India via Gulf of Oman. But due to the end of the Significant Reduction Exemption (SRE) period on 02 May 2019, India had to suspend its energy imports from Iran.²

Figure 2: Economic Elements in India-Iran Relation



Source: Researcher's Construct

b. **Trade:** India is an important investor for Iran and also has important export opportunities in Iran. The bilateral trade during 2019-20 was \$4.77 bn. India's major exports include sugar, soya, rice, tea, medicines/pharmaceuticals, man-made staple fibers, electrical machinery, etc. Iran's exports to India include inorganic and organic chemicals, fertilizers, cement clinkers, fruits and nuts and leather.

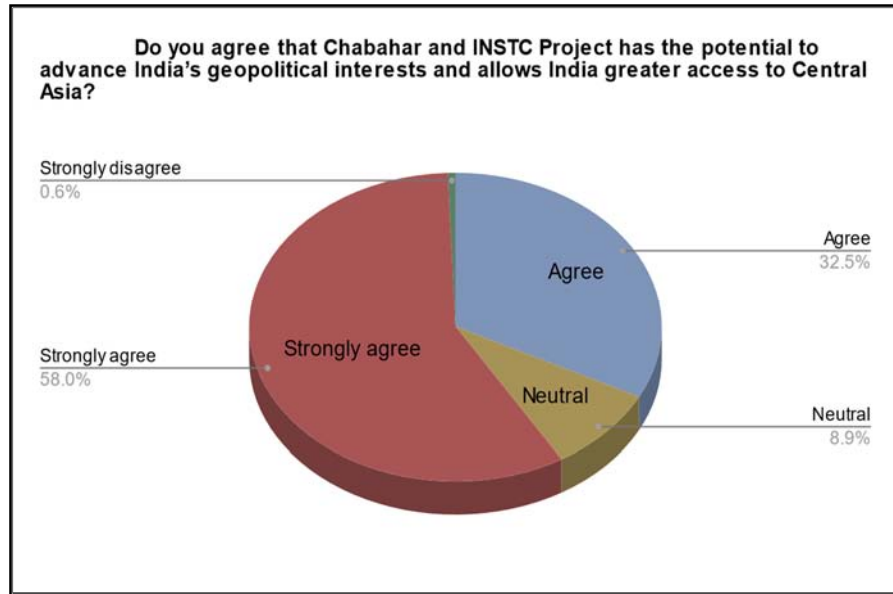
c. **Infrastructure Investments:** Following investment projects are being run by India in Iran:-

i. **Chabahar Port:** The port is very important for India's access into Iran and then further to Afghanistan and CAR nations. It advances India's geopolitical interests in the region. It is important economically also for India. It also competes with China led Pakistan's Gwadar port in Arabian Sea. Chabahar port is also important to India for advancing its International North South Transport Corridor (INSTC) project.

ii. **International North South Transport Corridor (INSTC):** It is a ship, rail and road route. It is designed to move freight between India, Iran, CAR nations and

Europe. The objective is to connect major cities like Moscow, Mumbai, Tehran, Baku and Bandar Abbas and time taken to move freights and increase trade relations. The transportation time gets reduced by 20 days.³ Approximately 90% of respondents agreed to the statement that Chabahar and INSTC project is important to India.

Figure 3: Response showing the importance of Chabahar and INSTC project for India

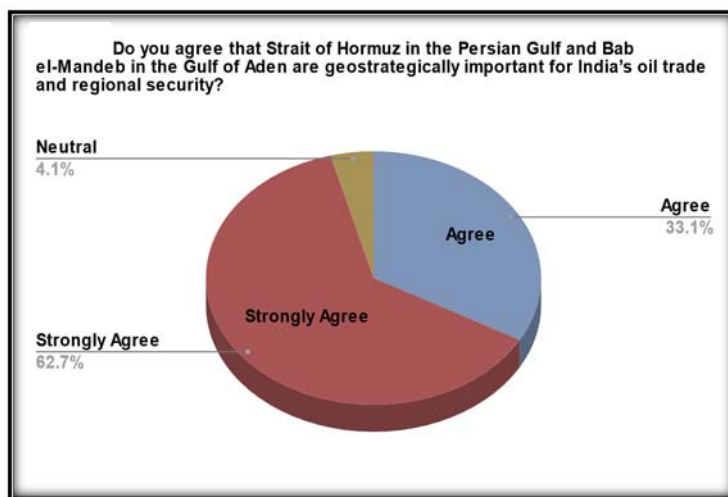


Source: Researcher's Construct Based on Survey Result

iii. **Chabahar-Zahedan Railway Line Project:** The project was signed in 2016. The deal was signed between India, Iran and Afghanistan. It entails the construction of a multimodal transit and transport Corridor between the three countries. The Indian Railways Construction Ltd. (IRCON) took the responsibility and the signed the Memorandum of Understanding(MoU) with Iran government.

iv. **Security Relations:** Iran holds the Strait of Hormuz and hence all the entry and exit points also in the Gulf Region. Any military conflict will end up in raising oil prices in the region. India has to have presence at Chabahar port in order to provide security to its merchant and naval ships in the region. It also enables India to keep an eye on activities near Gwadar Port. Iran also holds observer member status in Shaghai Cooperation Organization (SCO) and has an important say in countering domestic and international terrorism in Central Asian Region. 62.7% respondents strongly agreed to the fact that both the Strait of Hormuz and Bab el-Mandeb are important for India's oil trade and regional security.

Figure 4: Response showing the importance of Strait of Hormuz and Bab el-Mandeb for India



Source: Researcher's Construct Based on Survey Results

Iran-China Relations and Their Mutual Dependency

Iran-China bilateral relations were established in 1971. The relations experienced substantial change in the post 1979 period. After 1979, though both countries were ideologically and fundamentally different and had different governance mechanism; they started strengthening their ties because of similar international outlook, mutual need in economic field especially energy sector, military and regional foothold.⁴

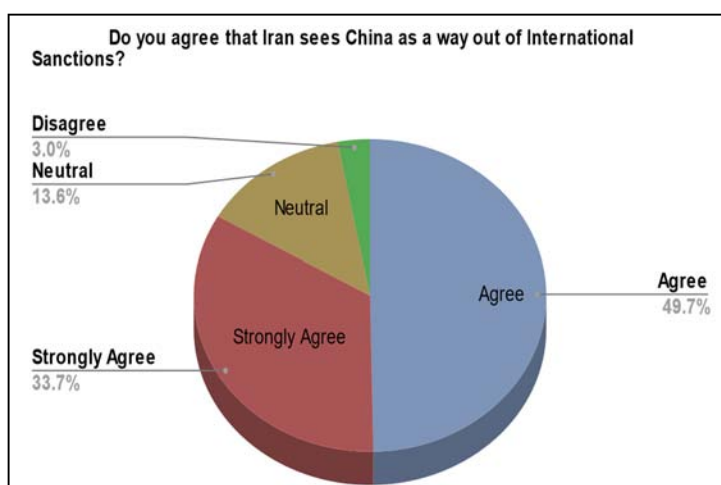
Iran's Interests in China

a. **Iran's Military Modernization:** China became the essential provider of military hardware to Iran during Iran's eight year war with Iraq. China supplied military hardware to Iran indirectly and discreetly through third party sale/transfers carried out via countries like North Korea. The assistance ranged from small arms to ballistic and anti-ship cruise missiles. China helped Iran in starting indigenous military industrial sector. China also helped Iran with advance anti-ship mines and fast attack boats. Such transfers of weapons and technology continued despite various sanctions. There are allegations that China has helped Iran in covertly developing chemical weapons' program.⁵

b. **Iran's Nuclear Program:** China has assisted Iran in developing its nuclear program. Though both nations claim these assistances as of civilian nature, but time and again many reports have shown the military dimension also. Chinese technicians and engineers trained Iranian nuclear engineers and assisted in establishing the Esfahan Nuclear research Center.⁶

c. **Alternative to the International Sanctions:** Iran has been sanctioned four times by the UN and several times unilaterally by the USA. These sanctions have deeply affected Iran's shipping, energy industry and financial system. Iran's currency suffered a serious downfall after these sanctions. Due to such harsh sanctions many countries, including India, had to cut down their trade and oil imports from Iran. China took this as an opportunity and expanded its economic ties with Iran after each round of sanctions. This helped Iran in blunting the effects of these sanctions. Hence, China has offered Iran a great help in these tough times.⁶

Figure 5: Response showing alternative to international sanctions



Source: Researcher's Construct Based on Survey Result

d. **Energy Cooperation:** China's growing energy requirements and the abundance of energy resources in Iran is the foundation of economic partnership between the two nations. Iran has formed a joint oil and gas committee with China to broaden and expedite energy cooperation. China assisted in developing Iran's Azadegan and Yadavaran oil fields. China has also become Iran's largest market for petrochemical exports.⁷

e. **Infrastructure Development:** Non-energy trade and investments also form substantial part of bilateral economic ties between Iran and China. China has invested heavily in building bridges, dams, railroads and tunnels throughout Iran. China has also taken project to develop Iran's rail network.⁸

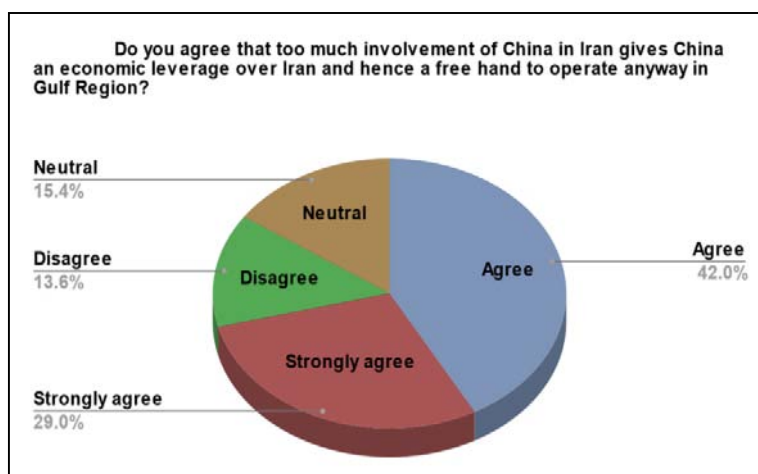
f. **Iran-China 25 Years Cooperation Program:** It is a 25-year cooperation agreement between Iran and China. It was signed on 27th March 2021. China will be investing around US\$400 billion in Iran in various sectors in exchange for heavily-discounted supply of oil from Iran. The pact also includes deepening military cooperation between the two nations. This will give China a military foothold in the region.⁹

China's Interests in Iran

a. **Geopolitical Ambitions:** China started strengthening its ties with Iran since 2015. This happened after signing of Iran nuclear deal. In 2016 the bilateral ties between the two countries comprehensive strategic partnerships. China also supported in giving Iran an observer member status in Shanghai Cooperation Organization (SCO). Even after the USA withdrew from JCPOA in 2018, China continued to have diplomatic engagements with Iran. The bilateral summits between the two nations are generally used to degrade the USA's influence. The signing of latest 25 years deal between the two nations also shows that China can work with the USA's adversaries in order to undermine the USA's influence. There is one more benefit for China; the Indo-Pacific. This region is very important to China for its regional security, dominance and trade. Due to Iran's ambition to attain regional dominance the USA gets preoccupied in maintaining the regional security balance in the Middle East and hence incapable of fully focusing in Indo-Pacific region. This gives China time and space to increase its dominance in this region.¹⁰

b. **Economic Leverage:** Iran has been put under years of crippling economic sanctions. Iran's currency and market has suffered serious downfall. China has exploited this economic vulnerability of Iran. In the last ten years, China has provided various trading opportunities to Iran which has served as economic lifeline for Iran. This gave China a significant leverage in their relationship.

Figure 6: Response showing that China has an economic leverage over Iran



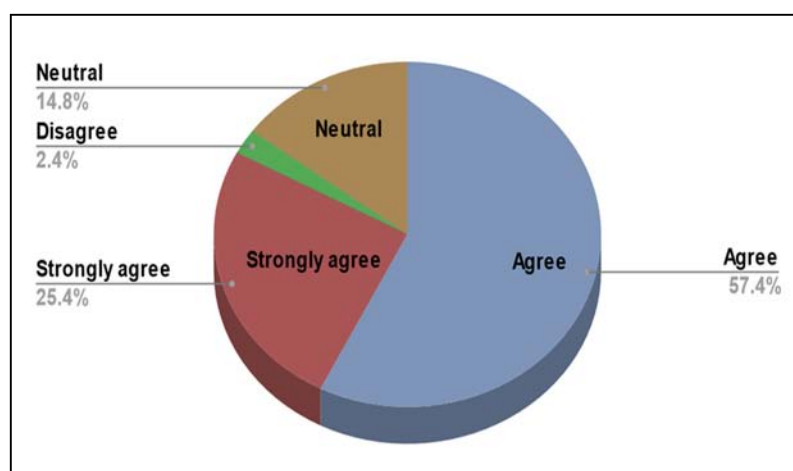
Source: Researcher's Construct Based on Survey Result

c. **Long Term Returns:** China is banking on a future hope with regards to Iran. If in future the situation in Iran normalizes, then China will have full access to world's fourth largest oil and natural gas reserves. In that situation China is also looking forward to lucrative export and investment opportunities in Iran.

d. **Energy Requirements:** China's energy requirement is growing at a very rapid pace. China has predicted that it will hit an all-time high in its oil and natural gas demands by 2040. Economic sanctions have made Iran dependent on barter system of trading with China. It has to also give enormous rebates on oil purchases to China. In March 2021, China's imports of Iran's oil reached 3.75 million tons.

e. **Belt and Road Initiative (BRI):** For China, Iran is an important regional hub of surface transport. Iran connects Central Asia, Europe and the Middle East. To improve upon its ongoing BRI project, China has taken up domestic and international construction work projects in Iran. The China-Central Asia Economic Corridor is a part of BRI. It passes through Iran and connects to Europe. China wants to develop the regional connectivity in order to improve the delivery of Chinese goods. In the same garb develop and improve land connectivity for import of oil, gas and minerals into China.

Figure 7: Response showing that China's BRI and Iran



Source: Researcher's Construct Based on Survey Result

Rise in Iran-China Relations and Impact on India

China-Iran Deal: The 25-Year Plan

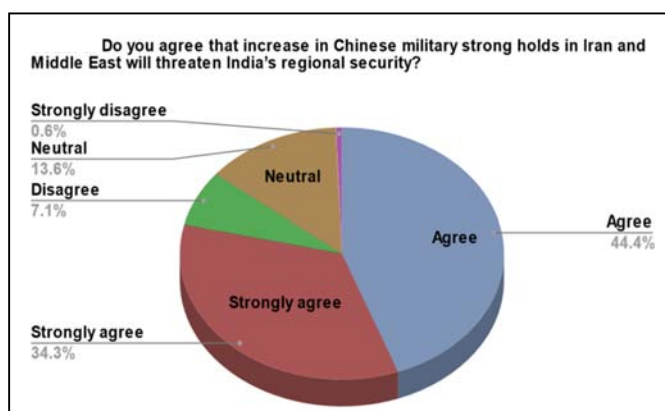
This deal is an attempt of China to spread its influence throughout Middle East and Mediterranean region. The deal encompasses economic, industrial, nuclear, petrochemical, military, intelligence, geostrategic and political collaborations. The deal will give the Chinese firms unlimited access to Iran's natural resources, oil and gas.

Traditional Security Impacts

a. **In the Pact:** According to the pact, the Chinese military's warplanes and navy can have a presence in the Iranian airports, sea ports and even form military bases inside Iran.¹¹

- b. **China's Gain:** The deal allows Chinese government to establish military bases inside Iran. The Chinese government will have access to Iraq, Syria, South America and Southern Lebanon via Iran. China will gain likely influence in Venezuela and Columbia via IRGC. Gradually China would seek to gain more influence in the Middle East and Mediterranean region and establish its political and military strong foothold.
- c. **Iran's Gain:** Iran seeks to ensure its safety and position in the region.
- d. **Impact on India:** The presence of Chinese troops in the Gulf region and the permission of establishing strong holds expand China's reach and resources and pose a growing issue in front of India to secure its national security interests in the region.¹²

Figure 8: Response showing the impact on India's Regional Security



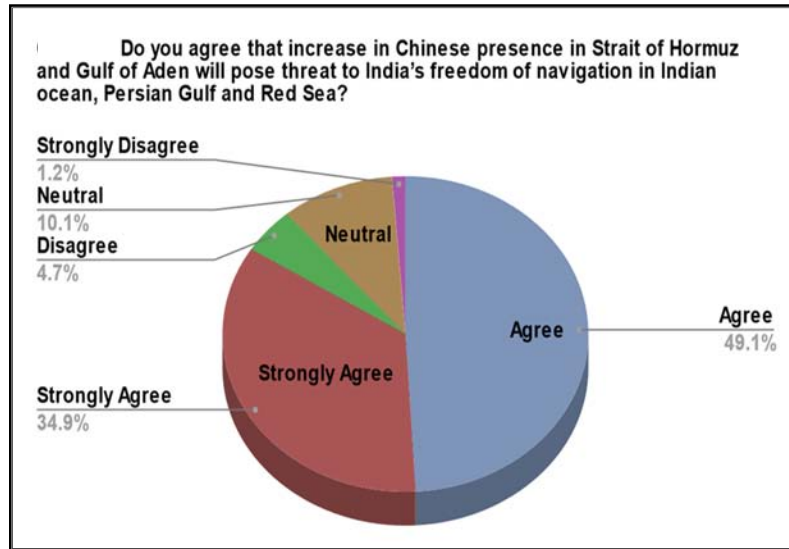
Source: Researcher's Construct Based on Survey Result

Nontraditional Security Impacts

- a. **The Growing Relations:** The lifting of UN arms embargo on Iran combined with the 25 years China Iran Economic and Security deal encompasses close military collaborations between the two countries.
- b. **Iran's Gain:** The military proxies established by Iranian government in the Middle East intend to achieve the regional hegemony. The main objective is to gain uncontested control of the Bab el-Mandeb and the Strait of Hormuz. Through this, Iran would be able to control the southern waterway of the Suez Canal in the Red sea and the Persian Gulf.
- c. **China's Gain:** Chinese government needs Iran as its own proxy in the Middle East. For China to succeed in its security penetration in the region, it ought to create a need for its presence. This can only be done by first de-stabilizing the region. But this cannot be done by China on its own. Hence, the deals like 25 year cooperation gives China a chance to keep funding Iran indirectly with weapons and technologies to achieve its aim of destabilizing the Middle East. The Iranian regime is the perfect candidate for China to do this.

d. **Impact on India:** India is dependent on both Strait of Hormuz and Bab el-Mandeb for its trade and energy requirements. The Bab el-Mandeb connects Indian Ocean to Mediterranean Sea and further to Red sea. Though India is already pursuing the International North South Transit Corridor (INSTC) multimodal project, but till the time it fully becomes functional, Bab el-Mandeb will hold important strategic value for India.¹³

Figure 9: Response on importance of Bab el-Mandeb and Strait of Hormuz



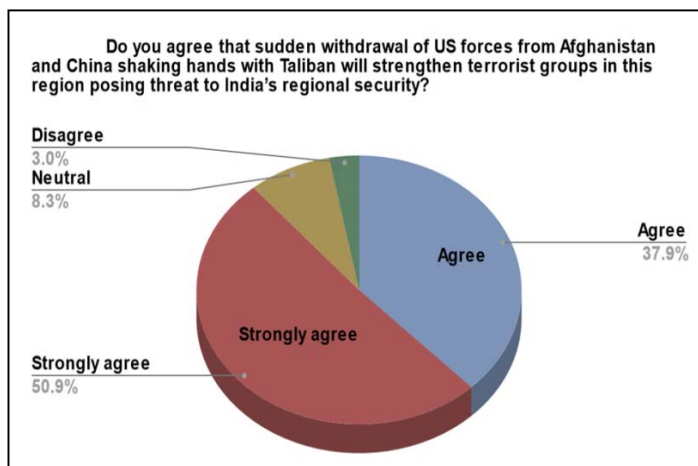
Source: Researcher's Construct Based on Survey Result

Terrorism in the Region

- a. **Iran-China Relations:** The new deal between the two countries allows Iran to gain access to China's advance weapons and military technology in lieu of oil and natural gas.
- b. **Iran's Gain:** There is a good chance that Iran will use this opportunity to supply Hezbollah, Hamas, Taliban, al-Shabaad and Houthis with advance Chinese weapons and military equipment to increase chaos in the region.
- c. **China's Gain:** The de-stability in the region will create a need for China's presence as the local superpower to ensure security and stability in the region. China's main aim is to subdue the USA's hegemony in the region.
- d. **Impact on India:** The present situation in Afghanistan has given Taliban a free go in the region. India has invested a lot in Afghanistan in past twenty years. Pakistan has got strong ties with Taliban and has always supported Taliban. Pakistan holds the north western and northern part of India's Kashmir region. With the Taliban's rise and China shaking hands with Taliban and Pakistan having close ties with Taliban; India's regional security in the northern and north western

parts of Kashmir comes under a serious threat from various terrorist groups which will get direct support from Taliban and indirect support from China and Pakistan.

Figure 10: Pie Chart showing impact of Iran-China Relations on Afghanistan

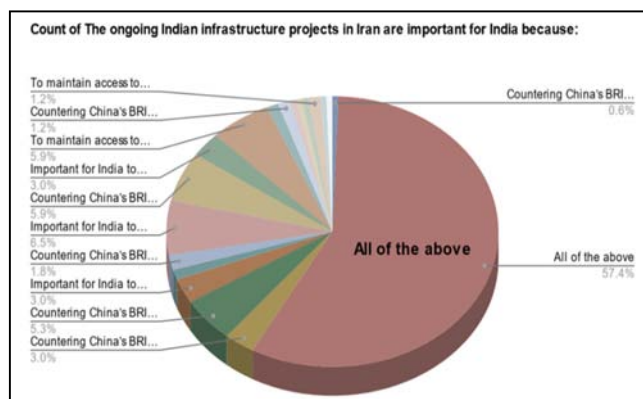


Source: Researcher's Construct Based on Survey Result

Infrastructure Projects

a. **India's Current Projects:** India has invested heavily in Iran. Starting from INSTC to Chabahar Port project, all routes of access to CAR nations and Afghanistan depends on these projects. Zaranj- Delaram multimodal rail and highway project is very important for India's access to Afghanistan and CAR nations.¹⁴

Figure 11: Pie Chart showing importance of India's Infrastructure Projects



Source: Researcher's Construct Based on Survey Result

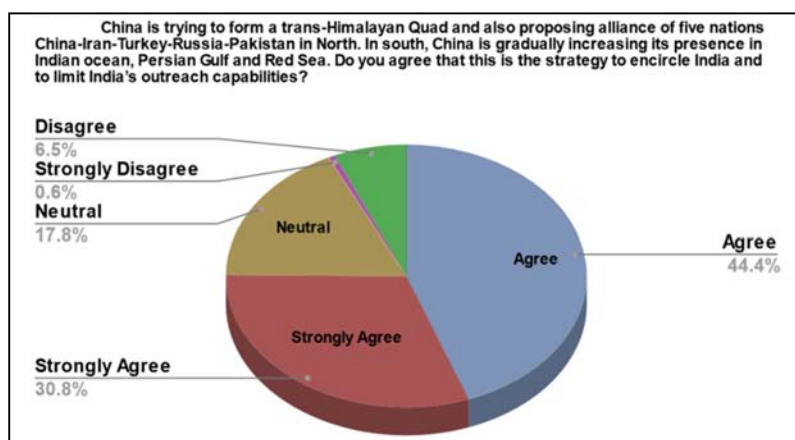
b. **China-Iran Relations:** Many studies has highlighted that China is trying to form an alliance against India. The Trans-Himalayan Quad grouping of China,

Pakistan, Nepal and Afghanistan is an example of such strategic grouping. On similar lines Iran is using its connections to strengthen relations with Turkey, Russia and China. The latest strategic cooperation agreement between Iran and China will provide a framework for such upcoming quads and trilateral ties.

Impact on India

a. **Strategic Encirclement:** In future India might have to face a hostile alliance of several countries led by China. This will pose a national security challenge in front of India. It might limit India's outreach capability.¹⁵

Figure 12: Response to Question asking about India's Strategic Encirclement



Source: Researcher's Construct Based on Survey Result

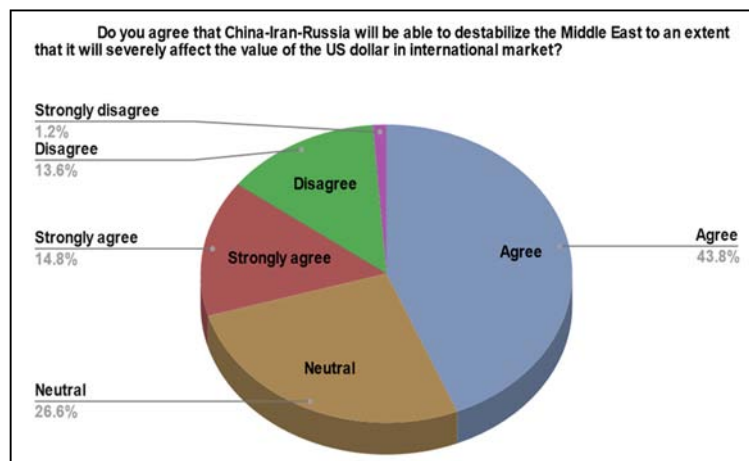
Economic Impact

a. **Concept of International Currency:** For any superpower to exist and sustain itself, it should maintain the value of its currency as the standard reserve currency of the world. Despite all other international currency, none of them enjoy quite the same position and power like the US dollar does. Today, the US dollar is the main global currency for trading oil and it has solidified its position among other international currencies.

b. **China-US Cold War:** China dislikes solidified status of the US dollar. Hence, China along with Russia and Iran has a shared objective to devalue the US dollar. The regional security, economy and stability of the gulf countries and the Middle East have a direct impact on the US economy through affecting the value of US dollar.

c. **China-Iran Relations:** Iran already has Chinese and Russian military bases and industrial posts set up in its territory. Now with 25 years strategic agreement, it provides Chinese government with more freedom and control. The strategic creation of China-Iran axis aims to devalue the US dollar and establish a new reserve currency.¹⁶

Figure 13: Response showing China's intent to devalue the US Dollar



Source: Researcher's Construct Based on Survey Result

Conclusion

Iran holds strategic importance for India in the Gulf region. Indian investment in Iran in past two decades both in oil and infrastructure sector has crossed billions of dollars. India gets an easy access to Afghanistan via Iran. India's investment in Afghanistan depends on its relations with Iran. The mineral rich Central Asian countries hold both strategic and economic importance to India. Iran not only gives access to India to these countries but also helps in maintaining good relations in the Central Asian region.¹⁷

The researcher, at the outset, delves into the importance of Iran in the Gulf region. The researcher has highlighted the past and present of Iran- India relationship. The current infrastructure projects of India in Iran are of immense important to India. Approximately 90% of respondents agreed to the statement that Chabahar and INSTC project has the potential to advance India's geopolitical interests and allows India greater access to Central Asia. 42% of respondents strongly agreed to the statement that this railway project is very crucial for India's access to Afghanistan and CAR nations via Iran. 62.7% respondents strongly agreed to the fact that both the Strait of Hormuz and Bab el-Mandeb are important for India's oil trade and regional security.¹⁸

The researcher focused on the mutual dependency of both nations which is the main ingredient of these growing relations. The researcher successfully correlated and highlighted the dependency of both nations on each other. 41% of respondents agreed that Iran is dependent on China for its military's modernization and proliferation of its nuclear program. 83% of respondents agreed to the statement that Iran sees China as a way out of International Sanctions. Hence not entirely, but China has assisted Iran economically to be less vulnerable to sanctions. 71% of respondents agreed that China has an economic leverage over Iran. The geographic location of Iran and its dominance over Strait of Hormuz is also one of the reasons for China's interest in Iran (Will Green,

2021). 91% of respondents agreed to the statement that oil and gas reserve held by Iran is one of the reasons for China's interest in Iran. 82% of respondents agreed to the statement that Iran is important to China for completion of its BRI project. All these findings establish the mutual dependency among both nations.

The researcher subdivided security into traditional and non-traditional. 74% of the respondents agreed to the fact that Chinese increased presence in Iran and Gulf region will impact India's regional security. 87% of respondents also agreed that turmoil in Afghanistan and China shaking hands with Taliban will pose security issues in front of India as far as Indian border security in Kashmir region is concerned. 74% of respondents also agreed that China forming alliance with countries around India is a form of strategic encirclement of India in order to subdue India's hold in the region and prove China's supremacy. 82% of respondents agreed that China is going to take over Infrastructure projects development in Iran and Iran gradually will start side lining India from its Infrastructure partnerships. This will threaten India's on-going projects in Iran. India might lose its free access to Afghanistan and CAR nation via Iran. In the end the researcher has indirectly connected the impact of economic cold war between USA and China on India's economy. The negative impact of devaluation of US dollar on India's forex reserve and its subsequent effect on India's economy, can become a cause of concern for India.

Recommendations

- a. The India-Iran relations suffered a downfall after 2005. It happened because India had to forgo its relations with Iran under the USA's pressure for finalizing Indo-US nuclear deal. India had to vote against Iran at IAEA conference in September 2005. After this, India had to cut its oil imports from Iran, nearly to zero, under the pressure of sanctions imposed by Trump administration. Hence, India now need to come out of the USA's influence and should work towards independent foreign policy framework.
- b. China and Pakistan are already in good terms with each other. Pakistan has already given China, a lot of leverage and access till Arabian Sea under China-Pakistan Economic Corridor (CPEC) project. Iran getting added to this alliance will pose a serious worry to India's regional security. It will also hamper India's interests in Afghanistan and CAR nations. Hence, India needs to work smarter and push its projects like Chabahar and INSTC in order to maintain its hold in the region.
- c. Iran and China relations are growing at a time when India is falling short of its soft power competition in the subcontinent. India is in tough competition with China at present in terms of regional dominance. India- Nepal ties are also declining due to Chinese influence. Similar impacts are seen in relations with Bangladesh and Myanmar. Now, India needs to rework its relations with countries in Indian subcontinent and the Gulf region. India should complete its halted infrastructure projects in all its immediate neighbouring countries. In case of Iran, India needs to be more serious. If India continues to delay its projects and lines of credit for Iran,

then Iran's relations with China will continue to grow at exponential pace and India will lose its relations with Iran and CAR nations.

d. Iran cannot deny any kind of direct investments from India, as it needs to maintain its falling economy. Hence, India should reassert its support in favour of Iran this time in international forum and take additional waivers from the USA for Chabahar and other projects and maintain its relations with Iran. India needs to fulfil its promises and try to meet the financial and infrastructural completion deadlines.

e. India needs to talk on multi alignment. It needs to brush out the USA's influence with regards to its foreign policy for Gulf region especially Iran. This will include exercising extra caution when committing to alliances like Quad. India should start focussing on independent foreign policy framework. Geographical proximity, regional connectivity, economic integration and common security challenges in Afghanistan and Central Asia demand close cooperation between India and Iran. India should continue to build its relations with Iran, separate from its bilateral ties with the US.

f. The findings of this research can be utilised for further research on the topic concerning India, China and Iran. By examining the relations between Iran and China and by studying the impact of this relationship, at higher echelons of politics and diplomacy, will give a way out to India to maintain its cordial relationship with Iran and save its current and future interest in the Gulf and Central Asian region.

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Brief Biography



Major Nitish Tyagi, SM, psc was born on 15 August 1989 in Uttar Pradesh, India. He passed Secondary School Certificate Examination from Army Public School, Jhansi and Higher Secondary Certificate Examination from Army Public School, Jammu and Kashmir with 89% marks in science stream. He was commissioned on 10 December 2011 from Indian Military Academy (IMA) with 129 Regular Course in Infantry. He has a diverse experience of serving in regimental, instructional and staff appointments in his career. He is a Special Forces operative and has operated in various terrains at various border areas in India. He has been appointed as an Adjutant, a Quarter Master, a Platoon commander and also as Company Commander in his last ten years of service. Furthermore, he gained experience in serving as Instructor Class 'B' in the Cadets Training Wing, Pune. Apart from the mandatory courses for his professional career, he attended basic paratrooper and electronic warfare course. He is a graduate in Information Technology and Telecommunication from Military College of Telecommunication Enginnering (MCTE), Mhow, India. He received the prestigious 'MCTE Silver Medal' and 'MCTE Best Research Project Award' in 2012. He has successfully participated in Staff Course in 2021-2022 session from Defence Services Command and Staff College, Mirpur, Dhaka.

RISE OF SUB-CONVENTIONAL WARS: NEED FOR REVISITING THE TRAINING FOCUS OF BANGLADESH ARMY

Colonel Md Syeedur Rahman, afwc, psc

Abstract

The twenty-first century saw the rise of sub-conventional wars as well as the increased security threats posed by the non-state actors. But, war at the sub-conventional level is hardly new. Starting from Vietnam War to Iraq and Afghanistan, sub-conventional efforts were highly successful in achieving desired strategic objectives. The post-Cold War era clearly indicates a distinct shift in the trend of warfare, and the strategic success of sub-conventional wars rose to such extent that there has been hardly a war between two conventional forces in the last two decades or so. While rivalry among nations will continue to exist, today armies around the world need to prepare, train and equip to fight the partially invisible enemy. Bangladesh faces a host of security threats, and Army is expected to play a vital role in eliminating those threats, be it conventional, sub-conventional, or non-traditional. To date, the focus of Bangladesh Army's training is directed towards conventional war, and the fundamental problem is that a conventional soldier employed in a sub-conventional role tends to apply the conventional principles of war, which do not apply in a sub-conventional environment. Therefore, based on the trend of war and perceived threats, Bangladesh Army needs to be capable of responding to conventional as well as sub-conventional threats with minimum alteration. This specific necessity can be fulfilled by making the officers and men confident in their professional tasks and preparing them for both conventional and sub-conventional operations through a well-structured, balanced and rigorous training curriculum.

Introduction

Army is defined as a large organized force armed and trained for war, especially on land.¹ Throughout the history, the character and organization of armies have changed principally basing on the epoch and threat perception thereof. War is an organized, armed, and often prolonged conflict between states or nations, and in a conventional war (CW) usually battle lines are distinctly drawn, objectives are clearly defined and above all success or defeat is evident. Contrarily, in a sub-conventional war (SCW) objectives are generally ambiguous and the line between success and defeat is usually blurred. A scan of recent conflicts indicates an upsurge of sub-conventional conflicts² which raises query regarding the preparation of standing armies who primarily train to fight CW. The strategic success of SCW touched such an altitude that only a few CW between two conventional forces took place in the last two decades i.e. Armenia-Azerbaijan War (2020), Russia-Georgia Conflict (2008). Therefore, it is widely opined that conflicts in the 21st century are going to look very different where large-scale CW will be an exception rather than a practice.³

A study performed by a group of researchers⁴ ascertained that the number of global armed conflicts will continue to decrease and by 2050 it will be about half of the current figures. The study also concluded that over the next few decades, an increasing proportion of conflicts will occur in East, Central, and Southern Africa as well as in East and South Asia. Bangladesh

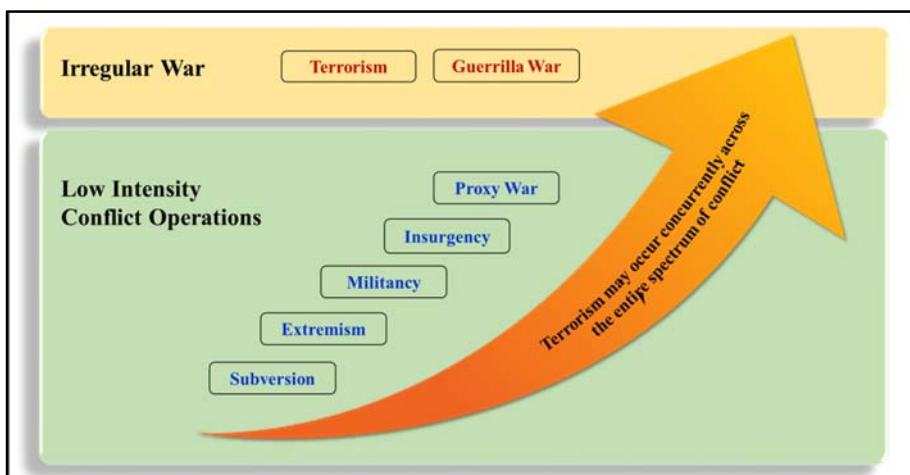
(BD) being geographically located in South Asia, therefore, remains susceptible to an increased number of future conflicts. Besides, the socio-political dynamics also make BD vulnerable to numerous non-traditional security (NTS) threats.⁵ In BD, Army is considered as one of the major elements of national power in countering national security threats; therefore it should organize, train, and prepare itself founded on the perceived threat scenario.

BD Army, like many other armies, is primarily organized, equipped, trained, and psychologically oriented to fight a CW; thereby generally thinks in definite terms. But today, armed forces around the world are faced with a quintessential dilemma in preparing the forces. Should the forces be designed for classic CW with the flexibility of fighting SCW, or should they primarily prepare for SCW while retaining some core capabilities for CW? The answer probably lies amidst suitably preparing, training, and equipping the forces to meet both conventional and sub-conventional threats. At this backdrop, this paper will endeavour to explain SCW, changing nature of conflicts, likely threats for BD, the current training focus of BD Army, and the need for amplified training on SCW.

SCW and Its Dimensions

SCW consists of subtleties, nuances, intimidation, fear, terror, and revolution; often characterized by psychological warfare, political manoeuvre and mobilization, disinformation, deception, assassination, and terrorism.⁶ In the broad sense, it incorporates all forms of armed conflicts between the threshold of CW and peace. SCW is usually characterized by an asymmetry of force levels and is sometimes referred to as 'low-intensity conflicts', 'non-conventional war', 'irregular war', even 'new war'.⁷ Various forms in which SCW exists today include militancy, insurgency, proxy, and terrorism. These forms may be employed as a means in an insurrectionist movement or undertaken independently.⁸ The general objective of this type of warfare is to instil a belief that peace and security are not possible without concession or compromise.

Figure-1: Domain of SCW⁹



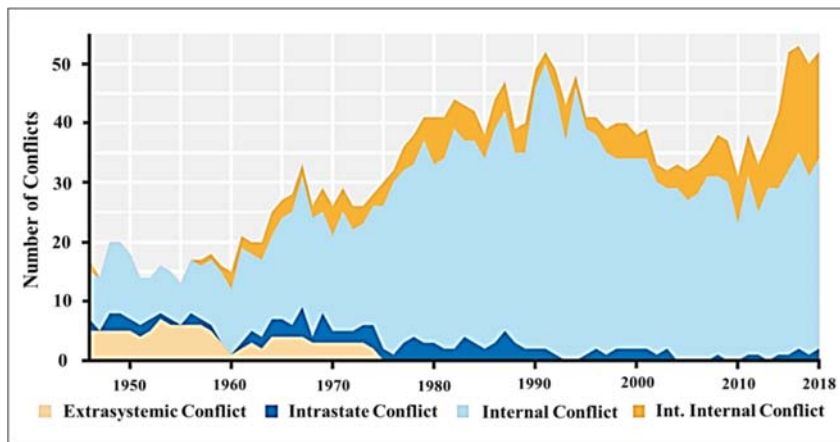
Source: Author's Self-construct

In SCW the goals are usually more indistinct and troops often work independently, in small groups, and in collaboration with other security forces.¹⁰ SCW is also the primary method by which low-intensity conflict (LIC) is fought and expected to be employed around the world in seeking reprisal.¹¹ Nowadays, the use of sub-conventional means is no more a compensation to conventionally inferior nations; powerful nations are now using it to counter their adversaries and secure their national interests.

Changing Nature of Conflicts

The current geopolitical environment at both regional and international levels makes sub-conventional conflicts far more likely than CW, and till the end of the 20th century, the latter was considered as the primary existential threat to nations.¹² The nature and character of SCW made the territorial boundaries insignificant and compelled the nations to fight beyond the borders, in both physical and psychological domains. Anne-Marie Slaughter, Professor of Politics and International Affairs at Princeton University opined that “Conflicts in the 21st century are going to look very different from those of the century before. Large-scale prolonged conflict involving the ground invasion of one country by another will be an exception.”¹³ Figure-2 illustrates the trend of conflicts in the last 72 years, indicating that the rise of sub-conventional conflicts has the potential to severely affect international stability and peace.

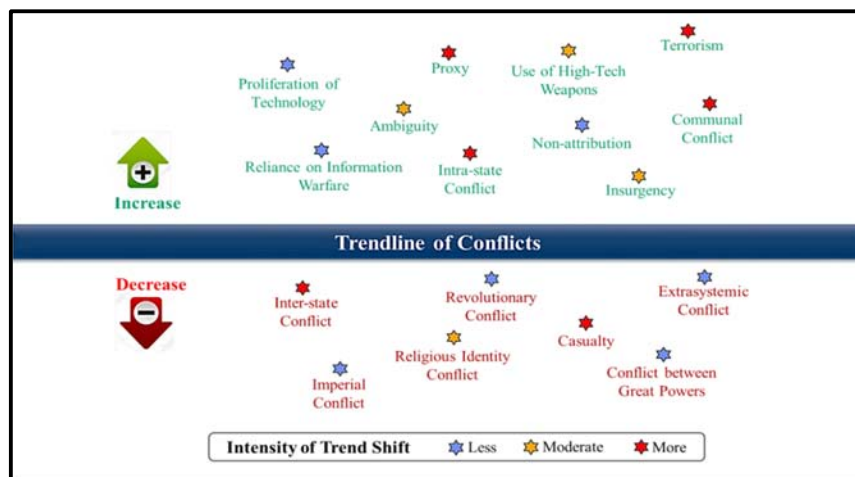
Figure-2: Number of Conflicts by Type, 1946–2018¹⁴



Source: Author's Self-construct

Some professionals also opine that CW between states has lost its significance, and there is now a low probability of CW between great powers because of the ‘cost of war’. Over the past several years, the U.S. government and think tanks have conducted numerous wargames and analyses of conflicts with Russia in the Baltics, China in the Taiwan Straits and South China Sea, Iran in the Middle East, and North Korea on the Korean Peninsula. The result indicated that the chances of CW are bleak considering casualties, domestic unrest, economic damages, environmental destruction, and most importantly, financial costs.¹⁵ Consequently, it is observed that contemporary conflicts are mostly internal to the state, often involving external actors.

Figure-3: Trend of Post-Cold War Conflicts



Source: Author's Self-construct

Since the end of Cold War, trend of conflicts (as illustrated in Figure 3) also indicates a clear rise in societal warfare and terrorism. The enemy is no more easily identifiable as they are no longer a nation or national entity. Non-state actors are threatening the government by deploying heavy weaponry and exploiting the opportunities of globalization (information revolution, technology diffusion, ubiquitous media, economic liberalization, borderlessness, etc).¹⁶ Accordingly, such actors have greatly eroded the nation state's power to a level where governments are now struggling to maintain the desired degree of development and peace. Such condition demands nation-states to develop new concepts of operation, doctrine, training, policies, and organizational structures to stay ahead in today's emerging age of complexity.

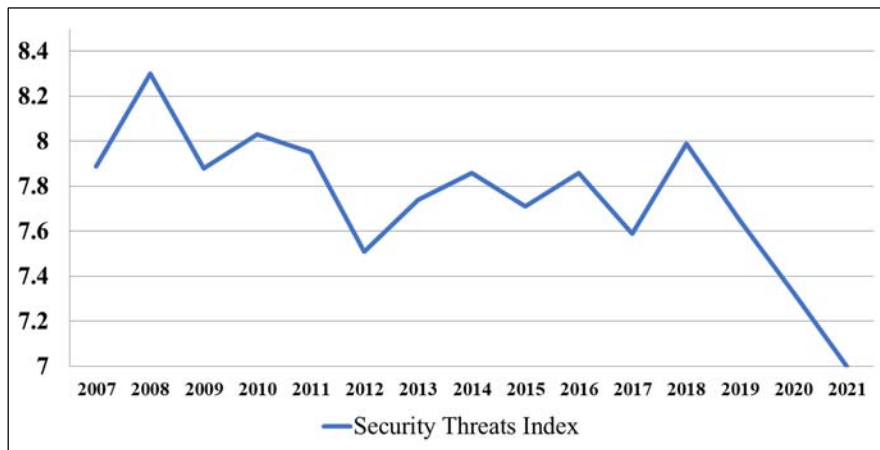
Contemporary Threats for BD

South Asia is overwhelmed with numerous security challenges resulting in many discernible dilemmas both at inter-state and intra-state levels. The region is also one of the most ethnically, culturally, and linguistically diverse in the world. Here conflicts often spill over ethnically and geographically, and mostly across porous borders bringing states into conflict, fuelling ethnic and communal divides.¹⁷ With the existing association vis-à-vis conflicts among the nations in South Asia, the security dynamics look very complicated. Many of the security challenges which were sub-conventional previously have now transforming and being developed as conventional and vice versa.¹⁸

BD being a small but populous country was exposed to various threats to national development and security because of political instability, increased population, entrenched poverty, lack of effective management of resources, etc¹⁹ but the recent improvement in the overall security dynamics (as reflected in Figure 4) has fairly reduced the said multi-dimensional security threats. Professionals of international relations²⁰ opine that BD is vulnerable to three tiers of national security threats; macro (security in the context of

power relationships with major powers like USA, EU, Russia, or China, and/ or spill over effects from any major confrontation between the nuclear states of South Asia)²¹, conventional, and sub-conventional. Some academicians also argue that security problems of BD are no longer conventional but either sub-conventional and/or non-traditional.²² The regional security dynamics of South Asia (as represented in Figure 5) also indicate that BD is likely to encounter more sub-conventional threats in future considering the regional perspective. On the other hand, BD being geographically located between two giants, India and China, whose conflict often affects BD.²³ Though unlike other countries of South Asia BD has managed to follow a balanced path but the future might be very challenging considering the uncertainty of the future relations between India and China.

Figure-4: Historical Security Threats Index of BD²⁴



Source: Author's Self-construct

Figure-5: South Asia's Regional Stability Index Matrix²⁵

Country	Fragility Index	Effectiveness Score	Legitimacy Score	Security Effectiveness	Security Legitimacy	Economic Effectiveness	Economic Legitimacy	Social Effectiveness	Social Legitimacy
Bangladesh	12	7	5	●	●	●	●	●	●
India	11	7	4	●	●	●	●	●	●
Myanmar	19	9	10	●	●	●	●	●	●
Nepal	11	8	3	●	●	●	●	●	●
Bhutan	7	4	3	●	●	●	●	●	●
Pakistan	16	8	8	●	●	●	●	●	●
Afghanistan	21	11	10	●	●	●	●	●	●
Indicator: 0 – No Fragility 25 – Extreme Fragility ● Extreme ● High ● Moderate ● Low ● No									

Source: Author's Self-construct

Considering the gradual decrease of inter-state wars and the response of the states on various regional challenges, it is less likely that BD will face a CW with its neighbours, but the possibility should never be overlooked.²⁶ BD's bilateral relation with India is sometimes close but mostly friendly. With the current relationship between BD and India, it is less likely that BD will face a conventional threat from India.²⁷ On the other hand, BD's small border with Myanmar had been eventful in the past two decades. Myanmar's military regime often tried to divert the attention of its people from domestic miseries to external issues. As such, the push-in of estimated one million²⁸ Rohingya into BD (in August 2017), frequent border violations, false claim of geographical locations, etc somewhat indicates her appetite for keeping a contested relationship (including a plausible conventional threat) with BD.²⁹

The internal security threats of BD are in a state of constant evolution, which requires comprehensive political, economic, and social responses, as well as judicious employment of the military.³⁰ Terrorism and religious militancy have affected the overall image of BD to international community for a certain period of time. Therefore, it is not inapt to assess that neighbouring/ regional countries may collaborate with the antagonists to commit terror attacks by portraying themselves as a victim of terrorism. On the same note, BD is also vulnerable to covert attacks/ false flag operation by an adversary or any vested group, falsely portraying those as terrorist attacks or to defame BD for harbouring terrorists.³¹ More so, with the recent involvement of the highly controversial Frontier Services Group (ex-Blackwater) in one of the neighbouring countries, the possibility of employing a third-party organization to commit terror acts inside BD cannot also be ruled out.³²

The implementation of Chattogram Hill Tracts (CHT) Peace Accord, particularly, the rehabilitation, land disputes settlement, and functioning of the political process in terms of Regional Council may stay on for quite some time.³³ Alarming many dissident factions have evolved since the Peace Accord, and they are currently involved in activities like murder, extortion, illegal toll collection, etc which is affecting the overall peace process. On the other hand, it is argued that insurgents of India's north-eastern provinces and Myanmar's Rohingya rebels are using the bordering area of BD, mainly because of geographical vicinity.³⁴ Such complexity and proximity permit BD's neighbours to exploit the opportunity of re-instigating insurgency in BD. CHT also includes the Mongoloid ethnic belt ranging from China through north-east India, Myanmar up to south-east Asia. If a pro-Mongoloid movement is initiated then BD may be automatically drawn into sub-conventional conflicts.

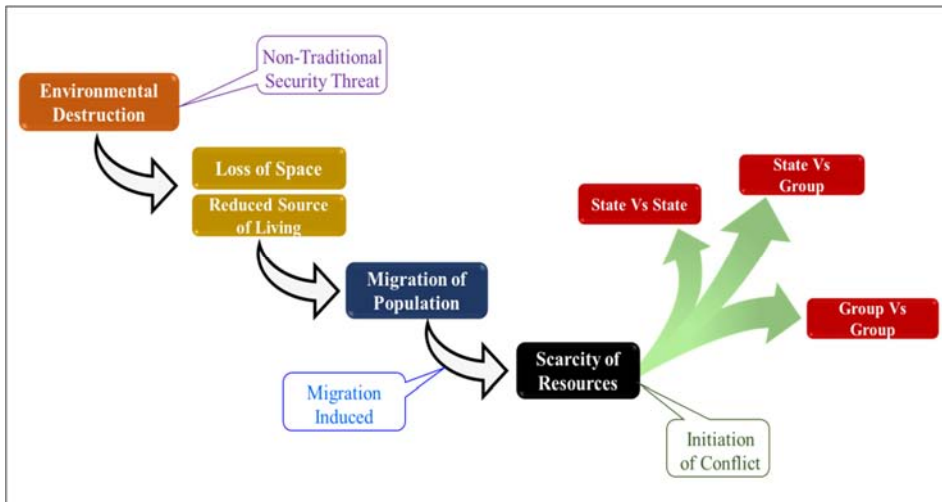
Former Chief of Defence Staff of India once opined that planned migration from BD is taking place in the north-eastern part of India in an attempt to keep the area disturbed through proxy warfare.³⁵ Considering Bangla speaking (predominantly Muslim) citizens to be a major issue of illegal migrants in Assam, the state government came out with the strategy of the National Register of Citizens (NRC).³⁶ But, both Citizenship Amendment Act (CAA) and NRC made minor gains in the intended socio-political polarisation. Besides, the incidents of hate crimes against minority religions in neighbouring countries have increased significantly in recent years.³⁷ BD being a Muslim majority and Hindu minority country remains vulnerable to communal conflict (Muslims being a minority in

both India and Myanmar).³⁸ Therefore, any religious suppression in the neighbouring countries may create a domino effect and prompt communal violence in BD which will have a tremendous impact on national and regional security.

Myanmar's military aggression against the ethnic Muslim minority which the United Nations described as a "textbook example of ethnic cleansing" forced about a million Rohingya to flee across the border into Bangladesh.³⁹ As of now, it is very unlikely that these Forcibly Displaced Myanmar Nationals (FDMN) will voluntarily return to Myanmar considering the overall humanitarian situation and the intention of military junta. Myanmar's allegation of its armed forces' personnel being attacked by a Rohingya militant group is making the situation along the border even more tenuous.⁴⁰ With such accusations and mind-set Myanmar may instigate a blame game and escalate the overall security situation, leading to intensified sub-conventional conflicts with or within BD.

Apart from humanitarian crisis or possible sub-conventional conflict (as stated in the preceding paragraph about FDMN), many academia opine that the cumulative impact of climate change i.e. migration, displacement, competition over limited resources, etc and other NTS threats i.e. environmental degradation, increased poverty, weak governance, etc may go beyond the limited capacity of a government and might ultimately lead to inter-state or intra-state or sub-conventional conflict (as represented in Figure-6).⁴¹ Such NTS threats are expected to be neutralized primarily by the ministerial bodies and civic law enforcing agencies, but BD Army needs to remain prepared to assist the Government in countering any possible security threat i.e. Rana Plaza in 2013, Holey Artisan in 2016, Atia Mahal in 2017, etc.

Figure-6: Transformation of NTS Threat to Traditional Security Threat



Source: Author's Self-construct

Current Training Focus of BD Army

Often, militaries tend to apply the same tactics, techniques, and lessons learned from one conflict onto another in CW. But, the challenge in formulating responses to SCW is that they all differ in some dimensions⁴² and each situation requires a different kind of approach, strategy, leadership, and most importantly, training. Today, BD Army is capable of undertaking diverse operational and non-operational assignments, and such capability development is largely attributed to the high standard of military training imparted to its officers and men. The training philosophy of BD Army hinges on flexibility and effectiveness, aiming at the development of appropriate skills, will, attitude, and teamwork to a standard that can optimally utilize the desired potentials of all the individuals.⁴³ Among the broad training objectives of BD Army, prosecution of CW is considered as vital and all other forms of warfare are covered under Military Operations Other Than War (MOOTW).

Training activities of BD Army take place in three main domains, namely institutional, formation, and non-structured/ self-development training. Institutional training is organized mostly in the form of courses in both Army and tri-service training institutions. Formation training is aimed at developing operational skills of individuals and groups of all the unit/ sub-units under command of the formation. It is divided into four broad categories, namely individual training, group training, operational group training, and collective training. Formations conduct group training in multiple training cycles and conduct one week field exercise for each sub-unit per cycle.

Training to enhance efficiency of the operational group is mainly conducted in the form of outdoor and indoor exercises. Outdoor exercises include Summer Training (ST), Winter Training (WT), Situation Training Exercise (STX), etc and indoor exercises include Tactical Exercise without Troops (TEWT), Model Discussion (MD), Command Post Exercise (CPX), etc. Collective training is planned by Army Headquarters in coordination with other services headquarters and Armed Forces Division as and when necessary where all three services and para-military forces participate. Most of the aforementioned training exercises and the mandatory courses/ cadres for officers and men primarily focus on CW.⁴⁴ In the formations, only during the MOOTW training week some dedicated time for SCW training in the form of counter-terrorism (CT) operations are organized. In addition, considering the classical role of BD Army MOOTW week is also utilized for practicing fire fighting, casualty evacuation, and other humanitarian assistance tasks.

But, considering the likely threats (as described in the preceding paragraphs), the strength being trained on CT is somewhat insufficient. The other scope utilized by BD Army for SCW training is bi-lateral and multi-lateral combined exercises both at home and abroad, where most of the exercises i.e. Tiger Shark, Bengal Brit, Sampriti, etc are being predominantly participated by Special Forces (SF) of BD Army. Altogether it can be opined that BD Army's training on SCW is limited in terms of manpower, equipment, training hours, and focus.

Need for Enhanced Training on SCW

Most future conflicts, in the form of sub-conventional operations, are likely to remain a major responsibility for the Army.⁴⁵ Therefore, sophisticated training and appropriate strategy with precise information, high mobility, and precision engagement capability are imperative for any army. As the military gets involved in fighting the sub-conventional threats, the operations should be so regulated that it strengthens the hands of civil authority, but at the same time, can produce a synchronized thrust ranging from border areas to the hinterland. For example, based on last two decades of terrorist activities and intervention efforts by the Government, scholars, think-tank, and civil society are raising their voices to revisit the approaches on CT i.e. soft approaches and integration of available resources.⁴⁶

Generally, army personnel trained and equipped for CW find themselves at a disadvantage when deployed for sub-conventional operations. The advancement in technology, development of warfare concepts, induction of sophisticated weapons, and management of too many variables demand deliberate efforts in training.⁴⁷ Any potential adversary is likely to employ combinations of conventional and sub-conventional capability, thus an Army should make a judicious balance in training for responding to both conventional and sub-conventional threats i.e. insurgency, terrorism, etc being fought from the hinterland and the population centres.⁴⁸ SCW training similarly to CW training is a continuous process but involves gaining proficiency in multi-dimensional activities, some of which are shown in Figure-7.

Figure-7: Required Proficiency in SCW Training⁴⁹

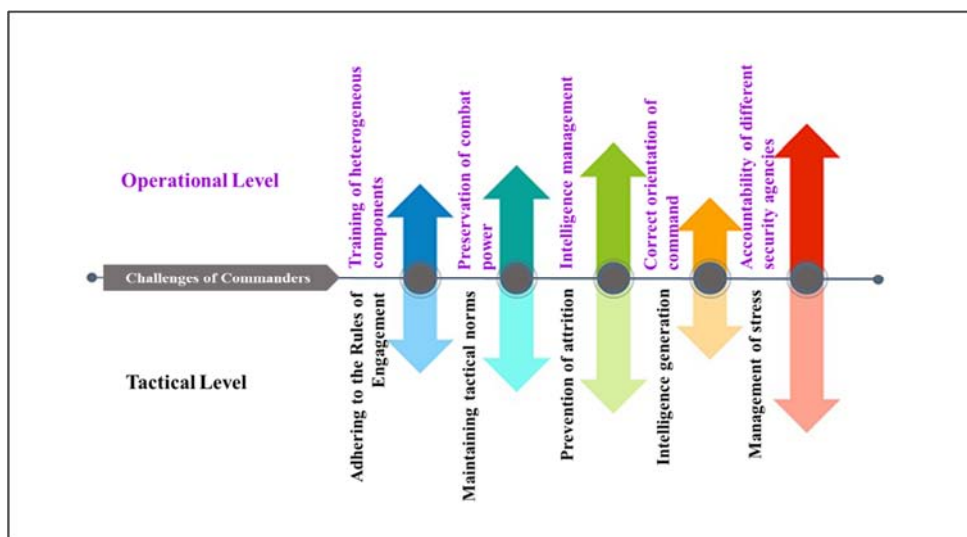


Source: Author's Self-construct

Sub-conventional threats require sophisticated conventional and SF for an effective outcome. But, as the number of SF in BD Army is limited, there is a need to rigorously train and equip regular troops to combat sub-conventional threats, thereby increasing the overall capability. All officers and men must comprehend the ‘application of firepower’ in a sub-conventional environment as substantial restraints are imposed because of political ramifications that could result from its indiscriminate use. It must be borne in mind that heavy firepower and large-unit manoeuvres in sub-conventional operations are irrelevant, not cost-effective, and most of the time counterproductive.

Young officers and soldiers are the most strategic resource for fighting SCW. It is therefore imperative that during SCW training adequate freedom is given to junior leaders to exercise initiative and derive ‘outside the box’ solutions to complex problems and situations. The training must endeavour to ensure that officers know ‘what a leader must be’, ‘what he must know’ and ‘what he must do’ in this new warfare environment. Major challenges encountered by the commanders during sub-conventional operations are listed in Figure-8 below:

Figure-8: Challenges Encountered by the Commanders⁵⁰



Source: Author’s self-construct

To respond appropriately in a sub-conventional environment, an integration of all instruments of the national power holds the key. Harnessing the intelligence of all the government echelons, allowing considerable initiative and tactical flexibility to junior leaders, developing the capability of performing non-coercive civil-police-military activities at the lowest level are essential. SCW also demands a far greater reliance on training the mind, as the body continues to get trained across the operational spectrum of combat. It is proved through research that soldiers operating in SCW environments usually experience a high number of operational, physical, psychological challenges.⁵¹ Troops have also been found to be suffering from significantly higher psychiatric

morbidity, unfavourable response to a task, diminished efficiency, frustration, isolation, etc.⁵² For overcoming these challenges effective training, motivation, counselling, and a strong psychological bond between officers and men are vital.

Another significant challenge in intensifying training on SCW to realign the training focus is the 'change of mind-set'. Thankfully, militaries being generally persistent to change have adapted and evolved to meet new challenges. To face the future challenges, BD Army should re-orient the mind-set analysing the contemporary conflicts, and it does not necessarily mean that the training on CW should be left out in isolation; rather a fine balance between the two is essential. Threat perspectives of SCW can also be included in the 'Planning Directives' and required guidelines for training can be issued through the 'Training Directives' of BD Army accordingly. It must be realized by all the members of BD Army that sub-conventional threat is real and fighting SCW is no more a SF's task, rather it is the call of the day.

Conclusion

Conflicts in the 21st century are going to look very different from the past where large-scale CW will be an exception rather than a practice. While rivalry among nations will continue to exist, wars of conventional nature are tending to diminish significantly. A scan of recent conflicts, which are characterized by blurring lines between war and peace, state and non-state, regular and irregular, conventional and unconventional, seems to suggest so. Considering the geographical location and regional socio-political realities BD remains vulnerable to both conventional and numerous sub-conventional threats i.e. militancy, insurgency, terrorism, proxy war, etc. Employment of Sub-conventional means is growing because of its success and it is no more an option of the inferior states. Powerful states are now also using sub-conventional means to secure their national interests.

As nations are vulnerable to increased sub-conventional threats, each nation-state needs to develop and execute new concepts of operation, doctrine, equipment, and training for all the members of the army. It is assessed that BD is more likely to face sub-conventional threats than conventional from its neighbours. BD Army being considered as one of the major elements of national power in countering any national security threat still predominantly trains its personnel focusing on CW. Since SCW differs from CW in several dimensions, the approach to training also requires certain modifications and priority. While drills and procedures form the basis for operating in a conventional environment, it is initiative and synchronization that are essential in a sub-conventional environment. Therefore, to be proficient, BD Army must suit the requirements of both CW and SCW. This is indispensable since the possibility of CW cannot be ruled out and at the same time relevance of SCW cannot be ignored. BD Army being well reputed for its operational performance must be capable of fighting both CW and SCW with bare minimum turbulence while switching roles from one form of warfare to another. This necessity can be fulfilled only if deliberate measures are taken to train the officers and men appropriately.

An army trained and equipped for CW is likely to find itself at a disadvantage when deployed for sub-conventional operations. Though SF are best suited for conducting sub-conventional operations, but due to SF's limited number and ever-increasing sub-conventional threats, BD Army requires to train its regular troops for SCW. Training for sub-conventional operations necessitates appropriate strategy with precise information, high mobility, and precision engagement capability, unlike conventional environment. Apart from making the officers and men physically fit for round-the-clock operations, due importance should be given to motivation and encouragement as the personnel deployed in SCW is likely to suffer from multi-dimensional physical and psychological challenges. Last but not the least; BD Army needs to harness all the security agencies and government echelons at the lowest level to achieve a synergistic effort in fighting the partially invisible enemy.

Appropriate SCW doctrine in conjunction with balanced training module in all the training institutions, dedicated training cycle, outdoor exercises integrating all law enforcing/ para-military forces, emphasis on psychological and legal aspects, etc can assist in progressively developing the operational capability in the sub-conventional environment. A detailed study in terms of human resource management and training for SCW can be undertaken to determine a well-structured, balanced, and effective training module for BD Army; bearing in mind that maintaining a balance in training for CW as well as SCW is not an easy proposition and should be considered with due caution. It is worth mentioning that a well-trained, highly disciplined, and motivated BD Army for conventional as well as sub-conventional operations is a need of time for both deterrence and decisive victory.

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Brief Biography



Colonel Md Syeedur Rahman, afwc, psc was commissioned in the Corps of Artillery on 13 December 1996. He was Second-in-Command of 29 Division Locating Battery Artillery and Commanding Officer of 2 Field Regiment Artillery. He was a Grade-3 Staff Officer in a Composite Brigade, Grade-2 Staff Officer in Military Operations Directorate, and Military Secretariat Branch at Army Headquarters. He also served as Colonel Staff, Welfare & Rehabilitation Directorate and Additional Military Assistant to Chief of Army Staff, Army Headquarters. As an Instructor, he served in Bangladesh Military Academy as Platoon Commander, and as Directing Staff in Defence Services Command and Staff College, Mirpur. He also served twice under the blue helmet as Staff Officer in the United Nations Mission in Ivory Coast. Besides military courses at home, he has undergone Advance Command and Staff Course in UK and International Defence Management Course in USA. He is a graduate of Defence Services Command and Staff College, and Armed Forces War Course. He has completed his Master's degree from Bangladesh University of Professionals. He is currently serving as Senior Instructor, Army Division-B in Defence Services Command and Staff College, Mirpur.

ARTIFICIAL INTELLIGENCE: GLOBAL APPROACH IN THE WAKE OF SHIFTING BALANCE OF POWER

Lieutenant Colonel Mir Kamrul Hasan, psc, G

Abstract

Artificial Intelligence (AI) has brought about revolutionary changes in the history of mankind as did Combustion Engine or Electricity centuries ago. It is more an enabler than a mere invention. It has enabled technology to take a giant leap towards incorporating innovation in every sphere; be it commercial or military purpose. Throughout the history, technology has played a vital role in shaping the global politics and eventually the balance of power. World leaders, military commanders, corporate trailblazers unanimously agree that AI is going to be the next determinant in global power. The leading nations are therefore putting in unprecedented effort to remain at the forefront of the race. In this era of information warfare and hybrid warfare, AI is more pronounced than ever. Sixth generation drones and autonomous weapons are already being used in the recent conflicts. While nations are busy in the competition, they cannot ignore the ethical concern involved with its maximum military use. How much autonomy should be ethical in the use of AI in military technology remains a matter of thoughtful consideration. While there are many dimensions of discussing AI, this article is going to give an insight how AI is reshaping balance of power and what should be the global approach to embrace this technological wonder in the wake of ethical concern.

Introduction

Every scientific invention in the history of mankind indomitably influences warfare technique and programs. At times, it is military necessity that has dictates the way of technological leap. Artificial Intelligence (AI) is the latest revolutionary invention that is likely to change the landscape of known military capabilities and warfare technique. It is evident from prior military revolutions, the ability of militaries to assimilate and adopt new operational concepts and doctrine is crucial for warfighting. Clausewitz blamed Prussian generals for retaining old military tactics when fighting a new revolutionary type of warfare against Napoleonic France and thereby succumbed to defeats.

After WWII (1939-45), the balance of power tends to be tilting according to the weight of Nuclear Power. The countries possessing nuclear power till now are considered mighty military power entailing 'Mutually Assured Destruction.' But there is prediction that the balance of power will be shifting according to the effective use of AI in military hardware and software. But how much viability does this prediction hold is a matter of close analysis. How different powers are responding to that will determine the course of AI in future days to come.

Despite the enormous possibility of using AI in future armament and warfare technique, the legal use of AI draws concern of many. If autonomous weapon begins to distinguish friend and foe and engage target themselves, it will definitely cross a threshold on

military development. Whether we are ready to use them to that extent is a question mark since that draws a defining line of legality. This article primarily focuses on the irresistible changes in warfare and security landscape posed by AI, exhibit the global race along with the ethical dilemma, finally proposes measures as to how to embrace this innovation despite uncertainty.

Understanding AI

Since the inception of the idea, AI has undergone constant evolution and rapid progression. Therefore, the definition of AI is often inadequately constructed and poorly understood. Eliezer Yudkowsky expressed this concern saying “by far, the greatest danger of Artificial Intelligence is that people conclude too early that they understand it.”¹ A clear understanding is imperative before we embark on further deliberation.

The term AI was first coined by John McCarthy in 1955, the so-called father of AI, who defined it as “the science and engineering of making intelligent machines, especially intelligent computer programs.”² In 1956, McCarthy organized the Dartmouth Conference on AI which is recognized as the origin for such discipline. The development of AI started with the intention of creating a similar intelligence we would find in humans and implementing it in machines. However, this definition is just as broad as the discipline itself. There is no real consensus as to the definition of AI, and there is still is uncertainty amongst AI researchers and theorists regarding its pace of advance. Some researchers simply suggest that AI “is like a shovel or a tractor: it is a tool in the service of humans, making our lives vastly better.”³ It is also defined as “The subfield of computer science that endeavors to develop machines capable of performing functions normally associated with human intelligence, such as reasoning, learning, and understanding human language.”⁴ So, we can come to a consensus that AI involves the creation and development of programs that are able to perform activities that normally require a certain degree of human intelligence.

Military Implication of AI

Revolution in human civilization and political system had always impacted the military evolution and its course. Starting from the emergence of the Westphalian system which prompted professional military up to the nuclear revolution and information revolution in the last century had a profound implication on military development and warfare technique. The latest revolution that looms ahead is autonomous revolution with AI as its most important salient. This era will merge the changes generated by the Industrial Revolution and the Information Age with potentially significant alterations in how war is conducted.⁵ The US Army forecasted the upcoming revolutionary shifts in technology may even challenge the very nature of warfare itself.⁶ A British assessment noted that the increased capability of robots is likely to change the face of warfare and some countries may replace large numbers of troops with robots by 2045.⁷ Having stated the potential revolutionary role of AI, let us now examine probable use of AI in military applications.

Figure 1: Military Revolutions since 14th Century

Military Revolution		Implications
First Revolution	Westphalian System	• Revenue generation, banking and taxes for financing wars • Professional militaries
Second Revolution	French Revolution	• National mobilization and levy en masse • Large scale armies with conscription
Third Revolution	Industrial Revolution	• Mass production, standardization • large-scale economic exploitation
Fourth Revolution	World Wars I & II	• Combined arms, armored blitzkrieg, carriers, bombers, and jets
Fifth Revolution	Nuclear and missiles	• Nuclear weapons and intercontinental ballistic missiles
Sixth Revolution	Information Revolution	• C2, connectivity and instant global reach, imagery • Cyber levy en masse by violent extremists
Seventh Revolution	Autonomous Revolution (Driven by AI)	• Autonomous weapons, swarms of robotic veh in multiple domains • automated wpns, big data analytics, and machine and deep-learning programs

Source: Author's self-construct

The application of AI in the military is directly connected to the ability to design autonomous systems. However, a general understanding of autonomous system is yet another debated subject. International Committee of the Red Cross defines it as “any weapon system that can select (search for or detect, identify, track) and attack (use force against, neutralize, damage or destroy) targets without human intervention.”⁸ The U.S. groups autonomous weapons systems into 3 separate categories: “out of the loop” systems which “once activated, can select and engage targets without further intervention by a human operator”, “on the loop” systems which involve supervised autonomous systems that are designed to provide human operators with the ability to intervene and terminate engagements, including in the event of a weapon system failure, before unacceptable levels of damage occur” and lastly “in the loop” semi-autonomous weapons systems that “once activated, are intended to only engage individual targets or specific target groups that have been selected by a human operator.”⁹ While semi-autonomous and human supervised autonomous weapons are not rare, there are officially no autonomous weapons which can make the decision to kill on their own, without the deployment of explicit human intervention. German Wren Torpedo is an example of semi-autonomous weapon used in WWII (1939-45) but, the continuous development in AI is going to bring about the inflection point in warfare deploying fully autonomous weapon system. Current Artificial Intelligence research is heading towards the elaboration of software which can learn entirely by its own and even go as far as learning on its own. This autonomous system will be able to independently compose and select alternative courses of action to accomplish goals based on its knowledge and dynamic context.

AI is not any weapon per se rather an enabler or force multiplier of a broad range of military capabilities. AI enabled autonomous systems function with the help of sensors and intense algorithms, search, locate, select and eventually attack to neutralize their targets without further intervention from a human operator. It can be used for augmenting human decision making and has the advantage of increased safety, reliability. From a military perspective, such autonomous systems present many advantages over remotely controlled systems such as:-

- a. Greater reaction time in time-sensitive situations such as the interception of hostile missiles.¹⁰ This fast machine speed reaction time will also be beneficial in meeting the complexity of modern warfare as quick thinking and reaction will be of crucial advantage.
- b. Greater reach in areas deemed inaccessible to humans, therefore, allowing combat in hostile environments.
- c. Greater reach in communications-denied or communication severed environments as these systems will have the unique potential to operate at a tempo faster than humans can possibly achieve.¹¹
- d. Providing protection to troops in battle from hostilities by retaliating without human authorization.
- e. Lowering the overall cost of warfare as autonomous systems can be considered cheaper to use than operating automatic systems. Besides, salaries, bonuses and pensions can also be warded off.
- f. Enable autonomous UAVs to accomplish a much larger variety of missions than individual human pilots with increased survivability in contested airspaces. This will acquire the deploying nations a decisive edge over those without these capabilities.
- g. At the strategic level of decision-making, AI-enabled command and control systems will likely be able to avoid many shortcomings inherent to human strategic decision making during the fog of war. However, the inexorable development in military application of AI has generated race for this technology which may eventually breed new security threats.

Race for AI and Emerging Security Threat

The potential of AI playing evolutionary role, if not revolutionary in future warfare has prompted militaries around the globe to acquire AI systems and initiatives. This study is restricted to the top world powers only. US Department of Defense (DoD) has introduced the AI program 'Project Maven' in 2017 in collaboration with tech giants like Google, Microsoft, and Amazon of Silicon Valley. It focuses on human-machine collaboration, complex neural networks, big-data analytics, machine-learning, human-assisted operations, combat-teaming, and autonomous weapons. The primary aim was to examine how AI might support U.S. counter-terrorism operations in Syria, and more accurately locate hidden North Korean and Russian mobile missile launchers. DoD has

also developed an early proto-type AI-driven “missile-hunting system” designed to detect and respond to signs of preparations for a missile launch. The U.S. spending on Unmanned Systems grew from \$283 million in 2000 to \$7.5 billion in 2018.¹² On the other hand, Chinese initial approach is influenced by the assessment of US initiative like 'Maven Project'. Specifically, Chinese researchers have focused on AI applications for war-gaming, training, command and control, intelligence analysis, and augmenting autonomous weapons systems. In order to enhance precision and lethality, China has already begun to incorporate AI into its next-generation conventional missiles and missile-defense intelligence gathering systems. Besides, Its Navy is contemplating fitting its nuclear-powered submarines with “AI-augmented brainpower” which can detect submerged object by interpreting sonar signals and consequently support a broad range of maritime operations. Russia's military ambition for AI is also manifested when Chief of General Staff mentioned that it is possible to create a fully robotized unit in the near future capable of independently conducting military operations.¹³

It is learnt that Russia has targeted thirty per cent of its entire military force structure to be robotic by 2025. Russia is reported to deploy several remotely piloted tanks, such as the Uran-9 and Vohar and also incorporating AI into unmanned aerial and underwater vehicles for swarming mission. Russian defense contractor *Kalashnikov*, has reportedly built ‘Soratnik’- an Unmanned Ground Vehicle (UGV), and plans to develop a broad range of autonomous systems infused with sophisticated AI machine learning algorithms.¹⁴ Israel has also excelled in AI innovation which is exemplified by the development of IAI Harpy 2. It is a fully autonomous drone and it self a loitering ammunition which can seek and attack targets by self-destructing into them without human intervention. In addition, several other states are known to be developing fully autonomous weapons including Germany, Republic of Korea and the United Kingdom. Our neighbor India has formed Defence AI Council (DAIC) in 2019 for assessing the suitability of adopting AI in military and their defence ministry announced to produce 25 defence-specific AI products within next five years.¹⁵ However, the apparent global race will eventually raise security concerns in the coming days.

Figure 2: Autonomous weapon developed by Russia and Israel

Russian Soratnik equipped with machine gun and grenade launcher



The Russian Nerehta UGV is armed with a 12.7mm heavy machine gun



Israeli Harpy II is autonomous loitering ammunition



Source: Autonomous weapon developed by Russia and Israel

Research shows that, AI programs using complex neural networks often generate unexpected outputs and behavior beyond interpretation of their creators. Consequently, the agencies developing these technologies are struggling to make the leap from development to operational implementation. Therefore, the key threat for international security is that geopolitical race compels states to use AI-enabled autonomous weapon systems before the technology is sufficiently mature. For example, in the race to innovate in AI, uncertainties surrounding the superpowers' (US, China, Russia) progress and setbacks will have profound and potentially destabilizing implications for the strategic balance.¹⁶ So, it can be said that AI may intensify existing threat among the contesting nations. Moreover, inadequate or unclear international law concerning lethal autonomy would encourage militaries to develop weapon systems with varying autonomy. On the other hand, autonomy itself may increase a military's vulnerability to a cyber-attack. An adversary could use malware to take control or manipulate the behavior of an autonomous system, which would be very difficult to detect or counter. So, there will be transformation of threat in future warfare.

Advancement in AI will also enable new military capabilities in weapon systems combining cyber and electronic warfare. These autonomous systems would incorporate AI technologies such as visual perception, speech, and facial recognition, and decision-making tools to execute a range of (air, ground, and maritime) operations without human intervention. Future progress in AI technology will affect robotics and autonomous capabilities which will potentially transform future warfare. AI fused software weapon system can locate missile launching sites or submarines much more easily. Under crisis situations, such deployment may erode deterrence and provoke escalation. In 2016 North Korea employed small drones to spy on South Korea's defenses that resulted in a potentially escalatory military skirmish in the demilitarized zone.¹⁷ So, AI technology can negatively affect international security in three interconnected ways: Amplify the uncertainties and risks posed by existing threats, transform the nature and characteristics of these threats and introduce new threats to the security landscape. Apart from the emerging international threat, autonomous AI technology faces ethical and moral dilemmas as well.

The Impact of AI on the Balance of Power

Emerging technologies primarily shape the balance of power through military and economic means. Technologies can directly influence countries' abilities to fight and win wars. They can also indirectly affect the balance of power by impacting a country's economic power.¹⁸ However, how much influence technology can have on the nature of warfare will ultimately determine its impact of balance of power. It is argued that AI is a competitive battle ground. The United States and China seem to be furthest ahead in the development of AI. Global investments in AI for economic and national security purposes are increasingly described as an arms race. China published a national strategy on artificial intelligence in 2017 that said AI represents a "major strategic opportunity" and proposed a coordinated strategy to lead the world in AI technology.¹⁹ Russia is investing heavily as well, especially in the military domain. Reports suggest that the

Russian military is designing autonomous vehicles to guard its ballistic missile bases as well as an autonomous submarine that could carry nuclear weapons. In robotics, Russia is deploying remotely piloted tanks, such as the Uran-9 and Vohar, on the battlefield. China and Russia are not the only actors outside the United States interested in national security applications of AI. The character of AI technology, like robotics, makes many countries well-positioned to design and deploy it for military purposes. In Southeast Asia, Singapore is on the cutting edge of AI investments (both military and non-military). Other Southeast Asian nations are making advances in AI research as well. In the military domain, South Korea has developed the SGR-A1, a semi-autonomous weapon system designed to protect the demilitarized zone from attack by North Korea. France's 2017 defense strategy review points to the development and incorporation of AI as critical to the French military's ability to maintain "operational superiority." Israel, a classic example of an advanced economy with more capital than labour, also funds military AI investments that would predict rocket launches and analyze video footage.

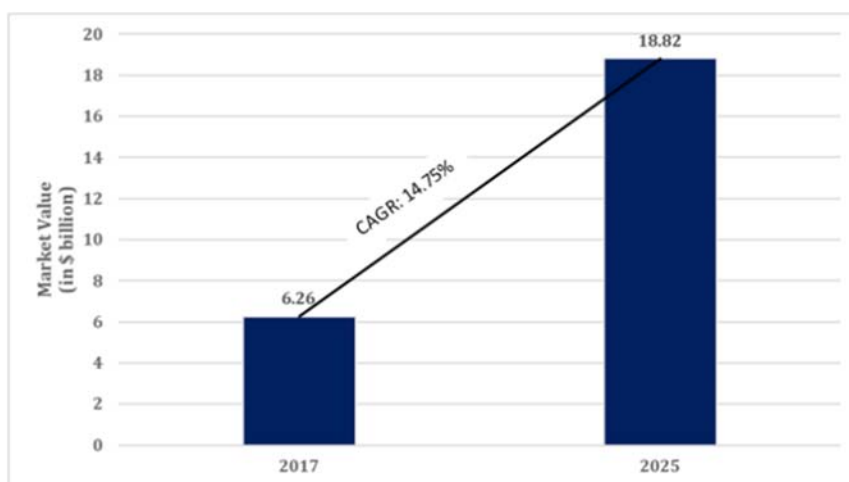
Ethical Dilemmas of AI in Military and Path Ahead

There are multitudes of ethical and moral challenges as to the deployment of 'out of the loop' Lethal Autonomous Weapon System (LAWS) which may locate, select and neutralize targets on their own. The single most important concern to date remains the delegation of life-or-death decision making to a program rather than a human agent.²⁰ This contravenes the Robotics three laws of Asimovs which prevents Robots from doing any harm to human beings. The delegation of such crucial decision to a nonhuman agent breaches the 'Principle of Distinction' as AI is unlikely to have the ability to distinguish a civilian from a combatant or recognize wounded combatants resulting in serious collateral damage and civilian casualties. A second source of debate involves the question of accountability during the deployment of LAWS in combat operations. Indeed, if humans make mistakes, they can be held accountable for their behavior which is crucial during operations to win the hearts and minds of a local population and promote reconciliation. But in case of fatal errors committed by AI who will be responsible (the designers, manufacturers, controller if there is one, the robot itself?) still remains unclear. Theorists of modern innovation suggests that LAWS violating human rights laws will never be held accountable for mistakes they could commit as there is no way to punish a robot. Prompted by these dilemmas AI and Robotic researcher called for ban on 'Offensive autonomous weapons beyond meaningful human control' in an open letter at IJCAI conference in 2015. (Personalities included Elon Musk, Stephen Hawking and Steve Wozniak).²¹

Despite the ethical challenges, the momentum of AI race is unlikely to be reversed. The military expenditure in AI is likely to increase rapidly. In 2017, AI in Military Industry was valued at \$6.26 billion in 2017 and is expected to scale to \$18.82 billion by 2025. It is predicted that the market will witness a Compound Annual Growth Rate (CAGR) of 14.75% in the forecasted period. The previous revolutionary military innovations like gun powder, nuclear power had also their share of adverse consequences. But that could not stop nations from striving for acquiring superlative military might. Banning an

autonomous technology for military use may not be practical since superior AI technologies well soon be available in the commercial sector. Therefore, the world has to be prepared to embrace this giant technological leap which requires few early pragmatic measures. First of all, a robust international legal platform to set the parameters of using AI and its proliferation in military. Secondly, in order to address the uncertainty, states must operate under a regulatory body to coordinate at military, diplomatic, industry, and academic level as AI technology matures. Thirdly, laying down standard Rules of Engagement (RO&E) determining the level of autonomy (in the loop/out of the loop) allowed to any AI enabled weapon. Fourthly, perspective plan of force structure, organization, and defense planning for the aspiring militaries. Finally, joint collaboration of commercial and military in the field of AI research.

Figure 3: Growth of Global AI Military Market



Source: www.marketsandmarkets.com/PressReleases/artificial-intelligence-military.asp

Conclusion

Military had always been amongst the major beneficiaries of technological innovation and scientific invention. AI has ushered in new horizon the field of weaponization. While there remain differences in its definition, it is agreed that AI involves activities which requires certain degree of human intelligence. Depending on the involvement of human, AI autonomous system varies to out of the loop, on the loop, and in the loop system. AI is more of a force multiplier or enabler which can afford marked advantage in remote-sensing, situational-awareness, battlefield maneuvers, and a compressed decision-making loop. Contemplating the enormous potentials, nations are contesting in AI innovation. USA, China, Russia are spending significant resources in enabling ground, air, maritime weapon with AI. Germany, Israel, India, North and South Korea are also well in the race. However, none of the fully autonomous weapon could be operationally employed till date officially due to lack of maturity and uncertainty of this technology.

The uncertainty generates international security concern since the use of this autonomous technology before maturity can be disastrous. The security threats can be three folds: intensification of the uncertainties and risks posed by existing threats, transform the nature and characteristics of these threats, introduce new threats to the security landscape. Again, there lies ethical and moral dilemma in answering the question whether machines can decide human mortality and how machines can be held accountable in case of fatal errors. Despite the challenges, we have to prepare for the unescapable momentum of AI innovation. The gradual measures may include creating robust legal platform, international regulatory body, fusion of commercial and military research and so on. Use of AI will undoubtedly have impact on tactical and operational level which will have strategic consequences including reordering of military balance. It is not too far when possession of nuclear power as a measure of military power will gradually lose its place to AI enabled cyber and electronic weapon system. Whoever wins the race will turn the tide of military might in its favor.

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Brief Biography



Lieutenant Colonel Mir Kamrul Hasan, psc, G was commissioned in Artillery in 2002 with 47 BMA Long Course. He held various appointments in number of Artillery Regiments. Besides, he has served as General Staff Officer Grade- III (Operations) in an Artillery Brigade in Chittagong Hill Tracts, General Staff Officer Grade-II in Military Operations Directorate in General Staff Branch of Army Headquarters. He participated in UN Peace Keeping Operation (MINURSO) as an observer. He has commanded 9 Field Regiment Artillery. He is a graduate of

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INTRODUCTION OF OFFSET POLICY IN DEFENCE PROCUREMENT TO FOSTER INDIGENOUS DEFENCE SECTOR OF BANGLADESH: OPPORTUNITIES AND ROAD MAP FOR SELF RELIANCE

Commander S M Tanvir Sin Ard, (L), psc, BN

Abstract

Bangladesh Armed Forces, especially Bangladesh Navy, mostly relies on foreign source in its pursuit of modernization efforts. It has made Bangladesh strategically vulnerable. Besides, she lacks sufficient backward linkages, funding for R&D, and institutionalized approach to support extensive military industrialization. Many nations have adopted Offset Policies to foster indigenous capability development of their defence industries and now exporting their military items worldwide. Again, defence procurement is a costly affair. Furthermore, providing Offsets increases the cost, which is to be borne by the importing country. Hence, Offset deals demands better policy formulation, transparency, prudent planning and supervision. Therefore, the researcher studied the feasibility of introducing an Offset in defence procurement, especially for the capital purchase to develop the indigenous capability of Bangladesh defence industries. In doing so, the research followed a mixed-method study. The research suggested that an appropriate Government-Level Policy/ strategy will be essential to combat potential implementation challenges. Thus, Transfer of Technology, Joint Venture, and Strategic partnership with international defence manufacturers could be viable options to develop the defence industries and their backward linkages. However, attaining self-sufficiency in hardware manufacturing and software designing may not be feasible for Bangladesh with the present socio-economic status. Instead, these will be suitable once the required infrastructure, including processing plants, repair-maintenance facilities, skilled workforce, and an appropriate international market for exporting military items, are made available.

Introduction

The Armed Forces (AF) of any country play the most vital role in protecting oneself from external aggression. However, the demand for defence expenditure is growing everyday due to the evolving technology and nature of the threats. Except for very few countries, almost all rely on international defence manufacturers to meet their requirements. Meanwhile, many nations have adopted Offset Policies to foster indigenous capacity development of their defence industries and lessen foreign dependency. At present, over 130 countries are using Offsets Agreements.¹A defence Offset can be considered a policy tool to facilitate a defence-industrial collaboration in technology transfer, overall capacity building, and human resource development through international defence procurement. It will oblige foreign companies to invest inside through a Transfer of Technology (TOT).

Bangladesh Navy (BN), since inception, is primarily dependent on foreign procurement and Original Equipment Manufacturer (OEM) assistance for hardware manufacturing, software designing, and various repair-maintenance activities. Due to the over-dependency, Bangladesh Armed Forces (BDAF), especially BN, may face a significant challenge, if any friendly nation denies supplying platforms, critical spares, weapons, sensors, or any necessary equipment during the crisis. Hence, developing indigenous capacity and achieving self-sufficiency is crucial for the BD defence industries to combat future security challenges. Moreover, the indigenous defence industry is also one of the critical considerations for BD as per the Forces Goal-2041.

BD lacks patronization for R&D infrastructure and backward linkages for production lines and repair-maintenance facilities. Furthermore, BD has few capable Public Support Undertakings (PSU) and commercial industries. However, a less Institutional approach is evident to date to bring all the PSUs and private sectors under the same umbrella to develop its indigenous defence sector. According to several studies, neighbouring countries have already introduced Offset Policy in their defence acquisition, allowing international companies to develop their defence sectors. They are using Offset Policies as institutional tools to collaborate amongst PSUs, commercial industries, and foreign vendors for developing their defence sectors. Whether such initiatives would foster indigenization of the BD defence sector especially Bangladesh Navy in attaining self-reliance, or not, need to be determined. Therefore, this research will seek the opportunities to propose a viable roadmap/ implementation method to introduce the Offset Policies in defence procurement to foster BD indigenous capacity development, especially for BN.

Literatures Consulted and Scopes of the Research: In BD, not enough literature related to Offset Policy in BD's defence procurement is available till date. Therefore, Offset Policies of other countries were studied, where impacts, challenges for implementing such policies, and subsequent progress in mitigating those challenges were identified. Few literatures discussed the importance of indigenous defence industries, the strategic vulnerability against foreign dependency on the warship building, modern weapons, sensors, etc. Again, all researchers opined that, for BD, the indigenous defence capacity development efforts could be a pragmatic solution to reduce overall strategic vulnerability and achieve self-sufficiency. However, still, there are sectors/ areas through which indigenous capacity of the BD defence sector, especially for BN, could be achieved, e.g., by Introducing Offset Policy in defence procurement. Therefore, the research aims to explore following scopes:

- a. Evaluating the feasibility of incorporating Offset Policy in the BD defence procurement especially for BN.
- b. Sketching a phase-wise implementation and evaluation plan through a possible roadmap for self reliance taking examples from countries using Offset in their defence acquisition.

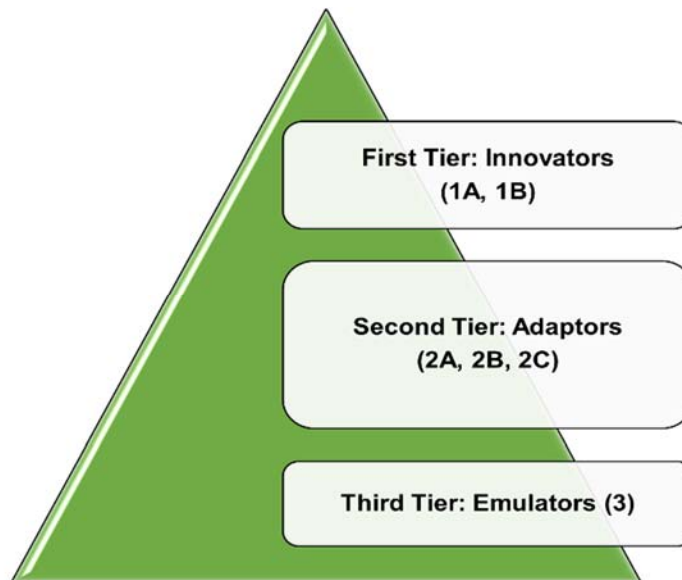
Research Hypothesis: Introduction of Offset Policy in defence procurement will foster BD indigenous capacity development to support Bangladesh Navy in military hardware manufacturing, software designing, and repair maintenance to attain self-reliance.

Offset In Global Defence Industry and Bangladesh Defence Sector

Defence Offset: Defence Offset is a contractual obligation in which a purchasing Government (importing country) requires a supplier (exporting country) to reinvest a portion of the contract value in the buyer premises (importing country). It can also be termed as industrial compensation, industrial cooperation, countertrade, etc. There are mainly two types of defence Offset, e.g., Direct defence offset and Indirect defence offset. In the Direct Offset, goods and services are directly related to the purchaser's equipment. In contrast, Indirect Offsets indicate military goods and services unrelated to the specific defence equipment purchased.

Categories in the Global Defence Industry: Richard Bitzinger has divided the defence industries into three tiers, which are shown below through a pyramid model and a table:

Figure 1: Pyramid Model of Global Defence Hierarchy



Source: Author's self-construct

Table 1: Tiers of Global Defence Industries

Tier & Class	Type	Industrial Base	Examples
1A	Critical Technological Innovators	Large, broad-based, technologically advanced defence industrial bases	USA
1B	State-of-art technology in R&D	Smaller, broad-based, technologically advanced defence industrial bases	UK, France, Russia, Germany, Italy
2A	Adapters and Modifiers (Small But Advanced Defence Industry)	Smaller, role-oriented, technologically advanced defence industrial bases	Israel, Sweden, Japan, Australia
2B		Smaller, broad-based, less technologically advanced defence industrial bases	South Korea, Brazil, Singapore
2C		Large, broad-based, less technologically advanced defence industrial bases	China, India
3C	Copiers & Reproducers	Smaller, niche-oriented, low technology defence industrial bases	Mexico, Nigeria, Serbia, Thailand, Bangladesh

Source: Author's self-construct

Defence Offset Policies Worldwide: Defence Offset became popular amongst the countries in the last century. Countries like India, Pakistan, and Malaysia already have started developing their defence industries under a government-level policy framework. Balakrishnan (2008) argued that Malaysia formulated a comprehensive defence industry Strategy in 2005 to provide strategic guidance to its defence industrial sector.¹ On the other hand, India has taken significant steps to promote its Industry through offset policies. The new Indian Defence Acquisition Procedure (DAP- 2020) focused on the national campaign, i.e., the 'ATMANIRVAR BHARAT' and introduced a categorized acquisition system for identifying appropriate defence Offset.²

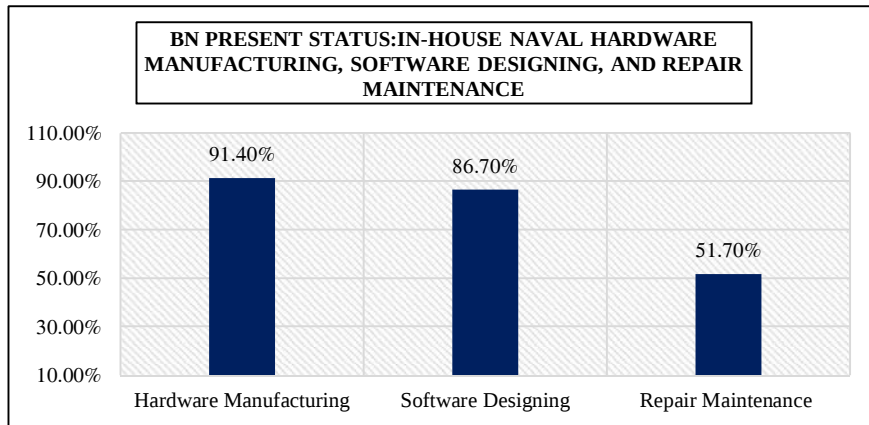
Deduction on Current Defence Industrial Trend: Defence Offsets have become a widely used mechanism, where Governments have vital roles in formulating comprehensive strategies to provide strategic guidance to the defence sector and branding their production. Thus, despite a few negative aspects (risks) of applying Offset, i.e., corruption, Offset can still promote the defence industry and improve countries' overall economy through meticulous planning, supervision, and implementation.

Analysis of the Bangladesh Defence Sector

Foreign Dependency Level- Bangladesh Navy Perspective: The BDAF, especially BN, primarily depends on foreign vendors to modernize its platforms, weapons, sensors, systems, and human resource development. For better assimilation of Bangladesh Navy dependency on foreign support, a few case studies and experts' opinions derived from the survey. From the Large Patrol Crafts (LPCs) construction project in KSY, it was found that, almost 95% of the materials used for construction were from foreign countries. Even Chinese engineers conducted set-to-work, harbour, and sea trials.³ Most respondents

opined that Bangladesh Navy is primarily dependent on OEM support for the Hardware manufacturing and Software designing perspective. However, Bangladesh Navy is less dependent on OEM for Repair-Maintenance activities. Again, senior naval officers opined that Bangladesh Navy currently have the capacity to design, produce and repair few mechanical hardware, e.g., pumps, rubber seals, etc. However, she lacks in design and constructing new ships, electrical switchgear, sophisticated sensors, weapons, and various control and management systems.⁴

Figure 2: Opinion on Bangladesh Navy Present Status on Hardware Manufacturing, Software Designing and Repair Maintenance Capability



Source: Author's self-construct

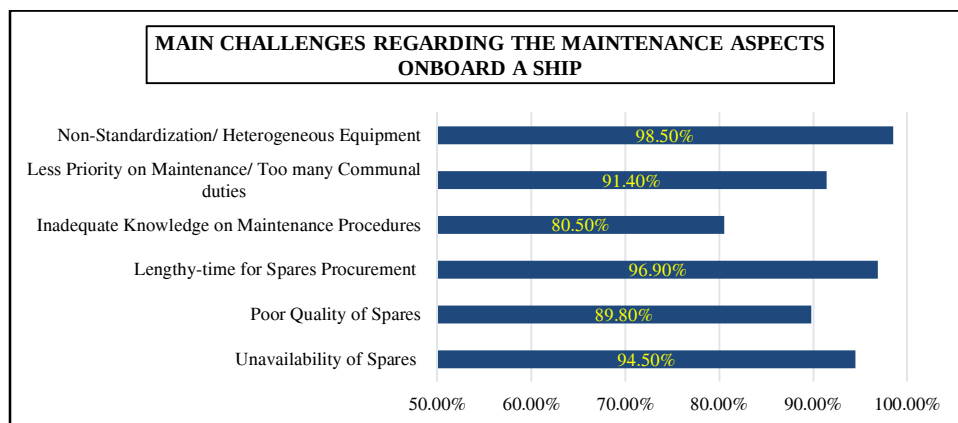
Impediments to Attaining Self Reliance - BD Defence Perspective

Common Pitfalls: Ahmed (2015) argued the lack of technological aptitude as the most significant difficulty.⁵ Again, Rashid (2021) opined that BD has no market strategy for its indigenous defence products.⁶ Requirement for defence products within BD is also minimal. Islam (2013) sighted tanks, fighter planes, and naval ships as examples of military items whose total requirements within services are insignificant for initiating any industrial undertaking.⁷ Moreover; insufficient funding, heterogeneous acquisition, unavailability of appropriate backward linkages, and absence of skilled workforce for R&D are other prime hindrances of the BD defence sector in attaining self-reliance.

Status of Local Suppliers/ Contractors for BD Defence Sector: Survey results showed that local suppliers of the BD defence sector have been only the Middlemen/ Commission Agents since defence procurement started. They had hardly any capacity-building investment. As a result, no significant capacity in terms of self-sufficiency is yet to be developed for the BD defence industries.

Challenges Faced by Users (Ships Staffs): Surveys showed a minimum of 80% of respondents indicated common challenges for Bangladesh Navy ships to ensure operational readiness.

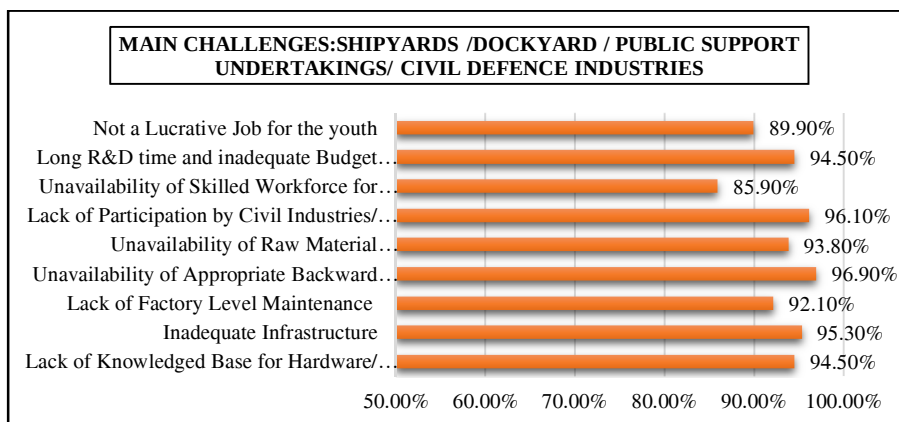
Figure 3: Opinion on Challenges Faced by Bangladesh Navy Ships on Maintenance Aspects



Source: Author's self-construct

Challenges Faced by Government Defence Contractors: Government defence contractors in BD like shipyard, dockyard, etc., generally carry out factory-level fault finding and repair activities. Again, PSUs like BITAC, BAC, BMTF, BOF, etc., can also manufacture spares, however in a limited scale. Hence, Bangladesh Navy has to procure spares from foreign countries. Besides, unavailability of raw material processing systems, lack of knowledge base/ expertise for software designing, less remuneration for the young, lack of participation by civil industries, and insufficient budget allocation for R&D were other significant hindrances for defence contractors/ PSUs in BD.

Figure 4: Challenges faced by PSUs /DYD /Civil Industries in attaining Self Reliance



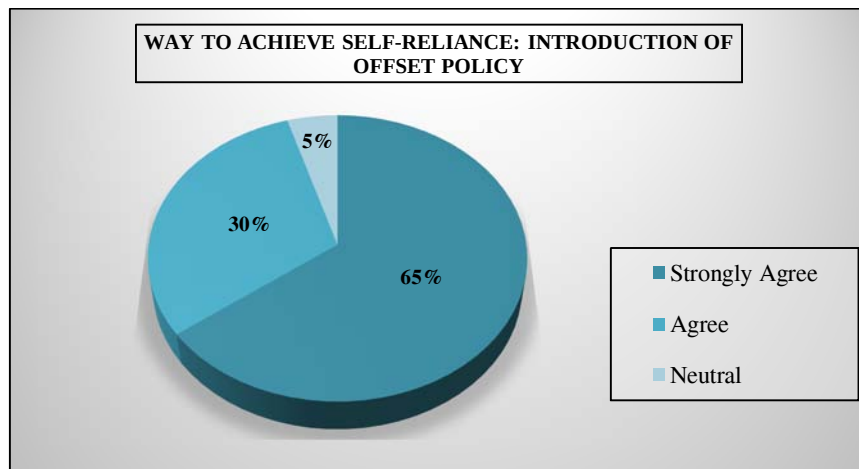
Source: Author's self-construct

Options For Bangladesh Defence Sector to Foster Indigenous Capacity Development For Self Reliance

Indigenization Prospect of Bangladesh Defence Industries: In BD, the state-owned defence contractors, PSUs, competent engineering universities and private organizations e.g., BN DYD, CDDL, KSY, DEW Narayanganj, BUET, CUET, KUET, IUT, MIST, BRB cables, BSRM, Energypac, Pragati, etc. can support Bangladesh Navy requirement. However, they need Government patronization. In addition, during interviews, the 'Design House' for ships construction came up as another high-potential sector, where few local firms have a considerable grasp compared with international standards.⁸

Best Option to Achieve Self Reliance by BD Defence Sector: During the survey, 95% of the respondents opined for introducing the Offset Policy in the defence procurement to achieve self reliance. Besides, experts' opinions and FGD were also in favour of a similar proposal.⁹

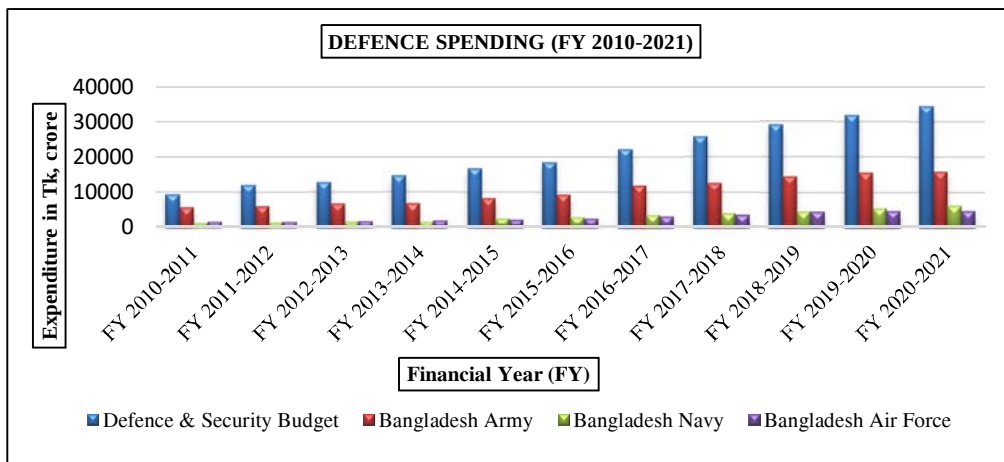
Figure 5: Opinion on the best Option to achieve Self Reliance: Introduce Offset Policy in Defence procurement



Source: Author's self-construct

Driving Factors to Introduce Offset Policy in Defence Procurement: Government patronization is crucial for flourishing any industrial initiative. The significant increase of BD defence budget in last decade indicates the technological prowess of the Government to patronize local Shipyards and other PSUs for their capacity development.¹⁰

Figure 6: Year-Wise Defence Spending



Sources: FSMU, Finance Division, Ministry of Finance, DOB, NHQ

Research Hypothesis Validation

Hypothesis Validation: The research hypothesis was "Introduction of Offset Policy in defence procurement will foster BD indigenous capacity development to support Bangladesh Navy in terms of military Hardware manufacturing, Software designing, and Repair-Maintenance to attain Self Reliance". Survey result showed that 96% of respondents agreed with the requirement of indigenous capacity development for BD defence industries. Again, 95% of respondents opined for introducing Offset Policy in defence procurement to achieve Self Reliance. Thus, the research hypothesis formulated was considered valid.¹¹

Reliability of Research Data: A total of 271 responses were collected during the research. Almost 95% had more than 10-years of service; 94% had ship service; 39% had procurement-related expertise, and 49% had repair-maintenance experience. Thus, the collected research data was from the appropriate population in the relevant domain; hence may be considered as reliable.¹²

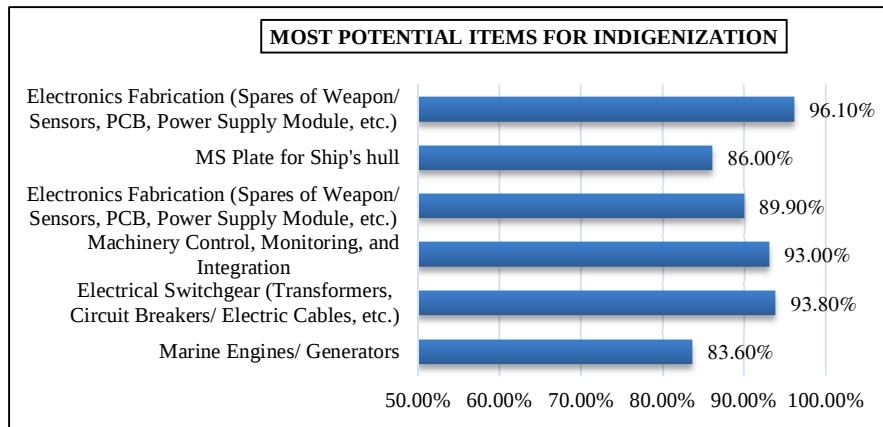
Implementation Roadmap for Introducing Offset Policy in Bangladesh Defence Procurement: Ways Forward for Attaining Self Reliance

Proposed Roadmap and Implementation Framework

Examples from Different Countries: India aimed to attain self reliance for its defence industries through Offset since 1980. Indian Government has recently announced a new strategy, namely 'Make in India' initiative. The DAP-2020 has been formulated to ensure timely acquisition of capital purchase as required by Indian AF. Besides, the MOD has notified an updatable list of weapons/ platforms banned for import to promote domestic defence products. The Indian Government also encourages strategic partnership and civil-military industrial collaboration, especially for R&D to develop local defence industrial capacity.¹³

Identify Capacity Development Options for Bangladesh Defence Sector Through Offset: During surveys, most respondents opined for joint venture projects between local shipyards/ PSUs and foreign OEMs under the TOT scheme (Offset) as the best option for achieving self-sufficiency. During interviews, most of the experts agreed for the development of equipment testing/ assembling systems through TOT.¹⁴

Figure 7: Most Potential Items for Indigenization



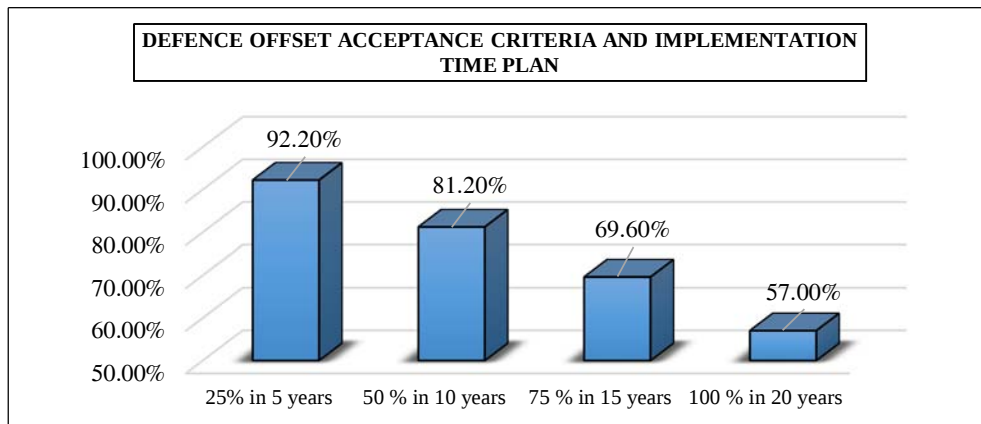
Source: Author's self-construct

Strategic Partnership Between PSU/ Local Business Firms and Foreign Vendors for Offset Sustenance: Presently, few world-renowned defence industries like THALES, MAN, LEROY SOMER, LEONARDO, CATER-PILLAR, SAFRAN, etc., have strategic partnerships with local business houses/ PSUs in BD, which provide customer support to the BDAF. Indian PSUs following the same culture since 1980, could attain a certain level of self-reliance in manufacturing and repair-maintenance expertise. Therefore, to make the offset sustainable in BD, the PSUs/ local manufacturers/ business houses must maintain a strategic partnership with international defence manufacturers.¹⁵

Offset Acceptance Criteria and Implementation Time Plan: Taking examples from India, the researcher has developed the acceptance criteria and the implementation plan to attain the defence indigenization through Offset. Here, for a particular military item, a 25% Offset meant spending minimum of 25% of the base contract price within the country. On the other hand, a 100% Offset meant the item would be entirely manufactured within BD and exported to international customers. However, most of the respondents opined for attaining 25% Offset within a 5- year timeline or a 50% Offset within a 10- year timeline. However, experts' opinions suggested that achieving an Offset above 50% would not be a viable strategy for BD considering her present economic/ military market status. Instead, these will be suitable, once the required infrastructure including processing plants, repair-maintenance facilities, skilled HR, and an appropriate international market for exporting military items are made available. Thus, keeping the Forces GOAL-2030, a short term (5-10 years) plan for achieving 25% Offset, and for the

Vision-2041, a medium-term (11-20 years) plan for achieving 50% Offset would be the preferable strategy.¹⁶

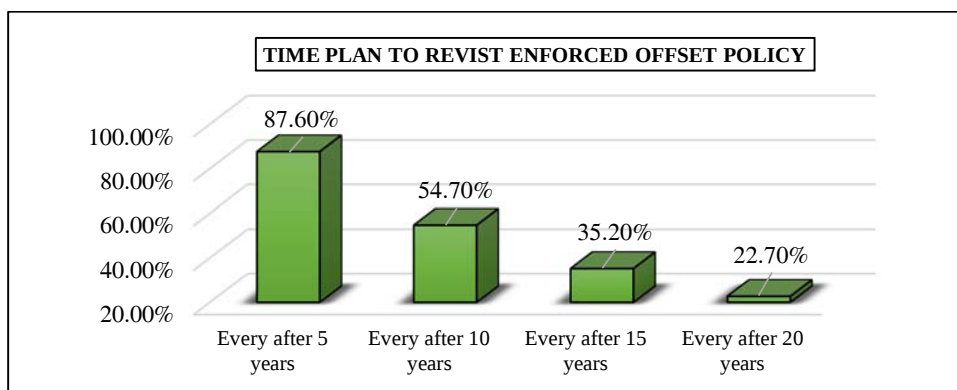
Figure 8: Opinion on Offset Acceptance Criteria and Implementation Time plan



Source: Author's self-construct

Time Plan to Revisit the Effectiveness of Enforced Offset Policies: The Offset policies need proper monitoring/ evaluation and necessary amendments by a competent governmental body to ensure effectiveness. The researcher has proposed a 5-20 years time span for BD before revisiting/ evaluating the enforced Offset plan's effectiveness and bringing amendments as required.¹⁷

Figure 9: Opinion on Time plans to Revisit/ Evaluate Enforced Offset Policies



Source: Author's self-construct

Offset Implementation and Evaluation Committee: A suitable set of standard guidelines/ policies needs to be formulated and implemented through an appropriate committee to ensure transparency and accountability across all levels. The researcher has proposed a Committee for Offset Evaluation/ Monitoring Committee under the defence

ministry, with the Defence Minister (HPM) being the head of the committee. Other members shall be from concerned ministries, armed forces, Customs, NBR, PSUs, Civil Business houses, etc.¹⁸

Strategies to Overcome Implementation Challenges

Adopting an Appropriate Market Strategy: Military graded items are costly due to their several unique features, i.e., material qualities, design, precision, shock-withstand capability, etc. Hence, to avoid business losses, defence industries always look for potential buyers of military items and go for bulk production. Unfortunately, BD has no market strategy for its indigenous defence products yet. Hence, to mitigate such drawbacks, BD government should formulate an appropriate market strategy for BD defence industries in consultation with the proposed Committee and the civil Industrial Owners' Association (CIOA).¹⁹

Government Policy and Patronization - Branding Bangladesh: BD Government should formulate an appropriate Government-level policy and take the lead role in promoting her local military products by branding and creating a market worldwide through diplomatic efforts.²⁰ Proposed branding schemes could be Buy-BD, Made-in-BD, etc. Mentionable that some industries in BD have started capacity building in collaboration with world-renowned companies. Recent examples are Pragati motors and Bangla Cars Ltd for Automobile, Nokia for Smart phones, Walton for Home Appliance, etc., where the branding scheme is 'Made in Bangladesh'.²¹

Manufacturing Military Equipment as a Part of Civil Industrial Production: Creating an appropriate worldwide market for BD defence items is likely to take considerable time. Hence, taking examples from Japan, Sweden, and India, the BD Civil Industries may use the design, raw materials, and processing system from their main production lines to manufacture appropriate military items., e.g., electric cable, circuit breaker, converter, controller, etc. On that note, some earmarks civil industries, in BD, e.g., Energypac, Bangla-CAT, Eastern/ BRB Cables, Walton/ Rangs/ Transcom Group, etc., may be promoted for developing indigenous military non-military production capabilities.²²

R&D Cells in Services Headquarters: Three service headquarters may establish dedicated R&D cells under the Operation branch to pursue service requirements through adequate funding and required infrastructure development to support further indigenization.²³ These cells will link with the upper tier (Offset implementation and evaluation committee) and disseminate the indigenization requirements to the concerned R&D sectors like CNRD / IFF centre/ BITAC/ BAC, Energypac, etc.

Strengthen Backward Linkages/R&Ds Through TOT and Joint Venture: Studies revealed that Offsets can help BDAF in developing infrastructure for testing/ assembling/ overhauling systems/ supply lines through TOT and Joint ventures. The DAPs of India have always been playing pivotal roles in developing the indigenous capacity of the Defence Research and Development Organization (DRDO) utilizing appropriate Offset

policies. Similarly, BD Government should promote Bangladesh Navy initiatives like CNRD and IFF centres with adequate infrastructure and budget.²⁴

Tax Reduction/ Stimulus Package: BD Government should allow a 5 to 10-year tax subsidy to industries that develop military items. Like China, BD Government should give a refund guarantee for the export-oriented shipbuilding/military Industry.²⁵

Industry-Academia-Technical Experts Cooperation and Skilled Workforce Development: Collaboration between Industry and academia (Engineering universities, i.e., BUET, BITS, MIST, BUTEX, etc.) must be encouraged for innovation and in-house production capacity development through R&D. Besides, retired military technicians and scholars should be recruited/ retained by the PSUs/ civil industries with an attractive financial package to allow their further contribution in relevant fields. Moreover, both Government and private sectors should patronize/ undertake skilled workforce development programs to create competent and experienced technical people for the defence sector.

Conclusion

Many nations have developed their indigenous defence capability by adopting appropriate Offset Policies and now exporting their military items worldwide. Similarly, BD should also adopt appropriate Offset Policies for achieving self-sufficiency in her defence sector. Besides, the collaboration between Industry and academia (engineering universities) must be encouraged for innovation and in-house production capacity development through R&D. For BD, the development of an indigenous military industry can be considered an essential aspect of Forces GOAL-2041. However, with the present socio-economic status, attaining self-sufficiency in Hardware manufacturing and Software designing may not be viable for BD. Instead, these would be suitable, once the required infrastructure, repair-maintenance facilities, skilled HR, and an appropriate international market for exporting local military items are made available.

There might be many implementation challenges, for which appropriate Government-Level Policy/ strategy will be essential to combat those challenges. Thus, TOT, Joint Venture, and Strategic partnership with international defence Manufacturers could be viable options to develop the defence industries and their backward linkages. Again, creating a suitable market for BD defence items is likely to take considerable time. Hence, BD civil industries may use the design, raw materials, and processing system from their main production lines to manufacture appropriate military items. On that note, some earmarks civil Industries, in BD, e.g., Energypac, Bangla-CAT, Eastern/BRB Cables, Walton/ Rangs/ Transcom Group, etc., may be promoted for developing indigenous military and non-military production capabilities.

The capacity development for BDAF also demands an Institutionalized approach to bring awareness amongst various stakeholders related to the defence sector. Government-Level patronization, Policy Framework, Regulatory body to ensure strict compliance of Offset agreements, and above all, the branding of BD military products will be crucial enablers

for the successful introduction and implementation of Offset Policy in the defence procurement system. BD Government should form an Offset Implementation and Evaluation Committee headed by the Defence Minister and comprising stakeholders from different Ministries, AF, Defence Procurement Directorates, and Representatives of Civil Industries. The Committee will formulate a roadmap covering phase-wise implementation plan, Offset evaluation criteria, and revisit plan for amendments to make the Offset sustainable for BD defence sector. BD Government should also take the lead role in promoting her local military products by branding and creating a market worldwide through diplomatic efforts. Proposed Branding Schemes could be Buy- BD, Made-in-BD, etc. Nevertheless, positive attitude and coopeartion from every echelon will be required for implementing Offset policy in defence procurement and making this initiative a successful one.

Recommendations

Following recommendations are made based on the findings of the research:

- a. BD government may formulate a suitable Government-Level Policy for introducing Offset Policy in the defence procurement to develop its indigenous defence sector. The Policy Framework shall include term-wise Offset acceptance/ evaluation criteria, time plan to revisit the enforced Offset plan, and amendment options. Keeping the Forces GOAL-2030, a short term (5-10 years) plan for achieving 25% Offset, and for Vision-2041, a medium-term (11-20 years) plan for achieving 50% Offset may be considered as preferable strategies.
- b. BD Government may form an Offset Implementation and Evaluation Committee under the Defence Ministry, with the Defence Minister (HPM) being the head of the Committee. Other members may comprise all the concerned Ministries, Armed Forces, Customs, NBR, PSUs, Civil Firm houses, etc. The TOR of the Committee may be delineated for ensuring strict compliance with the Policy Frameworks.
- c. The Offset Implementation Committee, in consultation with CIOA may formulate an appropriate Market Strategy for the BD defence sector. BD Government may take the lead role in promoting her military products by branding and creating a market worldwide through Diplomatic efforts. Proposed Branding schemes could be Buy- BD, Made-in-BD, etc. Besides, BD Government may also allow a 5 to 10-year tax subsidy and a refund guarantee for the export-oriented Shipbuilding/ Military Industry.
- d. BD Government, in consultation with the Offset Implementation and Evaluation Committee, may introduce the Offset to strengthen her backward linkages/ R&D through TOT, and Joint Venture. Developing appropriate infrastructure, testing/ assembling/ overhauling system, and overall, the skilled workforce for R&D could be the priorities within the first 5-10 years plan, which the same Committee will supervise.

- e. Three Service Headquarters may establish dedicated R&D cells under the Operations Branch to pursue service requirements through adequate funding and required infrastructure development to support further indigenization.
- g. Both the Government and private sectors should patronize/ undertake skilled workforce development programs. Besides, the R&D cell in each Service Headquarters may pursue PSUs/ Civil industries to recruit retired military technicians and Scholars for the R&D projects with attractive financial benefits.

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25. An Interview with Cdr M Anwarul Abedin, (L), NPP, psc, BN over the telephone on 17 July 2021.

Brief Biography



Commander S M Tanvir Sin Ard, (L), psc, BN was commissioned on 01 December 2005 in Electrical Branch. He is a graduate of the Military Institute of Science and Technology. He has completed his Junior Staff course from BNA and Electrical Specialization from BNS SHAHEED MOAZZOM, Kaptai. Cdr Tanvir has served onboard various Bangladesh Navy ships/dockyards and Inter services organizations in different capacities. Mentionable appointments include Squadron Electrical Officer 31 PCS, GSO-2 (Visa) in DGFI HQ, EWO BNS DHALESWARI, Industrial Engineer to CSD, and Deputy Electrical Officer and Electrical Officer of BNS BANGABANDHU. Cdr Tanvir took part in the UN mission in Western Sahara. Besides, he visited Netherland, Germany, Japan, China, India, Morocco, Thailand, Turkey and Singapore.

IMPLEMENTATION OF BLENDED TRAINING TO ENHANCE THE TRAINING EFFECTIVENESS OF OFFICERS' BASIC COURSE: AN APPROACH TO ACCLIMATIZE THE FUTURE LEADERS WITH THE EMERGING TREND

Major Mohammad Mazidul Haque Reza, psc, G, Artillery

Abstract

Analogous to any education system of a nation, the appropriate training system determines the quality of the Army. This research is on identifying the potential of 'Blended Training' to enhance the training effectiveness of Officers' Basic Course (OBC). With the passage of time, OBC, the foundation course for an officer, went through numerous changes in its training curriculum. The need of encompassing new TTPs into the syllabus to meet the organizational goal keeping the course duration constant poses persistent challenges on the training institutions. Though the emergence of IT and new pedagogies created opportunities, there was no mentionable effort in Bangladesh (BD) Army to change the MOI to adapt to the changing requirement. Resultantly, it is constantly affecting the training effectiveness of the said course. Eventually, it will have a long term effect on the young officers of BD Army in their professional competence. At this backdrop, this research endeavoured to find out the best approach to enhance the training effectiveness of OBC with the purpose of adapting the future leaders with the emerging trend of training. In doing so, the research delves the issue at the milieu of BD Army with a hypothesis that "Implementation of Blended Training will enhance the training effectiveness of OBC." A mixed-method of qualitative and quantitative analysis harnessing different research tools as Literature Review, Official Document Study, Focus Group Discussion, Key Informant Interview, and Survey, the research initially identified the attributes of effective training. It was then followed by identifying the limitations of Online Training. Thereafter, in search of a more effective approach, the potential of Blended Training was determined and it was thoroughly tested. Eventually, it which was found to enhance the training effectiveness of OBC leading to the prove of the hypothesis. Besides, a roadmap towards the implementation of Blended Training for OBC was also proposed at the end of the paper. Finally, few impediments and likely ways forward were diagnosed and the inquest was terminated by some feasible recommendations to implement the training method.

Introduction

Officers' Basic Course (OBC) is the foundation course for the young officers (YO) of the Bangladesh (BD) Army.¹ This institutional training provides them with the basic and functional knowledge of weapons, techniques, tactics and procedures (TTP) of their arms/ services.² Again, the TTPs are being revised due to the emerging trends of warfare, changing threat-capability, and the transformation owing to the Forces Goal 2030.³ However, encompassing these new TTPs into the syllabus yet keeping the duration of OBC unchanged creates challenges for the training institutions.⁴ Ultimately, it results in

some compromise of the training standard of the OBC, which adversely affects its training effectiveness. Eventually, it will have a long term effect on the young officers of BD Army in their professional competence.⁵

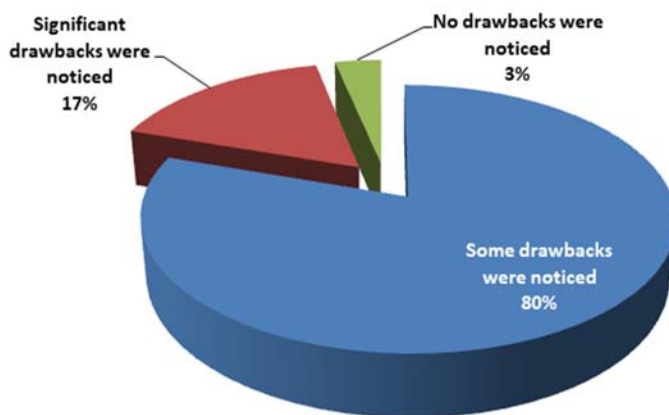
Though the emergence of IT and new pedagogies created new opportunities, BD Army made limited efforts to change the MOI to adapt to the changing requirement.⁶ It was unprecedentedly felt when BD Army ran out of options during the COVID-19 pandemic in 2020. On the contrary, many other armies quickly adjusted and made progress due to the flexibility of their training approach including the use of IT.⁷ IT is rapidly shaping the training and learning environment. Unless any organization modifies its training approach following the emerging practice, they are likely to fall behind.⁸ Falling behind the contemporary armies in adopting the appropriate training approach will only take the army steps behind the other armies continually.⁹ Except for some exceptions, BD Army is yet to enter the era of modern training methods which has already become a need of time.¹⁰

Notably, online training, a very popular and effective pedagogy in civil education, was temporarily adopted for OBC in 2020 during the pandemic.¹¹ However, surprisingly it failed to bring a positive result and proved unsuitable for OBC training. Therefore, a more viable and fruitful approach needs to be contemplated to ensure that the future leaders of the BD Army are not falling behind and that the OBC can be conducted without compromising its standard.¹² At this backdrop, a detailed study needs to be carried out to find out a training approach that can enhance the training effectiveness of OBC.

Attributes of an Effective Military Training

‘Effective training’ is difficult to define but not hard to realize. The effectiveness of any training is reflected by the performance of the trainees.¹³ The performance of some OBC students (trainees of 2020) in their unit on completion of the course, raised the question about the training effectiveness of OBC conducted in 2020. This was aptly displayed by the survey result (Chart 1).

Chart 1: Response Showing Drawbacks among the OBC Students of 2020



Source: Researcher's Construct Based on Survey

Based on the data (Chart 1) on their performance in the unit, close scrutiny of the training effectiveness of their basic course was felt necessary.

Attributes of Effective Training

The effectiveness of a training approach can be assessed by evaluating the core attributes of military training. The following paragraphs briefly explain some attributes of military training.

- a. **Enables the Achievement of the Aim and Objective of the Training:** GSTP-0045 contains each course's aim and objectives, which must be kept in mind while planning the training curriculum. Achieving these aims and objectives is a minimum requirement of any training. No training can be labelled effective if it fails to achieve its aim and objectives.
- b. **Must be Realistic and Adaptive:** Only realistic training can achieve the benchmark of professional competence, and it is needed to be adaptive. Such adaptability will primarily be acquired through realistic training that will enable all to grow a mindset of adaptability.¹⁴
- c. **Generates Interest and Encourages Improvisation:** Interest is a powerful motivational process that energizes learning and is essential to training success.¹⁵ Again, "No plan survives first contact with the enemy. What matters is how quickly the leader can adapt." This calls for improvisation and imagination in training.
- d. **Optimizes Resources and Time:** Due to the ever-changing future battlefield scenario and incorporation of new equipment, the training requirement is naturally increasing every year, but time and resources are not.¹⁶ Materializing training within the stipulated time and resource is always a critical task. Hence, in order to be effective, any training must optimize resources and time.¹⁷
- e. **Ensures Active Participation and Optimum Assimilation:** Learning is not the product of teaching; learning is the product of the activity of the learners. Any learning aims to ensure that whatever is learned stays put and is available to the learner to be exercised when required. It cannot be fulfilled if the training mode fails to ensure the optimum assimilation by the learners.¹⁸

Overview of Practical and Theoretical Content Distribution of OBCs

All the institutions conducting OBC have a significant portion of practical classes, and more importance is given to the practical lessons (Table 1). Therefore, any OBC, in order to be effective, must follow a platform that best suits the practical lesson.¹⁹

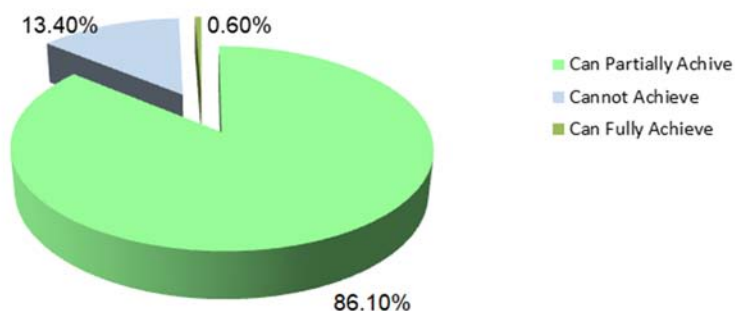
Table 1: Practical and Theoretical Content Distribution of OBCs

Institution	OBC	Duration	Practical	Theory	Online Conducted in 2021
SI&T	OBC-16	24 weeks	65%	35%	2 weeks
ACC&S	OBC-32	24 weeks	63%	37%	2 weeks
AC&S	BOC(FD)-38	24 weeks	66.20%	33.80%	3 weeks
	OBC(AD)-35	24 weeks	53.42%	46.5%	3 weeks
ECSME	OBC-46	24 weeks	54%	36%	2 weeks
STAC&S	OBC-44	24 weeks	67%	39.14%	1 week
ASCC&S	OBC-43	24 weeks	60.86%	39.14%	4 weeks
OC&S	OBC-43	24 weeks	55.65%	44.35%	1 week
EMEC&S	OBC-42	24 weeks	52%	48%	1 week

Source: Researcher's Construct Based on FGD-1 and 2

Analysis of the Key Findings

It is found from the above table that a significant portion of the OBC consists of practical lessons. Therefore, whatever training method or platform is used, it should meet the attributes in order to be effective. Hence, while designing the course curriculum, an appropriate MOI should be considered that meets these attributes to attain the trainee's KPIs. Due to the COVID-19 pandemic, some institutions conducted some portion of the course online. Apparently, it was the only major uniqueness of the OBCs conducted in 2020 compared to other OBCs. The survey result states that Online Training alone cannot fully achieve the aim and objective of the OBC (Chart 2).

Chart 2: Response Showing Whether Online Training Can Achieve the Aim and Objective of the OBC

Source: Researcher's Construct Based on Survey

Limitations of Online Training System

Undoubtedly, online training has some incredible benefits, and reasonably, this is why this training is becoming popular every day.²⁰ However, in the subsequent paragraphs, only the limitations of Online Training that adversely affect training effectiveness will be discussed:

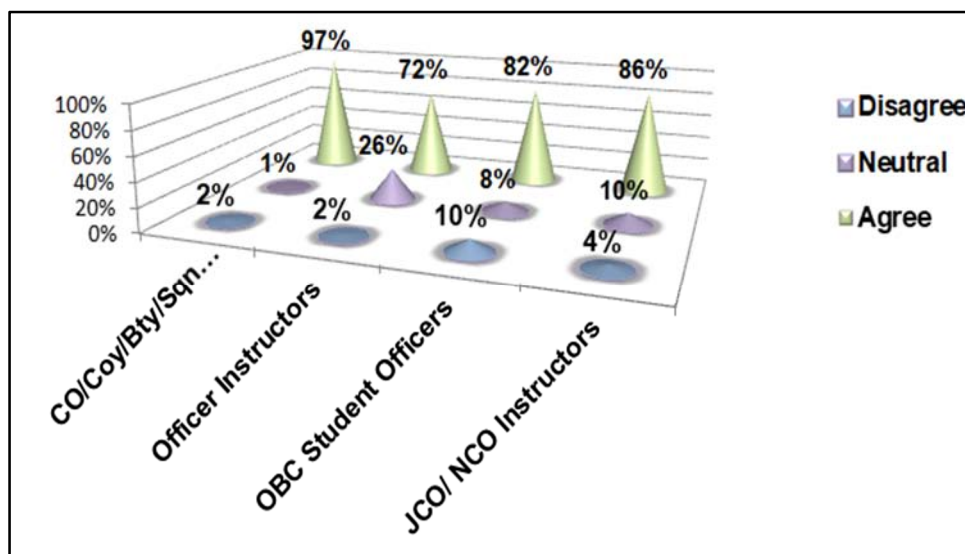
- a. **Poor Network Connection during Training Creates Frustration:** Sudden loss of connectivity, noise distortion, and frequent buffering usually lead to a loss of continuity in training, creating frustration among the instructors and trainees.¹⁸ Furthermore, a minor shortcoming in the online training system can severely degrade the training standard.
- b. **Absence of Traditional Module Reduces Training Effectiveness:** Sudden transformation to online training cannot be easily absorbed into the present system.²¹ Moreover, being devoid of traditional modules, this training system makes even the experienced instructors uncomfortable and rigid, which reduces its effectiveness.
- c. **Difficult to Impart Practical and Technical Lesson:** An online training system is a wonderful tool for theory-based instructions but not equally effective for practical or technical training.²² Additionally, this system lacks flexibility as customizing the MOI after launch is complicated on this platform.
- d. **Online Training is More Time Consuming:** Teaching online is more time-consuming than teaching in person.²³ During the online training, the instructors face the difficulty of maintaining time as the students face problems comprehending the lessons.
- e. **Prolonged Screen Time Causes Discomfort:** Prolonged screen time is an inherent limitation of the online training system.²⁴ Longer exposure to the screen may lead to discomfort, inattentiveness, and monotonousness, resulting in burnout situations and lower productivity.

Most of the senior officers opined that online training had considerable limitations which affected the training effectiveness of OBC. Due to these limitations, the online training failed to ensure effective training for OBC. However, many of the Instructors and OBC student officers opined that some packages of OBC can be taken online. Some theoretical lessons which do not need practical exposure should be taken online to reduce the pressure on conventional classes.²⁵

Evaluation of the Potentials of Blended Training to Enhance the Training Effectiveness of OBC

After identifying a few attributes of effective training, it was deduced why online training could not ensure effective training for OBC. Again, at the end of the previous paragraph, a need was felt to introduce a more effective approach to provide better training for OBC. In a survey, most of the CO/ Coy/ Bty/ Sqn Comds, OBC student officers, officers, and JCO/NCO instructors opined to introduce Blended Training for OBC (Chart 3).

Chart 3: Response Showing Opinions in Favour of Introducing Blended Training for OBC



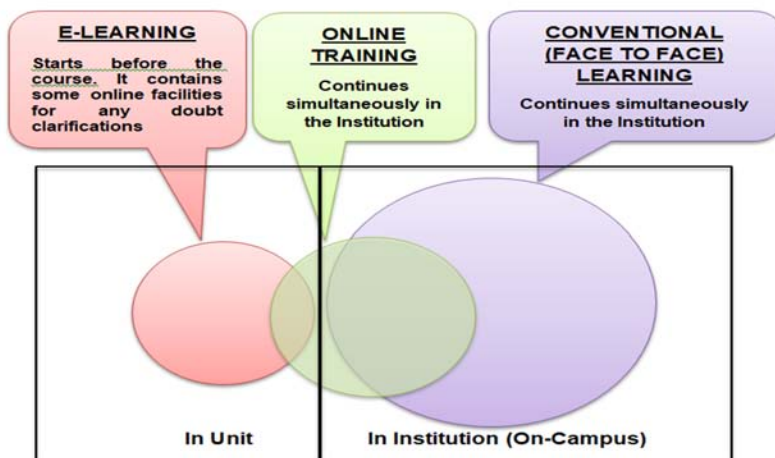
Source: Researcher's Construct Based on Survey

Following paragraphs will evaluate the potentials of Blended Training in overcoming the limitations of Online Training to enhance the training effectiveness of OBC.

Overview of Blended Training

- a. **Models of Blended Training/ Learning:** There are various Blended Learning models that trainers (and institutions) can implement. Each model has specific ways to target training and learning. These models were developed for civil education and learning. Some of them can be used for military education as well.
- b. **Author's Proposed Concept of Blended Training:** The author has a different concept of blending-model, which will be a hybrid of all models. It will combine the strengths of all models discarding the weaknesses to fit the military training, particularly OBC. In short, the proposed model will be a hybrid of E-learning, Online Training, and Conventional (Face to Face) Learning. E-Learning will start from the units before joining the course. They will be provided with E-learning materials (audio/ video content, PowerPoint, word document, training film, CBT applications, etcetera) from the schools. The blending will not be just the aftermath of one another. Instead, it will be a simultaneous blending ensuring the most appropriate platform for a particular lesson.

Figure 1: Researcher's Proposed Blended Training Model



Source: Researcher's Construct

Benefits of Blended Training System

Due to the versatility of the platforms (E/ Online), Blended Training enjoys the flexibility to use only the strengths of each platforms. The benefits of Blended Training over Online and other forms of training are discussed in the subsequent paragraphs.

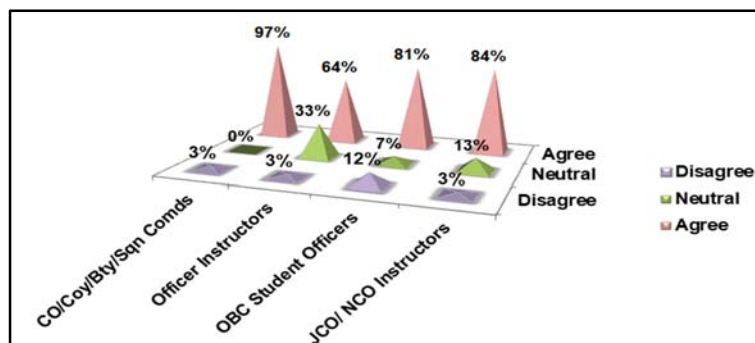
- a. **Alternative to Online Training Available thus Avoiding Absolute Dependency on the Internet Connection and Technology:** Blended Training is designed to allow for a judicious blend of residential and Online Training, which facilitates the availability of an alternative approach to address any technical unforeseen.²⁶ Due to this advantage, a well-planned course curriculum can enable an instructor to switch to any platform when necessary.
- b. **Helps Overcome the Problem of Imparting Practical and Technical Lesson:** The most significant advantage of Blended Training is that it can equally address practical/ technical and theoretical lessons. Due to the availability of residential training, the most suitable platform can be selected for the practical and technical lessons while designing the course curriculum.²⁷
- c. **Ensures More Active (Participatory) Forms of Training:** Blended Training enhances trainees' interest, engagement and thus ensures more participation. Diversification of delivery means and reinforcement of course material is crucial to trainees' engagement which is inherent to this training system.²⁸
- d. **Ensures a Better Instructor-Learner Satisfaction:** Due to the facility of better communication, Blended Training provides a better command to the instructor over his performance and a sense of accomplishment. On the other hand, students can learn from the environment and their peers, which helps them not to fall behind and feel isolated.

- e. **Allows More Time for Useful Discussion:** By ensuring the use of the correct platform for a particular lesson, Blended Training avoids unnecessary elaboration and discussion.²⁹ Lessons that can be explained through videos, audios, or PowerPoint presentations only are delivered online, sparing more time for face-to-face discussions.

Blended Training vis a vis Training Effectiveness of OBC

In a survey on CO/ Coy/ Bty/ Sqn Comds, OBC student officers, officer instructors, and JCO/ NCO instructors, most of them opined that Blended Training can enhance the training effectiveness of OBC by overcoming the limitations of Online Training.

Chart 4: Response Showing Blended Training Enhance the Training Effectiveness of OBC



Source: Researcher's Construct Based on Survey

Challenges of Implementing Blended Training for OBC and Ways Forward to Mitigate the Challenges

The word 'Change' is embedded within the word 'Challenge'. Implementation of Blended Training is no exception. The researcher has identified a few challenges through surveys, FGD, and KIIs. Again, every struggle has in it, its solution too. The plausible ways forward were also identified in a similar approach. The succeeding paragraphs will analyze the identified challenges and ways forward.

Challenges of Implementing Blended Training for OBC

These are as follows:

- Changing the Traditional Mindset:** The greatest challenge to implementing a new concept or practice is to change users' traditional mindset. Humans are hardwired to resist change. Similarly, the biggest obstacle in implementing Blended Training is overcoming the idea that it may not be as effective as traditional classroom training.
- Developing Required Infrastructure and Strengthening the Internet Connection:** Building necessary infrastructure and ensuring uninterrupted high-speed internet (prerequisites for a Blended Training system) will be a mammoth task for the authority. Besides Bangladesh Army Net, all training institutions should have uninterrupted internet/ intranet connectivity with feasible bandwidth and a dedicated server.

c. **Ensuring Cyber Security is an Inherent Challenge to Online Activities:** Cyber threat is inherent to any internet connection. Since a lot of military and classified information needs to be shared in the online module of the OBC, cyber security assumes greater importance. Bringing awareness among all the associated members will be a challenging task.³⁰

d. **Developing Required Skill for Smooth Conduct of Blended Training:** All students and instructors must be thoroughly skilled, informed, and well-versed in the system's strengths and drawbacks for it to be implemented effectively. Developing this new skill and technique is not an easy task as the system involves actors of diverse characteristics.³¹

e. **Ensuring Participant's Commitment:** Ensuring a participant's commitment to an online platform is a challenging task. Decisions of what to deliver, how to deliver, and through which platform, directly affect the participant's commitment.³²

Ways Forwards to Overcome the Challenges

a. **Raising the Knowledge Base to Change the Traditional Mindset:** Humans tend to remain in the traditional mindset and resist change because of the fear of the unknown, concerns of competence, and uncertainty of the effectiveness of the new concept. All these can only be overcome by raising the knowledge base and providing adequate assurance by giving them reliable information.³³

b. **More Investment in Internet Connectivity and Infrastructures Development:** In order to materialize efficient distance learning, all the training institutions should have their own IT cell with an adequate number of IT gadgets, access facility to internet, and uninterrupted power supply system.³⁴ Therefore, more dedicated investment is crucial for the effective implementation of a Blended Training system.

c. **Implementing the Cyber Policy to Enforce Cyber Security:** Increasing awareness amongst the members of the BD Army will contribute to the increase of its cyber security. Ultimately, the cyber policy has to be enforced by strict supervision and punishment systems if breached.³⁵

d. **Training the Trainer and Learner to Develop Required Skill:** In order to overcome the challenge of developing the required skill for the smooth conduct of Blended Training by all actors, conducting a short training for both OBC student officers and instructors is of immense importance. The training can also be a short demonstration or a video manual.³⁶

e. **Keeping the Online, Residential and Offline Offerings Always Interactive:** In order to mitigate the challenge of ensuring participants' commitment, there is no alternative to keeping the online, residential and offline offerings always interactive. It will help keep the trainees engaged during online sessions.

Analysis of the Findings

This paragraph aimed to identify the potential challenges that may arise while implementing Blended Training for OBC, and later, the ways forward which can be adopted to mitigate the identified challenges. The KIIs and FGDs also substantiated this fact. The researcher also carried out 'Pearson Chi-square test' to individually validate the identified challenges and determined the ways forward.

Summary of the Findings

From quantitative analysis and the KIIs and, it is evident that the main challenges that hinder the implementation of Blended Training are changing the traditional mindset, ensuring cyber security, ensuring participant's commitment, etcetera. Ways forward that can be adopted to overcome the challenges were also identified statistically and inferentially. From the survey, FGDs and KIIs analysis, it was evident that raising awareness, more investment in internet connectivity and infrastructures development, implementing the cyber policy to enforce cyber security are some of the plausible measures that can contribute to mitigating those challenges.

Conclusion

Blended Training is becoming an increasingly acclaimed training approach for its characteristics of innovation and enormous flexibility. Though not yet effectively introduced in BD Army, the concept has already been implemented and proven quite effective in many other armies. It was necessary to study on Blended Training for OBC owing to a few time-worthy inevitabilities. Firstly, the inclusion of new TTPs and related lessons into the syllabus, keeping the course duration constant, was nothing more than a compromise of OBC's training standard. Resultantly, the compromise was adversely affecting the performance of the young officers in the unit. Secondly, the author could foresee the long-term impact of this compromise on the future leaders of the BD Army. Thirdly, not exploiting the IT and innovative pedagogies will only impel the Army to fall behind. Furthermore, online training inexplicably failed to meet the requirement of improving the training efficacy of OBC.

The initial requirement of this paper was to figure out the concept of effective training for OBC. In quest of this, few attributes of effective training were identified to quantify an effective training. Those were: capable of achieving the aim and objective, being realistic and adaptive, optimizing resources and time, ensuring better assimilation, being focus oriented and effect-based, etcetera. Both quantitative and qualitative analysis suggested that all the attributes strongly influence the effectiveness of any training system.

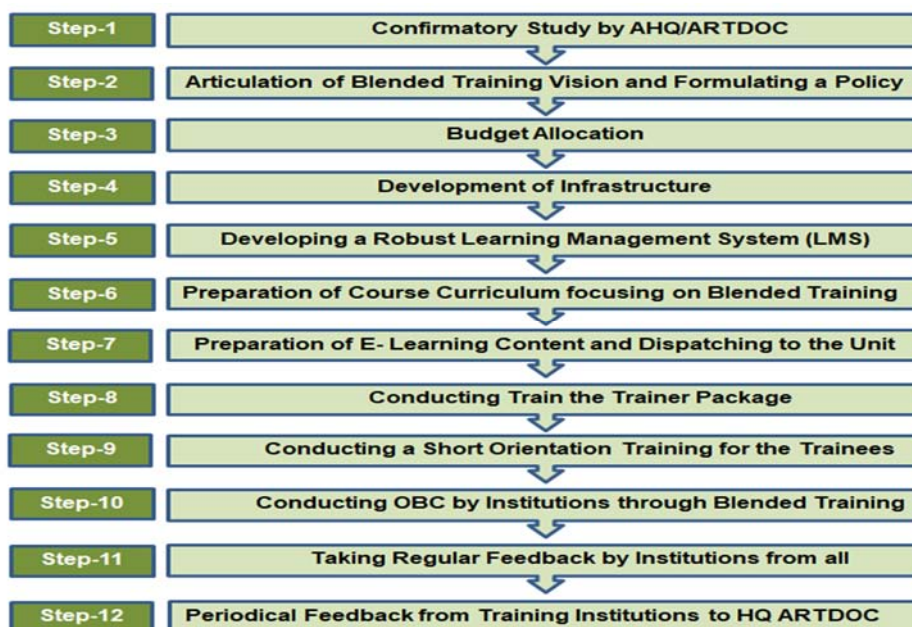
Having identified the attributes of effective training, determining why online training failed to meet the requirement of improving the training efficacy of OBC appeared to be the primary concern. Despite possessing many advantages, online training proved to be less effective for military purposes. Statistically and empirically, a few limitations of online training were identified, such as prolonged screen time, poor time-efficiency, poor

assimilation, low interaction and satisfaction, absence of traditional module, etcetera. Both from the qualitative and quantitative analysis, it was evident that due to the identified limitations, conducting OBC through online training adversely affected the training effectiveness.

On the revelation of the reasons why online training could not enhance the training effectiveness of OBC, a necessity was felt to outline an approach which can overcome them (limitations of Online Training). In doing so, the potentials of Blended Training were evaluated. Initially, the author's proposed concept of Blended Training, and later the benefits/ strengths of Blended Training were identified. Both from qualitative and quantitative analysis, it was evident that Blended Training could overcome the limitations of online training and enhance the training effectiveness of OBC.

Since it was proved that the Blended Training enhances the training effectiveness of OBC, a roadmap for its implementation deemed necessary to be worked out. A flowchart of proposed roadmap is in Figure 2 While conceptualizing the implementation roadmap, some challenges were identified, such as, changing the traditional mindset, developing required infrastructures, strengthening network connection, ensuring cyber security, etcetera. After identifying the challenges, few plausible measures were also determined from the survey, FGDs and KIIs, such as: raising awareness to change the mindset, more investment in internet connectivity and infrastructures development, implementing the cyber policy to enforce cyber security, etcetera.

Figure 2: Sequential Steps of Road Map to Blended Training Implementation



Source: Researcher's Construct

Recommendations

Based on the findings of the research, the following recommendations were made to introduce and implement Blended Training:-

- a. Training Division of HQ ARTDOC may carry out a confirmatory study or conduct a pilot project on any one of their associated training institutions (which conducts OBC) to officially determine the feasibility and suitability of Blended Training for OBC. Considering the duration of an OBC, the project/ study may be completed within the next 1-2 years.
- b. Upon deciding on introducing Blended Training for OBC, the following steps may be undertaken to implement it:
 - (1) HQ ARTDOC may articulate a Blended Training vision, formulate a policy and issue detailed instructions to all schools which conduct OBC for the initiation of the implementation process within one month of the decision of introducing it by 1-2 years.
 - (2) All schools which conduct OBC may complete developing required infrastructures, including strengthening the network facilities according to the master plan (delineated in the instructions issued by HQ ARTDOC) by 1-2 years. AHQ IT Dte and AITSO may provide their expertise to guide the infrastructure work. HQ ARTDOC may supervise and provide the necessary support to the concerned schools.
 - (3) HQ ARTDOC and IT Dte may take an endeavour to develop a robust Learning Management System (LMS) including the required software within the next 1-2 years.
- c. Training Division of HQ ARTDOC may arrange some central lectures/ presentations on the prospects, utility and conduct of Blended Training for OBC periodically. The purpose is to change the traditional mind-set against the transformation and raise awareness on cyber security. It may continue for at least one year.
- d. HQ ARTDOC may instruct all the concerned schools to urgently to implement Blended Training in order to avoid the compromise of the training standard of OBC and prepare the future leaders through the most appropriate MOI.

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Brief Biography



Major Mohammad Mazidul Haque Reza, psc, G, Arty was born on 23 February 1988 at Jashor Cantonment. He passed Secondary School Certificate Examination from Adamjee Cantonment Public School and Higher Secondary Certificate Examination from Rajuk Uttara Model College. He was commissioned with 59th BMA Long Course in the Regiment of Artillery on 24 December 2008. He served in different units and held all the regimental appointments within his capacity. In his service career, he has served in 8 Field, 27 Field and 45 MLRS Regiment. He also served as Instructor Class ‘C’ in NCO’s Academy and Instructor Gunnery in Artillery Centre and School. Besides mandatory courses, he attended Forward Air Controller Course in BAF Bangbandhu Base, Army Commando Course in SI&T, Officers’ Gunnery Staff Course in AC&S, Training on MLRS in China and Long Gunnery Staff Course in India. The officer completed Masters of Advance Gunnery from Bangladesh University of Professionals. He has participated in United Nations Peace keeping Mission in Democratic Republic of Congo as Quick Reaction Force Platoon Commander. He has successfully participated in Army Staff Course in 2021-2022 from Defence Services Command and Staff College, Mirpur, Dhaka.

TRAINING ON OFFENSIVE OPERATIONS IN BUILT UP AREAS- BANGLADESH PERSPECTIVE

Colonel Sohel Uddin Pathan, PBGM, PBGMS, psc

Abstract

Due to rapid urbanization in Bangladesh, the changing geographical pattern demands significant modification in the doctrines, tactics, techniques, and procedures of fighting a war. Consequently, training on fighting in the built-up (FIBUA) area needs added attention. The inherent complexities of urban terrain like limited maneuver options, restricted field of fire, interrupted communication, difficulties in command and control, logistics management, and the presence of civilians greatly influence any military operation in an urban area. Of late, Bangladesh Army has started focusing on training on FIBUA; however, many opportunities prevail to develop the standard of the training, especially from an offensive perspective. Changing the mindset, setting appropriate objectives, developing pertinent literature, and practical training will certainly enhance the fighting efficiency in a built-up area. A comprehensive approach involving formations and different institutions is essential to prepare different outfits of the Bangladesh Army to meet the challenges of future battlefields, especially in offensive operations.

Introduction

Cities predate the modern nation-state by several thousand years and have long been the focus of culture, politics, economics, religion, and all other aspects of endeavour that represent civilization. Attacking defended cities has been one of the most difficult and potentially costly military operations. This was reflected in the ancient Chinese text, *The Art of War*, which recognized the challenges of seizing cities and admonished its readers that the lowest realization of warfare was to attack a fortified city.¹

Urbanization is one of the most significant sociological change occurring around the world. Slowly and gradually all the small markets and communication centres are being developed as Built Up Area (BUA). As a result, communication centres and even small markets are coming up as small BUA. On an average, Bangladesh has at least one BUA in every 3/4 km. The trend is still continuing. It has brought changes in our fighting doctrine.²

Bangladesh has experienced a massive man-made change into the natural landscape and growth in BUA. These changes significantly affect potential future Battlefield environment. Training on Fighting in Built up Area (FIBUA) is in vogue in Army. But very less attention is given on offensive operations with integration of FIBUA. Though the main training is on various defensive operations, yet it is important to equally train forces for offensive operations to defeat the enemy. But offensive operations in BUAs

have serious complicity. It involves a high standard of training, high skill weapon handling and high cost.

Aim

The aim of this paper is to analyze the impact of ever-changing characteristics of BUAs on future battle and suggest appropriate training module for Bangladesh Army on FIBUA.

Historical Perspective of Urban Warfare

- a. **Early History:** The Battle of Bazeilles on 01 September 1870 during the Franco-Prussian war was one of the first instances of urban warfare.³ During World War II (1939-45), in the battle of Meiktila, Axis Forces consisting of 13500 troops turned every house in Meiktila into strong point defence. The troops fought from rooftops, sitting on the rice sacks and from anywhere they could. The allied force had to fight door to door for long one month to dislodge Japanese forces from Meiktila. At the same time the Battle of Stalingrad, Leningrad bear significant examples of FIBUA.
- b. **Liberation War of Bangladesh:** There are many examples of small battles which took place in the length and breadth of the whole country during liberation war. Among these, Battle of Hilli is mention worthy, as this was based on BUA. Pakistani defence at Hilli was anchored on commonly known 'Fortress Concept' of General Niazi. Besides few fierce battles during liberation war namely Battle of Kamalpur, Battle of Jamalpur also took place in BUA.
- c. **Operation Iraqi Freedom:** After 2003, the Iraq campaign moved into a different types of warfare where the coalition's use of superior conventional training, tactics and technology were of much less use against continued opposition from Iraq's various insurgent groups. Using the shelters, sewerage, bunkers, cellars of destroyed buildings guerrillas had been launching attacks on American forces. Everyday there were attacks on US forces by different militia groups following BUA guerrilla techniques.
- d. **Israel- Lebanon War 2006:** During this war, superior Israeli Defence Force (IDF) had to pull out their forces on the face of ill equipped and less trained Hezbollah resistance due to complexity of FIBUA. During the war, Hezbollah caused serious problems for the IDF by attacking in small units. Rocket attacks caused numerous forest fires in Israel that would take 50 to 60 years to rehabilitate. This is a classic example of unconventional and urban warfare where a comparatively ill-equipped very small force defeated a numerically superior force.
- e. **Conflict in Arab Region:** The confrontation between Palestinians and Israeli forces has turned into an everyday affair. Had there been open areas, less number of buildings, installations; offensive posture of the aggressors would not have faced so much of difficulties. Such superior Israeli forces still could not establish full control over these ill-equipped Palestinian freedom fighters only because of complex

FIBUA. The recent war in Syria, Nagorno-Karabakh stand-off clearly reflect the increasing significance a BUA can play in determining the fate of any engagement.

f. **Lessons Learnt:** Following lessons can be derived from the historical examples stated above:

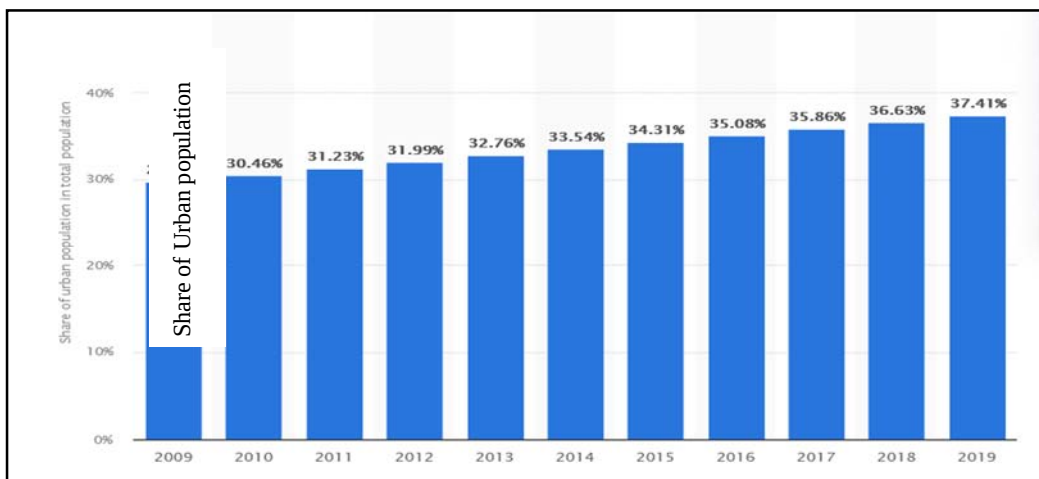
- i. Attacking a city or town and capturing needs overwhelming superiority.
- ii. Urban terrain is favourable for defenders and poses much difficulty for attacker.
- iii. Urban terrain limits the use of long-range weapons, mechanized elements, advanced technologies and it calls for employing more forces for launching offensive operation than conventional one.
- iv. Urban warfare demands mastering of additional resources, special equipment and special weapons.

Urbanization in Bangladesh and its Effects on Offensive Operations

This is discussed as below:

- a. **Level of Urbanization in Bangladesh:** Figure 1 provides a vivid picture of level of urbanization in Bangladesh corresponding to the various years from 2009 to 2019.⁴

Figure 1: Level of Urbanization in Bangladesh

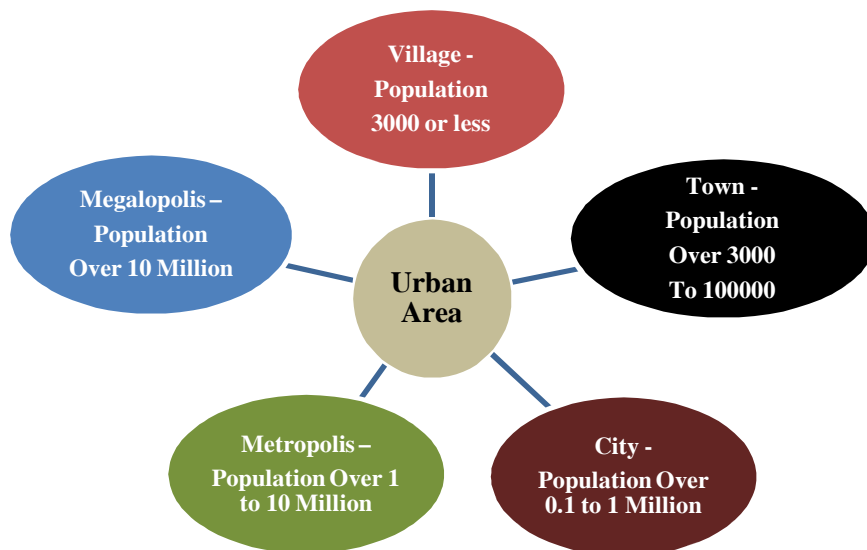


Source: Author's self-construct

- b. **Pattern of Urbanization in Bangladesh:** US Army has classified the urban area into five categories as given in Figure 2.⁵ These classifications are based mostly on the population residing in a particular area. Obviously, higher population would require greater number of structures and higher density. The urban areas of

Bangladesh can be categorized in the similar fashion basing on density of population total area and pattern and density of structures as briefly discussed below:

Figure 2: Categories of Urban Area by US Army



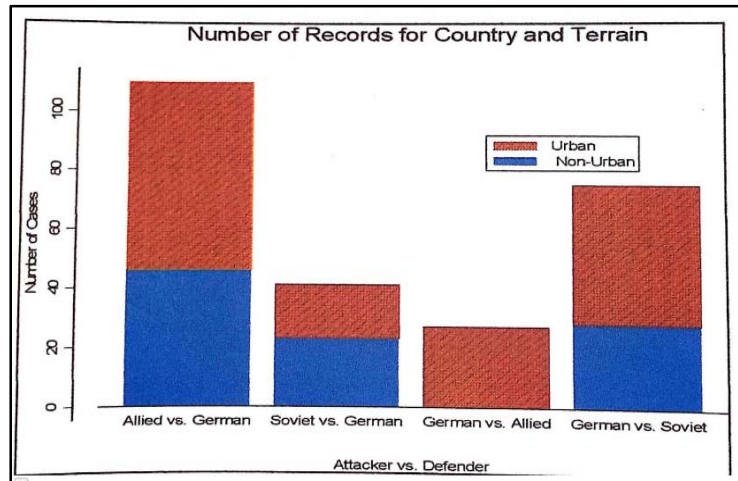
Source: Author's self-construct

- i. **Residential Areas:** These are densely populated with variety of constructions having gardens, compound walls and hedges. There are large residential areas and small residential areas.
 - ii. **City Areas:** These are basically of two types, District Township and Upazilla Township. District towns are generally larger than upazilla towns.
 - iii. **Industrial Complex:** Small industrial complexes are generally composed of one single industry and large ones are of composite in nature.
 - iv. **Cluster of BUAs along Main Road:** Along all the major roads of the country, numbers of cluster of BUAs are generally found. These are of three types as lateral, longitudinal and choke point.
 - v. **Mega City Dhaka:** Dhaka city is an exceptional urban centre apart from all other cities of the county. This city presents a total new perspective of military importance.⁶
- c. **Future Trends of Urbanization in Bangladesh:** It is experienced from the present trend that with increasing urbanization, nearly one - third of the total population of Bangladesh will soon be living in urban areas.⁷ The expansion of existing urban centres will continue both in vertical and horizontal shape. Construction of bridge over River Padma is likely to amplify the port activities of Mongla hence the urbanization in Khulna.

Influence of Urban Area on Military Operations

A study shows that the attackers' daily casualty rate (DCR) changes according to the terrain.⁸ There are data on 253 battles, 96 of which occurred in urban areas. It was found that the daily casualty rate is much higher in urban operations. During WWII it was seen that allied forces had a different approach to military operations on urban terrain than Soviet and German forces. The Allies used extensive combat power in urban operations.

Figure 3: Number of Battle Conducted in Urban and Non-Urban Area



Source: Author's self-construct

The aspects of urban areas which influence military operations are as follows:

- Urban areas historically evolve in strategic locations which often hold symbolic value that military forces can exploit to produce political effects.
- Influential governmental/ societal decision-making nodes are generally concentrated in urban areas.
- Challenging terrain, shores and waterways.
- Presence of non-combatants, civil government institutions, non-government organizations and local and international media.
- Sources of support from civic facilities.
- Complex social, cultural, and governmental interaction that supports urban habitation.
- Location of key transportation hubs.

In urban terrain, by contrast, engagements occur at short-range, manoeuvre and command and control are difficult and battles have to be fought at the squad level without

substantial coordination or fire support from higher echelons. Urban terrain also makes maneuver difficult. Streets canalize the movement of ground vehicles. As we saw the trend of increase in proportion of people living in urban centres, this will definitely increase the number of noncombatants in the area.

Impact of Urban Area on Military Operations

Impact on Tactical Planning

These are as follows:

- a. **Impact on Conventional attack:** Rapid urbanization especially along the likely route of ingress and on both side of natural obstacles influence conventional attack. It restricts fire support by artillery and armoured. Maintaining impetus of attack, assault line and close support is very difficult.⁹
- b. **Terrain:** The streets will provide good field of fire while the houses beside the streets will provide good firing positions. Buildings will restrict view.¹⁰
- c. **Security:** The physical aspects of urban area will be an advantage to the security of defending forces provided that the inhabitants are not hostile. However, defending forces might need more security forces to observe mounted or dismounted infiltration.
- d. **Disruption:** The attributes of urban environment assist the disruption of attacking forces by the defender. Due to the compartmentalized approaches, mutual support between attacking columns and shifting of recourses become difficult.
- e. **Flexibility:** The urban area facilitates defensive flexibility because the urban terrain can be quickly adapted for defensive operations with little or no preparation. Attacker has very less flexibility to bring any change on plan after launching attack.
- f. **Fire of Small Arms:** In an urban operation the fighting is likely to be executed at close range. Therefore, small arms will be used more.
- g. **Communication:** Buildings will act as screen to radio communication. Primary emphasis has to be placed on runners, dispatch riders, liaison officers and visual signals.¹¹
- h. **Difficulty in Control:** Buildings will become physical barriers between units and sub units. Highly centralized control will be difficult and the outcome of the battle will mostly depend on individual action and initiative.¹²
- j. **Non-Combatants:** The presence of large number of non-combatants will pose peculiar problems. Care must be taken to ensure security against the activities of spies, saboteurs and fifth columnists.
- k. **Movement:** All movements in urban area will be through streets and alleys which are ready made fire lanes and killing zones. Bombardment will cause rubble that restricts movement through roads.¹³

Impact on Log Planning: In addition to the usual logistical challenges following additional points will have to be borne in mind:

- a. Traffic control.
- b. The number of casualties is expected to be more than usual. Decentralized medical facilities and greater number of stretcher bearers will be needed.
- c. Emphasis has to be given on supply of small arms ammunition.
- d. Getting number of alternative routes to maintain supply is difficult if any major road is blocked.¹⁴

Evaluation of Present Training on Offensive Operation in BUA Environment

Existing training System

This is as follows:

- a. **Formation Level Training:** In the formations, training on BUA occupies insignificant portion of overall curriculum. In the recent years, FIBUA training in the formations was mostly confined within MD and TEWT for officers only. Most importantly, the focus of these training is defensive operation. FIBUA is yet to be popular in the training. However, formations commanders and commanding officers of units are given the flexibility to plan the training curriculum considering the diversity of the terrain configuration.
- b. **Training at Various Institutions:** Training conducted in various institutions is not adequate. Training institutes mostly focus on conventional operations. The classes on special operations eg FIBUA get less emphasis. Though there are TEWT in the officers' courses, but in the JCOs/NCOs courses these subjects are mainly theory based. Practical aspects are mostly overlooked.
- c. **Pamphlets:** Bangladesh Army General Staff Training Publication (GSTP) 0022, Operations of War, volume one contains inadequate details as an 'Operation Under Special Condition'. GSTP 2622, Infantry Battalion in Battle (IBIB), part II, Chapter XII covers the subject in some details. GSTP 0048 and GSTP 0049 on Wolf Land (WL) Tactics and Wolf Land (WL) Organisation do not contain any chapter on FIBUA. As such enemy tactical and organisational aspects on FIBUA are not sufficiently covered in the training literatures. We do not have sufficient information on BUA in our SE threat area as well.¹⁵
- d. **Strengths of Existing FIBUA Training System:**
 - i. **Suitable Training Environment:** Other than the units deployed in counter insurgency operation in Chittagong Hill Tracts, rest of the Army has relatively quiet and peaceful training environment. This will allow a prioritized training on FIBUA in this suitable training environment.

- ii. **Organized Unit Administration:** Every training year is organized into group training, individual training, unit administration and privilege leave group. An individual can very well make his own plan in a flexible and methodical way suited to his own requirement. Any training can be very easily adapted to this sound unit administration.
- iii. **Standard Training Institutes:** Due to standard infrastructure, experienced and well-groomed instructors of the reputed training institutions in Bangladesh, it has earned name and fame not only in home but also in abroad. These training institutes are capable of imparting training suited to the changing need of the advanced world.
- iv. **Efficient Soldiers/Officers:** Besides fighting natural and artificial disasters including various internal security problems, members of Bangladesh Army has earned worldwide recognition. These efficient and well-motivated members of Bangladesh Army are ready to undertake the training required for the present day needs.

Weakness of Existing FIBUA Training System

This is as follows:

- a. **Inadequate Training Literature:** There is inadequate literature on this type of warfare in comparison to other types till now. Not much study or analysis has been made by the professionals or research groups. Moreover, this warfare remained as a distant study in Bangladesh Army till recent past when it is felt with broad necessity. Whatever précis/pamphlets available are basically a Bangladesh version of old British/Pakistan Army literature.
- b. **Lack of Training Facilities:** There are quite a good number of training institutes but those are not furnished with required facilities needed for the training on FIBUA technique. Few FIBUA villages with some training infrastructure has on, but these are inadequate and not sufficiently capable of meeting the present day needs specially training on offensive operation.
- c. **Lack of Suitable Weapon/Equipment:** FIBUA calls for extensive use of close quarter battle weapon and other special equipment like internal explosive devices. Lack of weapon and equipment suited to the FIBUA requirement will certainly hamper its effective training.¹⁶

Opportunity of Existing FIBUA Training System

- a. **Potential Exercise Areas:** Due to increasing number of markets, shops, houses and schools, it has become really difficult to get any suitable area for exercising traditional defensive and offensive operations. On the other hand, it has increased the opportunity in terms of providing areas for practicing FIBUA training.
- b. **Foreign Courses:** Quite a good number of officers are undergoing foreign courses in various advanced countries having separate FIBUA package for various

courses. Expertise and knowledge of these trained officers can be utilized to train officers and soldiers of Bangladesh Army.

c. **UN Mission Experience:** Most UN Mission areas are war torn and Bangladeshi troops are facing the complexities of mixed urban and unconventional warfare techniques in those places. These experiences and learning can be spread over the young officers and soldiers of this Army.

d. **Required Technology:** Space constrain for FIBUA training is minimized through simulator training which requires advanced technology. Technological innovations are taking place in army as well which can be utilized for preparing simulators and other technology-oriented training aids for FIBUA.¹⁷

Suggested FIBUA Training Module for Bangladesh Army

Following are the suggestions:

a. **Setting Aim and Objectives of FIBUA Training:** Probable aim could be “To prepare Bangladesh army on FIBUA on defensive and limited offensive op in the context of increasing BUAs.” It has to be reflected in the training directives at various levels starting from units, formations and various training institutes.

b. **Development of GSTP:** All the advanced armies have their own doctrine on FIBUA. It is necessary for us also to develop our own doctrine keeping in view the characteristics of BUAs in our terrain. A Board of officers may be formed to formulate draft doctrine on FIBUA as well as FIBUA training as it is done for the Conventional and Unconventional Warfare. FIBUA should not be considered as a special operation. Instead, it should be considered as of Conventional operations. Emphasis should be given on this aspect while formulating doctrine on FIBUA.

c. **Tactical Modification in Training:** Close-quarter battle weapon system and tactics are very closely related and interdependent in FIBUA operation. Efficient employment of troops, arms and equipment encompass a sound learning of FIBUA tactics. Therefore, related changes in the field of weapon training have to be emphasized and corresponding changes in the field of tactics integrating FIBUA has to be addressed.

d. **Special Individual Training:** Success in FIBUA demands every individual to be specialized on certain aspects. These could be as follows:

- i. House clearing drill, use of explosive and handling of special equipment.
- ii. Field engineering
- iii. Use of various close quarter battle weapons / IEDs.
- iv. Psychological training on FIBUA.
- v. Individual skill enhancing on building climbing, rappelling, rafter crossing, ledge walking, beam walking etc.¹⁸

- e. **Theoretical and Practical Oriented Training:** To impart appropriate theoretical knowledge on FIBUA, corresponding changes have to be brought in the books, précis, and pamphlets. Thereby a training literature has to be developed on FIBUA to suit our requirements. At the same time, a corresponding change and increase in both indoor and outdoor facilities should be brought to enhance practical learning.¹⁹

Implementation of Suggested Training Module

Unit Level:

- a. **Individual Training:** Each individual soldier should realize the need for FIBUA training. Junior level leaders play the pivotal role in FIBUA. There should be trained Officers/JCOs/NCOs available in the unit to make them understand about this complex operation.
- b. **Group Training:** Besides individual learning, group training should also be given due emphasis. Soldiers should know how a group effort can be used in capturing a BUA. BUA around the unit exercise areas can be incorporated in the exercise plan of cycle ending exercise (CEE) in offensive framework.

Formation Level: FIBUA training should get due consideration at formation level cadres. The number and nature of ingress will not be the same for all the formations. So, besides fundamental common need of FIBUA, each formation can conduct their self-appreciated training curriculum to suit the requirement of their own area of responsibility. All related cadres at formation level like BTT, ATT can have a separate FIBUA package.

Institute Level:

- a. **EBRC/BIRC:** Appropriate lessons on FIBUA at basic training level should be incorporated in the training syllabus. So that with a workable knowledge a soldier can join their respective units which will be furthered by unit learning.
- b. **BMA:** If BMA training undertakes an effective FIBUA module in the training syllabus, officers of all arms and services would be able to pass out from BMA with standard level of knowledge. MD, TEWT and FTX on FIBUA should be arranged to instill the requirement of FIBUA in the mind of the future leaders.
- c. **SI&T:** SI&T could be the most appropriate place for the junior leaders of all arms and services to instill this training. All tactical and weapon related courses conducted in SI&T should have separate package for adequate duration. FIBUA village of SI&T should be utilized optimally to train the young officers.²⁰

Conclusion

There is no denying the fact that future battlefield will be influenced by sophistication, technology, complexity and multidimensional BUA. Topographic changes have got definite impact on tactics, organizations and weapon performance. BUA influences the whole offensive mechanism starting from planning stage of the battle up to capturing of

the objective. In urban terrain, by contrast, engagements occur at short-range, maneuver and command and control are difficult. Urban terrain also makes maneuver difficult.

An analysis reveals clear shortcoming of existing training system in the field of FIBUA. Both theoretical and practical training of Bangladesh army is inadequate and inappropriate. The strength and opportunities have to be exploited to have an efficient FIBUA training system in this army.

The most important step would be to set the aim and objective of FIBUA training. A doctrinal change in the field of offensive operation has to be undertaken to prepare Bangladesh Army on FIBUA incorporating increasing trend of BUAs. Units and subunits should be trained as a small team on different skill of FIBUA technique. Training requirement should include both individual and group training starting from unit through formation level up to training in the various arms centre & school. Institutes should establish FIBUA village immediately as priority basis.

Recommendations

Basing on the research following recommendations are made:

- a. Army Training and Doctrine Command (ARTDOC) may formulate a draft doctrine on FIBUA for final incorporation into existing doctrine which would include both defensive and offensive operation.
- b. Each formation should construct a BUA training complex in phases.
- c. To suit the FIBUA requirement, due emphasis should be given on close-quarter battle weapon like sub-machine gun, pistol, rocket launcher, grenade throwing rifle, shoulder guided missiles.
- d. Suggested concept of offensive operation besides defensive operation integrating BUAs should immediately be included in the unit's training curriculum. Formations should carry out adequate number of MD, TEWT, CPX and FTX on FIBUA for the officers, JCOs and NCOs.
- e. Training institutes like BMA, EBRC/BIRC, SI&T and other respective arms centre & school should start separate FIBUA package in their course curriculum with immediate effect.

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Brief Biography



Colonel Soheli Uddin Pathan, PBGM, PBGMS, psc was born in 1975. He was commissioned on November 29, 1995 with 33rd BMA Long Course in the Corps of Infantry at 'Victory Tigers.' He is a science graduate from National University. His duties and appointments include Regimental Staff, Company Commander, Second in Command of an Infantry Battalion, Grade Two Officer at Bangladesh Military Academy, Grade Two officer at Army Headquarters. He served in 5, 8, 15 East Bengal, 1 BIR, 6 BIR, Headquarters 46 Independent Infantry Brigade, Bangladesh Military Academy and Army Headquarters. He also served in Border Guard Bangladesh as Commanding Officer and Staff Officer at Border Guard Bangladesh Headquarters. He participated in the United Nations Peacekeeping Mission in Liberia with 6 BIR and in Ivory Coast as United Nations Military Observer. He also served as Principal of a Cantonment Public School and College and in Chattogram Hill Tracts for two terms at Baghaihat and at Kaptai respectively. He is a graduate from Defence Services Command and Staff College. The officer has attended and visited number of seminar/places at home and abroad. Presently he is serving as Colonel Admin of Area Headquarters, Sylhet.

OPERATIONAL ART DURING THE MAJOR COMBAT OPERATIONS (MCO) PHASE OF OPERATION IRAQI FREEDOM (OIF)

Colonel Md Mafizul Islam Rashed, afwc, psc

Abstract

Operational art is the employment of military forces to attain strategic goals through the design, organization, and conduct of campaigns and major operations. Operational art refers to the skills of military leaders in handling resources in planning and executing campaigns and major operations.¹ The OIF campaign was fought in four phases but only first three phases included major operation. This paper will analyse the operational art displayed by the senior military leaders of the coalition force while conducting MCO of OIF. Unlike Operation Desert Storm (ODS) of 1991, the OIF was predominantly a ground campaign involving number of major ground combat operation, therefore military leaders from the land component commanders would get a prominence in the subsequent discussion.

Introduction

In order to measure the operational art of a military leader there was hardly a theoretical model or scale of measurement. The skill of operational art can best be measured by subjective analysis. Various key concepts of operational art like Centre of Gravity, Initiative, Simultaneity and depth, Synchronisation, Risk, Logistics, Culminating Point, Exit Strategy etc would appear as discussion points in the paper. The important commanders would be pitted against few great generals of the past to evaluate their operational art too. The plan would also be compared with other plans of the past specially to ODS of 1991. At the outset, a short summary of the coalition forces' command structure and plan will be highlighted to set the baseline. The MCO phase of OIF lasted from 20th March, 2003 to 14 April 2003.

Aim

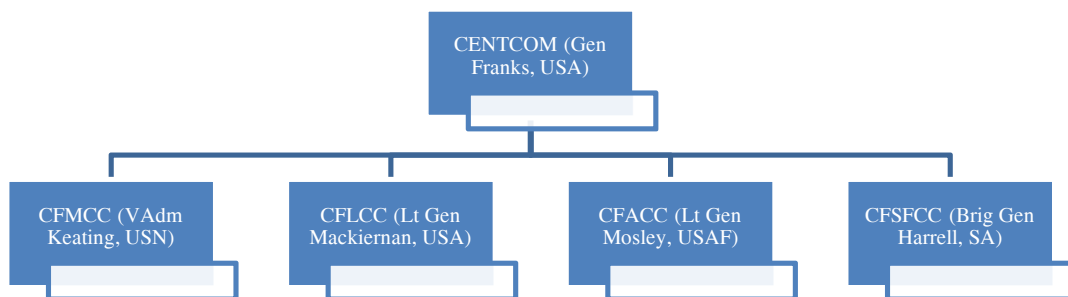
The aim of this paper is to analyse the operational art used by coalition forces during the MCO phase of OIF.

The Plan

The US Administration's short-term goal for OIF was regime change. As President Bush stated in his Address to the Nation on 17 March, 2003, "It is too late for Saddam Hussein to remain in power. We will tear down the apparatus of terror.....the tyrant will soon be gone".² To support the mentioned U.S. strategic objectives, CENTCOM translated OIF's military objectives as: "destabilize, isolate, and overthrow the Iraqi regime and provide support to a new, broad-based government; destroy Iraqi WMD capability and support international efforts to set conditions for long-term stability in Iraq and the region."

Keeping this strategic and operational objective in mind, the campaign plan of the OIF was developed as under:

Figure 1: Theatre Command Structure



Source: Internet

Important point to note that it was different from ODS in which there was no central Land HQ (US Army and US Marine reporting directly to Schwarzkopf and Coalition of Arab countries reporting to Saudi Prince)

a. Phase I – Preparation (2 Days).

Prior to OIF, in preceding weeks General Franks authorized a relaxed ROE for Operation NORTHERN and SOUTHERN WATCH (to enforce no-Fly Zone in northern Iraq since 1997). It meant that US and UK air forces were given more free-play to directly attack Iraqi forces to enforce no-fly Zone in northern Iraq. It also acted as a diversion to coalition's invasion's plan for OIF³.

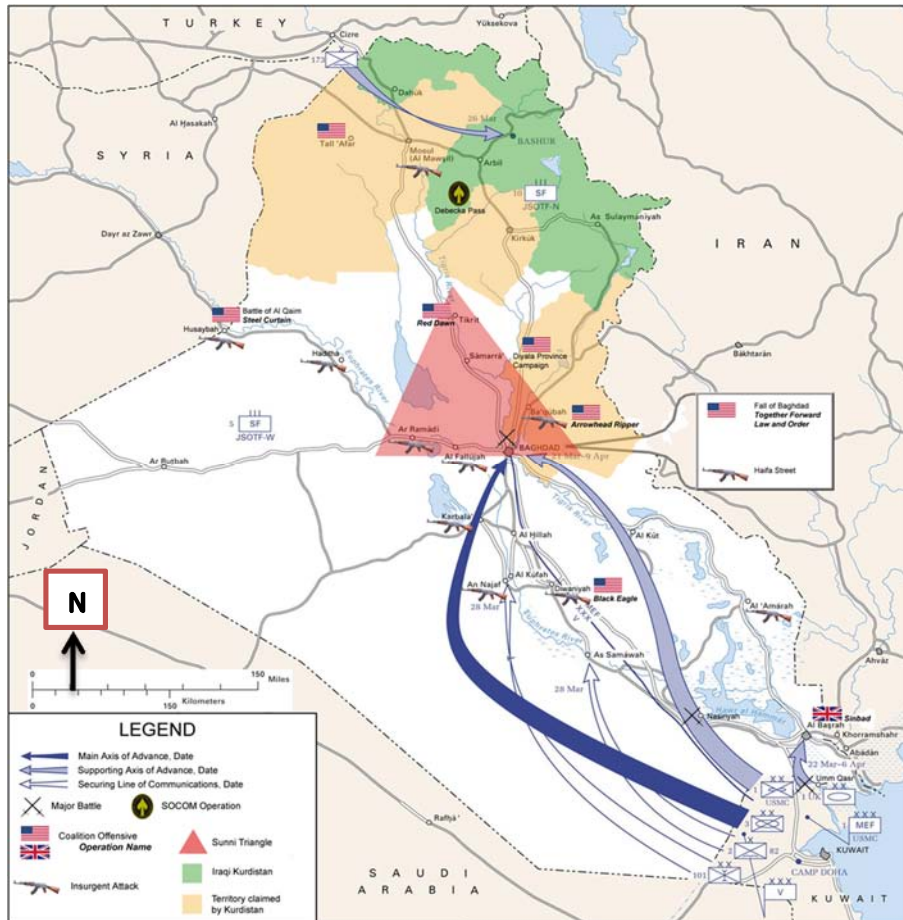
b. Phase II – Shape the Battlespace (5 days).

c. Phase III – Decisive Offensive Operation (Unspecified Duration).

d. Phase IV – Post Hostilities Operation (No clear timelines/in months).

Coalition Forces Land Component Command (CFLCC) composed of V Corps, 1 Marine Expeditionary Force (MEF) and 173 Special Force Brigade. V Corps (commanded by Lieutenant General Scott Wallace) composed of 1 Cavalry Division, 3 Mechanized Division, 101 Air Assault Division, two brigades of 82 Air Borne Division. 4 Meccanized Division and 3 Cavalry Regiment was kept in operational reserve. 1 MEF (Commanded by Lieutenant General James Conway) composed of 1 Marine Division, 1 Armoured Division (UK) and 2 Marine Expeditionary Brigades. 173 Special Force Brigades was tasked to operate from Jordan.

Figure-2: Operation Iraqi Freedom⁴



Source: Internet

V Corp, which was the ME of CFLCC was tasked to seize Talil Air base, establish a bridgehead on the Euphrates River at Nasiriyah and set condition to conduct decisive operation north and west of Euphrates River. 1 MEF was directed along with British forces to secure the southern oil fields, seize Basra, and then advance towards Baghdad using axis of advance that followed the Tigris River to the East. V Corps and 1 MEF to isolate the Baghdad City from the east and west respectively.

Concept of operation

McKiernan, the land component commander, designated V Corps as the land component's main effort (ME). He directed that the V Corps commander would be in command of the fight for /in Baghdad. Thus, the entire city was in the V Corps zone of action. While war gaming results always predicted that V Corps and 1 MEF would arrive in the vicinity of Baghdad around the same time⁵. By allocating V Corps, the

responsibility to take on Baghdad had demonstrated the operational art at the start of the operation in terms of structure of the battle space, designation and support of the ME and designation of a land component reserve.

The British forces were tasked with seizing the few peninsulas and the port of Umm Qasr to ensure the transit of humanitarian aid, as the Coalition was expecting a serious refugee crisis arising from the internal displacement of Iraqi civilians. The 1st Armoured and 3 Commando was then to relieve 1 MEF in Rumalia and cordon off Iraq's second city, Basra. In the West, US, British and Australian special forces (SF) covertly infiltrated from Jordan were tasked to track down any Scud missile launchers the Iraqis might have, although these elite troops posed a diversionary threat to the Iraqi defence too.⁶

The Iraqi Plan

The Iraqi defence consisted of 5 under-strength corps from the regular Army, 4 divisions from the better-trained and equipped Republican Guard (RG), and around 15,000 troops of the Baath's Party's hard-core loyalists, the Special Republican Guard (SRG) defending the capital. The Coalition was also unaware that the Baath Party had raised two loyalist militias, the Fedayeen Saddam and the Qud's (Jerusalem) Army. There were also an unverified number of largely ill-trained volunteers from other Arab states who travelled to Iraq to fight the Coalition.

Operational Art during Planning Phase

The main plan was to invade Iraq both from north (Turkey) and south (Kuwait) simultaneously to off balance Iraqi Armed forces and achieve simultaneity. However, Turkish Parliament declined US to allow its soil for invasion into Iraq only 20 days before the commencement of OIF. So, the ground operation plan had to be revised, where Franks adjusted the plan to use Special Forces from north and west to deceive the Iraqi forces about the ME of the operation.

As per Milan Vego "An operational commander should evaluate fully, the influence of nonmilitary aspects of the situation (political, diplomatic, economic, religious, legal, environmental, informational, and others) on planning and employing forces".⁷ Since he was commanding CENTCOM for last two years, Franks had a clear understanding of the relevant factors and informational situation of operation area. However, he was taken aback by the Turkey's decision of not allowing coalition to use its soil for ground offensive - tragically which was an important NATO partner, thus reflected a weakness of assessing the effect of a political change.

Franks chose Republican Guard as the Operational CG while General McKiernan, the Ground force argued to choose the Fedayeen force loyal to Saddam as the CG. However, Frank's decision prevailed and the defeat of RG accelerated the fall of Saddam. Frank was quite clear as to how a dictator like Saddam did survive for so many years in power and what was his power base. Frank's displayed a clear understanding of the threat's strength.

On the contrary, McKiernan's view was also correct. The fedayeen provided an unexpected tough resistance against the invading force during the major operation phase of OIF. But it was not strong enough to be put ahead of RG. The concept of using fedayeen as a force to be used against invading force was conceived not long before the invasion, hence the force was not properly organized and resourced. However, with the advent of time these fedayeen's managed to reorganise and conducted an insurgency for long 10 years.

During planning phase, Franks raised the issue of a catastrophic success, which ultimately happened during execution of OIF. Saddam and his regime tried their best to avoid the invasion, but failed due to the Bush's(Jr) determination. The Iraqi's got very little time to prepare for defence. The depleted, battered, and demoralized army did not put up much strong resistance to the invaders. The forecast of Tommy Frank's catastrophic success came to a reality which out-paced the plan for post-hostilities. He can be credited for operational vision for predicting and equally discredited for not doing much to bring the post hostility in order.

The military generally prefers to participate in combat operations than that of engulfing into long counter insurgency or stabilization operation. General Franks retired from the military on 22 May 2003, only a month after the Coalition victory in OIF. This kind personal/physical detachment of the most important military leaders from an ongoing operation, precludes realistic possibilities of displaying operation art. The military commander might relegate himself within the day to days/regular or routine affairs of the outfit. Franks, who had already planned and executed OEF in Afghanistan, might wished to take the glory of winning another war but not the campaign since he was aware that Phase IV of the campaign was not well conceived/ planned to achieve post war stability.

As per Gabriel, "the most critical of qualities for success at operational level are a strong character, high intellect, creativity, and boldness. These qualities are developed throughout life and a military career—and through self-study".⁸ Franks was acknowledged as an outstanding military officer, but critics also adjudged him as a military leader who lacked strategic mindset.⁹

Operational Art during Execution

Unlike ODS, OIF began with a ground offensive into Iraq. It caught the Iraq's off-guard.¹⁰ Iraqi's were expecting an air campaign prior to land offensive which might have given them some time for defence preparation or to garner some international support or UN intervention. Franks and McKiernan displayed their operational acumen by driving forward the ground forces offensive into Iraq on 20 March 2003 and achieve operational surprise. It compelled the Iraqi forces to lose initiative and be reactive to coalition's actions from which Iraq's could never recover.

On 23 March 03, Wallace(V Corps Commander) mounted an attack in the deep area against the elite Republican Guards(RG) near Karbala using 11 Attack Helicopter Regiment on day 4 after successfully seizing Talil Air base and establishing bridgehead

at Nasiriyah. This deep attack was launched one day ahead of the scheduled time with accepting a huge risk launching it without any kind of reconnaissance to seize the fleeting opportunity. Commanders displayed delicate balance between protecting the force and accepting and managing risk that must be taken to accomplish the mission. Wallace's manoeuvre across the desert reminded the Guderian's blitzkrieg in France and Montgomery's advance in Africa during WW2.

Franks can also be credited for not micromanaging the operations of the ground forces. While Schwarzkopf kept the responsibilities of ground offensive to himself, Frank delegated this responsibility well in time to McKiernan for smooth planning. Since CENTCOM was fighting two campaigns simultaneously, it can be taken as a very good decision. Even during the execution phase of OIF, he did not unnecessarily handicap the operational commanders or curtailed their initiative.

On 25 March 2003, a huge sand storm disrupted the coalition's advance towards Baghdad. McKiernan did not fight the sandstorm rather used that non-fightable period as operational pause to consolidate the gains. By the time this operation pause was effective, two important Decisive Conditions like Talil Airbase was secured and a bridgehead over river Euphrates had already been established. However, McKiernan delayed the attempt to achieve a breakthrough at Karbala due to weather and logistics factor. Thus he ordered for an operation pause, which is a key concepts of operational art.

On 31 March V Corp launched five simultaneous attacks to achieve a breakthrough at Karbala gap (a narrow sloth of farmland located between Euphrates river in the east and Lake Razzah to the west.) The area stretches between 20-25 kilometres with irrigational ditches, canals and soft marshes criss-crossing the area). By ordering V Corps to advance through the narrow Karbala gap, Wallace took considerable risk. As per FM 3.0, "Risk, uncertainty, and chance are inherent in all military operation. Operational Art balances risk and opportunity necessary to seize retain and exploit the initiative and achieve decisive result". Wallace understood that Iraq would recognize the importance of the gap and defend accordingly. However, a daring push through that gap helped the coalition force to retain initiative and advance towards Baghdad. Wallace can be credited for taking that risk, a display of operational art.

The culminating point in the military is the point at which a military force is no longer able to perform its operation. On the offensive, the culminating point marks the time when the attacking force can no longer continue its advance, due to opposing force, supply problem and need for rest etc, The coalition force displayed sound operational art by launching /conducting a balanced yet daring dash for Baghdad. The Coalition force did not confront a situation, where they had to be forced to undertake an operational pause. However, the Coalition force was lucky that on 25 March 2003, 'A mother of all sandstorm' has compelled to suspend all kinds of major operation for 72 hours. By utilizing this period, the coalition avoided to be culminated before achieving the operational objective.

Operational Art serves as a bridge between strategy and tactics where tactical actions are synchronised to achieve strategic goal. In the case of OIF, the major operation seems to achieve their operational objective within a reasonable time frame. But the operational commander failed to achieve the strategic goal- that is, “a Saddam free peaceful Iraq.” The reasons might have been either the theatre/senior commander failed to comprehend the enormity of the tasks or willingly did not pursue enough to achieve the strategic goal. As Michael Gordon and Bernard Trainor said, “Franks appointed a tiny cell of planners working on ways to get humanitarian assistance to the Iraqis. But he seemed content to leave the lion’s share of the Phase IV planning to others in the government”.¹¹ Operational commander can be discredited for his failure to display an acceptable level of operational art.

Tommy Franks is no Schwarzkopf. Since the context of two Gulf wars were different, it is very difficult to make a comparison between these two in handling the affairs of the war.¹² In addition, Frank had to deal with one of the most difficult defence ministers of all time, Mr Ramsfield. His decision of cancelling 1 Cavalry Division’s deployment to Iraq had a serious impact on the US intended end state. However, Franks was also criticized for failing to stand up to Ramsfield for his decision of reducing required manpower for phase IV.

The commanders displayed satisfactory level of operational art in identifying operational CG and attacking it perfectly. They were also successful in maintaining simultaneity and depth. V Corps, 1 MEF and 173 Special Forces developed multiple threats simultaneously and clouded the thinking process/ judgment of Iraqi forces. The operation of V Corps and 1 MEF was synchronized perfectly. The commanders showed prudence and listened to the outcome of their WGs. It was found that V Corps and 1 MEF reached the outskirts of Baghdad almost in the same time which raised a concern for synchronisation. It was adjusted later appropriately, and V Corps was declared as the ME and time phase line of the operation was adjusted so that there is no incoherence.

The commanders displayed of possessing good and quality operational vision. The Iraqi’s thought that the land operation will be preceded by air campaign much like 1991 allowing them to have some time to prepare for defence. By discarding Air Campaign, the coalition gained the initiative and off balance the Iraqi’s. The coalition avoided the urban areas and dashed for the capital; it had achieved the military objective within 21 days supplemented the fact that combat operation went very well. The commanders were also flexible and quickly adjusted their plan when the coalition got a catastrophic success and reached Baghdad in 20 days against a projected 116 days in different WGs.

While achieving catastrophic success, the coalition forces did not get itself off balance due to logistics issues. A distribution-based logistics (DBL) system was followed. A dash to Baghdad from Kuwait entails an approximately 350 miles advance through desert under a very trying condition. The teeth did never fall out of the reach of tails. The operational commander had kept a very good oversight on the issue of logistics. OIF was built up more quickly than Operation Desert Storm. It took only 3 months to complete the

preparation.¹³ However, it is also true that the short duration of the major combat operations phases precluded the scope of stress test of logistics except maintaining a secured Line of Communication. The most serious logistic risk that the coalition force took was to conduct the OIF with reduced manpower, which had a catastrophic effect for phase IV. From the logistical point of view, while the commanders' acceptance of reduced manpower paid a positive dividend during major combat operation phase, it seriously handicaps the conduct of phase IV of the same campaign. However, that is out of the purview of the paper.

Conclusion

Lastly, the operational art encompasses the ability of the commanders to see the end at the beginning; thereafter plan, sequence and resource the major operations accordingly. Franks, McKiernan and other senior commanders of OIF to much count comprehended the enormity of task and did it with success. The exit plan seemed not carefully crafted and resourced. However, the major combat operation went very well. The senior military leadership deserved credit for that. However, the lack of fighting from the Iraqi side has slightly undermined the operational art of coalition forces.

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Brief Biography



Colonel Md Mafizul Islam Rashed, afwc, psc was commissioned in the Corp of Infantry on 13 December 1996. He served in three infantry units and commanded an Infantry Battalion. Besides, he was a Colonel Staff of an infantry division, Brigade Major of an infantry brigade and a Deputy Assistant Military Secretary in Army Headquarters. He is an accomplished Directing Staff at School of Infantry and Tactics and Defence Services Command and Staff College (DSCSC). He completed two tenures under UN umbrella; as a contingent member in United Nations Operation in D R Congo (MONUSCO) and as a Military Observer in Darfur, Sudan (UNAMID). He is a graduate of Defence Services Command and Staff College, Mirpur and obtained his Master of Defence Studies from National University, Bangladesh. He is also a graduate of Armed Forces War Course from National Defence College and currently pursuing Master of Philosophy in Security and Development under Bangladesh University of Professionals. He is now working as a Senior Instructor at DSCSC, Mirpur, Dhaka.

REQUIREMENT OF LOMAD AND HIMAD MISSILE FOR BANGLADESH ARMY: SUITABLE OPTIONS FOR INDUCTION

Lieutenant Colonel Tanveer Ahmed, psc, G+

Abstract

Modern battlefield is initiated with the air battle which is characterized by its dynamism and catastrophic destruction capability. Modern air delivered weapons and the contemporary technologically advanced military forces have created a new environment of war both at tactical and operational levels. The future battlefield may be unlike anything that world has been experienced previously. Bangladesh is a small country with less geographic depth. Sophisticated munitions can be launched on our key installations from within neighbouring territories with almost no warning. This reality makes the job of the air defenders more challenging and difficult. Hence Bangladesh Army is changing its approach towards the operational aspect and fighting capability rapidly. Over the last few years, the Army has focused on its resources and procedural aspect of fighting wars. Present days of Air Defence battle has changed drastically. Modern technology enables the Fighter Aircrafts to carry missile with stand-off capability. At the same time modern countries are equipped with long range surface to surface missile, which pose substantial threat to our National assets, Operational Critical Assets and Time Critical Assets. Air Defence resources having point defence weapons are not full capable against stand-off missiles and Long-Range Surface to Surface missiles. Thus, Air Defence of Bangladesh Army merits longer range missiles to destroy the threat before it can get closer to the target. But present Air Defence assets are not enough to defend all Key Point Installations effectively. Moreover, field formations demand substantial amount of Air Defence supports. So, a longer-range Air Defence weapon can provide economy of effort as well as fill up the vacuum of Air Defence umbrella. Therefore, time has come to think on the feasibility of Low to Medium Altitude Air Defence (LOMAD) and High to Medium Altitude Air Defence (HIMAD) systems. Thus, the author has taken an endeavour to analyse the issue and suggest feasible options for Bangladesh Army.

Introduction

ICARUS¹ died, but he implanted the dream of flying in the heart of mankind. Since then, mankind made several attempts to fly. Because sky was the limit of men's dream. We all know that the Wright Brothers turned that dream into a reality. That was the starting of new era. An era of transportation, communication and portal of new inventions and technology. Soon that beautiful dream turned into a nightmare. When airspace became another dimension of threat in the context of warfare. The day men established their domination over sky, the same day warlords started to change the course of warfare. Then the necessity was felt to counter such aerial threats. And the very division of Ground Based Air Defence (GBAD) came up as the newer branch of military outfit.

Modern battlefield is initiated with the air battle which is characterized by its dynamism and catastrophic destruction capability. At both the tactical and operational levels, modern air-delivered weaponry and technologically advanced armed forces have produced a new atmosphere of battle. The future battlefield may be unlike anything that world has been experienced previously. Developments in military technology have exponentially raised the accuracy, lethality and range of the air delivered weapon systems. At the initial stage of any war, the attacker would resort to massive air raids to paralyze the defender. Therefore, defending the skies against various air threats requires a joint force response. And it is also imperative to have advanced aerial defense systems which provide responses to a range of aerial threats from rocket and mortar fire, ballistic missiles, to explosives carrying Unmanned Combat Aerial Vehicle (UCAV), Unmanned Aerial Vehicle (UAV)s or aircrafts.

Bangladesh (BD) is a small country with less geographic depth. Sophisticated munitions can be launched on our key installations from within neighbouring territories with almost no warning. This reality makes the job of the air defenders more challenging and difficult. Hence Bangladesh Army (BA) is changing its approach towards the operational aspect and fighting capability rapidly. Over the last few years, the Army has focused on its resources and procedural aspect of fighting wars. We are working hard to make the Army as a future role model for the BD Armed forces. Therefore, vision has been changed from the old conventional way of battle. By purchasing equipment and de-prioritizing non-essential capabilities and missions, the process has started to accomplish these critical tasks.

Present days of Air Defence (AD) battle has changed drastically. Modern technology enables the Fighter (F) Aircrafts to carry missile with stand-off capability. At the same time modern countries are equipped with long range surface to surface missile, which pose substantial threat to our National assets, Operational Critical Assets (OCAs) and Time Critical Assets (TCAs). AD resources having point defence weapon like 37 millimeter (mm) AD Gun, 57 mm AD Gun and Very Short-Range AD (VSHORAD) Surface to Air Missiles (SAM) and even FM-90 SHORAD Missiles are not full capable against stand-off missiles and Long-Range Surface to Surface missiles. Thus, AD of Bangladesh Army merits longer range missiles to destroy the threat before it can get closer to the target. Moreover, field formations demand substantial amount of AD supports. So, a longer-range AD weapon can provide economy of effort as well as fill up the vacuum of AD umbrella. Therefore, time has come to think on the feasibility of Low to Medium Altitude AD (LOMAD) and High to Medium Altitude AD (HIMAD) systems. Thus, this author has taken an endeavour to analyse the issue and suggest feasible options for BA.

Aim

The aim of this paper is to analyse the requirement of LOMAD and HIMAD missiles and suggest feasible options for BA.

Rudimentary of AD Operations

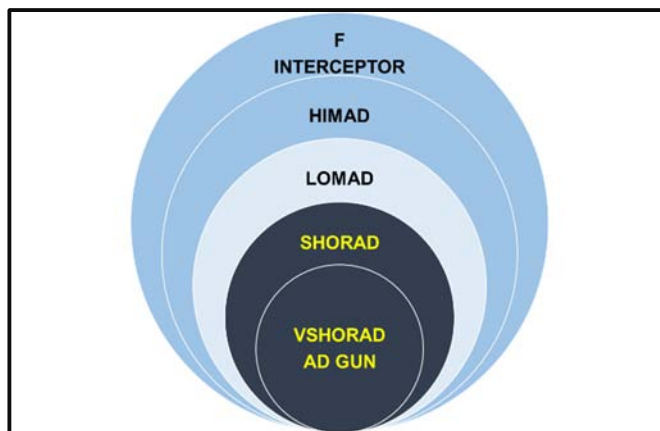
AD Doctrine

The accepted concept of AD as per National Air Defence Doctrine (NADD) is to destroy the enemy as far away from the defended area/installation as is operationally feasible. This concept also envisages the capability of increasing resistance against the enemy as he approaches his objective by employing an ever-increasing number of weapons. So, the doctrine prescribes a weapon system with longer range for effective AD.

Concept of AD Planning

BD will employ layered air defence (LAD) with appropriate weapons for the effective AD of the country. The weapons to be employed from the inner to outer layers are AD guns, VSHORAD, SHORAD, LOMAD, HIMAD and Fighter Interceptor. The theme of such employment strategy is to create maximum resistance to the hostile aircrafts as it closes in to the target. Our available assets should be deployed in such a way as to make the job of attacker as difficult as possible. An effective surveillance system comprises of both ground based (static/mobile) and airborne sensors are prerequisite for any strategy that we shall plan. Fighter aircraft and GBAD (LOMAD and HIMAD) could cover all possible threat axis. In addition, a series of point defence weapons (GBAD weapons) comprise of (SHORAD, VSHORAD and AD Arty) surrounding important targets will be employed. However, SAM and AD Arty will be tasked to engage in case fighter interceptors fail to intercept the raiders.²

Figure-1: Weapon System as per LAD

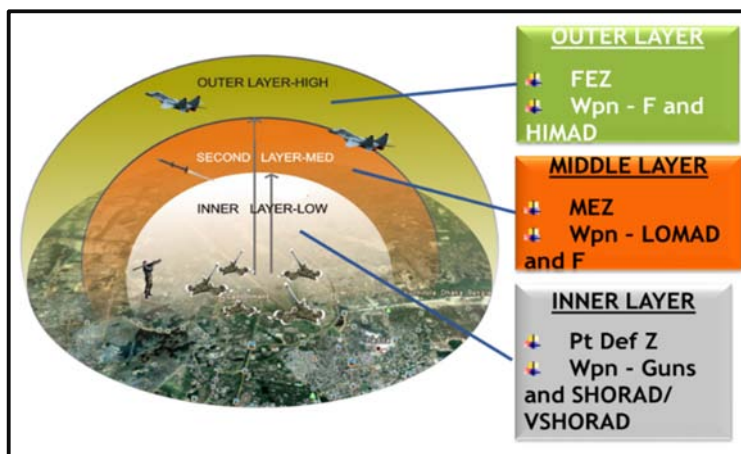


Source: Author's self-construct

The concept of area defence and point defence are explained below:

- a. **Area Defence:** The Area Defence weapons are designed to defend a wide geographical area with defined threat boundaries by appropriate area weapons with sufficient range to reach out and disrupt enemy air attack. BAF will ensure Area Defence by fighter aircraft, HIMAD and LOMAD to defend the KPIs/VAs/VPs. However, there is an ambiguity on this issue, which will be discussed later.
- b. **Point Defence:** Point Defence weapons will be employed to defend a limited and specific geographical areas or vital installations. Point Defence weapons will be employed individually by three services deploying SHORAD weapon system. Individual services will employ the SHORAD weapons to protect their own bases. Bangladesh Army in addition to her own VPs will take care of all national KPIs. Missile Engagement Zone (MEZ)/Gun Defended Area (GDA) will be formed in the inner most layer according to the LAD concept by deploying AD guns and SHORAD system. In the outer layer, LOMAD will be deployed.

Figure-2: Concept of LAD



Source: Author's self-construct

Understanding on Lomad-Himad System

This paper is dealing mostly on analysis of requirement of longer-range missiles in BA. Various countries differ in nomenclature, range and altitude classifications of the missile systems. Significant nomenclatures are used worldwide as per United States of America (USA) and United Kingdom (UK) doctrine. Those are discussed below:³

- a. **USA Doctrine:** The doctrine names the longer-range AD systems as LOMAD and HIMAD.
 - (1) **LOMAD:** It implies Low to Medium Altitude AD.
 - (2) **HIMAD:** It implies High to Medium Altitude AD.

(3) General purpose of LOMAD and HIMAD system is to guard strategic assets but in higher range and with independent Control & Reporting (C&R) system.

b. **UK Doctrine:** The doctrine names the longer-range AD systems as MSAM and LRSAM.

(1) **MSAM:** It implies Medium Range Surface to Air Missile.

(2) **LRSAM:** It implies Long Range Surface to Air Missile.

In BD, for classification of missiles the terms LOMAD and HIMAD are used. But, universally, the terms LRSAM/MSAM are more recognized. Worldwide, weapon manufacturing companies classify various systems as MSAM/LRSAM. So, in this paper the terms LOMAD/MSAM will refer to medium range SAMs and HIMAD/LRSAM will refer to long range SAMs. Range classifications will be discussed in the next segment of the paper.

General Features of Medium and Long range Missile System

General features and system components of medium range and long-range SAMs will be discussed below:⁴

a. **LOMAD/MSAM:**

(1) A medium-range SAM system typically consists one command and control system, one tracking radar, missiles, and mobile launcher systems. The mobile launcher transports, positions, and launches canisterized missiles. It has the ability to fire missiles in either single or multiple firing modes.

(2) An advanced active radar radio frequency (RF) seeker, advanced phased array radar or electronically scanned array radar, and a bidirectional data link are all standard features on this missile. In all weather circumstances, the RF seeker, which is placed in the front section of the missile, is utilized to detect moving targets. The radar system gives a high-resolution image of the air situation, while the bidirectional data link is employed to send midcourse guidance and target data to the missile. Modern systems, on the other hand, include guidance subsystems for IFF, electronic counter-countermeasure (ECCM), and track-via-missile (TVM).

(3) The missile's explosive warhead, which includes a self-destruct fuse, has a high likelihood of hitting enemy targets while causing minimum collateral damage. At ranges of 25-70 kilometers (km) or more, the weapon can engage numerous targets at the same time.

b. HIMAD/LRSAM:

- (1) A multifunction radar, autonomous detection and targeting systems, anti-aircraft missile systems, launchers, and a command and control centre are all part of a long-range SAM system. It can fire a variety of missiles to construct a layered defense.
- (2) Within a range of 300 km and above, the system may engage all sorts of aerial targets, including aircraft, unmanned aerial vehicles (UAVs), ballistic and cruise missiles (CM), at altitudes of up to 30 km and above. The system may engage numerous targets at once, on average more than 40.
- (3) The majority of the command and control system relies on a mobile command post truck. It coordinates other batteries, controls and monitors long-range surveillance radar, tracks airborne threats, prioritizes threats, and controls and monitors long-range surveillance radar. The system can also exchange information with other defense systems.

Range and Altitude Classification

Various country maintains different range and altitude classifications for their missile systems. Few are discussed below:⁵

a. UK Doctrine:

- (1) Long-Range SAM - > 50 nautical mile (nm)=92.6 km.
- (2) Medium-Range SAM - 10 to 50 nm=18.52 km-92.6 km.
- (3) Short-Range SAM - < 10 nm.=18.52 km.
- (4) Very Short-Range SAM/guns - < 3.0 nm=5.5 km.

b. INDIA (IN) Doctrine:

- (1) HIMAD- Above 50 km.
- (2) LOMAD- 25-50- km.
- (3) SHORAD- 5-25 km.
- (4) Close-in Weapon System (CIWS)- 5 km.

c. PAKISTAN (PK) Doctrine:

- (1) HIMAD-Above 50 km.
- (2) LOMAD- 15-50 km.
- (3) Extended SHORAD (ESHORAD)- 10-15 km.
- (4) SHORAD-10 km.

d. **Bangladesh Perspective:**

- (1) HIMAD-30 km and above.
- (2) LOMAD- 20 km-30 km.
- (3) SHORAD- 10 km-20 km.
- (4) MANPAD/VSHORAD-6 km-10 km.
- (5) AAA/AD Gun-up to 6 km.

Table-1: Range Classification of Various Doctrine

WPN SYS	UK	IN	PAK	BD
HIMAD/LRSAM	>50NM= 92.6KM	>50 KM	>50 KM	>30 KM
LOMAD/MSAM	10 TO 50 NM=18.52- 92.6KM	25-50 KM	15-50 KM	20-30 KM
ESHORAD	—	—	10-15 KM	—
SHORAD	<10NM=18.52 KM	5-25 KM	10 KM	10-20 KM
CIWS	—	5 KM	—	—
MANPAD/ VSHORAD	<3NM=5.5KM	—	—	6-10 KM
AAA/ AD GUN	—	—	—	< 6 KM

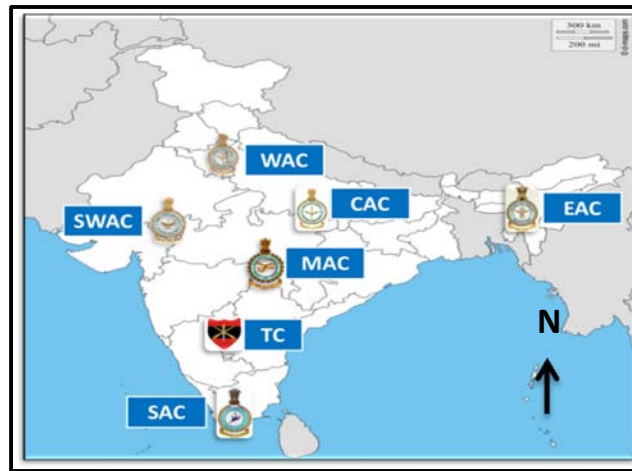
Source: Author's self-construct

Development in Neighbouring Countries

IN Air and Missile Power

The Indian Air Force (IAF) is the fourth largest Air Force in the world. IAF has recently transformed into a competent force with a fleet of reasonably modern aircrafts combining technology from both Eastern and Western sources. Eastern Air Command (EAC) is significant than that of other commands.

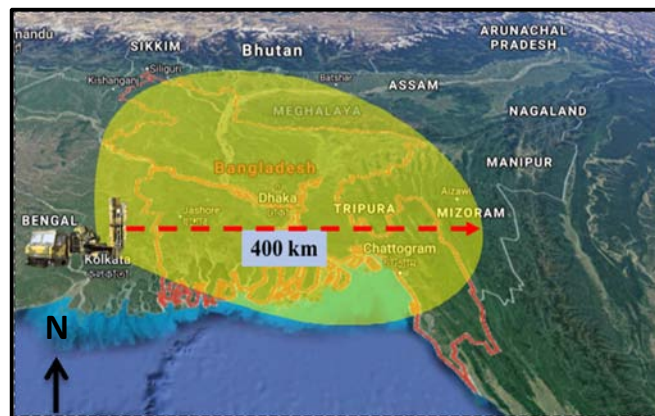
Figure-3: Air Comd of IAF



Source: Internet

- a. IN has signed a \$5.43 billion deal with Russia to procure 5x S-400 TRIUMF Advance AD Missile System with the range of 400 km. A battery of S-400 system can deny entire airspace of BD.

Figure-4: Range Coverage of S 400 TRIUMF



Source: Internet

- b. IN is expected to finalize a \$3 billion contract with General Atomics, a US corporation, to purchase 30 armed drones soon. In addition, assuming the contract goes through, the army, navy, and air force will each receive ten combat drones. Reconnaissance for intelligence gathering, observation, and combat missions behind enemy lines would be the primary goals of these UAVs.⁶

MN Air and Missile Power

The MN Air Force (MAF) operates from six main and forward operation bases close to BD border. MAF possesses good number of combat aircrafts.

- a. The location and MOB & FOBs of MAF implies that MN can pose considerable amount of threat on the VAs/VPs of SE part of the country.

Figure-5: MOB & FOB of MN



Source: Internet

- c. MN has varied range of SSM like SCUD-C, SCUD-D and SCUD-E capable of reaching target up to 700 km (HWASONG 6, SY-400).

Figure-6: Hwasong 6



Source: Internet

Figure-7: SY 400 SRBM



Source: Internet

- d. MAF may exploit sea route to conduct Offensive Counter Air Operation (OCAO). MAF would assist their navy to impose sea blockade and try to achieve favourable air situation.⁷

Measures to Achieve Preparedness

To keep pace with the recent development and inclusion in the inventory of our neighbouring countries, our AD preparedness should fulfil the following requirements:

- a. BD Army must have required longer range weapon system to keep pace with growing air and missile power of neighbouring states.
- b. To compensate the short reaction time due to the less geographical depth, all AD elements should have coordinated response against air threat through effective Control and Reporting (C&R) arrangement.
- c. Field formations must have adequate AD system with compatible mobility comprising both active and passive AD measures.⁸

Requirement of LOMAD-HIMAD Missiles in BA

Necessity

Elaborate discussion on the threat perception and capability of our adversaries suggests that we need missiles with longer range to defend our assets as well as to engage the threats as far away from the targets as possible. Few significant aspects are discussed below:

- a. **Integral Capability of the Service:** As per the range classification that already mentioned, the LOMAD limit is only 30 km. Only BAF can procure and possess missiles beyond 30 km in the context of controlling possible fratricide. But in the period of crisis services should have self-dependency to accomplish the assigned mission. The extremely limited geographical depth of BD will allow very short and insufficient reaction time for AD system with limited capacity. Therefore, services should must possess sufficient integral ability to defend against air threat from adversary without depending on others.
- b. **Requirement of Area AD Weapon:** In the AD concept of planning it is mentioned that Bangladesh Army is to provide point defence by GBAD to selected VAs/VPs of national importance and to its field formations against hostile air attack. It would limit and confine BD Army's AD capability to ensure force protection. Wartime logistic installation of Bangladesh Army generally spread over vast area. Division Administrative Area (DAA) is generally dispersed covering 10x10 km area. Forward Logistic Base (FLB) may be arrayed over 20x20 km area. So, Bangladesh Army needs Area AD weapon. However, the range and type of AD weapons need further study.

c. **Economy of Effort:** A few KPIs like RUPPUR Nuclear Power Plant (RNPP), Bangabandhu Bridge (BB), Padma Multipurpose Bridge (PMB) merit critical area AD. Both area and point AD weapon are essential for critical area AD. Bangladesh Army is assigned to protect cluster of VAs/VPs in DHAKA, CHATTOGRAM and KHULNA area. Some of the VAs and VPs located in close proximity may be termed as adjacent VAs/VPs. Area AD weapons will be more effective to protect adjacent VAs/VPs. That will also ensure economy of effort.

d. **Cost Effective:** Procurement of area AD weapons for Bangladesh Army will minimize the cost and number of units required. It will also facilitate integration and interoperability. Even if we consider the system wise costing as well as the flexibility, then employment of MSAM or similar system is more logical.

e. **Force Protection:** It is assumed that BAF aircrafts may face difficulty of engaging the targets near bordering areas due to very less reaction time. In such cases the layered AD concept may not be effectively employed. If LOMAD/HIMAD engages en ac close to border then FEZ would fall behind MEZ which would create additional difficulties.

f. **Achieve Anti Access Area Denial (A2AD) Capability:** We have already analyzed the air and missile powers of IN and MN. IN is in the process of adding S-400 system in their inventory. A battery of S-400 can cover entire airspace of BD. The possession of armed drones of IN can inflict significant threat in our territory. In case of MN, with the available SSMs, they can launch surprise offensive to neutralize BAF in SE part of the country and beyond. Thus, they can achieve control over BD airspace. Furthermore, MN has got proven UCAV capability and experience. Due to shallow strategic depth, Bangladesh Army will have to fight war from International Boundary (IB) without conceding any land. On the contrary, potential adversaries of BD are equipped with stand-off and Beyond Visual Range (BVR) munitions, Tactical SSMs, CM and combat UAVs. These will enable them to deliver payloads without even crossing IB. Hence, it will be impossible to counter the enemy munitions by short range AD weapons.⁹

g. **Effective AD Doctrine:** We have reoriented our AD doctrinal approach and transformed it from 'Doctrine of Deterrence' to 'Doctrine of Attrition'. But deterrence and attrition are somehow closely related. To deter, one must have the capability to defeat. It takes greater accuracy and higher kill probability to cause a substantial amount of attrition to the adversaries. With present AD system with highest range of 12 km, Bangladesh Army is far behind to attain the effectiveness of AD doctrine. Thus, suitable longer range missile system is the need of time.¹⁰

Suitable LOMAD/HIMAD Systems for Bangladesh Army

The suitable LOMAD/HIMAD systems for Bangladesh Army are shown in the table below:

Table-2: LOMAD/HIMAD systems for Bangladesh Army

System	Origin	Range	Altitude	Radar	Target	Guidance	Mobility	Probability	Operating Country
Hisher-O	Turkey	25 km	15 km	Phased Array	6	Mid-course & Terminal	Wheeled	Not known	1
IRIS-T SLM	Germany	40 km	20 km	Active	24	IIR	Wheeled	Not known	11
Buk-M2 E	Russia	45 km	25 km	TAR	6	Semi Active	Wheeled	CM-70%	16
SAMP/T Aster	Italy	30 km	13 km	Phased Array	Not known	Internal	Wheeled	Not known	5
LY-80	China	40 km	15 km	Active	8	Inertial	Wheeled	85%	5
Buk-MB 2K	Belarus	70 km	25 km	Phased Array	6	Semi Active	Wheeled	90%	1
MIM 104 Patriot	US	70 km	24 km	Phased Array	5	Not known	Wheeled	87.5%	16
S-400	Russia	400 km	30 km	Panoramic	36	Semi Active	Wheeled	Not known	3

Source: Author's self-construct

Figures of LOMAD/HIMAD Systems for Bangladesh Army

Figure-10: Hisher-O



Source: Internet¹¹

Figure-11: IRIS-T SLM



Source: Internet¹²

Figure-12: Buk-M2 E



Source: Internet¹³

Figure-13: SAMP/T Aster



Source: Internet¹⁴

Figure-14: LY-80



Source: Internet¹⁵

Figure-15: BUK-MB 2K



Source: Internet¹⁶

Figure-16: MIM 104 Patriot



Source: Internet

Figure-17: S-400



Source: Internet

The Missile Technology Control Regime (MTCR) Embargo

The last two examples Patriot and S-400 systems are the classic examples of LOMAD and HIMAD system respectively. The system requirement is very high of such weapon systems. Of course, these systems are of high range of prices. Even if BD can effort procurement of these are more complicated. Moreover, The MTCR aims to reduce the danger of weapons of mass destruction (WMD) proliferation by regulating exports of items and technologies that potentially contribute to delivery systems (other than manned aircraft) for such weapons. The MTCR focuses on rockets and unmanned aerial vehicles capable of carrying a payload of at least 500 kg (1,100 lb) to a range of at least 300 km (190 miles), as well as the equipment, software, and technology required for such systems. Therefore, MTCR might not permit BD for procuring such system. However, we should follow the trails of such system and their users especially on our adversaries.

Conclusion

AD in the face of greater reliance on air delivered destructive means by the enemy has assumed a greater dimension in the commanders' protection calculus. In case of any hostility there is a huge air threat on BD. Presently, neither BAF nor the Army ADA is adequately organized and equipped to provide adequate AD due to resource constraint and lack of coordination.¹⁹

The maximum limit of range in Bangladesh Army ADA is 12 km with SHORAD system. Considering the threat capability of our adversaries Bangladesh Army will not be able to create credible deterrence for them. Let alone defeating the enemy, the listed KPI ratio is far high in regard to the existing effective FU of our ADA. Field formations will highly be devoid of AD protection. Many Critical National Assets will fall under gaps with existing AD assets. Therefore, Bangladesh Army ADA must possess the LRSAM/MSAM.

In the joint services responsibility, it is of utmost importance for the respective services to conceive the overall design of AD battle from a single perspective, set out priorities, economize efforts, understand each other's limitations, compliment and capitalize each other's strengths or capabilities with a view to achieving the desired goal. However, individual services must be capable of completing assigned task independently. Therefore, the AD employment strategy of BD Army must include GBAD system with appropriate weapon system irrespective of Range classification. Moreover, the range classification as well as nomenclature or terminologies should be reviewed for better option of procurement to be at par with world market.²⁰

The total AD requirement of the country is huge, that cannot be fulfilled within a short period of time due to financial constraints. However, a dedicated and well thought out plan may be formulated that can be achieved within a fixed time frame and in stages. Considering the importance of AD and in view of the threat to national security, an early start in this regard will certainly pay in the long run. Our national security is a decisive consideration for our national development. However, we are a developing country, with a limited budget and the nation has other priorities as well. It is however appreciated that, our military and political leaders have given due consideration to this neglected sector of national defence and are making positive effort in improving the overall AD system of BD.

Recommendations

Following are the recommendations to obtain the desired LOMAD/HIMAD Missile for BA:-

- a. GBAD system of Bangladesh Army should be reinforced with high kill probability weapon system like medium and long-range missiles with Anti-missile, C-RAM capability.
- b. Integral AD system for Bangladesh Army with standalone capability for Critical Assets and Field Formations to be planned.
- c. Considering the affordability and economic strength of the country as well as MTCR embargo, immediate focus to be placed on procurement of MSAM.
- d. The range and altitude classification needs review. The range of LOMAD may be increased upto 50 km.
- e. Use of terms LOMAD/HIMAD might be reviewed considering the world market as the terms MSAM/LRSAM are more universally recognized.

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Brief Biography



Lieutenant Colonel Tanveer Ahmed, psc, G+, Artillery was born on 05 June 1983 at Chattogram. He passed both Secondary School Certificate and Higher Secondary Certificate Examinations from Faujderhat Cadet College. He was commissioned from Bangladesh Military Academy (BMA) with 50 BMA Long Course in the Corps of Artillery on 28 June 2004. His unit service started at Jamuna Multipurpose Bridge (JMB) Cantonment (now Bangabandhu Cantonment) in 36 Air Defence Regiment. He held all the regimental appointments under different capacity. Apart from regimental appointments, he has served as Group Testing Officer (GTO) in Inter Services Selection Board (ISSB), Brigade Major of 6 Independent Air Defence Artillery Brigade. He is a graduate from both Defence Services Command and Staff College, Mirpur and Artillery Centre and School, Halishahar. He also attained his Master of Science in Military Studies and Master of Science in Military Science and Applied Gunnery (MSAG) under Bangladesh University of Professionals (BUP). He has successfully graduated from Defence Services Command and Staff College, 2021-2022. He has participated in United Nations Peacekeeping Mission in Liberia as BANBAT contingent member and United Nations Multidimensional Integrated Stabilization Mission in Central African Republic as Military Observer. Presently, he is commanding 43 Short Range Air Defence Missile Regiment Artillery.

THE VULNERABILITY OF TODAY'S CYBERSPACE: AN EVALUATION ON CYBERSECURITY PREPAREDNESS AND STRATEGY OPTIONS FOR BANGLADESH

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Abstract

The digital society of Bangladesh heavily depends on cyberspace. Given the rapid advancement of technology and economic development of Bangladesh, this dependence will continue to grow in the future. In contrast, cybercriminals equipped with more sophisticated tools/techniques are perpetrating cybercrime every day and incurring huge costs to individuals, organizations, and the nation. Moreover, the inadequacy of effective international and domestic laws and the involvement of non-state actors have made attribution a big challenge. This ambiguity eventually opens more windows of opportunity for cybercriminals. Thus, the malicious activity of cybercriminals is a major concern for digitalized Bangladesh today. This ever-changing paradigm may upset the convenience of digital Bangladesh and make personal information more vulnerable. However, there are some notable progress in establishing cyber norms and multilateral cooperation to confront cybercriminals at the international level. The Bangladesh government has also taken various measures to fight against this invisible enemy. However, Bangladesh is far from achieving a dynamic level of cybersecurity preparedness as assessed by the Global Cyber Security Capacity Centre (GCSCC) evaluation team in 2018. This article elaborates on the challenges of fighting cybercrimes and the current cybersecurity capacity of Bangladesh. It also argues that a concept of cyber-deterrence may be incorporated in the National Cybersecurity Strategy (NCS) of Bangladesh through a combination of offensive and defensive cybersecurity measures to effectively fight against state sponsored cyber-attack or cyber-criminal activities. Bangladesh must conduct a cost-benefit analysis before choosing a strategy to fight against cybercrime in the future.

Introduction

The internet is a global network that is cheap, ubiquitous, accessible, and permeates all state borders without restrictions.¹ Moreover, an attack in cyberspace can move at the speed of light, unrestricted by geography and political boundaries.² Thus, more connectivity through the internet creates more vulnerability in the cyber domain. In this regard, Bangladesh has seen a quantum leap in the number of mobile phone and internet users in recent years. The total number of mobile phone and internet subscribers has reached 176.41 million and 120.95 million respectively at the end of June 2021 in Bangladesh.³ Moreover, Bangladesh has seen over Tk 30,000 crore business through e-commerce platforms during the pandemic and more than 2,000 e-commerce business shops nationwide, making them vulnerable to cybercriminals.⁴ This pervasive use of the cyber domain has created more opportunities for cybercriminals, keeping our cyberspace at constant risk. Moreover, cybercrimes incur a considerable cost and are easy to carry

out with relative impunity due to attribution difficulty. However, there is some notable progress in establishing cyber norms and multilateral cooperation to confront cybercriminals at the international level. The Bangladesh government has also taken various measures to fight against this invisible enemy. However, Bangladesh is far from achieving a dynamic level of cybersecurity preparedness as assessed by the Global Cyber Security Capacity Centre (GCSCC) evaluation team in 2018. According to the GCSCC evaluation report, Bangladesh is still in the nascent stage in all dimensions of cybersecurity capacity.⁵

Bangladesh prioritizes legal, technical, and procedural measures and organizational structures in her existing National Cybersecurity Strategy. However, based on the predicted future of cyberspace, Bangladesh may consider the 'status quo' scenario and devise its strategy accordingly. In this regard, Bangladesh may develop a cyber-deterrence strategy based on a robust cyber defense system and limited offensive capability for retaliation. This article elaborates on the challenges of fighting cybercrimes and the current cybersecurity capacity of Bangladesh. It also argues that a concept of cyber-deterrence may be incorporated in the National Cybersecurity Strategy (NCS) of Bangladesh through a combination of offensive and defensive cybersecurity measures to effectively fight against state-sponsored cyber-attack or cyber-criminal activities. Before delving into the details of cybersecurity, the following paragraphs define relevant terms.

Cybercrime, Cyber-Attack, and Cyber-Warfare

It is hard to distinguish between activities on a broad spectrum of cyber conflict ranging from vandalism and politically motivated hacktivism to commercial, industrial, and state-sponsored cyber espionage and physical sabotage.⁶ Thus, it is imperative to understand the relevant terms in this regard.

- a. **Cybercrime:** According to P. W. Singer, a political science professor and specialist on 21st-century warfare, cybercrime is the use of digital tools by criminals to steal or otherwise carry out illegal activities.⁷
- b. **Cyber-Attack:** According to the National Research Council of the US, a cyber-attack is defined as deliberate actions to alter, disrupt, deceive, degrade, or destroy computer systems or networks or the information and/or programs resident in or transiting these systems or networks.⁸ A cyberattack may be carried out either by a cybercriminal against an individual with an intent to gain material benefits or a nation-state against its enemy to cause tangible or intangible damage. Cyberattacks in Estonia, Georgia, and Ukraine prove that these combined with physical attacks can paralyze or cause panic large segments of the society, hamper its ability to deploy conventional military forces, and otherwise limit the freedom of action of its national leadership.⁹
- c. **Cyber-Warfare:** The term 'cyber warfare' describes a cyberattack that causes physical damage to people and objects in the real world.¹⁰ For example, cyber-attacks on air and ground traffic control systems, shutting down electric power grids,

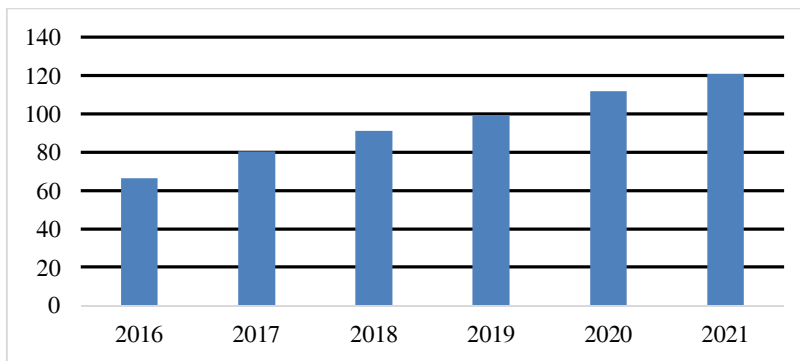
destroying dams, and causing massive flooding that could lead to death and destruction may be termed as an act of war.¹¹

Difficulties of Fighting Cybercrime

These are briefly discussed below:

a. **Pervasive Connectivity:** Today, the internet is used for personal and corporate communication, healthcare data, energy systems, and commerce, making its use ubiquitous. Moreover, the complex and interdependent global economy relies heavily on internet infrastructure.¹² Besides, cloud computing and mobile devices create a large attack surface for potential cybercriminals. Bangladesh has seen a steady growth of internet subscribers in recent years as depicted in the graph below.

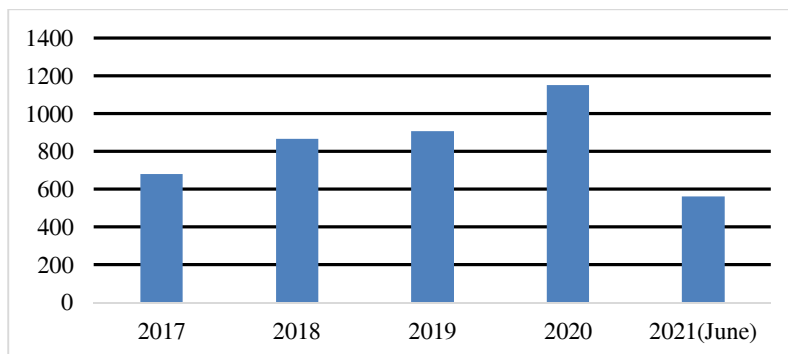
Graph 1: Internet subscribers (Millions) in Bangladesh¹³



Source: Author's self-construct

In turn, these vulnerabilities of cyberspace create opportunities for cybercriminals to carry out malicious activities. The increasing trend of cyber incidents in Bangladesh conforms to the above deduction as depicted in the graph below:-

Graph 2: Number of Cyber incidents in Bangladesh¹⁴



Source: Author's self-construct

b. **Cost:** According to the Bangladesh Institute of Bank Management (BIBM), approximately Tk 1,793 crore was invested in the banking IT sector in 2016.¹⁵ Similarly, other internet-based businesses and services invest in cybersecurity. Additional cost makes it difficult for IT-based business enterprises to remain competitive in the market. As such, many enterprises reduce investment in cybersecurity. Besides costs, the availability and sophistication of cybercrime-related technology is another reason to consider cybercrime a severe issue for digital Bangladesh.

c. **Sophistication and Availability of the Technology:** Contemporary cybercrimes are sophisticated, cheaper, more effective, and readily available, placing the data and assets of corporations, governments, and individuals at constant risk.¹⁶ Furthermore, cybercrime may be perpetrated from any part of the world using limited resources. Cybercriminals use Advanced Persistent Threat (APT), sophisticated malware, spear-phishing attack techniques to carry out their malicious activities. With phishing attacks, hackers steal user credentials. For example, in May 2016, the national bank of Bangladesh fell victim to a cyber-attack. The attackers used malware to hack into the bank's SWIFT software to transfer money and hide their tracks, stealing eighty-one million USD.¹⁷ Cybercriminals also improved their ability to specialize in their services and make them available for trade on hacker markets.¹⁸ Additionally, cyber weapons have merged with artificial intelligence making it difficult for the adversary to react.¹⁹ Besides technological sophistication, cybercrime enjoys relative impunity due to the lack of widely accepted international regulations or laws.

d. **Absence of Widely Acceptable International Law:** The absence of a globally accepted law makes cybercrime a complex issue. Thus, it has become very challenging for law enforcement agencies to track and bring cybercriminals into custody. However, in 2004, forty-six signatory states of the Budapest Convention on Cybercrime created a list of defined criminal offenses in cyberspace. These nations agreed to punish criminals using cyberspace for fraud and forgery, child pornography, copyright infringements, and hacking under their domestic laws.²⁰ Bangladesh has not signed the Budapest Convention yet.²¹ The International Telecommunication Union (ITU) and UN General Assembly have also passed several resolutions addressing the criminal misuse of information.²² Besides, different states have already started cooperating on data-sharing procedures through computer emergency response teams and regional organizations.²³ However, all countries are not signatories of these treaties, and conventions of these treaties do not cover all aspects of cybercrime. Moreover, most countries do not have domestic laws aligned with these treaties. Thus, in the absence of a widely accepted international treaty and appropriate domestic laws, cybercriminals continue to take advantage of the situation.

e. **Attribution Problem:** Patriotic hacking is an action that involves citizens or groups within a state joining together to carry out cyberattacks on perceived enemies of that country.²⁴ For example, On 09 September 2017, Myanmar hackers hacked the website of the National Defence College (NDC) of Bangladesh during the Rohingya Crisis.²⁵ It is impossible to determine the identity of all the individuals involved in

this attack. One more problem of attribution is cyber technology itself. Someone in Country X can compromise computers in Country Y to launch attacks on systems in Bangladesh, that might be controlled by computers physically located in Country Z. But to punish a suspected cybercriminal, lawyers may want evidence beyond a reasonable doubt. As such, pundits often argue that attribution of a cyber-attack to a state is a key element in building a functioning legal regime to mitigate these attacks.

The Strategy of the International Community

This is focused in brief below:

- a. **Developing International Cyber Norms:** The development of international cyber norms or shared expectations among states regarding their behavior and responsibility in cyberspace will be a viable cybersecurity strategy at the global level. States' acceptance of a norm can constrain and regulate their behavior in specific situations.²⁶ Nation-states must establish treaties to ensure that no individual, organized criminal, hacktivist or activist, extremist group, or nation-state can operate anonymously or with impunity on the internet and be held accountable for their actions. Nation-states must be held responsible for rooting out, stopping, and bringing to justice any individual, group, or entity committing any illegal act against another over the internet.²⁷ Once the international community has established these norms, it should focus on a broad strategy to tackle cybercrimes.
- b. **Cooperation:** Strategies that promote international cooperation to combat cybercrime are vital for the stabilization and positive development of cyberspace. When augmented with outsourced specialized skills, cybercriminals' capacity can exceed those of almost any state acting alone. Thus, various international and regional organizations must work together to make the strategy of cooperation a success. Having talked about the cooperation with the international community, the following paragraphs discuss the present cybersecurity capability of Bangladesh.

The Present Cybersecurity Capability of Bangladesh

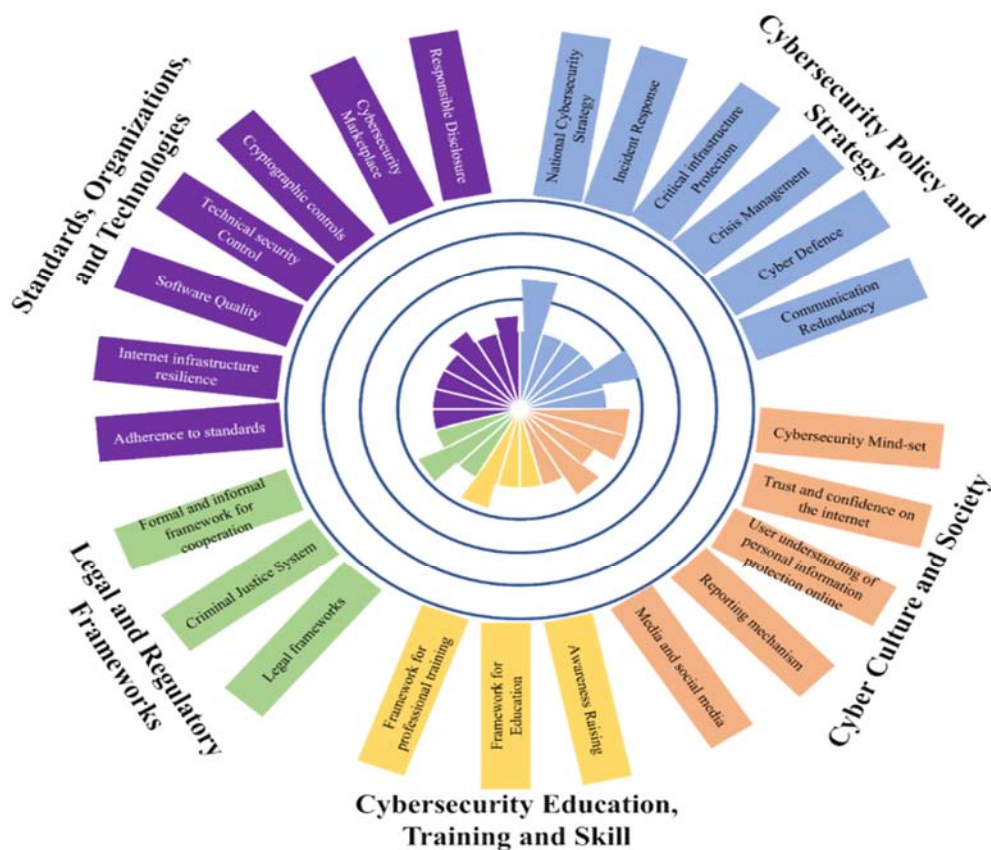
A comprehensive cybersecurity strategy requires a government security policy and a nation-wide strong security awareness or educational program. Bangladesh government has passed various legal acts to contain cybercrime. Bangladesh has passed ICT Acts 2006, 2009, 2013(amendment), and Digital Security Act (DSA) 2018.²⁸ These acts and laws cover a wide range of cyber-related crimes in Bangladesh. However, the overall cybersecurity capacity of Bangladesh is not satisfactory as assessed by the GCSCC. The GCSCC evaluated cybersecurity capacity in Bangladesh at the invitation of the Bangladesh Computer Council (BCC) in 2018.²⁹ The consultations took place using the cybersecurity capacity maturity model, that defines the following five dimensions of cybersecurity capacity:³⁰

- a. Cybersecurity Policy and Strategy.
- b. Cyber Culture and Society.

- c. Cybersecurity Education, Training and Skills.
- d. Legal and Regulatory Frameworks.
- e. Standards, Organizations, and Technologies.

Graph 3 provides an overall representation of the cybersecurity capacity in Bangladesh and illustrates the maturity estimates in each dimension. Each dimension represents one-fifth of the graphic, with the five stages of maturity for each factor extending outwards from the center of the graphic; 'start-up' is closest to the center of the graphic, and 'dynamic' is placed at the perimeter.³¹ The start-up stage implies an ad-hoc approach to capacity, whereas the dynamic stage represents a strategic approach and the ability to adapt dynamically or to change in response to environmental considerations. The following paragraphs highlight a summary of assessment by GCSCC on each dimension of cybersecurity capacity of Bangladesh:-

Graph 3: Overall representation of the cybersecurity capacity in Bangladesh³²



Source: Author's self-construct

a. **Cybersecurity Policy and Strategy:** The People's Republic of Bangladesh published the NCS in 2014. The NCS has four strategic areas and eleven actions focusing on public awareness-raising, cybercrime mitigation, establishment of incident response capability, protection of critical infrastructure, national cybersecurity framework development, securing government infrastructure, cybersecurity skills, training development, and establishment of the public-private partnership.³³ The NCS recognizes vulnerabilities of national critical infrastructure (CI) to cyber-attack but does not place any procedures to identify which infrastructures are vital to be considered as part of CI.³⁴ Moreover, there is no cybersecurity vulnerability assessment at the national level. Thus, without the identification of CI, it is difficult to lay down a comprehensive strategy to protect these CI.

b. **Cyber Culture and Society:** Internet users in Bangladesh too often "blindly" trust Information and Communication Technology (ICT) and internet services. Moreover, they do not have the skills to critically assess online content and appropriately gauge the security of the applications they use.³⁵ Moreover, they have little, or no understanding of how personal information is handled online and the issues surrounding the protection of personal information.³⁶ This lack of knowledge and awareness about ICT leads to an increased rate of cyber incidents.

c. **Cybersecurity Education, Training and Skills:** Different cybersecurity awareness-raising programs are available in Bangladesh, but they are ad-hoc and not specified for different target groups.³⁷ The government has not yet realized the action item of the NCS, and a coordinated National Cybersecurity Education Framework is yet to be in place.³⁸

d. **Legal and Regulatory Frameworks:** In Bangladesh, the legislative framework for ICT security is insufficient. Partial legislation exists that addresses some aspects of cybercrime. Some parts of the NCS have been enacted but it does not provide actionable directives to different cybersecurity stakeholders.³⁹ Additionally, there is no effective training for prosecutors and judges to deal with cybersecurity incidents.⁴⁰

e. **Standards, Organizations, and Technologies:** The Government of Bangladesh has established the Bangladesh Standards and Testing Institution (BSTI) with a specific branch for information and technology sector standardization where organizations, both private and public, can refer to for accreditation to ICT standards.⁴¹ Moreover, BCC in collaboration with NRD Cyber Security (NRD CS) developed and published an information security guidance based on ISO 27001 and the New Zealand information security manual. However, the public sector stakeholders differ on cybersecurity policies, and a mechanism for audit control to identify the level of compliance is absent in Bangladesh.⁴²

According to the GCSCC evaluation team, Bangladesh is far from reaching a dynamic level of cybersecurity. Thus, the evaluation team made several recommendations on five dimensions of cybersecurity capacity in Bangladesh. As Bangladesh grows more dependent on cyberspace, she must be prepared for various cybercrimes at the same proportion. Bangladesh must develop robust cyber defense systems, implement the prevailing laws, and educate people on cybercrimes besides international cooperation. To protect national cyber infrastructure from potential enemies, Bangladesh needs to devise a strategy for the future considering the likely cyber conflict scenario.

Future Conflict Domain in Cyberspace

According to Jason Healey, a cybersecurity expert, there are five possible futures of cyber conflict and cooperation, namely Status Quo, Conflict Domain, Balkanization, Paradise, and Cybergeddon.⁴³ The author suggests that 'Conflict Domain' is the most likely cyber future, characterized by continual modernization of cyber capability by the modern nation-states.⁴⁴ However, considering the role of Bangladesh on the global stage and its foreign policy, Bangladesh may not see massive military engagement in the cyber domain in the future. Thus, we may consider the 'status quo' scenario for Bangladesh and devise our strategy accordingly.

Table 1: Comparison of Possible Future Scenarios of Cyber Conflict⁴⁵

	Status Quo	Conflict Domain	Balkanization	Paradise	Cybergeddon
Description	Future Cyberspace conflict looks like that of today: there are high levels of crime and espionage, but no massive cyber wars.	Cyberspace has a range of human conflicts, just like air, land, space, and maritime domains.	Cyberspace has broken into national fiefdoms: there is no single Internet, just a collection of national Internets.	Cyberspace is an overly secure place, as espionage, warfare, and crime are extremely difficult	Cyberspace, always un-ruled and unruly, has become a "failed state" in a near-permanent state of disruption.
Likelihood	Moderate	High	Low	Low	Low

Source: Author's self-construct

Considering the 'Status Quo' scenario and significant cyber-attack capabilities of state and non-state actors, Bangladesh needs strategies to protect its society, economy, military, and government from such disruptive or destructive attacks. Thus, the Bangladesh government should take a holistic approach to face the challenges posed by cybercriminals based on likely future cyber conflict scenarios.

Concept of Deterrence in Cyber Domain

Due to the nature of the cyber domain, it may not be possible to devise a deterrence strategy purely defensive in nature. Some form of offensive capability is required in the national military cyber response option. The offensive cyber capability will act as a deterrence element of overall national defense strategy as well. Thomas Schelling defines deterrence as “to prevent from action by fear of consequences.” Traditional approaches to deterrence include a threat of retaliation, assured mutual destruction, denial, increased cost to the adversary, and decreased benefits for the adversary.⁴⁶ Many of these traditional approaches, especially deterrence through the threat of retaliation have serious shortcomings in the cyber domain.⁴⁷ Considering the above, the following paragraphs elaborate on the concept of deterrence in the cyber domain that⁵⁰ Bangladesh may consider a few of these to incorporate in its NCS.

Means of Deterrence

The following paragraphs briefly elaborate on different concepts of cyber deterrence strategies:

- a. **Punishment:** Retaliatory threats of punishment are less likely to be effective in the cybersphere, where the identity of the attacker is uncertain and knowing what assets can be held at risk and for how long is unclear.⁴⁸ The low visibility of cyber capabilities means it is difficult to construct a credible declaratory policy around one’s cyber retaliation capabilities.⁴⁹ Moreover, Bangladesh does not have an overwhelmingly offensive military capability (both conventional and nuclear) to punish an adversary at will. Thus, the strategy of punishment may not be a viable deterrence strategy option for Bangladesh.
- b. **Denial:** Denial capability can reduce the incentive for some attacks by making them look futile. Resilience is essential to reduce an adversary’s benefits of attacking CI and assure that cyber and noncyber military response options are available for retaliation. Thus, denial is an important element in the overall deterrence strategy. The current NCS of Bangladesh is mostly aligned with this strategy.
- c. **Norms:** Normative considerations can deter actions by imposing reputational costs that can damage an actor’s soft power beyond the value gained from a given attack.⁵⁰ In this regard, Bangladesh may lead neighbors for a joint declaration to establish that cyberwarfare must follow the laws of armed conflict and distinguish the military and civilian targets. Some details of these norms have been suggested in the Tallinn Manual on the International Law applicable to Cyber Warfare, and it has also been the subject of discussions at the United Nations.⁵¹ However, unlike conventional weapons, it would be impossible to control possession of cyber weapons.⁵² As such, it is possible to stockpile cyber offensive capability by any nation. Besides promoting international cyber norms, Bangladesh should take advantage of this technology offering and develop some form of offensive cyber capability.

d. **Engagement and Surprise:** Engagement and surprise are a new and holistic deterrence strategy that involves prompt and direct cyber responses that are sudden, dynamic, stealthy, and random so that adversaries can be defeated mentally and virtually.⁵³ Deterrence by engagement and surprise empowered by artificial intelligence (AI) and machine learning offers several cyber-specific capabilities within the areas of intelligence collection, information operations, surprise operations, virtual, and psychological.⁵⁴ Bangladesh may also incorporate this concept in its deterrence strategy and develop cyber-specific capability accordingly.

Cyber Deterrence as a Cybersecurity Strategy Option in Bangladesh

The NCS of Bangladesh is aligned with the Global Cybersecurity Agenda of the ITU which contains five strategic pillars and seven specific goals.⁵⁵ Among those key pillars, Bangladesh prioritizes legal, technical, and procedural measures and organizational structures.⁵⁶ The focus of the NCS is defensive and Bangladesh is far from reaching a dynamic level of cybersecurity standard. Again, the lack of specific legal procedures for an offensive cyber capability of Bangladesh's Armed Forces in the NCS reduces the overall cybersecurity preparedness of the Government.⁵⁷ Thus, Bangladesh lacks adequate response options against state-sponsored cyber-attack or cyber-criminal activities by individuals or groups. Moreover, with the growing dependency of our critical infrastructure on IT for management and quality service, cyber vulnerabilities have increased proportionately. Considering current strategy guidance and cybersecurity preparedness, Bangladesh needs to depart from a purely defensive approach to a deterrence strategy based on both offensive and defensive capability. Besides, offensive cyber capabilities have the potential to enhance a state's military potency when used to achieve or support military effects.⁵⁸ Following recommendations may be considered to introduce cyber deterrence as an effective element of cybersecurity strategy:

a. **Understanding the Dynamic Cyber Landscape:** Quantum computing, blockchain technologies, IoT, and AI are developing rapidly. In the future, better attribution forensics may enhance the role of punishment, and better defenses through encryption or machine learning may increase the role of denial. Thus, the policymakers must understand the full range of cybersecurity mechanisms and contexts to devise effective cybersecurity policy options.

b. **Promoting International Cyber Norms:** Bangladesh may take a lead in promoting cooperation and establishing cyber norms in the region to combat cybercrime. This initiative will also act as an element of deterrence as discussed in the preceding paragraphs.

c. **Implementing Recommendations of GCSCC:** The NCS of Bangladesh provides crucial guidelines in constructing a robust cybersecurity infrastructure in Bangladesh. However, Bangladesh should implement the recommendations made by GCSCC in all five dimensions of cybersecurity capacity. Besides, Bangladesh should aim to reach the dynamic level of competency in all the dimensions of cybersecurity

to ensure safety against cyber-attacks. This will enable Bangladesh to devise a deterrence strategy based on the concept of denial.

d. **Introduce Cyber Operation in Military Campaign Planning:** Cyber operation benefits from asymmetry and future military campaigns would be planned in tandem with cyber operations. Most modern military hardware uses AI and IT for effective and efficient operation that also increases their vulnerabilities to potential enemies. Today, Bangladesh Armed Forces also operate various military equipment and weapon systems that are dependent on IT. By incorporating cyber operations Bangladesh will not only be able to protect its weapon system, but also be able to conduct cyber espionage, and attack the enemy's military hardware without leaving any trace. Thus, Bangladesh Armed Forces must incorporate the concept of cyber operation in all types of military campaigns/operations.

e. **Develop Cyber Offensive Capability:** A deterrence strategy based on defensive measures to reduce an adversary's benefits of attacking CI and offensive measures for retaliation usually work best. As such, besides defensive capacity building, Bangladesh should also develop offensive cyber capability as a possible retaliatory response option. Bangladesh may initiate a program like the 'Magshimim' of Israel where young talent (school and college students) can be incubated and tasked to develop specific cyber skills.⁵⁹ Moreover, the enrolment regulations/policy may also be reviewed to enroll cyber professionals in Bangladesh Armed Forces.

Conclusion

The digital society of Bangladesh heavily depends on cyberspace. Given the rapid advancement of technology and economic development of Bangladesh, this dependence will continue to grow in the future. This increased dependency on cyberspace will also increase vulnerability. Cybercriminals equipped with more sophisticated tools/techniques are perpetrating cybercrime every day and incurring huge costs to individuals, organizations, and the nation. Moreover, the inadequacy of effective international and domestic laws, the nature of cyber technology, and the involvement of non-state actors have made attribution a big challenge. This ambiguity eventually opens more windows of opportunity for cybercriminals. Thus, the malicious activity of cybercriminals is a major concern for digitalized Bangladesh today. This ever-changing paradigm may upset the convenience of digital Bangladesh and make personal information more vulnerable. However, there is some notable progress in establishing cyber norms and multilateral cooperation to confront cybercriminals at the international level. The Bangladesh government has also taken various measures to fight against this invisible enemy. However, Bangladesh is far from achieving a dynamic level of cybersecurity preparedness as assessed by the GCSCC evaluation team in 2018. Based on the predicted future of cyberspace, Bangladesh needs to focus on a deterrence strategy based on a robust cyber defense system and develop a limited offensive capability for retaliation. Bangladesh must conduct a cost-benefit analysis before choosing a strategy and devise an appropriate plan of action to fight against cybercrime in the future.

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Brief Biography



Wing Commander Md Mahbub Ur Rahman, acsc, psc was commissioned on 25 November 1999 in General Duties (Pilot) Branch. He held several important command, staff and instructional appointments in Bangladesh Air Force, Special Security Force, and Inter Service Selection Board. Besides, the officer served twice in UN peace support mission. He is a graduate of Defense Services Command and Staff College, Mirpur and Air Command and Staff College, USA. He is credited with Master of Science in Military Studies from

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