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EDITORIAL

It is indeed a matter of great pleasure for the Editorial Board to present the 75th Issue of *Bangladesh Army Journal* before the esteemed readers. This prestigious publication serves as an important medium for inculcating the habit of writing and for the development of intellectual faculties of Bangladesh Army officers. It also acts as a professional mouthpiece through which the military writers communicate their thoughts with the avid readers. It provides an open forum to present the innovative ideas and matured thoughts related to national, regional and international security affairs, military strategy, military training, military leadership and management, military history and tradition, modern technology and equipment, unit affairs and other topics of significant and current interest co-related to Bangladesh Army. *Bangladesh Army Journal* seeks to encourage further research on the core issues of defence, offers the latest perspectives, and serves as a platform for sharing research findings and opinions of military scholars which have greater impact for continuous improvement of Bangladesh Army.

The current issue of *Bangladesh Army Journal* contains articles on varied themes which include sainik recruitment, climate security threats, contemporary military thoughts, changing nature of conflict and warfare, Geographic Information System (GIS), logistic challenges in United Nations Peacekeeping Missions, cybersecurity awareness, satellite based communication structures, Belt and Road Initiative and prospects of Bangladesh and military perspective of social media. What is remarkable about these scholarly write-ups of the talented authors is the qualitative depth of its contents which bear food for thought for the readers, researchers and analysts.

The Editorial Board is profoundly indebted to **General Waker-Uz-Zaman, OSP, SGP, psc, the Chief of Army Staff, Bangladesh Army and Chief Patron of *Bangladesh Army Journal*** whose in-depth knowledge, wisdom, professional acumen, keen observance and sheer dynamism have achieved the qualitative enrichment of the journal. We express our sincere gratitude to the Chief of General Staff for his insight, invaluable advice and suggestions given to the Editorial Board to elevate the overall standard of the time-honoured *Bangladesh Army Journal*. We would like to thank all the writers who contributed immensely for this Issue despite their busy schedule of professional commitments. In spite of all the sincere efforts put in by the dedicated Editorial team, lapses may be traced by the keen readers. It is sincerely believed that such shortcomings will be considered with sympathy.

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General Perception on Sainik Recruitment: Challenges and Ways Forward

Colonel Abdul Alim Chowdhury, SGP, psc

Abstract

Recruitment (rect) in Bangladesh Army is a routine affair to meet up its usual combat requirement. Previously recruitment was carried out at District Headquarters within the Area of Responsibilities of respective Branch Recruiting Units (BRU). Due to the physical proximity of the recruiting venue to common people, groups of fraud people, usually known as ‘Dalal Chakra’ tried to influence the simple-hearted people for illegal rect. For years together, a rumour is prevailing in the society that no candidate is recruited without money, meaning “No money, no recruitment.” The present recruitment system has been modernized and comprehensively improved. Now, specific number of candidates are called by respective BRUs round the year and rect is carried out inside the respective cantonment where there is no scope for frauds to get inside and influence the candidates or the rect team. However, the general perception of common people has not been changed much. The prevailing misperception not only impairs the name and fame of Armed Forces but also takes huge financial toll to innocent people of the society. Due to “Zero Tolerance,” policy many armed forces personnel being involved in illegal requirement, receive punishment and some even lose their jobs. Therefore, adequate propagation of information on the opportunities of military career, publicity on the transparency of rect system and divulging fraudulent incidents in public are necessary. These hidden elements usually give birth to misperception and it needs to be addressed holistically in lessening such chronic disease to evaluate the overall fraudulent picture, propagate the recruitment system, its transparency and to grow adequate awareness amongst all segments of the society. This paper discusses the requirement system and its transparency, deliberate evaluation of the prevailing perceptions on recruitment system in the society and few suggestive measures to reduce this misperception from the society.

Keywords: Recruitment, ‘Dalal Chakra’, Rumour, Misperception, Illegal Recruitment, Zero Tolerance and Awareness.

Introduction

Recruitment (rect) is a fundamental and routine affair of an armed force to meet up its usual combat requirement. Bangladesh Army has a separate organization and a set procedure for rect of its soldiers. Personnel Administration Directorate (PA Dte), Headquarters Recruitment Unit (HQ RU) and Branch Rect Units (BRU) follow some sets of selection criteria. In addition to usual rect by both HQ RU and BRUs, special rect is carried out by respective Training Centre. Every male and female citizen of Bangladesh, irrespective of caste, class and religion, is eligible for rect in Bangladesh Army, having laid down qualifications.¹ The qualifications basically denote the

candidates' age limit, height, weight, medical, physical, educational and mental fitness as a potential soldier. In addition to those qualities, the candidate must be unmarried, a swimmer and a Bangladeshi national by birth. Though the whole rect process is fair and transparent, yet there prevails a misperception in the society on overall rect.

Previously rect was carried out in District Headquarters within Area of Responsibilities (AOR) of respective BRUs. There had been huge turn up of candidates per day. Due to the physical proximity of the rect venue to common people, groups of fraud people, usually known as '**Dalal Chakra**' tried to influence the simple-hearted people for illegal rect. For years together, a rumour is prevailing in the society that no candidate is rect without money or request. In other words, the general perception is '**No money, no chance**'.² The present rect system has been centralised, modernised and made very transparent with new and digital technology. Now, specific number of candidates are called by respective BRUs in almost all working days round the year inside the cantonment. The environment being more secured and there is no scope for the 'dalal chakra' to get inside and influence the candidates and rect team for illegal rect, yet the general perception of common people has not been changed much. Along with common people (civilians), many serving and retired armed forces personnel also think in the same line. That there is a strong existence of misperception in the society on overall rect which has been personally experienced by the author while serving as Assistant Adjutant General, Recruitment (AAG, Rect) in BRU Cumilla and in BRU Jashore.

The prevailing misperception not only impairs the name and fame of our beloved army but also takes huge financial toll to the innocent people of the society. Due to 'Zero Tolerance,' policy many armed forces personnel receive adequate punishment being involved in illegal rect, even some of them lose their jobs. Since the misperception had been instilled for years together, it has been very difficult for the army authority to remove it from the society. Although many steps had been taken to reduce the illegal rect, yet there seems to have a gray area where propagation of information on the opportunities of military career, publicity on the transparency of rect system and divulging fraudulent incidents in public are lacking. These hidden elements usually give birth to misperception and it needs to be addressed holistically in reducing such chronic disease. In this paper there is a humble attempt to describe the overall picture of fraudulent/illegal rect vis-à-vis the prevailing perceptions on rect system in the society followed by discussing challenges for addressing the negative perceptions. Finally there are few recommendations.

Overall Picture of Fraudulent/Illegal Rect: The overall picture of fraudulent/ illegal rect is not as good as expected. In the last three rect year total 526 fraud cases³ had been identified by HQ RU and different BRUs where 612 frauds were involved. It indicates the huge existence of fraudulent/illegal rect in the society. Having tried level best at all levels, the illegal rect could not be stopped or reduced, rather it is going on in its own way. Beside civilians, the connection of armed forces personnel including other services personnel with illegal rect is also alarming. An overview⁴ of fraudulent/illegal rect has been shown in Table-1 below:-

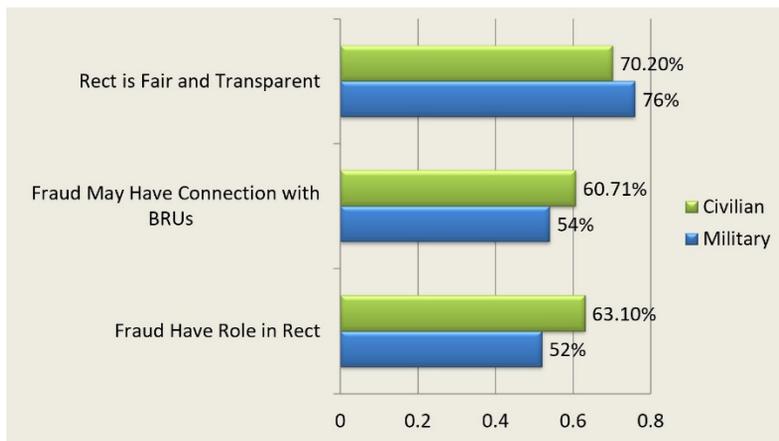
Table-1: Statistics of Fraudulent/ Illegal Rect

Sl. No.	Incidents/Involvement	2021	2022	2023	Total
1	Incidents/Involvement	85	231	210	526
2	Number of 'Dalals'	137	259	216	612
3	Army Serving Soldiers	02	19	10	31
4	Army Retired Soldiers	12	24	08	44
5	Other Services Soldiers	00	15	07	22
6	Civilians	123	201	191	515

Source: Author's self-construct

Prevailing Perceptions on Rect: The prevailing perception on rect in different tiers of the society is a mixed one. By dint of serving two BRUs for two years, both sides of the coins have been experienced by the author which reveals that some segments of the society believe (with confusion) that there is hardly any scope to get a job as a soldier without money. Two different surveys have been carried out to get an overall picture on perceptions on rect process. Both civilian and armed forces personnel (including retired ones) gave different opinions where 60.71% civilians⁵ and 54% armed forces personnel⁶ opined that frauds may have some connection with BRUs. Some respondents opined that some dishonest individual like cook, mess waiter, messenger, runner, driver and clerks⁷ sometimes entangle with illegal rect referring to senior officers. However, the comparison of perception on rect between civilians and armed forces personnel is shown below:-

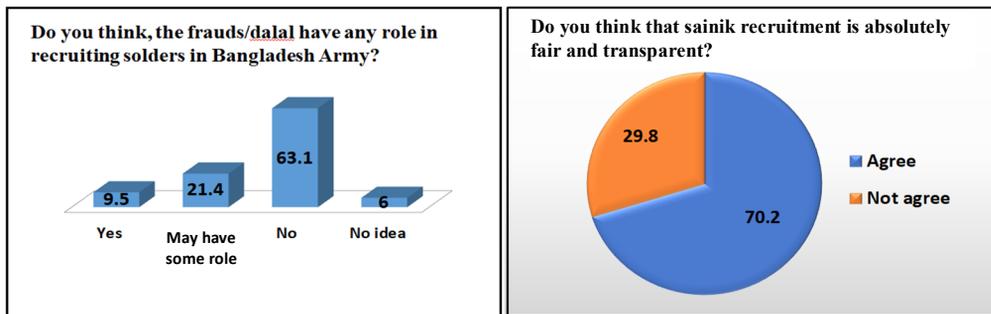
Figure-1: Comparison of Perceptions on Rect by Civilians and Military Personnel



Source: Author's self-construct

a. **Perceptions by Civilians on Rect:** Many civilians generally believe that candidates are selected mostly through a ‘dalal chakro’ in exchange of money or on liaison. They also believe that the BRUs/ rect teams have direct or indirect link with the ‘dalal chakra’ who maintain a strong network for targeting the potential rect. A survey has been carried out to get an overall picture on civilian perceptions on rect process where 21.4% civilians believe that the frauds **may have some role** in rect and 9.50 % civilians claim that frauds **have role** in rect. However, 70.20 % civilians believe that the rect is transparent, while 54 % armed forces personnel believe that there is no connection of frauds with BRUs.

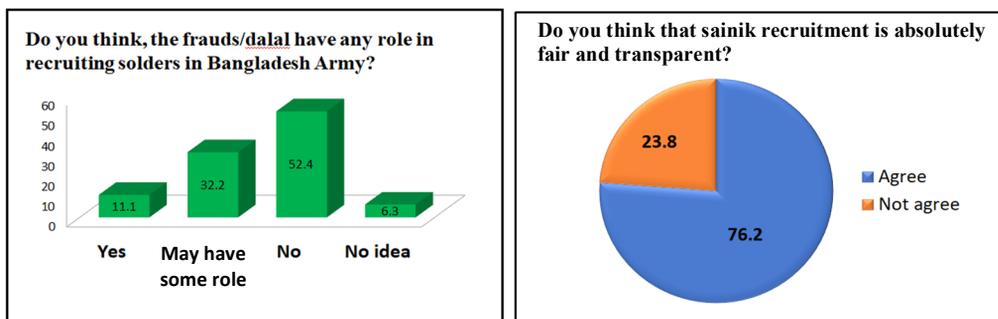
Figure-2: Perceptions of Civilians on Rect



Source: Author’s self-construct

b. **Perception by Armed Forces Personnel:** The perception carried by serving and retired soldiers is mixed in nature.⁸ According to a survey 30.20% serving and retired soldiers opined that there may be some connection of ‘dalal chakra’ with concerned BRUs while 32% soldiers claim that the frauds/‘dalal chakra’ may have some role in rect. However, 76.70% soldiers believe that rect is done with absolute transparency and honesty while 23.80 % soldiers do not agree the transparency. On the other side of the coin, in a casual talk with the author, many serving soldiers indirectly confessed that they also had to pay a good amount of money to the ‘dalal chakra’ in their time of rect.

Figure-3: Perceptions of Armed Forces Personnel on Rect



Source: Author’s self-construct

Challenges to Address the Negative Perceptions

The perception instilled inside people's mind is as chronic as some incurable diseases. It's not at all an easy matter to remove the misperception from the society. There are formidable hurdles that appears as challenges to address the issues. Out of many, some important and pertinent challenges are discussed in subsequent paragraphs.

- a. **Inadequate Information on the Opportunities of Military Career and Rect System Itself:** The mass people are mostly ignorant about the benefits of joining army, transparency of rect system and hypnotic techniques of frauds. Inadequate information centres and lack of information sharing create difficulties for an interested candidate. Most of them do not know that its **'the qualification of the individual candidate that plays the vital role in rect'**. They usually come from rural areas and they were found to appear for the recruitment test almost unprepared. They only knew that 'সেনাবাহিনীর মাঠ করতে হবে।'⁹ A good number of candidates never saw recruitment related advertisements and campaigns on TV or social media. The result of survey carried out by Army Training and Doctrine Command (ARTDOC) is shown below:-

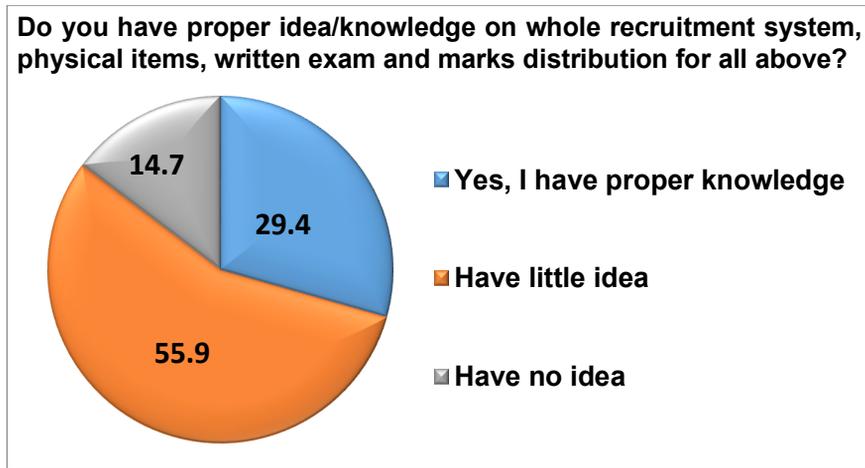
Table-2: State of Awareness Amongst the Candidate on Rect

Total Number of Candidate	Candidate saw Advertisement and Campaign in the TV or social media	Candidate not seen any Advertisement and Campaign in the TV or social media
100	62	38

Source: Army Project Study conducted at Army Headquarters by ARTDOC

The existing information sharing efforts including classes taken by Area HQs seem to be limited for information sharing resulting a gray area on rect system. According to a survey 55.90% civilians have a little knowledge on rect and 14.5% civilians have no idea about it.¹⁰ All those provoke them to depend on dalal/illegal rect.

Figure-4: State of Information Received by General Mass on Rect System

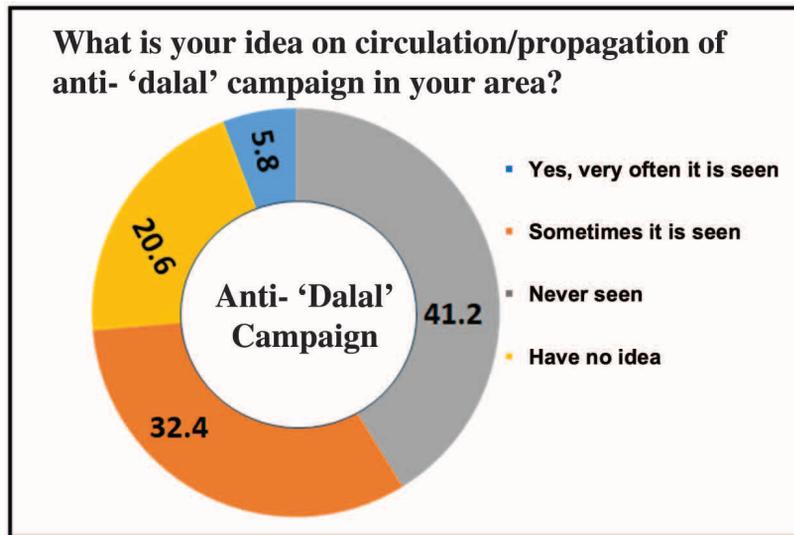


Source: Author's self-construct

b. **Strong Fraudulent Network in the Society:** The most important challenge to address the negative perception is the presence of **strong network**¹¹ with attractive words of frauds/ dalal chakra in the society. The activity of 'dalal chakra' is an **'open secret'** and they do the same business for years together. The 'dalal chakra' carries on psychological campaign in favour of illegal rect. They propagate that **'No money, no rect'** highlighting their previous success. As the 'dalal chakra' and the guardian/ candidate usually live in the same society and many a times the guardian/candidate cannot but believe their luring words. Thus, they make contacts with 'dalal chakra' believing their past success and strong promises.

c. **Lack of a Comprehensive Anti-Illegal Rect Campaign:** In the circular of Sainik Rect-2024, the caution, 'সেনাবাহিনীতে অর্ধের বিনিময়ে ভর্তির কোন সুযোগ নেই, আর্থিক লেনদেনের মাধ্যমে অথবা প্রতারণার আশ্রয় নিয়ে সেনাবাহিনীতে ভর্তি হলে চাকুরীর যে কোন পর্যায়ে বহিষ্কার করা হবে।'¹² is written in bold letter on the top. There is also a short anti-illegal rect video clip occasionally broadcast in various television (TV) channels. Few classes are taken by respective Area HQs to encourage young generation to join Army where some ideas on illegal rect is also given. AAGs/DAAGs of all BRUs also conduct motivational class as and when possible. All these steps could not reduce overall misperception prevailing in the society. Many of the efforts mentioned above do not reach to the grass root level. On the other hand, civil administration and local influential figures are not well onboard against the anti-illegal rect campaign. As such it is felt that there are rooms for improvement and a comprehensive anti-illegal rect campaign is required. According to a survey 41.20% civilians had never seen any anti-dalal campaign while 20.60 % civilians had no idea about it. Only 5.8% civilians very often saw the anti-dalal campaign.

Figure-5: State of Awareness on Rect Amongst the General Mass



Source: Author's self-construct

d. **Hypnotic Techniques of Illegal Rect followed by the 'Dalal Chakra'**: Round the year, the 'dalal chakra' visits villages (sometimes communicates over mobile phone) and targets potential candidates with tall figure, good health and good educational background. The 'dalal chakra' declares that they had contacted with concerned BRU, if the candidate can pay as per demand, they shall be selected. For example, **if they target 50/60 potential candidates, out of which 5-6 candidates would be naturally selected.** Once selected the 'dalal chakra' takes agreed money from those selected 5-6 candidates. For other candidates, they make different stories as suited and keep them in hand for next years. By this way, in subsequent years, they make their false base stronger and stronger. Simple-hearted people believe their visible success and automatically get indulged.

e. **Contacting with the 'Dalal Chakra'- A Permanent Trap**: The 'dalal chakra' usually takes signed bank cheque, signed blank stamp, certificates of Secondary School Certificate (SSC) etcetera from the candidate. So, if a candidate is naturally selected, he or she cannot but to full fill the terms and condition agreed to the 'dalal chakra'. In the process of rect, a witty candidate usually comes to know that **his own qualification was the key to success**, the 'dalal chakra' has no role. Now if he denies paying the agreed amount, the 'dalal chakra' is not going to leave him. Rather they would strongly threat him of losing his appointment letter referring to BRU's contract. If the candidate agrees to pay, then the case is ended here. If not, the 'dalal chakra' pretending to be a patriot or well-wisher of army, writes to AG's Br or concerned BRU to investigate the matter projecting it as a fraud case. As per rules, authority needs to carry on necessary investigation. To my experience, most of the cases, candidates and guardians confess their connection with 'dalal chakra'.

For money transaction, as a rule, BRUs are bound to cancel his appointment card. On the other hand, the ‘dalal chakra’ could establish that due to non-compliance of giving money to respective BRU, the candidate had to lose his appointment card (job). In 2022, **four selected candidates lost their temporary joining letters¹³ and one who completed nine months of rect training had been withdrawn¹⁴** from Training Centre.

f. **Involvement of Armed Forces Personnel:** Involvement of serving and retired armed forces personnel is another sensitive issue. Usually, people believe that serving and retired armed forces personnel may **have strong link with BRUs/rect team**. So very easily they fall prey to the trap of such individual. Such incidents do stigmatize the name and fair image of Bangladesh Army. As information received from HQ RU, a good number of serving and retired armed forces personnel were involved in illegal rect.

Table-2: Statistics of Involvement in Illegal Rect by Armed Forces Personnel

Year	2021	2022	2023	Total
Serving Personnel	02	19	10	31
Retired Personnel	12	24	08	44
Other Forces	07	00	15	22

Source: Author’s self-construct

g. **Weakness in Handling the Frauds/Dalals:** Rect authority has got an inherent weakness in handling the fraud/ dalal cases. In last three rect years, total 612 dalals were involved in illegal rect, out of which 515 were civilians. The armed forces personnel have been well taken care of but hardly any civilian dalal could be brought under legal punishment. Usually, BRUs hand over dalals to Military Police (MP) in coordination with Army Security Unit (ASU). In most of the cases the affected candidates (deceived candidates) and their guardians do not show interest for filing a case against the dalal thinking unnecessary harassment by police and the fraud afterwards. The Cantonment Executive Officer (CEO) is generally found less interested in handling the issue. There are many CEOs who do not possess magistracy power also. As a tradition an individual soldier are not encouraged and also not willing to be plaintiff in most of the cases. Ultimately, MP hands over the dalal to the local police station without filing any case. As a result, most of the dalals being identified or apprehended go without required/expected punishment. It seems there is lack with regard to rules of law against brokers.¹⁵

h. **Restrictive Culture in Publishing Fraud Incidents/Dalal Cases in Media:** Army is a unique organization that usually restricts its activities within itself. Usually, issues related to outside are avoided. Dealing illegal rect issue is not an exception to that. In last three years total 526 fraud cases are identified but most of the incidents went without being published in print or electronic media. Army website also does not publish the incident in details or even the number of incidents. As such there is a gray area on illegal rect incidents and common people are not aware of what is happening to the frauds/dalals. Most of the cases, frauds/dalals are handed over to local police station that also do not come in media. The fraud/‘dalal chakra’ thus do not become familiar in the society as a criminal. Thus, taking the chance of such opportunity, they boldly roam around in the society and continue their illegal business.

j. **Request Culture from Various Corners:** Frequent request to HQ RU and BRUs from various corners is another common but sensitive issue. Amongst the general candidates, there is a wrong perception that no job can be found without money. They also believe that a request from a higher official/officer may fetch the job.¹⁶ Consequently, many candidates try to communicate with their distant relatives, runner, driver, mess waiter, even their relatives before appearing in the rect examination. Accordingly, the request is sometimes forwarded to HQ RU/ BRUs. The state of request at a BRU in 2023 is as follows:-

Table-3: Overall Statistics of Request from Different Corners

Ser	Total Request	Request Through PS Directorate	Unofficial Request	Selected	Rejected	Rmk
1.	272	6-10	262-266	65	207	-

Source: Army Project Study conducted at Army Headquarters by ARTDOC

Although there is no obligation for such requests, yet a good amount of time and effort is spent to attend/counsel those candidates. Again, though there is no compulsion, yet concerned AAGs/DAAGs usually give feedback to the requesters as a matter of courtesy. It’s to note that outside people mostly think that requested candidates get priority to be selected accordingly, but to my experience, most of the requested candidates come with lot of problems/limitations and as such, most of them are usually not selected.

Suggestive Measures to Reduce the Misperception from the Society

The prevailing misperception cannot be removed from the hearts and minds of common people over night. By now, PA Dte and HQ RU have taken notable endeavour to reduce the negative perception prevailing in the society but it’s also true that those efforts could not bring

expected fruits back home. As such, comprehensive measures may be taken to reduce the wrong perception.

a. **Adequate Efforts to be Taken for Information Sharing on the Opportunities of Military Career and Rect System:** The mass people are to be informed about the attractive and colourful benefits of military career, transparency of rect system, details of rect and the hypnotic technique of frauds. The cardinal aspects of rect, like the physical fitness, height, hygiene, written and viva examination, value of Grade Point Average (GPA) and marks distribution of each physical items are to be transmitted to grass root level. The weightage is fixed, computerized and cannot be changed by anyone if he/she even wishes to do so, the question paper for written exam is received by respective BRUs in the morning of rect day (opened in front of the candidate). Again, MP and other intelligence organizations closely monitor the whole rect process. If the guardians and candidates knew the above information, then most probably they would have firm belief and confidence on whole rect system and would not have gone to the frauds. In the job circular, in addition to other details, marking system and weightage may be added. Leaflets may be distributed so that potential candidates from schools/colleges may get a fair idea about the marking system and other details of of rect system. In short, advantages of print and electronic media including social media like Facebook and YouTube may be utilized to the fullest.¹⁷

b. **Formulation and Propagation of a Comprehensive Anti-Illegal Rect Campaign:** The misperception prevailing in people's mind is not easy to remove. However, the formulation of a comprehensive anti-illegal rect campaign and its massive propagation (MK) may reduce misperceptions on illegal- rect in the society. This is outlined below:-

(1) 'সেনাবাহিনীতে অর্ধের বিনিময়ে ভর্তি হলে যে কোন পর্যায়ে বহিষ্কার করা হবে,' 'দালাল ধরে দিন আকর্ষণীয় পুরস্কার নিন,' 'দালাল কিংবা অনুরোধ নয়, নিজ যোগ্যতায় সেনাবাহিনীতে ভর্তির মূল মন্ত্র,' 'আসুন নিজে সং থাকি, দালালমুক্ত সমাজ গড়ি,' these type of postering may be carried out while rect is in progress in specific district. Same statement may be announced in nodal points of the town/city by miking.

(2) The short anti-illegal rect video clip (already in vogue) should be continuously broadcast in various television channels. There may be more attractive and time worthy clips of same nature. The clips may be circulated through social media like Facebook and YouTube. SMS on anti-illegal rect campaign may be forwarded to all mobile numbers through different mobile operators, especially in the area/districts where rect goes on.

(3) The number of classes taken by respective Area HQs at upazila/thana level may be increased. In this regard, a comprehensive motivation class with power point presentation (prepared by a team led by the author)¹⁸ has been already sent to PA Dte may be followed or modified, if necessary and circulated to all Area HQs/BRUs for subsequent actions at their ends.

(4) Civil Administration may be integrated in overall anti-illegal rect campaign.¹⁹ Seminar, Discussion, Conference at district and upazila level may be conducted where the local leaders, imams/other religious preachers, teachers, journalists and elected local representatives (Union Parishad chairmen), may be invited. The attractive and colourful benefits of military career, transparency of rect system, details of rect and the hypnotic techniques of frauds may be discussed in details. Propagation of harmful effects (losing job at any stage of service life) for contacting and falling into the trap of frauds/ dalal chakra may be discussed with adequate data, picture and example.

(5) A group of potential candidates (preferably students) led by teachers and elected representatives may be invited to see the whole rect process practically. This would probably have a direct impact on their perception and would build their confidence as well.

(6) The motivational classes carried out by AAG BRUs/ DAAGs should include both the selected and non-selected candidates, where possible guardians should be included so that they can propagate the actual picture of rect to their neighbours. The hypnotic techniques of frauds may be discussed in details. The identified fraudulent affected candidates may be presented before all as an example. These would possibly produce visible impacts on overall perceptions on rect.

Figure-6: Motivation Class by AAG BRU



Selected Candidates with Guardians

Non-Selected Candidates

Source: Author's self-construct

(7) All mentioned above steps that are feasible should be included/ preserved kept in army website. Rect Information Centres of all the cantonments should also be equipped with all possible information. Available and feasible print and electronic medias are to be utilized to the fullest.

c. **Reducing the Influence of Frauds/ ‘Dalal Chakra’:** It’s true that the influence of frauds/ ‘dalal chakra’ in the society is difficult to reduce. However, the social awareness (as mentioned above), motivational classes, identification of frauds/ dalal chakra as blackship in the society, publishing their names with picture in print and electronic media may reduce their influence. Frauds are to be boycotted socially. Adequate cautionary and motivational message to be displayed in bill board around all cantonments having BRU and at nodal points of districts/towns/cities.

d. **Awakening About the “Permanent Trap” of the ‘Dalal Chakra’:** In case of any connection with dalal is proved, the concerned candidate will be ruled out and permanently barred. For serving soldiers, he will be given highest possible punishment including dismissal from service and imprisonment if deemed so. The ‘Zero Tolerance’ policy for illegal rect followed by Bangladesh Army to be propagated by all possible means. The propagation is to be carried not only for commoners but also in all military organizations for sake of own troops and their families.

e. **Continuous Motivation at Different Level:** Round the year, in all the garrisons, constant motivation on the ethical aspect on illegal rect to be carried on. Visible punishment for involvement of soldiers in illegal rect should be spelt out in roll calls/ darbars. Where and whenever possible, motivational classes are to be carried in schools, madrasahs and colleges.

f. **Visible Punishment for Involvement in Illegal Rect:** Both serving and retired armed forces personnel are to be taken into task for involvement in illegal rect. Any serving soldier found involved in illegal rect, should be given highest possible punishment. For retired armed forces personnel, his pension and ration money may be curtailed for a specific duration and should be declared persona-non-grata for all cantonments and military installations. For civilians, appropriate punishment is to be ensured by all means.

g. **Strengthening the Approach in Handling the Apprehended Frauds/Dalals:** Rect Authority/ BRUs should build a stronger bond with intelligence agencies and law enforcing agencies, especially with MP, ASU, local Police and Rapid Action Battalion (RAB). The victim (Deceived candidate) should be motivated to file a case against the dalal. Procrastination on delegating magistracy power CEO is to be removed. Like Police and RAB, soldiers serving in BRUs are to be allowed and motivated to be plaintiff if

needed. By all means the frauds are to be punished.²⁰ If needed laws may be modified and CEO may be empowered to punish the civil frauds.

h. **The Culture of Publishing Fraud Incidents/ Illegal Rect in Media to be Set into Action:** Illegal rect incidents should be seen as like other fraudulent cases. All identified and proved cases are to be published in media so that those culprits are blacklisted in the society. Once they are identified by the local people, they would probably boycott them. As a result, the frauds would not be able to take chance anymore. Inter-Service Public Relations (ISPR) and Military Intelligence Directorate (MI Dte) may play a vital role in this regard. Picture of frauds and affected candidates may be published in the national dailies and local newspapers (as per area) shown below:-

Figure-7: Dalal and Victimized Candidates



Source: Author's self-collection

j. **Strict Adherence to Existing Request Policy by Rect Authority and Requesters:** HQ RU, all BRUs and requesters should adhere to the existing request policy. Unofficial requests should not be entertained. Strict adherence to the existing request policy will not only reduce the number of requests, but also will reduce the work load on the rect authority. In turn, it will remove the misperceptions of civilian that requests work.

Conclusion

The present rect system has been centralized, modernized and improved a lot with new and digital technology. But, a greater slice of the society still believes that most of the candidates are rect in exchange of a handsome amount of money or on request. The prevailing misperception not only impairs the name and fame of armed forces but also takes huge financial toll on the innocent people of the society. There seems to have inadequate information on the attractive opportunities of military career, rect system and hypnotic technique of frauds. Inadequate information usually gives birth to mis-perception and rumour. The dalal chakra taking the advantage of such situation,

traps innocent guardians and candidates and they had to pay a huge monetary loss. On the other hand, for being involved in illegal rect, many armed forces personnel receive punishment including losing their jobs.

The overall picture of fraudulent/ illegal rect is not good. Again, the prevailing perception on rect in different tiers of society including armed forces personnel is not as expected. It's not at all an easy matter to fully remove the misperception from the society. There are huge and formidable hurdles that appears as challenges to address the issues. Limited scopes to propagate the attractive and colourful benefits of military career, informing transparency of rect system and details of rect to grass root level, divulging the hypnotic technique of frauds and lack of a comprehensive anti-illegal rect campaign appear to be most important challenges. Strong fraudulent network, the hypnotic techniques of the dalal chakra, weakness in handling the apprehended frauds, restrictive culture in publishing fraud incidents in media, request culture etcetera are some other challenges.

Although the challenges are huge and chronic in nature, some comprehensive measures may be taken to reduce the misperception on illegal rect. All-out efforts for propagating the attractive opportunities of military career, transparency in rect system, formulation and propagation of a comprehensive anti-illegal rect campaign likely to work well. Again, propagating the dark side of contacting with frauds and constant motivation at all level may be some other tools to reduce misperception. Strengthening the approach in handling the apprehended frauds, ensuring punishment of the frauds by all means, publishing identified and proved fraudulent cases in media may reduce the number and influence of frauds in the society. Strict adherence to existing request policy may reduce the number of requests and prevailing misperception.

Recommendations

The following recommendations are gleaned from this study:-

- a. Adequate efforts to be taken for information sharing on the attractive opportunities of military career, overall rect system and the hypnotic technique of frauds. Electronic and print media including social are to be used to the fullest for information sharing.
- b. Formulation and propagation of a comprehensive anti-Illegal rect campaign involving civil administration and local influential persons are to be adopted.
- c. Continuous motivation at different level and appropriate punishment for involvement in illegal rect by both civilians and armed forces personnel are to be ensured.
- d. Strengthening the approach in handling the apprehended frauds/ dalals and building of a stronger bond amongst all law enforcing and intelligence agencies are to be done.
- e. Publishing important fraud incidents on illegal rect in electronic and print media including social media are to be ensured.

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Brief Biography



Colonel Abdul Alim Chowdhury, SGP, psc was commissioned in the Corps of Infantry with 40th BMA Long course on 08 June 1999. He is a graduate of the Defence Services Command and Staff College (DSCSC), Mirpur. He obtained Masters of Science degree in Military Studies from Bangladesh University of Professionals (BUP), Mirpur. Besides serving in 15 East Bengal as parent unit, he served as General Staff Officer-2 in Directorate General of Forces Intelligence (DGFI), General Staff Officer-2 (Intelligence) in Headquarters 55 Infantry Division. He Commanded 2 East Bengal. He also served as Assistant Adjutant General (Recruit) in Headquarters Recruitment Unit, AA&QMG in Area Headquarters Barishal and as Colonel Staff, Civil Military Relations Directorate, Armed Forces Division. For his outstanding operational performance in Chattogram Hill Tracts (CHT), he was awarded with Shena Gaurab Padok (SGP). He also achieved Chief of Army Staff (CAS) Commendation. He served as Platoon Commander in UNMIS and Chief Operations Officer (COO) in MINUSMA. He is the incumbent Commanding Officer, Headquarters Recruiting Unit, Dhaka Cantonment.

Climate Security Threats and Preparedness of Bangladesh Armed Forces

Colonel Sharif Ali Hossain, psc

Abstract

Climate security threats have a significant influence on political stability, human security, or national security infrastructure. These risks are expected to increase in the foreseeable future. The emerging phenomena will potentially place increased security burdens on fragile governments and neighboring states. Despite being responsible for only 0.56 percent of the global greenhouse gas emissions, Bangladesh is still one of the most exposed countries to climate change risks. Therefore, it is crucial to evaluate the impact of climate change through a security prism highlighting aspects of human security and peace and stability. The application of a security lens in climate change discourse is needed to propel the climate change mitigation commitments, protect the vulnerable community, and establish peace and stability. Thus, it is the security sector professionals that will have to address and manage the threats that climate change poses to national and regional security.

Keywords: *Climate Security, Risks, Threats, Armed Forces, Preparedness.*

Introduction

Climate security is a new phenomenon in security studies. Climate security refers to the consequences of climate change that significantly influence political firmness, people's security or nationwide security infrastructure encompassing physical, financial, and social spheres.¹ Peer-reviewed studies have shown a significant causal relationship between warming climates (even slight fluctuations in temperature), more extreme rainfall and the potential for conflicts of varying degrees, from domestic violence to intra-state and interstate conflicts.² The climate security risks are expected to increase in the foreseeable future.

Environmental imbalance is becoming a security threat in many parts of the world. Approximately 70% of countries globally unambiguously declared that climate change poses a national security issue.³ Climate disruption holds the aptitude to destabilize society since it poses a threat to environmental and human security and catalyzes conflict. The emerging phenomena will potentially place increased security burdens on fragile governments and neighboring states. Therefore, it is indispensable to scrutinize the impact of change of climate through a security prism highlighting aspects of human security and peace and stability. The adoption of a security concern in climate change dialogue is required to advance commitments to mitigate climate change, protect the vulnerable community, and establish peace and stability. Therefore, it is the security sector professionals who will have to address and manage the threats that transformation of climate

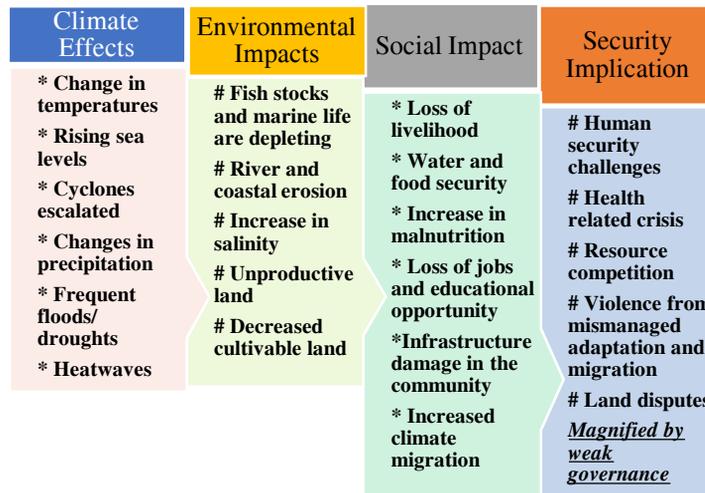
imposes on national and territorial security. Many armed forces across the world are preparing to combat climate security threats.

This paper first illustrates the correlation between climate alteration and national security. Additionally, it examines the security consequences of environmental change in Bangladesh. Then, the paper focuses on the preparedness of the armed forces all over the globe to meet climate security threats. Finally, the paper concludes with suggestions for Bangladesh armed forces for consideration. The paper uses various existing research study materials and literature to build arguments and mostly uses qualitative research methods for shaping the paper. The limitation of this paper is that it has considered only selected armed forces personnel to evaluate their preparedness.

Bangladesh's Climate-related Security Risk

The Interrelation Between Climate Change and Security: A Realist scholar, Stephen Walt outlined security studies as “the study of the threat and use of force.”⁴ This definition is considered a narrow one because there are other approaches that have developed where the “widening and deepening” agenda of security included non-military threats as part of the security studies. The realist school considers security only the protection of the sovereignty of the state from any external threats. It considers the state as the only referent object. But the constructivists claim that the state should not be the only referent object, rather other non-traditional issues, i.e., human security, and political security, also should be taken as referent objects. This approach changed the traditional state-centric approach to security and added non-traditional issues in the area of security understanding. The non-traditional approach argued that in addition to state survival issues, the human survival issue should also be taken as a security issue. They consider that when a symbiotic relationship between the actors and audience securitizes issues, which may be beyond the state, should be considered a security issue. The issue of climate change has both kinds of security elements. In terms of traditional security, the menace of climate change is going to affect the survival of many countries. On the other hand, as constructivists claim, climate imbalance has many elements which are about to determine the life and livelihood of human beings and it is also changing the ecology and biodiversity of the planet earth. Therefore, though a section of scholars is still skeptical about taking climate change as a security issue, constructivist scholars argue that since it is going to affect the security of the state and human beings, it should be taken as a security issue. It is evident that in many countries, the actors are securitizing the challenge of climate change and consent from the audience is also visible. On the other hand, all the states are taking emergency measures to contain the menace of climate change. Therefore, the association between climate change and security is going to be a major security issue almost for all the nations of the world.

Figure-1: Security Implications of Climate Change



Source: <https://defsec.net.nz/2018/12/05/defence-assessment-climate-change-released/>

Security Impact of Climate Change in Bangladesh: Despite being responsible for only 0.56 percent of the global greenhouse gas emissions⁵, Bangladesh is still one of the most exposed countries to climate change risks. According to the 2021 Global Climate Risk Index, Bangladesh was ranked as the seventh most disaster-affected country in the world from 2000 to 2019.⁶ Besides, the 6th Annual Climate Change Vulnerability Index put Bangladesh’s capital, Dhaka, in the top five most climate-vulnerable cities in the world.⁷ Bangladesh faces a whole gamut of climate risks, with a vast number of people and a large land area facing very high exposure to multiple hazards (shown in Map 1), resulting in numerous security-related threats for the country. From 2000 to 2019, Bangladesh experienced \$3.72 billion in economic losses as a result of climate change, as well as 185 extreme weather incidents.⁸

Map-1: Climate Hazards in Bangladesh

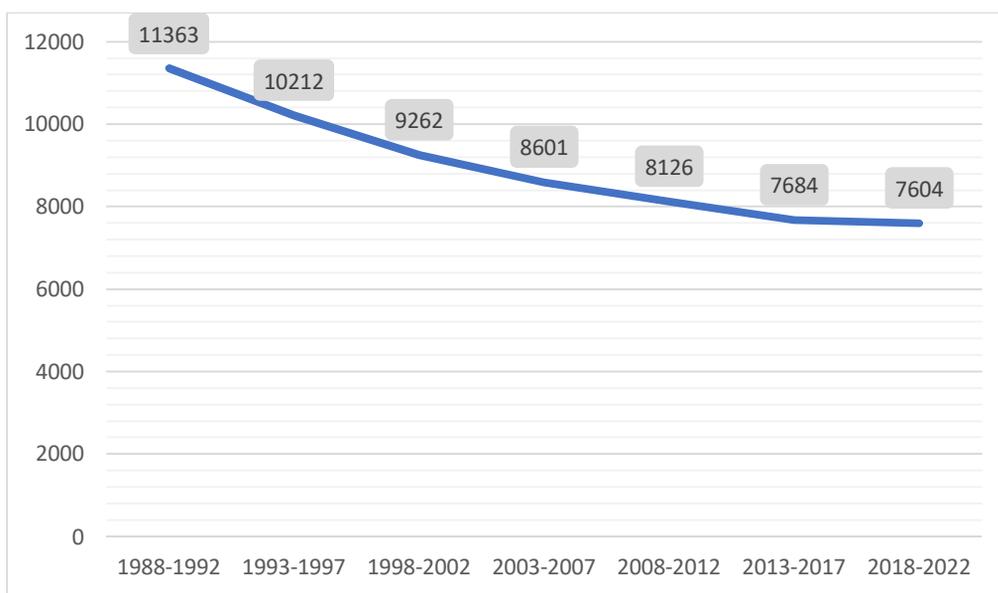


Source: <https://www.google.com/search?client=firefox-b-d&q=Climate+Hazards+in+Bangladesh+map+of+link>

The major climate security threats in Bangladesh are discussed in the subsequent paragraphs:-

a. **Food and Water Insecurity:** Flooding is a big challenge for Bangladesh since nearly 80 percent of Bangladesh’s landmass consists of flood plains and between 22 to 30 percent of the country is inundated each year. Climate change is going to worsen the country’s flood profile in the future by impacting the Himalayan glaciers and water flow through its GBM river system.⁹ Besides, it will affect country’s water resources by inducing water logging, increased salinity, decreased availability of freshwater, disruption in sediment supply, and river erosion. The freshwater availability in the country is already declining (Figure-2), and climate change will further deteriorate the situation. Due to these adverse impacts, about 25 percent of the country’s population will live with water scarcity by 2050.¹⁰

Figure-2: Renewable water resources per capita



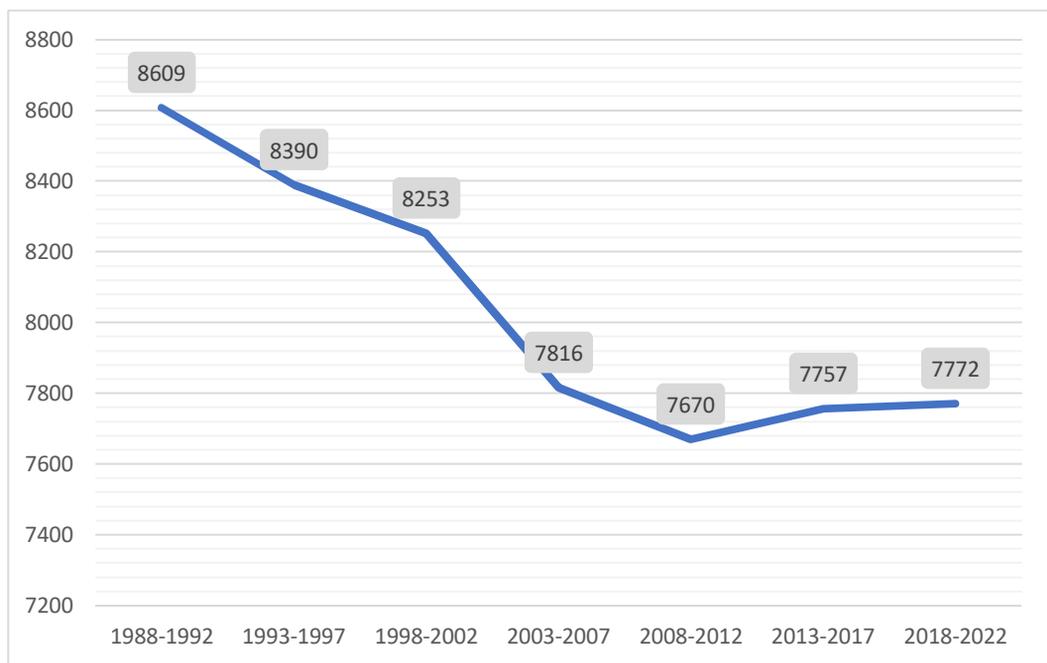
Source: FAO: AQUASTAT

Recent estimates suggest that by 2070, approximately 1.5 million people living in the coastal areas will be affected by flooding.¹¹ In addition, sea-level rise, water stagnancy, salinity intrusion, cyclone, and storm surges will be major climatic hazards affecting the country's low-lying coastal areas. It is to be noted that over 30 percent of the net cultivable area of Bangladesh is in the coastal region; for that, any adverse impact of climate change will directly affect the country's food security.

The country’s arable land is already in decline (Figure 3), and climate change will further strain the country’s food security by reducing food and wheat production, two staple food

of Bangladesh. Increased flooding and more erratic rainfall are expected to decrease crop productivity and result in harvest failures while seriously damaging infrastructure vital for agricultural production. Increased river and soil erosion also pose significant risks to the cultivable land crucial for agricultural productivity and stable food supplies. According to the latest Intergovernmental Panel on Climate Change (IPCC) report, the country will see a decline in rice production by 12 percent to 17 percent and wheat production by 12 percent to 61 percent.¹² Different parts of the country would lose 31 percent to 40 percent of agricultural output in this century to sea-level rise alone because of current global emissions.¹³ Around 850,000 households and 250,000 hectares of harvestable lands have already been lost in climate-induced disasters; the loss of agricultural land also resulted in crop failure, which increased the price of rice by 30% between 2014 and 2021.¹⁴ All of these changes will severely undermine the food security and the livelihood of the people of Bangladesh, especially the poor. Prolonged food and water insecurity would lead to increased competition over resources due to loss of land and livelihoods, thus directly contributing to the country's conflict profile.¹⁵

Figure-3: Arable Land Area of Bangladesh



Source: FAO: AQUASTAT

b. **Loss of Livelihoods and Increased Competition for Resources:** A potential source of conflict related to climate change in Bangladesh derives from the loss of land and livelihoods, with associated competition over resources at the local and community level. With almost half of Bangladesh's workforce and two-thirds of the rural population directly

employed in the agricultural industry, the issue of climate change and its subsequent impact on the agricultural sector threaten to undermine the life and livelihoods of tens of millions of workers. Besides, due to global warming, the frequency of category four and category five cyclones will increase in Bangladesh with the increased frequency of storm surges. The country's largest mangrove forest, situated in the southern part of the country, would also be affected by global warming and associated sea-level rise (Table 1). Around 26 million people, who live in the coastal area and the Sundarbans, are now at extreme risk of losing their livelihood. Salinity intrusion is another major concern in the country, which will further increase with land-use changes, reduced stream flows, and increased storm surge inundation.

Table-1: Sea Level Rise Vs Inundated Area of the Sundarbans

Sea-Level Rise (cm)	Inundated Area of the Sundarbans
10	15%
25	40%
45	75%
60	100%

Source: Nishat and Chowdhury, 2019¹⁶

Climate-induced disasters will force the country's vulnerable communities into more conflict situations since the resource will become scarce day by day.¹⁷ With livelihoods under increasing threat, competition for access to and control over land and natural resources will become more acute, resulting in more violence and clashes.¹⁸

c. **Climate-Induced Migration and Displacement:** As a low-lying country situated in the world's largest river delta, the lion's share of the country's landmass is less than 10 meters above sea level, with the average elevation of the coastal belt only less than 3 meters.¹⁹ This puts the coastal area—consisting of 19 districts, homes of more than 35 million people and 32 percent of the country's land coverage—at particular risk of sea-level rise. A 2018 US government report noted that 90 million people of Bangladesh, consisting 56 percent of the country's population, live in “high climate exposure areas²⁰,” while 53 million are subject to “very high” exposure.²¹ According to the latest IPCC report, Bangladesh is likely to face unbearable heat waves and extreme humidity, a continued rise in sea level destroying homes of around four million people.²² Around one to two million people in the southern part of the country are at risk of displacement by mid-century. With natural disasters already displacing close to 700,000 Bangladeshis annually, the number of people displaced by climate change in Bangladesh is estimated to reach 13.3 million by

2050.²³ As climate change continues to drive migration and displacement, the human security of migrants and internally displaced persons will be increasingly compromised, leading to societal imbalance, resource competition, violence, and conflict.

d. **Climate Effect on Bangladesh:** According to the IPCC report Bangladesh is projected to face sea level rise of 26-28 cm by the end of the century, which could lead to inundation of coastal areas, salination of groundwater and loss of freshwater sources. In addition, the country is more likely to experience more frequent and intense floods, cyclones, droughts, and heat waves, which could cause significant damage to infrastructure, agriculture and livelihoods. Recent floods in Sylhet, Sunamganj, and Habiganj have damaged homes and caused losses of lives, infrastructure, crops, wealth, and animals. Coastal erosion has forced people to move and saltwater intrusion is damaging agricultural capability and drinking water scarcity. Recent heatwaves and temperature rising to 40–41 degrees Celsius affected human health, increased heat stress and waterborne diseases. Heatwave has damaged power supply lines and sparked fire in many places which is dangerous for daily life and increases the possibility of risk. Lack of awareness and understanding of climate change is a greater risk. In rural areas unaware of the risk and its consequences is more dangerous and hindrance to future actions. New mega infrastructure also influences being more careful to emphasize safety and security. The army along with Border Guard Bangladesh did a splendid job to rescue and assist the victims.

Preparedness of Armed Forces around the World

Climate change as a security issue has already been listed in national security strategies in many countries. Some of the country's initiatives are discussed in the subsequent paragraphs:-

a. **The United States:** The United States (US) has been at the forefront of integrating climate change concerns into its national security and military strategy. US military aims for net-zero by 2050 but with a carbon footprint greater than some 140 countries critics say it needs radical change.²⁴ On 08 February 2022, the US Army released its climate strategy. Among other tactics, the army aims for net-zero emissions by 2050, to electrify its combat and non-tactical vehicles, to power its bases with “carbon-free” electricity, and to develop clean global supply chains. The Army Climate Strategy (ACS) admits, for example, that the US Army's nearly \$740m yearly expenditure on electricity created 4.1m tons of greenhouse gases in 2020 – 1m tons more than the greenhouse gas emissions generated by Switzerland's heat and electricity sector in 2017.²⁵ Recognizing that a changing climate would affect the interests of the US and its allies, the US Government has adopted several steps and methods to combat climate change, involving acts carried out under several different authorities. Executive Order (EO) 14008, which was signed in 2021, has significantly accelerated climate action. EO 14008 mandated a whole-of-government

strategy to combat climate change and placed the issue at the forefront of US foreign and national security policy. In 2016, Climate Change Adaptation and Resilience was formed as a new policy by the Department of Defence (DoD) Directive 4715.21 to identify and manage risks related to the effects of climate change to maintain an effective and efficient U.S. military. In September 2021, the DoD released a Climate Adaptation Plan, providing a roadmap to ensure DoD maintains the ability to operate under changing climate conditions and that climate change adaptation aligns with and supports the DoD's warfighting requirements. In October 2021, a set of analyses was released from core US Government national security and foreign policy components, fulfilling EO 14008. This included reports from the Office of the Director of National Intelligence, the DoD, the Department of Homeland Security, and a White House report on the impact of climate change on migration.

b. **Australia:** Australia Defence Forces (ADF) recognizes that it is a custodian of the environment and is committed to sustainable environmental management.²⁶ The environment is a critical enabler of ADF capability and must be protected to ensure that Defence activities can be sustained into the future. The Defence Environmental Strategy, released in October 2016, informs defence environmental management.²⁷ This strategy aims to manage present and emerging environmental challenges and opportunities. The Defence Environmental Policy provides the implementation, monitoring, and reporting framework in support of this Defence Environmental Strategy by laying out specific actions, timeframes, and responsibilities. Both the 2016 Defence White Paper and the 2020 Defence Strategic Update identify that climate risk will affect their operating environment. The strategic update noted that disaster response and resilience measures demanded a higher priority in defence planning.²⁸

c. **New Zealand:** The Ministry of Defence and New Zealand Defence Force have adopted a proactive stance in promoting global recognition of climate change as a security risk and integrating climate change into Defense activities and decision-making processes to support the larger New Zealand Government work programme on climate change. The Defence Climate Change Implementation Work Plan, titled Responding to the Climate Crisis: An Implementation Plan, puts actions to the recommendations from the 2018 Climate Crisis Defence Assessment.²⁹ The Plan has been coproduced by the Ministry of Defence and Defence Force. The Plan describes Defence's existing climate change initiatives and pledges as well as how it will develop best practices and increase ambition over time. It outlines the actions the DoD will take to guarantee that the military is even better equipped to face the difficulties that climate change will bring over the coming decade.

d. **Japan:** Japan's annual defence whitepaper 2021 positioned climate change as a security issue for Japan for the first time, noting that the effects of climate change may

induce or exacerbate conflicts over land and resources, along with social tensions and conflicts due to large-scale migration. It is considered that climate security makes a huge impact on the MOD/ Self-Defence Force (SDF) operation, plans, facilities, and equipment as well as the security environment surrounding Japan. MOD established the Climate Change Task Force chaired by the State Minister of Defence in May 2021, to mobilize the entire ministry for its response to tackling the challenges imposed by climate change. The purpose of the task force is to evaluate and analyze the impact of climate change on Japan's security and to take measures required of the MOD.

e. **India:** Military infrastructures in India have been devastated as a result of natural catastrophes in the recent past. As a result, the Indian Armed Forces Joint Doctrine recognizes the security paradigm of climate change and advises that the military will need to intervene if environmental degradation and associated concerns pose security risks. 2017 Joint Doctrine listed climate change, ecosystem disruption, energy issues, population issues, food-related issues, economic issues of unsustainable modes of production, and environmental civil unrest are just a few of the non-traditional security challenges linked to the environment that could influence conflict and war.³⁰ The Indian military is making changes across to increase efficiency and sustainability. For instance, they are allowing solar energy projects in military-owned lands, which is enhancing the nation's potential to produce renewable energy. Likewise, the Indian Navy debuted its first warship powered completely by biofuel at the 2016 International Fleet Review, and it is now improving its blue-water capabilities to attain a zero-carbon footprint. Karwar, India's largest naval base, has been designed to be a "Smart Green Naval Base" with highly efficient energy, water, and wastewater management systems.³¹ One more significant area for the Indian armed forces is military-to-military cooperation in humanitarian assistance and disaster response. The military has been conducting regional joint exercises with the US, Japan, and other nations.

Preparedness of Bangladesh Armed Forces and Ways Ahead

Preparedness of Bangladesh Armed Forces: Over the years, Bangladesh has established a role model of disaster management in the world. Bangladesh Armed Forces very closely work with the lead ministry- the Ministry of Disaster Management and Relief (MoDMR), and remain on standby to assist the nation. The armed forces take an active part in the events of disaster risk reduction, preparedness, and management. Armed Forces also take significant initiatives in promoting civil-military coordination and measures against earthquakes. Besides, following are the significant steps taken by the Bangladesh Armed Forces:-

a. The largest exercise on earthquake disasters in Asia Pacific Region named Disaster Response Exercise and Exchange (DREE) is organized in Bangladesh since 2010. It has now become a brand in Bangladesh. There is an earthquake contingency plan prepared for

each sector of Dhaka City in line with the national contingency plan and a few major cities outside Dhaka. Every year Armed Forces Division is updating the contingency plan of the respective sector by conducting DREE. The United States Army Pacific and Armed Forces Division jointly organized the largest DREE on earthquake disasters in Asia Pacific Region on 26 - 28 October 2021 with great success.

- b. There are dedicated Formed Light, Medium, and Heavy Urban Search and Rescue teams in every military formation to manage any kind of disaster.
- c. Armed Forces Division has also prepared a web-based database for Disaster Management related issues.
- d. Armed Forces Division is working with MoDMR for a sustainable communication system during disaster namely 'Disaster Response Emergency Communication System'.
- e. Bangladesh Armed Forces has projected high level preparedness for assisting flood affected people of Sylhet division with the support of Border Guard Bangladesh in 2022.

Ways Ahead: The Government of Bangladesh issued Standing Orders on Disaster 2019 and National Plan for Disaster Management (2015-2025). Yet officially, there has been no analysis of the risk and impact of climate change on national security. There is also no thought on integrating the responses to increased threats due to climate change in the existing military strategy. The US serves as a good model of how military operations and planning may be adjusted to improve national security. It might be argued that the US maintains security hegemony globally and has operations around the world, thus, it is influenced by the security implications of climate change on an international level. But such an argument can be nullified by the high-level climate security threats posed to Bangladesh. Climate risks will affect the operational environment of the armed forces of Bangladesh. Therefore, it is now time to assess the growing climate threats and include the responses to climate change in military strategy. The following steps are suggested for consideration by the Bangladesh Armed Forces:-

- a. Undertaking a climate risk analysis with a focus on the strategic risks posed by climate change. It will specify how the military will include climate concerns into strategic planning, budgeting, directives, and better equipment. Armed Forces War Course Wing of National Defence College may be beefed up with environment experts for conducting the analysis.
- b. Introducing a climate assessment tool, which can be a web-based collection of climatic data that will allow armed forces to conduct exposure assessments and identify military installations for more climate-related research. This is very important for protecting the existing military installations of Bangladesh Armed Forces, especially in the disaster-prone areas in Bangladesh. Military Institute of Science and Technology may be a good option for this assignment.

- c. Assessment of installation exposure to climate change. This is essential for existing military installations to evaluate and analyze hazards due to climate change and take required measures for the impact of climate threats.
- d. Preparing a military installation policy to address threats caused by changing climate and extreme weather which will establish requirements for military installations to protect critical assets and ensure mission resilience against the threats of climate change and extreme weather.
- e. Preparing an analytical climate change framework and methodology to help military development planners for understanding how to consider climate change in their plans and future projects.
- f. Encouraging production of green energy in military-owned lands. This will reduce the use of electricity in military installations.
- g. Improving the regional dialogue on climate change and security in support of responding and preparing armed forces, and conducting regional joint exercises on disaster relief and humanitarian assistance.
- h. Armed Forces may take an endeavour to increase public awareness and education, strengthening institutional capacity, improving infrastructure, promoting renewable energy, supporting agricultural adaptation and encouraging international cooperation.
- j. The Armed Forces have established specialized disaster response teams to handle emergency situations caused by natural disasters, including cyclones and floods. Military personnel should conduct training in disaster response and relief operations to effectively respond to climate-related emergencies in collaboration with other stakeholders.
- k. The Armed Forces play a crucial role in providing emergency relief, including food, water, medical assistance, and shelter, during and after climate-related disasters. The armed forces should work closely with civilian authorities to develop and implement evacuation plans for vulnerable areas during extreme calamities. The armed forces should collaborate with international organizations and foreign militaries for disaster response training and joint exercises, enhancing their capabilities for disaster relief operations.
- l. The military may be involved in constructing resilient infrastructure in vulnerable areas, such as building cyclone shelters and flood-resistant structures.

Conclusion

Bangladesh is one of the countries most vulnerable to climate change, as well as one of the most disaster-prone countries. Bangladesh's flat topography, low-lying and climatic features, combined with its population density and socio-economic environment, make it highly susceptible to many natural hazards, including floods, droughts, cyclones and earthquakes. Climate security threats have a significant influence on political stability, human security or national security

infrastructure. Therefore, risk assessment, response and resilience measures demand a higher priority in defence planning. Bangladesh Armed Forces have taken significant steps to enhance their preparedness and response capabilities for various types of disasters including natural disasters like cyclones, floods and earthquakes. The armed forces are involved in developing and implementing evacuation plans for vulnerable areas, especially in coastal regions prone to cyclones and storm surges. They also play a role in managing cyclone shelters and providing temporary shelter for displaced populations. In the aftermath of disasters, the armed forces are often among the first responders, providing emergency relief such as food, water, medical assistance, and shelter to affected communities.

Most of the modern and advanced Armed Forces are acquiring knowledge on climate security threats and addressing the issues in their defence strategy. Similarly, the armed forces of Bangladesh can support the nation by assessing the risk and impact of climate change on national security and integrating the climate security threats into military strategy. Bangladesh's vulnerability to natural disasters has prompted the armed forces to prioritize disaster response and preparedness. They play a critical role in providing immediate assistance and relief during emergencies, collaborating with civilian authorities and international partners to minimize the impact of disasters on communities. The Armed Forces should focus on military installation policy to protect critical assets and develop an analytical climate change framework and methodology for future projects. Bangladesh Armed Forces may collaborate with international organizations, foreign militaries and humanitarian agencies for disaster response training, joint exercises and knowledge sharing. This may help enhance their capabilities and learn from best practices. The armed forces should work closely with civilian authorities including the government agencies responsible for disaster management to ensure a coordinated and effective response to disasters. Thus, the military will be well prepared to face future climate security threats for safeguarding the nation in the time of crisis.

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Brief Biography



Colonel Sharif Ali Hossain, psc was commissioned in 1996 in the Corps of Engineers in Bangladesh Army. A graduate from Defence Service Command and Staff College, Mirpur, he obtained his Masters in Defence Studies and MSc in Transportation Engineering from BUP. He served in staff appointments in Army Headquarters and Formation Headquarters and commanded an Engineers Battalion. He participated in Operation Kuwait Punorgathon (OKP) as an Explosive Ordnance Disposal (EOD) expert. Presently he is serving as Land Acquisition in Charge in CSC, PBRLP.

Contemporary Military Thoughts and Issues: Key Takeaways for Junior Leaders of Bangladesh Army

Lieutenant Colonel Muhammad Sharif Ul Alam, afwc, psc, Artillery

Abstract

The character of warfare is evolving over time in parallel with changes in society, economy, environment, technology, and politics. Understanding the character of modern-day warfare and contemporary significant military issues in right perspective is essential for intellectual growth of junior military officers of Bangladesh Army. The influence of technology on modern warfare is such that it is considered as panacea by many and the trajectory of technological progress in military foresee a future battlefield dominated and controlled by machine not men. Beside technology geopolitics has emerged as a crucial factor of contemporary warfare. Almost all the ongoing local or regional conflicts are linked to global geopolitics. Moreover, in contemporary time numerous nonmilitary means like information operation, cyber operation etcetera are frequently used by belligerents as viable alternative of kinetic use of force. These evolution in military affairs demand a continuous transformation in doctrine, training, leadership approach, organization, and weapon system of an army to keep pace with the changes. Junior leaders need to reflect on those contemporary issues and contextualize lessons from those in the perspective of Bangladesh Army. It is essential for them to study the new conceptions of modern warfare like hybrid warfare, cognitive warfare, and irregular warfare and develop insight of future warfare. Innovation and creativity in doctrine, education, and training to cope with the challenges of the future operational environment is essential. Robust research on the current military developments in the geographic, demographic, and geopolitical realities of the Bangladesh is essential to cope with the challenges of future.

Introduction

Canadian Prime Minister Justin Trudeau, in his speech delivered at the World Economic Forum held at Davos, 2018 remarked, “The pace of change has never been this fast, yet it will never be this slow again.”¹ So is true in the case of progress in military issues as well. Warfare is evolving over time in parallel with changes in society, economy, environment, technology, and politics.² Though the enduring nature of war remains unchanged over time, the character of warfare is changing continuously; according to Clausewitz, these changes reflect the spirit and character of that time.³ Understanding those changes from the right perspective is essential for the intellectual growth of junior military officers in the Bangladesh (BD) Army.

Among numerous drivers of change, the influence of technology is such that it is considered a panacea by many, and the trajectory of technological progress in the military foresees

a future battlefield dominated and controlled by machines (a battlefield without human beings).⁴ The role of geopolitics is also a crucial factor in contemporary conflicts. Almost all the ongoing local or regional conflicts are linked to global geopolitical dynamics.⁵ Besides, in contemporary times, numerous nonmilitary means like information operations, cyber operations, etcetera are frequently used by belligerents to achieve their national interests. In terms of objective and effect, these measures are similar to waging a war without using kinetic military force.

The above-mentioned evolution in military affairs demands a continuous transformation in the doctrine, training, leadership approach, organization, and weapon system of an army to keep pace with the changes. To be prepared for the future, junior leaders need to reflect on those contemporary issues and contextualize those lessons from the perspective of the BD Army. Gaining a breadth and depth of understanding of contemporary issues would allow them to face the unforeseen challenges and circumstances of the future. Against this backdrop, this piece will first analyze a few of the key military issues of the contemporary era and then highlight important lessons that junior officers of the BD Army can derive from those issues.

Contemporary Military Issues and Thoughts

Among numerous significant ongoing military issues, four key areas: the character of contemporary warfare, techno-centric advances in the military, the importance of geopolitics in contemporary conflicts, and finally, nonmilitary means of warfare in the present times have been briefly highlighted in the subsequent paragraphs.

The Character of Contemporary Warfare-Insight from Wargame Millenium Challenge 2002 (MC-02)

Setup, Scope, and Outcome of the MC-02: The MC-02 was the largest-ever joint wargame in US history, conducted from July 24th to August 15th, 2002, by the US Department of Defense. It was designed to identify the character of warfare in the new millennium and the challenges for the US military.⁶ It also aimed to validate 11 major concepts, 27 joint initiatives, 46 service initiatives, and 22 different warfighting challenges of the US military.⁷ The exercise involved 13,500 personnel from 9 live locations and 17 simulation locations, with a total expenditure of USD 250 million (equivalent to USD 450 million at present time).⁸ The tactical scenario depicted a conflict between the US (Blue Forces) and a Persian Gulf nation (Red Forces). Veteran Marine Corps General Paul K. Van Riper (ret'd) led the Red Team. The Red Forces adopted unorthodox, pragmatic, and creative strategies and tactics in the wargame to offset the Blue Forces' (US) numerical and technological superiority. For example, to offset the Blue Forces' technological superiority, the Red Forces did not expose any electronic signals; rather, they used motorcycle messengers and light signals to transfer orders to the front-line troops and used indigenous small boats for ISR missions. The Blue Forces' numerical superiority was offset by the unorthodox strategy and tactics of a surprising preemptive strike. A swarm of small boats along with an immense salvo of cruise missiles from the Red Forces overwhelmed the Blue Forces' electronic

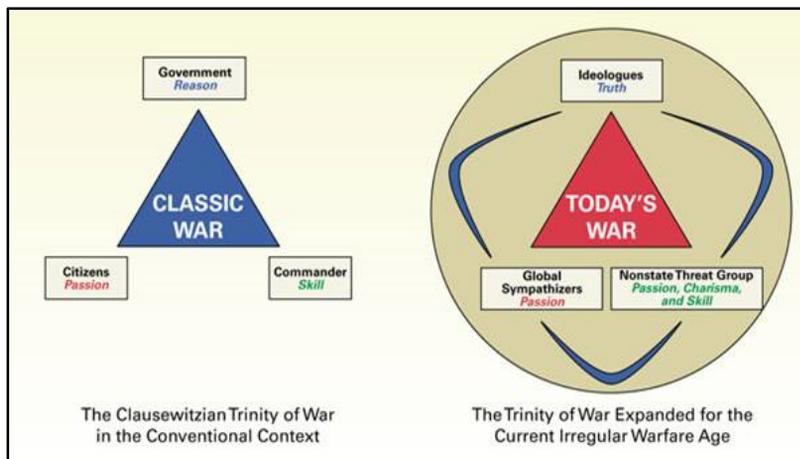
sensors and destroyed sixteen warships: one aircraft carrier, ten cruisers, and five amphibious ships in a short span of time. The entire Blue Forces fleet lost the capability of any further military operation, with an estimated casualty count of 20,000 US forces. Being embarrassed by the outcome of the event, the war game was suspended for the time being; the Blue Forces ships were re-floated, and the rules of engagement were changed.⁹ The exercise ended with controversies as numerous constraints were subsequently imposed on the Red Forces' actions. However, the MC-02 exposed the character of 21st century warfare, a form of warfare that US forces encountered subsequently in the 2nd Gulf War (2003–2011) and the US-Afghanistan War (2001–2021).

Insight from the Wargame

The war game unveiled the character of contemporary warfare and also affirmed that superior strategy and tactics can offset the technological and numerical superiority of the adversary.

a. **The Character of Warfare in the New Millenium:** The wargame demonstrated that the character of warfare is evolving extraordinarily. The ends, ways, and means of contemporary warfare are undergoing significant transformation. Today, belligerents wage war using a mix of conventional, unconventional, and irregular methods to achieve their war objectives.¹⁰ Clausewitz's classical trinity of 'government', 'citizen', and 'commander' can no longer explain the phenomenon of the present day's complex warfare. Rather, in today's context, the idea of 'government' has been replaced by 'ideology', 'citizen' is replaced by 'global sympathizers', and 'commander' is being replaced by 'mercenaries' or 'private armies'.¹¹

Figure-1: Clausewitz's Trinity in Conventional Context and Today's Changed Environment Context



Source: Sebastian L. v. Gorka, 'How the Terrorist Attacks of 2001 Have Signalled a Fundamental Change in the Nature of Conflict,' 2010.

The Syrian Civil War (2011-ongoing), the War in Gaza (2023-ongoing), and the Yemeni Civil War (2014-ongoing) testify to the same hypothesis.

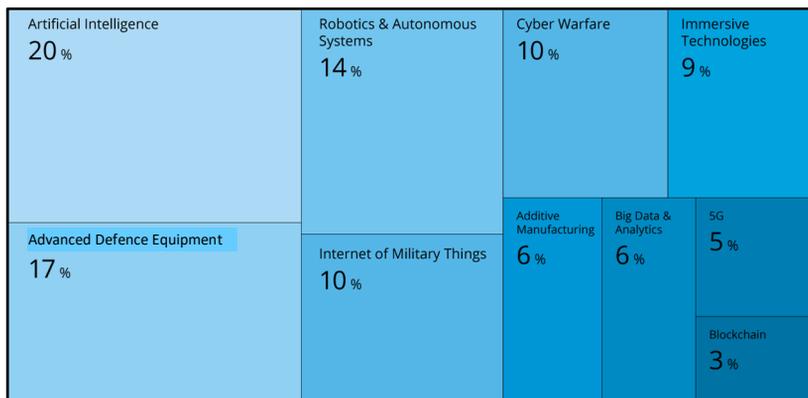
b. **Unorthodox, Creative, and Pragmatic Strategies and Tactics can offset Technological or Numeric Superiority:** In the MC-02, the Red Forces’ strategy of preemption offset the Blue Forces’ mental equilibrium. As General Van Riper (retd) knew his enemy (the Blue Forces) well, with superior cognitive ability, he could adopt strategies and tactics appropriate for that operational environment. Creative and pragmatic tactics of not exposing any electronic signals offset the technological superiority of the US Forces. In the last two decades, the US military has confronted the same challenge of unorthodox, creative, and pragmatic strategies and tactics of adversaries in Iraq (2003–2011) and Afghanistan (2001–2021). The wargame testified that with superior strategy and tactics, a numerically and technologically advanced adversary can be defeated in a war.

Insight from Techno-Centric Advancements- Influence on Contemporary and Future Warfare

Modern military technology has transformed how wars are fought and changed the character of warfare. Techno-centric innovations of the current era and projected future developments are briefly narrated below:-

Contemporary Techno-Centric Advancements: Military technology has progressed significantly in recent years, and it has led to significant changes in military strategy and tactics. Current technological innovations like artificial intelligence (AI), robotics, nanotechnology, unmanned aerial systems (UAS), and communication technologies are merging the physical, digital, and biological domains.¹² Technological advancements of the current era primarily focus on enhancing effectiveness in four aspects: connectivity (network-centric warfare, robust command control), lethality (precision and destruction), autonomy (independently selecting a course assisted by AI), and sustainability (protection and reliability).¹³ Figure 2 shows the top 10 technologies that impact the military in the current era.

Figure-2: Impact of Top 10 Military Technology (Trends and Innovations in 2024)



Source: ‘Top 10 Military Technology Trends & Innovations,’ *Start Us Insight*, available at: <https://www.startus-insights.com/innovators-guide/top-10-military-technology-trends-2022/>.

Those technologies are extensively used in contemporary warfare to gain tactical and operational advantages. For example, in the Russia-Ukraine War (2022–present), commercial satellites are used by Ukraine to track the movements of Russian forces on the battlefield and augment their ISR capability.¹⁴ Belligerents are using small commercial drones to acquire target data for artillery strikes. Both Ukraine and Russia are utilizing small armed drones with loitering munitions that can hover in the air for hours and then drop explosives on a target.

Future of Techno Centric Advancements: According to NATO Chief Scientist Dr. Bryan Wells, future development of military technology is likely to be in four key areas: intelligence (AI-based analytic capabilities), interconnection (connecting virtual and physical domains), distribution (decentralized and large-scale sensing, storage, and computation), and digitalization (blend human, physical, and information domains).¹⁵ Their effects would be as follows:-

- a. **Intelligent Autonomous Action:** AI and autonomous systems have the potential to supersede human capability by enabling increasingly complex decision-making and autonomous operations.
- b. **Cognitive Dominance:** Quantum and space technology will improve C4ISR data collection, processing, and exploitation capabilities.
- c. **Expanded Domains:** AI, big data, and quantum technologies will increase the capacity to take advantage of the biological, cognitive, social, and physiological domains.
- d. **Precision Weapon System:** Precise strike capabilities would increase due to more digitization of directed energy precise weapons, swarming technology, and C4ISR capabilities.

Role of Geopolitics in Contemporary Warfare

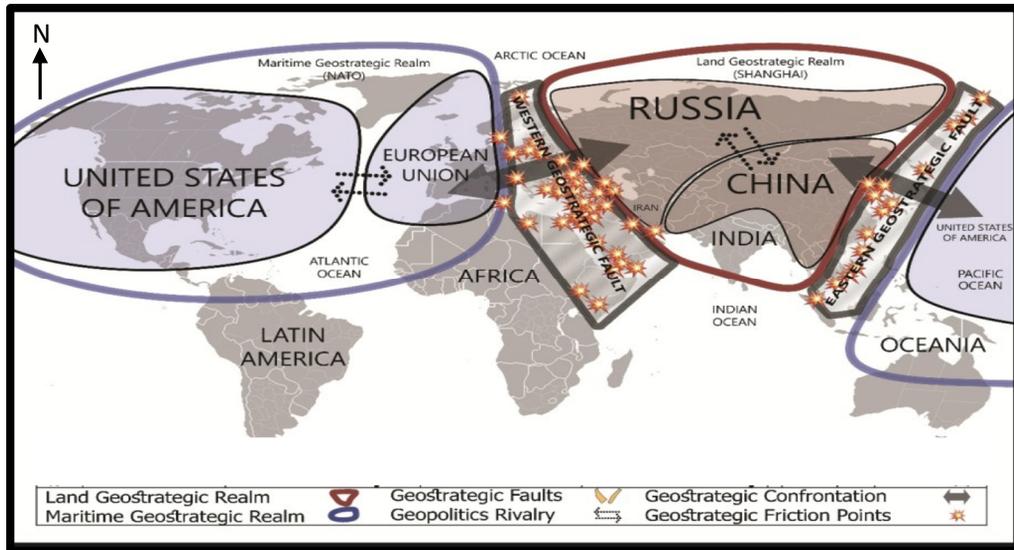
Geopolitics analyzes the influence of geography on peace and conflict among states.¹⁶ Almost all the conflicts of the contemporary era are closely linked to global geopolitics. Globally, a transition of military and economic power is happening, and global military expenditure has reached its peak of all times recently. From the BD perspective, geopolitical developments in the Indian Ocean Region (IOR) are significant.

How Geopolitics Impacts Conflict: Mackinder's 'Heartland Theory,'¹⁷ is an important theoretical framework that aids in comprehending the role of geopolitics in conflict. He hypothesized that:

‘Who rules Eastern Europe, commands the Heartland,
Who rules the Heartland, commands the World Island.’¹⁸

During the Cold War era, the theory had a significant impact on the strategic thinking of Western nations.¹⁹ Following theory as shown in Figure-3 amplifies the idea more precisely.

Figure-3: Spatial Model of the Theory of World Active Geostrategic Faultline



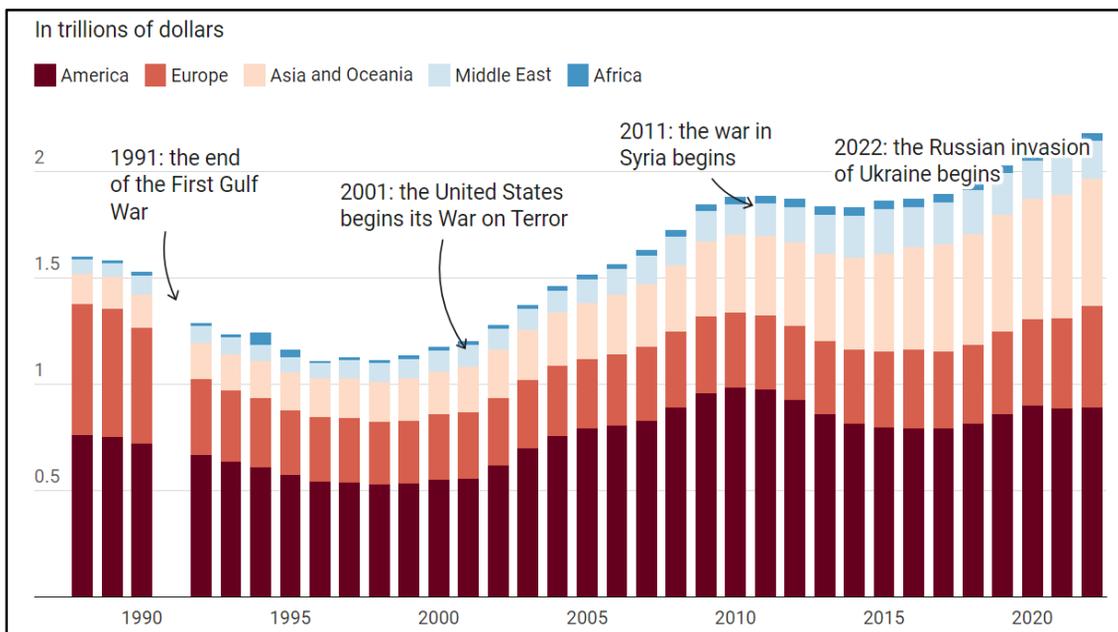
Source: Dr. Mohammad Reza Hafeznia, 2018, 'Active Geostrategic Faults in the World,' *Geopolitic*, available at: <https://www.geopolitic.ro/2018/11/active-geostrategic-faults-world-2/>.

The model has divided the world into two realms: the US, EU, and UK, with the centrality of NATO as a maritime geostrategic realm and Russia, China, and their classic alliances as a land strategy realm.²⁰ In the process of the expansion of power and influence by the belligerents, two fault lines (lines along which geopolitical confrontations are more likely) have emerged. These are known as the East Fault Line (located at the gap between the lands of Eurasia and the Pacific Ocean) and the West Fault Line (meeting the surface of Eurasia, Europe, and Africa).²¹ Major flash points in the East Fault Line are the Korean Peninsula, the East and South China Sea, Taiwan, and international straits like the straits of Korea, Taiwan, and Malacca. Major flash points in the Western Fault Lines are along Russian Western bordering and former Warsaw member states (like Romania, Georgia, Ukraine, Belarus, Latvia, Lithuania, Estonia, Finland, etcetera), the Black Sea region, the Crimean Peninsula, etcetera.²² The Figure identifies the flash points along the fault lines and indicates that all local and regional conflicts have links to global geopolitics.

Transition in Global Order and Increased Militarization Across the Globe: As China's economy and military grow, the US-China rivalry is intensifying into a full-fledged struggle for global supremacy.²³ The tech war and trade war between the US and China are gradually evolving into a confrontation for a new global order.²⁴ An agitated, aggressive, and multipolar global order is replacing the previous unipolar one, in which the US was the unchallenged global superpower.²⁵ The current global security situation is volatile, as demonstrated

by the invasion of Ukraine, the dispute between Israel and Hamas, and numerous conflicts in the Middle East.²⁶ Due to security dilemmas among states, global military expenditure grew by 19% over the last decade (2013–22) and reached a record high of \$2240 billion in 2022.²⁷

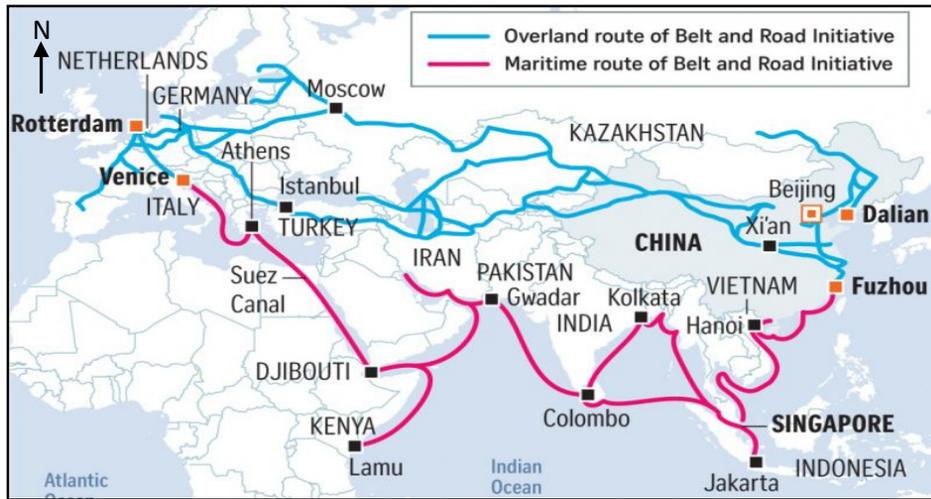
Figure-4: Global Military Spending (1988-2022)



Source: Russell Hanson, Adam R. Grissom, and Christopher A. Mouton, ‘The Future of Indo- Pacific Information Warfare: Challenges and Prospects from the Rise of AI’, *RAND Corporation*, available at: https://www.rand.org/pubs/research_reports/RRA2205-1.html, accessed on 14 March 2024.

Geopolitics in IOR: From a geopolitical point of view, IOR is the Achilles heel of China; the space can be used by the US as a geopolitical and geographical challenge against China. 80% of the world’s maritime oil trade flows through three choke points in the Indian Ocean.²⁸ The IOR and its numerous choke points are used by China to import energy and raw materials essential for its economic and industrial growth. So, the accessibility, control, and security of the IOR have vital geo-economic importance for China. Presently, China attempts to become the centre of a web of economic relationships with numerous projects like ‘One Belt, One Road’, ‘New Maritime Silk Road’, and ‘Asian Infrastructure Investment Bank’ to secure its economic and geopolitical interests.²⁹

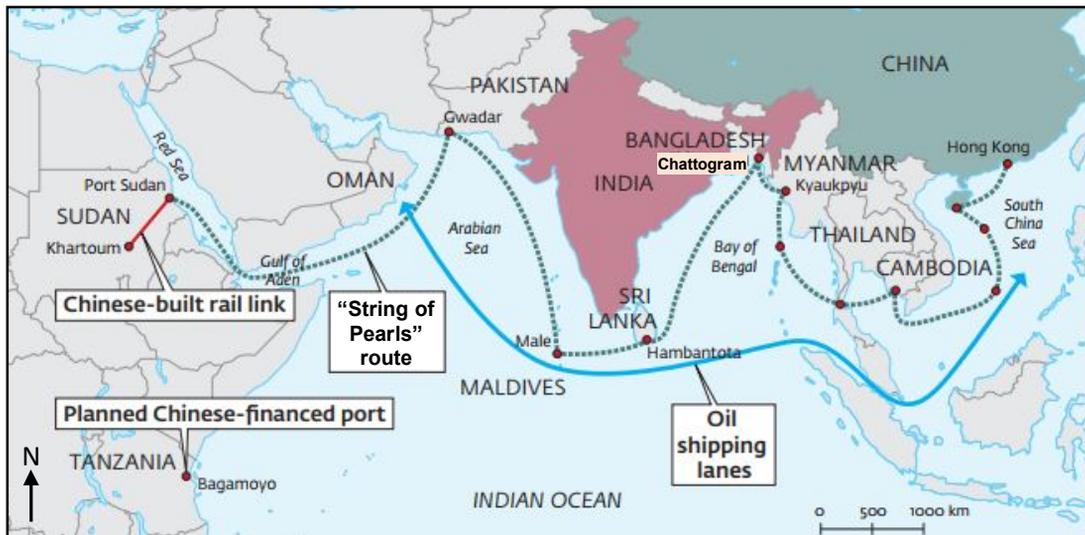
Figure-5: Overland and Maritime Belt and Road Initiative



Source: Captain Gerard Roncolato, (Retired), US Navy, May 2022, ‘The Character of War Is Constantly Changing’, *US Naval Institute Magazine Proceedings*, Vol. 148/5/1,431.

Those communication networks and infrastructural developments have far-reaching security implications. For example, China is securing its energy supply route with ports along the sea route, which security analysts termed the ‘String of Pearls’.³⁰

Figure-6: String of Pearls- Strategic Routes and Lanes in Indian Ocean



Source: Jalbert, Madeline, Eryn Newman, and Norbert Schwarz, ‘Only Half of What I’ll Tell You Is True: Expecting to Encounter Falsehoods Reduces Illusory Truth’, *Journal of Applied Research in Memory and Cognition*, Vol. 9, No. 4, December 2020.

These developments have created strategic uncertainty and security dilemmas among the nations of the IOR. The US and its allies have sought to counterbalance China’s growing influence across the region through numerous initiatives like the Indo-Pacific Strategy (IPS), the Quadrilateral Security Dialogue (QSD), and AUKUS etcetera. Regional countries need to observe the developments keenly and take pragmatic steps to cope with the challenges and opportunities of such developments.

Non-Military Means of Warfare - Insight from the Contemporary Era

In contemporary times, numerous nonmilitary means of warfare, like information operations (IO) and cyber operations, are used by the belligerents during peacetime to achieve their national objectives. In terms of effect, these measures at times surpass the effect of kinetic military operations, and they blur the line between war and peace.

IO: The domain of IO has significantly developed with the introduction of AI technologies, specially advanced language models. With that technology, one can conduct complex IO to influence and shape people’s perception, as well as justify and propagate a different version of narrative in a conflicting situation.³¹ With effective use, IO has emerged as a key tool to promote national interests.³² States in contemporary times are capable of creating AI driven digital infrastructure, such as phoney accounts on Facebook, Reddit, or Twitter, and those can be used to propagate their own narrative to the target audience. Technologies such as ChatGPT can generate sophisticated text content, and open-source text-to-image models can generate photorealistic images of anything (real or imagined) that seem to be generated by any individual human being.³³ With the use of well-written material or visually appealing images, those contents look truer than they actually are.³⁴ Following are a few of the technologies associated with such IO:

Table-1: Technologies Associated with Contemporary IO

Generation	Key Technology	Example
1.0	Basic Computer Programming	Semi-automated bots that post human generated, non-tailored content
2.0	Early Machine Learning	Low quality manipulated videos; limited computer-generated content with limited scale; some distribution by procedural bots
3.0	Generative AI	High quality tailored fake text and images at scale; advanced, dynamic, automated distribution and coordination

Source: Maggie Wooll, ‘Improvise, Adapt, Overcome: Your how-to guide for an Ever-changing World’, available at: <https://www.betterup.com/blog/how-to-increase-adaptability>. Accessed on 2 August 2022.

For example, in the ongoing Russia-Ukraine war, belligerents are using advanced technology to propagate their own version of the narrative about the war to global and local audiences.

Cyber Attack: In the contemporary era, cyberspace has become the new battleground of belligerents in peacetime. It can disrupt the critical infrastructure of a state, like power and communications systems, and cripple the nation even without declaring any hostility or using kinetic military power. For example, on 11 April 2021, Israel conducted a cyber-attack on Iran's main nuclear facilities (Natanz reactor) that crippled the electric grid of the plant.³⁵ Similarly, on 18 December 2021, around 70% of Iran's petrol stations were disrupted after a massive cyber-attack carried out by a hacker group.³⁶ Presently, cyber activity is a key national security concern that demands a robust cyber security posture. Cyber security is not confined to the military domain alone; rather, it involves a whole government approach.

Lessons for Junior Leaders of BD Army

The emerging security environment is complex and challenging. To prepare them for the future day's warfare, junior leaders of the BD Army should develop keen insight into the issues around the globe and contextualize lessons from such developments from the perspective of BD Army. Following are a few of the relevant lessons from contemporary military issues:

The Need for Adaptability: Preparing for and Coping with the Characteristics of Future Warfare

'Armies in peacetime prepare to fight their last war, rather than their next war', the military maxim indicates that the doctrine, training, and education of a military are largely focused on the lessons learned from past wars. Futuristic thought and insight like the wargame MC-02 would allow the Army to cope with future day warfare. As the future cannot be predicted with certainty, the importance of adaptability is paramount. Organizations and people who can rapidly and effectively adapt are more likely to prevail in the face of future challenges.³⁷ Adaptability encompasses numerous skills like cognitive agility (adapting thought processes in new circumstances), resilience (ability to recover from challenging situations and embrace changes), flexibility (ability to adapt to new and changing events), innovation (new ideas), creativity (thinking outside of the box), curiosity (digging deeper into a topic) et cetera.³⁸ Scholars argue that in the US war in Afghanistan (2001-2021), the Taliban were more adaptive than the US forces.³⁹ The Coalition, led by the US, fought the war following their traditional strategy and tactics and was slow to adapt to the complex operational environment. On the contrary, the Taliban adapted quickly to the new operational environment. They harnessed new technology (mobile telephone and the internet) to improve their weapon system and used it to the maximum to carry out their strategic communications and influence operations. With lower baseline technology, their adaptation to the operational environment gave them significant advantages.⁴⁰

Technology is not a Panacea, It is a Superior Strategy

Technology is Not a Panacea: The MC-02 and warfare of the last two decades, like Gulf War II (2003-2014), and the Afghanistan War (2001-2021) aptly affirm that technology is a critical enabler, not a panacea.⁴¹ Research indicates that technological superiority does not increase the

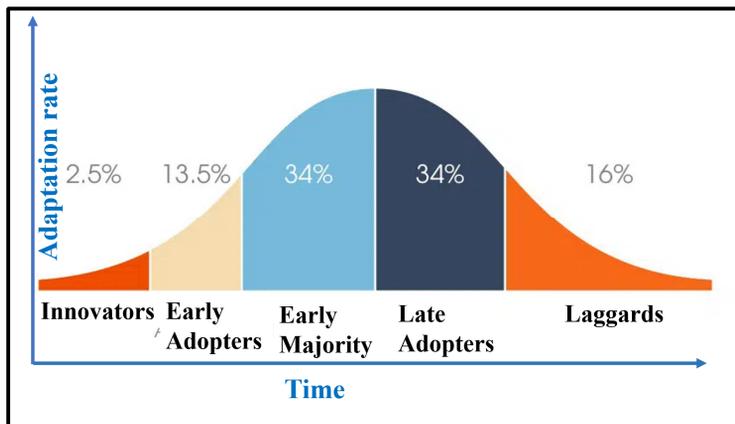
likelihood of military victory. Defence analyst Stephen Biddle, in his book *Military Power: Explaining Victory and Defeat in Modern Battle* argues that over the last century, technology overmatch has been about as predictive of victory as a coin toss.⁴² His multimode analysis showed that the technologically superior side won only 8 times out of 16 wars between 1956 and 1992. He further emphasized that superior strategy and tactics are key to winning a war.⁴³ Technology in modern warfare is a critical enabler, however, superior strategy and tactics can offset the technological superiority of an adversary.⁴⁴

The Significance of Superior Strategy: Scholars argue that the most important battle winning factor in future warfare will be creative strategy.⁴⁵ It is observed from military history that it is possible to mitigate the numerical and technological superiority of opponents through creative strategy. In 2014, Russia annexed Crimea without firing a single bullet. Also, in the 2nd Nagorno-Karabakh War (2021), Azerbaijan made maximum creative application of new weapon system (UAS) to gain decisive advantages in the war.⁴⁶

The Need to Fill up Adaptation Gap: Prepare for the War of Contemporary Era

In military parlance, ‘adaptation gap’ is the gap between the war for which a military prepares and the actual war that it faces over time.⁴⁷ In 2001, the US military was highly trained and equipped for large-scale conventional war, but the war that unfolded in Afghanistan was different. It took six years to publish their population-centric counterinsurgency (COIN) doctrine (FM 3-24, published in 2006) with the idea and concept of fighting a new generation of warfare they were fighting in Afghanistan. Early adaptation to new ideas, theories, and strategies reduces the adaptation gap. Eminent communication theorist and sociologist Everett M. Roger, in his seminal book ‘*The Diffusion of Innovations*’, argues that people are reluctant to accept any new idea or innovation initially; the relative advantages or benefits of the new idea or concept reduce progressively as more people adopt it with time.⁴⁸

Figure-7: Diffusion of Innovation



Source: Dr. Leif Singer, ‘On the Diffusion of Innovations: How New Ideas Spread’, available at: <https://leif.me/on-the-diffusion-of-innovations-how-new-ideas-spread/>. Accessed on 2 August 2022.

The theory further argues that being an early adopter or early majority is one of the keys to gaining maximum advantages from any innovation, concept, or theory.⁴⁹ The junior leaders should study the new conceptions of modern warfare like hybrid warfare, cognitive warfare, and irregular warfare in the BD Army context to reduce the adaptability gap.

The Need for Insight on the Geopolitical Realities of BD

Today's warfare is a complex interaction among geopolitics, geostrategy, socio-political, and cultural contexts of belligerents.⁵⁰ Victory or defeat of war is mostly decided outside the tactical battlefield and controlled by many complex interlinked issues.⁵¹ For example, the ongoing Russia-Ukraine war has complex historical, demographic, and geopolitical contexts; the conflict is not merely a security or political issue. Scholars in the US even argue that US policy makers misread the critical context of the ongoing Ukraine-Russian War.⁵² John Lewis, an eminent scholar and professor of Military and Naval History at Yale University, commented that 'NATO enlargement is an ill-conceived, ill-timed, and above all, ill-suited to the realities of the post-Cold War world'.⁵³ Hence, understanding geopolitics from the correct perspective is critical.

The Need for Innovation and Creativity in Operational Art and Tactics

A relatively smaller force can achieve operational success through innovation and creativity in operational art and tactics. Innovative and creative use of weapon systems like UAS has changed the battlefield dynamics of the 2nd Armenia-Azerbaijan War, 2020. The BD Army may encourage innovation and creativity in doctrine, education, and training to cope with the challenges of the operational environment. The junior leaders of the BD Army need to develop intellectual agility and the ability to critically think, judge, and analyze to make maximum innovation in critical and challenging moments.

The Need for Achieving Cognitive Superiority

A cognitively superior army may be outnumbered, but it cannot be outwitted. The cognitive aspect of war has been emphasized for centuries. In the words of Sun Tzu, "The supreme art of war is to subdue the enemy without fighting".⁵⁴ Cognitive superiority implies higher knowledge and comprehension as well as the skill of application, analysis, synthesis, and evaluation of any issue. A well thought out education system and scheme that generates intellectual curiosity and critical thinking capability among military leaders is essential for developing cognitive superiority.

The Need for Robust Research in BD Army Context

When developments in military affairs are happening at an exponential rate, those developments need to be contextualized in the geographic, demographic, and geopolitical reality of the BD Army through robust research. A deliberate and systematic study of the current and emerging operational environment and its effect on current land warfare doctrine would be able to

bridge the gap between theory and reality. New dimensions of modern warfare like cyberspace, space, AI, robotics, micro-engineering etcetera need robust research to reap the benefits of the current trend.

The Need for Trained, Educated, and Empowered Leaders for Future Warfare

The rapidly changing character of warfare in the 21st century demands deliberately trained, educated, and empowered leaders to face the challenges as well as take the opportunity it offers. Junior leaders need to have a firm foundation in theory, history, strategy, and tactics.⁵⁵ In the words of General Hugh Shelton (retired), former Chairman of the Joint Chiefs of Staff, US Army:

Transformation is first and foremost an intellectual exercise, requiring the brightest minds actively engaged in taking the armed forces to new and higher levels of effectiveness.

The road to transformation begins with a strong programme of education and leader development.⁵⁶

A robust programme of education and leadership development would impart the skills, values, and intellectual agility to fight and win the wars of tomorrow.

Need for Dynamic, Collaborative, and Proactive IO Strategies

Future IO plans will need to be proactive, dynamic, and collaborative as the concept of IO changes along with technology and global geopolitics. Creative thinking and alertness are essential to effectively counter the threat of malice IO.⁵⁷ Enhanced digital literacy, specially developing expertise in AI and machine learning technology is essential to making effective use of modern IO.

The Need for a Whole of Nation Approach in Cyber Security-Not a Military Domain Alone

Cyber security has emerged as one of the most critical security concerns for states. In the military domain, dependency on communication and information technology has led to exposure to cyber risks. However, cyber security is not a military concern alone; rather, a whole of nation approach is essential to counter such a threat. Based on the potential threat, a response to the malicious cyber activity can be diplomatic, economic, or legal measures.⁵⁸

Conclusion

The character of warfare is evolving extraordinarily. The ends, ways, and means of contemporary warfare is undergoing significant transformation. Today, belligerents wage war using a mix of conventional, unconventional, and irregular methods to achieve their war objectives. Technology has transformed how wars are fought, specially AI, robotics, nanotechnology, UAS, and communication technologies are merging the physical, digital, and

biological domains. Military innovations of the current era primarily focus on enhancing connectivity, lethality, autonomy, and sustainability. However, unorthodox, creative, and pragmatic strategies and tactics can offset the technological or numeric superiority of an adversary.

The role of global geopolitics is an important issue in the contemporary era. From the BD perspective, geopolitical developments in the IOR are significant. BD may keenly observe those developments and take pragmatic steps to cope with the challenges and opportunities of such developments. In contemporary times, numerous nonmilitary means of warfare like economic coercion (like trade wars, tech wars), IO and cyber activity are used by the belligerents during peacetime to achieve their policy objectives. In terms of effect, these measures at times surpass the effect of kinetic military operations and they blur the line between war and peace.

Junior leaders of the BD Army should develop keen insight into the issues around the globe and contextualize lessons in the perspective of BD Army. Futuristic thought and insight would allow the Army to cope with future warfare. Organizations and people who can adapt rapidly and effectively to new environments are more likely to succeed in the future. Technology in modern times is a critical enabler and provides significant advantages on the battlefield. However, superior strategy and tactics can always offset the technological and numerical superiority of an adversary.

The junior leaders should study the new conceptions of modern warfare like hybrid warfare, cognitive warfare, and irregular warfare in the right context and adapt them in the BD Army. Understanding geopolitics from the correct perspective is also critical. Developing an insight into the geopolitical realities of BD is important for junior leaders. The BD Army may encourage innovation and creativity in doctrine, education, and training to cope with the challenges of the future operational environment. Robust research on the current military developments in the geographic, demographic, and geopolitical realities of the BD is essential. Finally, changes are a constant character of the contemporary era. In the military domain, understanding the changes from the right perspective is essential to remaining relevant in a particular era. As General Charles G Krulak (ret), former Commandant of the US Marine Corps aptly puts it:

The Chinese have a saying that ‘change is a dragon’.
If you try to ignore him or control him, he will eat you.
But if you can ride the dragon of change, you can survive, even prosper.”

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Brief Biography



Lieutenant Colonel Muhammad Sharif Ul Alam, afwc, psc was commissioned with 43rd BMA Long Course in the Regiment of Artillery on 26th November 2000. He commanded 27 Field Regiment Artillery. As Instructor he served as Directing Staff in Defence Services Command and Staff College, Mirpur and Instructor Gunnery in School of Artillery, Halisahar. He participated in Counter Insurgency Operations in Chattogram Hill Tracts (CHT). As staff he was an aide de camp to General Officer Commanding 66 Infantry Division, Brigade Major of 55 Artillery Brigade and Assistant Military Secretary in Army Headquarters. Besides different courses at home, he attended Intelligence Staff Course in India. He is a graduate of Defence Services Command and Staff College (DSCSC), Mirpur, Royal Brunei Armed Forces Command and Staff College, Brunei and completed his Armed Forces War Course from National Defence College, Mirpur, achieved his Masters in International Security from Massey University, New Zealand with distinction and Masters in Peace Conflict and Human Right Studies from Bangladesh University of Professionals. He participated in UN Peace Operation in Ivory Coast (UNOCI) in 2010-11 and in Central African Republic (MINUSCA) in 2023-24 as a contingent member and military staff officer respectively. Presently, the officer is serving as General Staff Officer-1 (Training) at Defence Services Command and Staff College, Mirpur.

Logistic Challenges in the Peacekeeping Mission: Ways Forward

Lieutenant Colonel Gazi Mohammad Shariful Hasan, SUP, AC

Abstract

Effective logistic support is very significant to the contingent members deployed in the complex peace operations with a view to fulfilling the desired mandate vested on them. It is also crucial for the operational capability of the deployed force to provide support to the host nation's government and humanitarian organizations. More so, it will affect on the overall administrative matters of the whole contingent and effects the country's reimbursement if the logistic preparation is not well thought of. In most cases, it has been observed that the personnel involved in logistic sector or branch, do not have previous experience of the existing logistic systems both in home and mission area. More so, time constrains for pre-deployment formalities, training for the technical personnel and at the same time demand & collection of all the COE and self-sustainment items from various depots or branches are other dimensions of logistic challenges. Apart from this, Contingent is likely to face few more challenges in the mission area (i.e. demanding logistic items to UN logistic base as well as home county, maintaining COE and conducting various inspections). Therefore, for smooth functioning of logistic, contingent's logistic branch should be well conversant with various logistic policies and needs to have detail planning, preparations, coordination and executions.

Introduction

Effective logistic support is very significant to the contingent members deployed in the *complex peace operations*¹ with a view to fulfilling the desired mandate vested on them. In the words of Joe Lynch, "Logistics is simple, but not easy."² is also crucial for the operational capability of the deployed force to provide support to the host nation's government and humanitarian organizations. In the context of a peace operation, logistic is the science of planning, carrying out the movement & maintenance of the operation's personnel and their equipment.³ Logistic support means: acquisition, storage, movement, distribution, maintenance, disposal of the equipment & supplies and provision of medical support which are necessary for supporting the operation.⁴

Apart from the logistic support (food, defence stores and few minor engineering items) provided by United Nations (UN), it would be very difficult job for the *Logistic Officers*⁵ to procure, manage and maintenance of *self-sustainment*⁶ logistic items in a unpredictable and conflict operational environment. Besides, demand & collection from UN logistic base, procuring spares and maintaining *major equipment*⁷ in the mission area are the foremost challenges for the logistic branch of the contingent. More so, conducting various inspections⁸ i.e. Contingent Own Equipment (COE) and self-sustainment inspection, Operation Readiness Inspection (ORI), Operation Effectiveness Inspection (OEI) and Annual Ammunition Technical Officer's (ATO's) inspection

are other dimensions of challenges faced by the logistic branch in the mission area. The outcome of those inspections will determine the country's reimbursement and also operational effectiveness of the contingent. Therefore, it is very pertinent for the logistic officer to understand the total logistics (UN and self-sustainment) supply & procurement procedures and various policies before arriving in the mission area.

Generally, logistic officers and staff appointed for the UN mission may not have desired previous knowledge or experience of dealing various logistic issues till they undergo such process.⁹ Although few logistic officers and staff attend logistic capsule training at Bangladesh Institute of Peace Support Operation Training (BIPSOT) just before the deployment, those barely helps them understanding the overall logistic matters. Besides, demand & collection of various logistic items from Central Ordnance Depot (COD), Central Mechanical Transport Depot (CMTD) Central Ammunition Depot (CAD), and Armed Forces Medical Supply Depot (AFMSD) are little complicated and time consuming which requires in-depth knowledge and careful preparations. More so, time constrain for demand & collection and *other miscellaneous issues*¹⁰ of the logistic personnel make overall logistic procurement system more challenging and complicated.

This paper will mainly focus on logistic support in brief to the peace keeping operations, logistic challenges faced before arrival and during mission period and finally suggest few guidelines to overcome those logistic challenges.

Logistic Support to the Peacekeeping Operations

Logistic support to peacekeeping operations varies in size and shape in accordance to the nature and task of the mission unit. It also varies from small group of observers, support contingents (Military Police Detachment, Engineering Company or Support & Signal Company) or bigger group involving thousands of personnel i.e. Bangladesh Battalion or Rapid Deployment Battalion (RDB). Before deploying for the UN mission, logistic officers should have clear understanding of *various logistic policies*.¹¹ A **Memorandum of Understanding (MOU)** is consisting of an agreement between the contributing state and the UN which clearly defines the type and level of support to be provided either by UN or host country. In addition to this document, a **Letters of Assist (LoA)** is also signed between the UN and the government of the contributing country for the supply of specific goods or services not included in the MOU.¹² For the initial deployment, Troop Contributing Country (TCC) has to be self-sustained in the mission area for at least 90 days.¹³ Simultaneously, a comprehensive logistic system is expected and will be effective in location for the smooth functioning of the peace keeping mission. Once the forces are deployed, the UN will ensure the basic logistic items (Food, water, electricity, bulk fuel for vehicle and cooking), field defence stores and few support service (technical services, communication etc.) unless not specified in the MOU.¹⁴ Besides, the TCC is expected to deploy in the mission area with their required capabilities (various self-sustainment logistic items and COE) which will be specified in the MOU. The provision of major equipment (COE) and their support will come under the heading of "wet

and dry lease¹⁵ and the option chosen is directly linked to the *rate of reimbursement*.¹⁶ However, various types of UN equipment categorized under the UN policies which are: *United Nations Owned Equipment (UNOE)*,¹⁷ *Contingent Owned Equipment (COE)*,¹⁸ *National Equipment*¹⁹ and *Host Nation Equipment*.²⁰

Logistic Challenges and Way Forward

Logistic Branch of the contingent is expected to meet the standards of the self-sustainment of equipment according to the terms and policies referred in the *Statement of Unit Requirement (SUR)*,²¹ MOU, LoA and COE Manual.²² During preparation and collection process, the logistic officers usually face many challenges before deploying in the mission areas as well as during mission period. Logistic challenges before and during mission can be described as follows:-

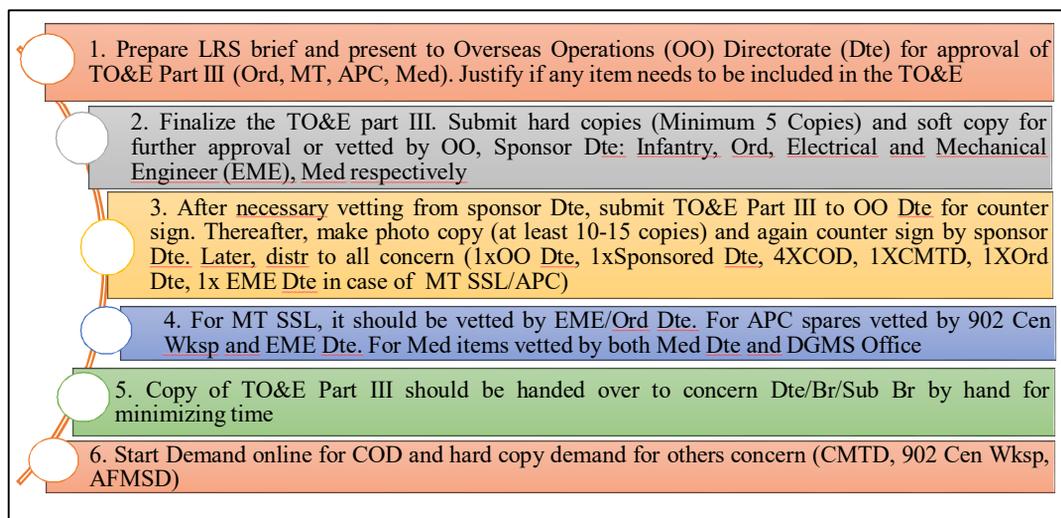
Before Deployment

Contingent gets approximately three (3) months' time for the demand & collection of all the logistic items before arrival in the mission area. Within this short period of time, Logistic branch of the contingent is likely to face various logistic challenges which needs to be addressed precisely and judiciously. The logistic challenges before arrival in the mission area and few guidelines to overcome those challenges are discussed below:-

- a. **Pre Mission Formalities of Logistic Personnel vis-à-vis Logistic Preparation before Deployment:** Although posting order of officers and other ranks are published 4-6 months before the deployment, yet it is experienced that certain percentage of officers and soldiers (especially logistic personnel)²³ have the tendency to join in the formed battalion or contingent just before the deployment flight commences.²⁴ After completing the *post mission formalities*,²⁵ hardly a month is left for those logistic personnel to involve with the demand & collection process. Besides, completing training for the *technical and specialized persons*²⁶ before arrival in the mission area is another big challenge for the logistic branch. Therefore, Contingent Commander or CLO should ensure that all the logistic personnel join in the formed contingent at least 3-4 months before the deployment commencement. It helps the logistic branch to complete all the formalities and training of the logistic personnel before employing them for the demand & collection process
- b. **Prepare and Approval of Table of Organization and Equipment (TO&E) Part III:** Generally, the Logistic Reconnaissance and Survey (LRS) team visits the mission area approximately 3-4 months before the final deployment. It helps the incoming contingent's logistic officers to assess the various logistic requirement or challenge & issues basing on operational commitment in the mission area. Accordingly, the logistic officers prepare TO&E Part III which Include Ordnance (Ord) items, Mechanical Transport (MT) Selective Stockage List (SSL), Armoured Personnel Carrier (APC) items and Medical (Med) items. It is to be noted that the incoming contingent's logistic officers should inquire in depth

about various logistic issues faced by outgoing contingent and vis-à-vis the outgoing contingent’s logistic officers should also brief in detail of all the logistic challenges faced before and during mission period. This will not only help the incoming contingent to come prepared in the mission area, but also will help the contingent to avoid demanding unwanted (not at all required in the mission area) COE, Self-sustainment items and spares. Furthermore, it has found that the category name, part number (Cat-Part No) and nomenclature mentioned at TO&E Part III, sometimes found dissimilar or don’t match with the COD or CMTD software or on-ground specifications.²⁷ Therefore, various demand of items as per TO&E Part III found to be wrong or different pattern or not at all required in the mission area. As such, it is suggested that the logistic officer should visit both COD and CMTD to collect the exact specifications of items (including physical inspection of items if needed) before finalizing the TO&E Part III.²⁸ After completing the LRS visit, few formalities and steps (as shown in Figure-1) may be followed by the incoming contingent logistic officers before starting the demand procedure.

Figure-1: Formalities and Steps before Demand Procedure



Source: Author’s self-construct

c. **Establishment of Deployment and Movement Control (MOVCON) Cell:** CLO should coordinate with OO Dte, Movement & Dispatch Section (M&D Sec) for issuing necessary instructions related to establishment of deployment cell and MOVCON (Figure 2) preferably at Dhaka Cantonment at the earliest. Logistic personnel (preferably *experienced personnel*)²⁹ selected for deployment cell (Persons involve in demand & collection process) should complete their all kind of formalities and training before joining to the deployment cell. At the same time, few personnel (Minimum 04 persons) may be selected to perform as MOVCON who will also join with the deployment cell. It will help

the MOVCON personnel to pack and stack all the logistic items as per priority and flight. Both Deployment Cell and MOVCON should work directly under the guidance of CLO.

Figure-2: Establishment of Deployment Cell and MOVCON

• MANPOWER REQUIRED

CLO, QM (Known as Assistant Logistic Officer), Wksp O, Med Officer, Sig O, Logistic Head clerk and 3x Clerks including Storeman Technician (SMT), Ordnance Junior Commissioned Officer (JCO), Quarter Master Sergeant (Known as BQMS), Barrack Sergeant/Non Commissioned Officer (NCO), Engineer NCO, Aslt Pioneer NCO, Signal Technician, Electrician, Plumber, Med Assistant (MA) and Laboratory technician (Lab Tech) for Med Equipment

• 4xMOVCON Persons (1xOfficer, 1x JCO, 2 x NCOs)

• OFFICE EQUIPMENT REQUIRED

2 x Computer (PC) with Internet connection or Modem, 1x PC with Army WAN, 2 x Printer, 1x Photo Copier Machine and 1x Scanner

• VEHICLE AND STORES REQUIRED

2 x Jeep, 3 x 3 Ton, 2 x Pick up

2 x Room for Office and Minimum 4 x Big Store Room (Ord, MT, APC and other stores)

• ACCESSORIES

Necessary packaging items (PP belt, Binding Taps, OHP Markers, Anti cutter and Carton, Hessian cloths etc collected from COD), 2 x Weight Machine (Big and small collected from COD against the TO&E Part III demand)

Source: Author's self-construct

In reality, this is one of the most challenging task for the CLO to arrange all the office equipment and manpower as per Figure-2 for the deployment cell and MOVCON.³⁰ However, following steps for establishing deployment cell and MOVCON may be taken into consideration:-

- (1) CLO should nominate suitable manpower (as per Figure-2) and finish their all kind of pre-deployment formalities at the earliest.
- (2) Office equipment may be taken on loan either from core battalion or COD for the time being (which will be refunded before deployment). Besides, CLO may coordinate with OO Dte for allotting Operational Contingency (Ops Contg) which can be expended for establishing the deployment cell.

(3) As there are number of contingents are deployed for the UN msn every year and the contingents are likely to face the same kind of problem; therefore, OO Dte may consider or plan for establishing a permanent deployment cell, where all the office equipment will laid down with necessary software (COD) and Army Wide Area Network (WAN).CLO will issue those equipment and return back before the commencement of deployment.

d. **Demand and Collection against TO&E Part III:** This is another very critical and challenging task for the CLO to ensure that all the items have been demanded as per TO&E Part III with specific Cat-Part No and Nomenclature. Some of the challenges of this kind are appended below:-

(1) Most of the time, the logistic Staffs (clerks and SMTs etc.) do not have physical or ground experiences or knowledge about software based demand of COD or CMTD. Therefore, the demand process takes longer time than usual with many clerical mistakes.

(2) Sometimes, the demand process continues till the last which creates much administrative difficulties. Besides, Logistic branch may not receive those items which were demanded at the last moment.

(3) Sometimes, few sub depots don't process or keep pending the demand of few items. While inquiring, it is observed that necessary documents were not submitted or attached along with the demand copy which causes delay the issue.

However, CLO should be made an endeavour to complete at least 50-100 items' demand per day taking into consideration of above-mentioned factors. CLO may be also coordinated with COD and CMTD to arrange software base demand training (2/3 days) for the logistic staffs. More so, CLO should also be nominated and given the responsibility to each logistic staff to check and peruse against the demanded items to the concern sub-depot. It reduces unnecessary delay in demand procedure. Following demand & collection procedure may be helpful for avoiding such mistakes:

(1) **Demand of Ord Items:** Ord and few med items' demand has to be submitted online following COD software (connected with Army WAN). At the same time, a hard copy of the demand has to be submitted and for the record, an office copy also needs be filed in. Initial Demand of any item has to be supported by TO&E part III. For replacement demand, necessary supporting documents have to be submitted along with demand copy. i.e. Survey board proceedings and Issue Vouchers (IV) of the previous contingent. Demand of control store has to be supported by 'Beyond Economic Repair' (BER) or 'Beyond Local Repair' (BLR) certificate.

(2) **Demand of MT/APC Spares:** Logistic Branch has to forward a hard copy of the demand to CMTD for MT SSL and few spares and to 902 Cen Wksp for APC Spares. After necessary vetting, 902 Cen Wksp will forward the demand of APC spares to CMTD. As the process is lengthy and time consuming, the logistic officer needs to coordinate and pursue the demand to 902 Cen Wksp. Besides, Logistic officer should also forward demand of APC Sealing or Rubber items (if at all needed) to 902 Cen Wksp minimum one & half month before the deployment commenced. This length of time is required by the 902 Cen Wksp to prepare APC sealing or rubber items.

(3) **Demand of Med Stores:** After approval of TO&E Part III (Med) from Med Dte, logistic branch has to forward a hard copy demand (both med items and medicine) to DGMS. DGMS office will dictate whether the items to be collected from AFMSD or CMH Dhaka. Apart from this, few med item's demand has to forwarded to COD which are included in the TO&E Part III (Ord items).

(4) **Demand of Control Stores:** Logistic officer has to forward the demand of control stores (including ammunition) to Army Headquarters Weapon, Equipment & Statistics (WE&S) or Ord Dte via Lodger Formation Headquarters (Fmn HQ). Lodger Fmn HQ will forward the demand to either WE&S or Ord Dte. Thereafter, concern dte will dispatch release order to collect the stores from concern depot (COD, CMTD and CAD for Ammunition). Later, concern depot will dispatch IV basing on the release order.

(5) While processing for the demand and arrangement of collection following important factors may be taken into considerations:-³¹

(a) Before demand & collection process, CLO should assess: "how many *pallet*³² will be issued against them in a UN flight", "what are the items can be taken into UN flight and containers?", "Is there any restriction or instruction given by the UN Flight representative regarding oversize of times and total weight of the items to be taken?". CLO must clarify above mentioned facts from OO Dte, M&D Sec before the demand & collection process. It is better not to demand any Danger Goods (DGs) if the items available in the mission area to avoid unwanted incident. Yet, the CLO has planned to demand DG items and wants to take those (DG) in the mission area by the UN flight or the container, he has to obtain necessary permission from OO Dte *minimum one month*³³ before the deployment flight commences. However, considering all the above mentioned factors, CLO should make a priority list of items to be taken in the UN flight.

(b) It was observed that after collecting various stores (Ord, MT, APC etc.) from various sub depots, the MOVCON personnel dumped all the stores in various rooms without making any list or priority. Later, it was found to be difficult of arranging and stacking all the items as per pallet and flight.³⁴ Therefore, it is suggested that collected items should be stacked immediately as per pallet taking into consideration of dimension of pallet. Besides, CLO should ensure that items collected from the various depot fits into the size of the pallet (especially freeze and other items etc.).

(c) Effort should be taken to collect all demanded items simultaneously to minimize time. At this stage, additional manpower might be required to pursue the demand and collection process in all sub depots concurrently.

(d) Before collection of any item, logistic officer must ensure physical inspection by Officer/Technical person. It is suggested not to collect any items without the inspection of Officer or Technical person to avoid wrong patterns and size.

(e) In most cases, it was found that the LP process takes much time and contingent receives the items against LP at the last moment. Sometimes, the items received by contingent (against LP) are found to be very low quality or the items don't meet the requirement of the contingent in the mission area. Therefore, CLO may coordinate with OO Dte to instruct concern Dte or depot with specific time line for providing stores.

e. **Training of MOVCON Personnel and Packing of Items as per Flight:** Generally, OO Dte, M&D Sec organize training and briefing for the MOVCON personnel (Officer/JCO/NCOs) before establishing the MOVCON. However, few important points may be taken into consideration while act as MOVCON:-

(1) After collection of various items from COD, CMTD or Med etc., items should be handed over to MOVCON following proper handing taking procedure. CLO may be given the priority list of packing to MOVCON Officer (1st, 2nd flight etc.).

(2) Packing for DGs items should be given specific attention and under direct guidance from OO Dte, M&D Sec. It is suggested not to send valuable or precious items (TV, Camera, or small valuable things etc.) in 1st flight to avoid any misappropriation or mishandling. Extra care should be taken while packing those items (packed double layer).³⁵

(3) CLO should plan to send 1xOfficer (Additional officer other than MOVCON) and 1xNCO from MOVCON in the 1st flight to receive all those items in the mission area.

f. **Demand Procedure against Operational Contingency (Ops Contg):** There are few categories of items (Stationary, crockery, cutleries, sports and recreation) which are approved or included in the TO&E Part III but not issued from the depots, Contingent logistic officer has to pursue for receiving Non-availability (NA) certificate against those items from the depot at the earliest. After receiving N/A certificate, demand for ops contg for these items should be forwarded to OO Dte (Logistic Sec) basing on current market price. All these formalities need to be completed by one and half months before the deployment commences. Otherwise, contingent will not receive ops Contg in due time to purchase items. Following is a suggested format for demanding ops contg which is shown in Figure 3:-

Figure-3: Format of Demanding Operational Contingencies

Ser	Cat/ Part No.	Nomenclature	A/U	Auth in TO&E/SSL		NA from Depot		Present Req	Unit Price	Total price	15% Vat	G/Total
				Qty	Ref No.	Qty	NA Ref					

Source: Author’s self-construct

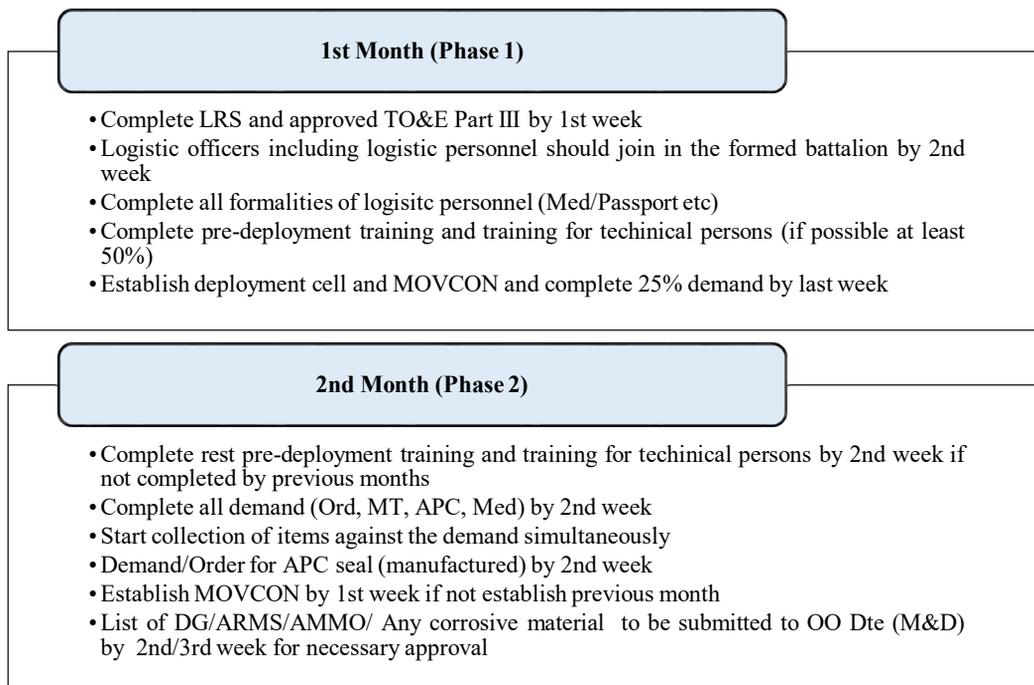
g. **Selection of Logistic, Specialized Personnel and Their Training:** Generally, concern Record/Dte selects the technical and specialized persons against the vacancy of Nations Support Elements (NECs) as per seniority and without testing their efficiency. Even, sometimes, contingent doesn’t have any role to play to test the efficiency or suitability of these personnel for the mission. Later part, in some cases, it is found that few technical persons are unable to perform their task as expected in the mission area.³⁶ As a result, it hampers the overall operational, administrative and logistic function of the contingent. Therefore, it is suggested to take a suitability test of all technical personnel and specialized personnel (those who selected against NSEs) and if needed arrange refresher training. Apart from this, few General Duty (GD) solders (those who have previous knowledge on some technical matters i.e. electrical, internet, dish etc.) may also be included in the refresher training which will help for smooth logistic functioning of various camps in the mission area. Suggested training may be as given below:-

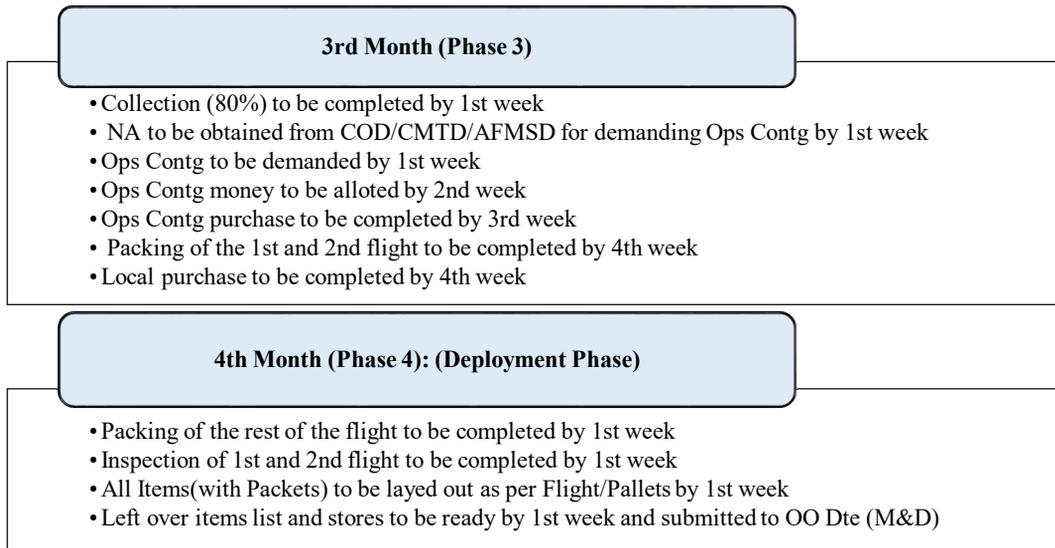
- (1) Refresher Cadre APC Driving.
- (2) APC Maintenance Training (For TAV and few APC Driver may also join).
- (3) Cadre for Internet/ Dish/CCTV (Few GD solders may include).

- (4) Refresher Cadre for Generator and AC maintenance.
- (5) Refresher Cadre for Welding.
- (6) Refresher Cadre for Recovery Vehicle operation and driving.
- (7) Refresher Cadre for Workshop Van/Front end loader/Fork lifter.
- (8) Refresher Cadre for Operations and maintenance of WTP (Few GD solders may include).
- (9) Refresher Cadre for Water and fuel browser and Freezer Van driving.
- (10) Refresher Cadre for Ambulance driving & maintenance.
- (11) Refresher Cadre for MT.
- (12) Special Training for Cooks.

j. A suggested guideline/time frame is given below which shows the four (4) months of activities (Time Phase Line) of the logistic branch may be taken into consideration for smooth preparation of logistics as shown in Figure 4 below:-³⁷

Figure-4: Time Phase Line





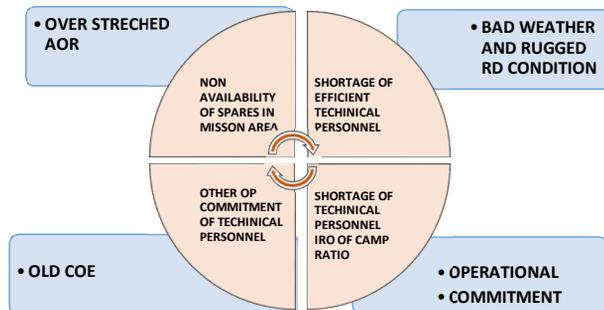
Source: Author’s self-construct

During Mission

It is expected that the logistic branch of the contingent should arrive in the mission area with complete logistic preparation. However, the logistic branch is likely to face few more challenges in the mission area. Those are as follows:-

- a. **Challenges of Maintaining COE in the Mission Ares:** During the mission the CLO likely to face many internal and external challenges as shown in Figure-5 which may hinder the overall maintenance of the COE. Sometimes, it is very difficult to maintain all the COE with limited resources and shortage of efficient technical personnel in comparison to deployment or camps ratio. Therefore, it is suggested that whenever time permits, camps should carry out detail maintenance of all the COE. Priority of employing technical personnel should be given to maintain the vehicle, APCs and equipment in the camps rather than employing them for the routine administrative patrol.

Figure 5: External and Internal Factors Affecting Maintenance of COE



Source: Author’s self-construct

Accidental Damage of COE: It has experienced that most of the incidents or accidents or damages of COE are occurred within the first three months of the deployment in the mission area.³⁸ The APC drivers have the tendency to burn the clutch plate and damaging other substantial parts (tires, cooling and suspension systems etc.) of the APC due to less experience of driving in hostile environment, rugged road condition, other environmental factors and finally fear of unknown. Most of the B vehicle drivers have committed to accidents and damages the vehicles due to similar reason. As such, the drivers' (both APC and B vehicle) orientation training should be organized in the mission area before going to any kind of road move. Besides, controlled movement and driving with the combination of old (experienced) and new drivers are one of the tools for avoiding MT accident within first three months.

b. **Conducting ORI, OEI and COE and ATO's Inspection:** During the one year stay in the mission area, Contingent has to conduct four COE inspections or periodical inspections, one ORI and two OEI.³⁹ The outcome of these inspections determines the country's reimbursement and also Force Headquarters (FHQ) will assess the overall performance of the contingent. Besides, Force ATO will inspect the ammunitions held at the contingent and their serviceability. Therefore, it is suggested that the Logistic Officer should know all the policies (COE Manual & related document, Memorandum of Understanding/MOU and various Standing Operating Procedure/SOPs) for smooth conducting of any kind of inspection. It is suggested that logistic officer should also consult the MOU and Verification Report (VR) and last ATO's inspection in depth before any inspection. Efforts should be taken to resolve all previous observations of the inspection report.

c. **Demand and Collection of Items from UN Logistic Base:** Generally, most of the UN missions are saturated in nature and allotted with inadequate budgets. As such, the UN logistic counterparts are very keen about issuing various logistic items. If logistic officer doesn't know, "what are the logistic items are supposed to be received by the contingent under the wet lease", the contingent may not receive few logistic items from UN logistic base. Hence, it is suggested that the CLO or logistic officer of the contingent should be conversant and confident about various UN policies (i.e. COE manual, MOU and various logistic SOPs regarding UN logistic). It is experienced that by maintaining good liaison, coordination and understanding with the UN logistic staff, many issues can also be resolved even if it is not in the purview of the UN.⁴⁰ However, Contingent logistic officer should have in depth knowledge about *minor engineering*⁴¹ which is also a critical issue with the UN Logistic counterpart.

d. **Demand Procedure of Ops Contg in the Mission Area:** It is suggested that contingent should come prepared and demand for ops contg before deploying in the mission area. Sometimes, contingent may need additional money to repair any COE, Self-sustainment items and equipment due to unavoidable circumstances. As such, a board

needs to be formed for assessing the requirement of repairing and maintenance of logistic items in the mission area. Thereafter, board proceeding (along with tentative expenditure following figure 3 format) has to forward to OO Dte (Logistic Sec) after dully recommend by contingent commander and country senior.

Conclusion

In the mission area, Logistics supports to the deployed force are complicated and a very challenging job. It needs detail planning, preparations and coordination. It will effect on the overall operational and administrative matters of the whole contingent if the logistic preparation is not well thought of. Besides, it effects the country's reimbursement and operational effectiveness as well. In most cases, it has been observed that the personnel involved in logistic sector or branch, do not have previous experience of the existing logistic systems both in home and mission area. More so, time constrains for pre-deployment formalities, training for the technical personnel and at the same time demand & collection of all the COE and self-sustainment items from various depots or branches are other dimensions of logistic challenges. Apart from this, Contingent likely to face few more challenges in the mission area (i.e. demanding logistic items to UN logistic base as well as home county, maintaining COE and conducting various inspections). Therefore, for smooth functioning of logistic, contingent's logistic branch should be well conversant with various logistic policies and needs to have detail planning, preparations, coordination and executions.

Recommendations

Few recommendations may be taken into consideration: -

- a. Necessary training and orientation visit of logistic personnel may be conducted by COD or CMTD before the starting of demand procedure.
- b. NSE personnel may be selected basing on their efficiency rather than seniority. Civil technicians (i.e. Generator, AC, WTP, Internet and Dish) may be enrolled or mastered to maintain and repair works of COE and other amenities (dish, internet etc.).
- c. Permanent Deployment Cell may be established by OO Dte.
- d. Finally Time phase line (4 months) for logistic planning and preparation may be followed.

Notes and References

1. Complex peace operations are large and include military, police and civilian personnel, each of which have different equipment, transport and supply needs reflecting their mandated tasks.
2. Dr Katharina and P. Coleman, 'Overcoming Logistics Difficulties in Complex Peace Operations in Remote Areas, Background Paper,' *Annual Forum*, 2014, Beijing, China.

3. Dr Katharina. *op. cit.*
4. *Ibid.*
5. Logistic Officers denotes Assistant Logistic Officer/Quartermaster (QM), Mechanical Transport Officer (MTO), Workshop Officer (Wksp O), Signal Officer (Sig O).
6. *Ibid.*
7. Major equipment consists of items directly related to the unit mission as mutually determined by the United Nations and the troop/police contributor. Major equipment can be provided by a troop/police contributor under either a wet lease or a dry lease arrangement (*Ibid.* p.6).
8. For details of Inspection, *Supra*, pp. 24-26.
9. Writer's Own Experience as Chief Logistic Officer (CLO).
10. Other Issues are: Late joining of logistic personnel in the formed Battalion, completing mission formalities of logistic personnel within short period of time, arrange pre-deployment training for them, conducting training for the technician while demand & collection process started.
11. Mauro Cesar Barbosa Cid and Luiz Rogerio Goldoni, 'Logistic Complexity In Peacekeeping Operations: A Challenge,' *Journal of Strategy & International Relations*, e-ISSN 2238-6912 | ISSN 2238-6262| vol.6, n.11, Jul. /Dec. 2016 | pp.116-131.
12. Mauro Cesar Barbosa Cid and Luiz Rogerio Goldoni, LOGISTIC COMPLEXITY IN PEACEKEEPING OPERATIONS: A CHALLENGE, *Austral: Brazilian Journal of Strategy & International Relations*, e-ISSN 2238-6912 | ISSN 2238-6262| v.6, n.11, Jul. /Dec. 2016 | p.116-131.
13. Squadron Leader Henry N Yurkusi, Nigerian Air Force, *Harnessing the Logistics of Peacekeeping Operations*, January 2008, pp-28.
14. CLO, *op. cit.*
15. Under the wet lease option, a contingent deploys with its COE and is responsible for its maintenance and support and under the dry lease arrangement a contingent deploys with its COE but the UN makes arrangements for its support.
16. Henry, *op. cit.* pp. 33-35.
17. UNOE is all equipment, supplies and property purchased and maintained by the UN.
18. COE is equipment provided by a contributing member state. The quantity and types of COE provided for a UN peacekeeping are usually set out in agreements between the UN and the contributing member state. Ownership of the COE is retained by the member state.
19. National Equipment is that equipment that a TCC considers very essential for the enhancement of the discharge of her duty. Such items are not listed among the items agreed upon by the UN and the TCC.

20. Host Nation equipment is that equipment leased or donated to a mission as part of their contribution towards sustaining peace in the country.
21. Statements of Unit Requirements (SUR) that reflected mandated tasks and mission operational requirements, and worked closely with the missions and police-contributing countries, including during pre-deployment visits and negotiations on memorandums of understanding, to ensure that deployed contingent-owned equipment would meet overall requirements.
22. COE Manual is the Policies and Procedures concerning the Reimbursement and Control of Contingent-Owned Equipment of Troop/Police Contributors Participating in Peacekeeping Missions as per the General Assembly, in its resolution 71/296 of 30 June 2017.
23. Logistic Personnel means logistic officers, staffs, drivers (APC and B Vehicle), technical and specialized persons.
24. CLO, *op. cit.*
25. Post Mission Formalities denote Physical Efficiency Test (PET), Range Efficiency Test (RET), Medical, Passport formalities and Pre Deployment Training (PDT) etc.
26. Technical and specializes personnel denotes drivers; both Armored Personnel Carrier (APC) and heavy vehicle and various technical personnel, Technician A Vehicle(TAV), Technician B Vehicle(TBB), Water Treatment Plant(WTP) Technician etc.
27. CLO, *op. cit.*
28. *Ibid.*
29. Personnel have previous experience of serving as BK NCO, Personnel has the knowledge and experience on electrical and plumbing items, electrical water pumps, LAN etc. This will not only help to expedite the demand of right patter items, but also help to avoid demand of unnecessary items.
30. CLO, *op. cit.*
31. *Ibid.*
32. A pallet used to load luggage, freight, and mail on aircraft. It allows a large quantity of cargo to be bundled into a single unit. It has a unique three dimensional size and shape.
33. A pallet used to load luggage, freight, and mail on aircraft. It allows a large quantity of cargo to be bundled into a single unit. It has a unique three dimensional size and shape.
34. CLO, *op. cit.*
35. *Ibid.*
36. *Ibid.*
37. *Ibid.*

38. *Ibid.*

39. COE Manual, *op. cit.*, pp 24-26. For details of inspection and procedure see Maj Md Zahirul Haque Khan, 'Understanding Contingent Owned Equipment Inspection Procedure and Ways to Ensure Maximum Reimbursement for The Country,' *Bangladesh Army Journal* 48th Issue, December 2010.

40. CLO, *op. cit.*

41. COE Manual, *op. cit.* p. 47.

Brief Biography



Lieutenant Colonel Gazi Mohammad Shariful Hasan, SUP, AC was commissioned in the Corps of Armoured on 28 November 1995. Apart from mandatory courses, he has completed UCC (AC)-2 at ACC&S securing 1st position, VVIP Protection Course (Thailand), Elementary French Language Course (BUP) and MBA (South East University). He has served in various staff and command appointment at two Armoured Units (9BL and 6 Cavalry), PGR (As Support Platoon Commander and MTO), DGFI (As Detachment Commander), DSCSC (As GSO-2 Coordination), and BGB (As Commanding Officer and Director Operations), GSO1(R&P) at ACC&S, General Manager (Production) at BD Diesel Plant Limited. He served in the UN mission as Contingent Member (Adj) at MONUC in the year 2005 and Chief Logistic Officer (CLO), BANBAT 1/20, MONUSCO, DRC. Presently, he is serving as Area AA&QMG at Area Headquarters, Cumilla Cantonment.

Changing Nature of Conflict and Warfare - Quest for Understanding Fifth Generation Warfare

Lieutenant Colonel S M Saleh Bin Safi, SGP, psc, Infantry

Abstract

The theory of generational warfare was formally introduced in 1989 by US. Since then, four generations of warfare have been defined by the academia and military thinkers. Research on global security has led to another new generation. The concept is that 21st century warfare requires a different perspective than what we have applied so far; a fifth generation warfare (5 GW). No commonly accepted definition exists for fifth generation. Some see 5 GW as a product of new technology e.g., nano-technology. For many it is incorporation of all possible kinetic and non-kinetic means for achieving the belligerents' objectives characterized by globalized presence of lightly connected members with individual and collective objectives. It will be difficult to detect their presence for taking decisive action. The members can be bankers, government officials, businessmen, etc. Others define it as the states struggle to maintain its monopoly on war and social organizations against 4th generation challengers. Much of this was partly triggered by two former Chinese colonels who wrote a book titled 'Unrestricted Warfare.' In view of the transformations in warfare, it is reasonable to accept that 5 GW is already making its appearance. This threat has multi-faceted dimensions and is believed that security arrangements will have to undergo immense changes. Modern armies of the world are drawing new military doctrines to win 4th generation warfare and grasp an understanding of 5th generation. Therefore, considering the changing nature of warfare and conflict, it is of paramount importance to acquire a thorough understanding on 5 GW with its implications for Bangladesh Army.

Introduction

Post World War II era witnessed a significant transformation in the characteristics of conflict and the strategies employed by states. It led to two significant transitions in power. Firstly, the dispersion of authority from states towards non-state actors results in a diminution of the state's power. Furthermore, the emergence of geo-economics has become the primary means of identifying the ties between states. The utilization of previous military or kinetic alternatives has become less appealing as a result of these changes. As a result, the non-kinetic aspects have become increasingly important and prominent, leading to a transformation in the nature and characteristics of combat.

The contemporary era of warfare is distinguished by the utilization of networking and asymmetric tactics, which are employed against a conventional force that holds a superior position, for an extended duration. The contemporary state of wars observed globally exhibits limited signs that extend beyond the realm of fourth generation warfare (4 GW). The contemporary human

conflicts exhibit distinctive characteristics that transcend beyond the boundaries of location, resources, and networking, which have not been observed in the annals of battle throughout history. The contemporary battleground is a multinational global system united by shared objectives.

There is a new generation of combat on the rise, and its precise nature is unclear, but the battlefield is changing at a dizzying rate. According to some military strategists and thinkers, networks can form when two or more groups' strengths come together, and then they manipulate a state's economy, society, resources, and technology to weaken it. The ever-changing character of war has far-reaching effects, influencing not just the military but also the degree to which a nation is prepared to weather hidden conflicts for long periods of time. These developments point to the growth of fifth generation warfare (5 GW), a huge step forward in the capacity of non-state groups or individuals to confront state or state-affiliated forces.

Genesis and Transformation of Warfare

Warfare has been constantly advancing and changing in nature for centuries.¹ Policymakers and military personnel are perpetually on the lookout for new opportunities for growth because this paradigm is always changing. Every new generation of weaponry has built upon the one before it, and technological advancements have been the driving force behind each one.

First Generation: Formation Warfare: The Napoleonic wars are the true representation of this form of war.² The historical era is characterized by significant infantry engagements featuring substantial weaponry from both factions, exemplified by the Battle of Waterloo. The shock element manifested as cavalry, while the fire support element experienced the most significant development.

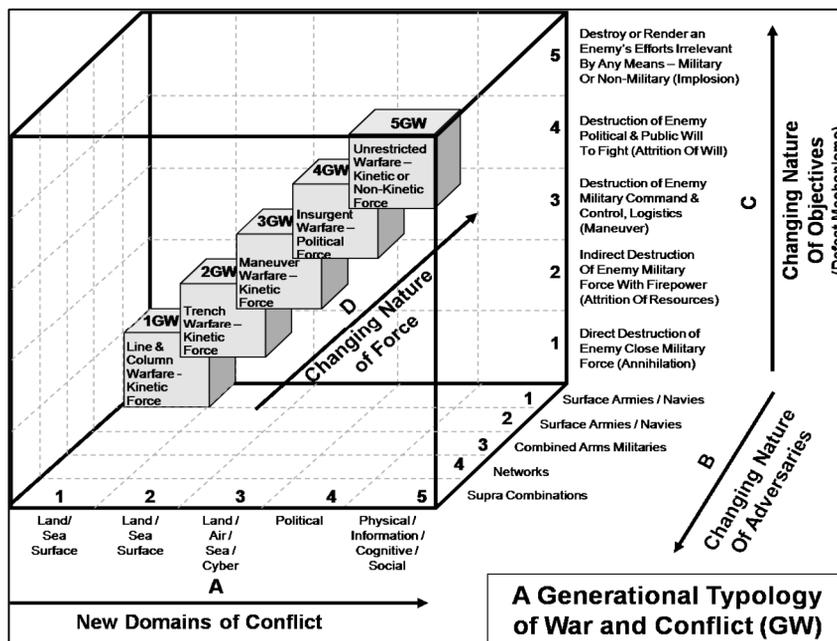
Second Generation: Trench/Attrition Warfare: Modern, automated artillery systems that depended mostly on linear firing and mobility sparked the war. The heavy reliance on indirect fire was the main difference from the tactics of the first generation. During World War I (1914-18), defensive tactics were clearly the norm in the trenches.

Third Generation: Battle Command: A non-linear style of combat emerges from innovative ideas like strategic paralysis and blitzkrieg. The use of combined land, sea, and air armament and the rapid maneuvering of mechanized formations are hallmarks of this era, which has seen further technological improvements.

Fourth Generation: Non-State Actors Engaging in Irregular Warfare: The fourth generation of warfare, which emerged as a result of contemporary geopolitical dynamics, involves states and ideological non-state entities launching indirect attacks against populations, cultures, or institutions. Thus, a war in which a non-state actor plays a significant role is the most basic description of fourth generation warfare. It is an ideological network that is bound to be violent. Since no other form of warfare has ever been able to vanquish a superpower, 4 GW stands out.

Fifth Generation: Unrestricted Warfare (Implosion): ‘Unrestricted Warfare’ (5 GW) is not yet defined in a way that everyone agrees upon. The use of ‘‘all means what so ever means that involve the force of arms and means that do not involve the force of arms, means that involve military power and means that do not involve military power, means that entail casualties and means that do not entail casualties to force the enemy to serve one’s own interest’’ is what 5 GW is said to be. Its first noticeable symptoms may have occurred in the wake of the 2001 anthrax and 2004 ricin assaults on American soil. Accomplishing both sets of assaults—which included targeting federal government offices and facilities—required expert-level expertise, disrupted organizational procedures, and instilled widespread public anxiety.

Figure-1: Warfare Across Generations: A Typology



Source: Qiao Liang and Wang Xiangsui, *Unrestricted Warfare*, Beijing: PLA Literature and Arts Publishing House, February 1999.

Definition of 5 GW

The theory of 5 GW gained prominence over ten years ago as the subsequent form of warfare following 4 GW. However, it remains a subject of debate within academics, with differing perspectives indicating that a universally accepted definition for 5 GW has not yet been established. Several definitions from various sources are cited below:-

- a. **Chinese Colonels’ Unrestrained Warfare:** ‘‘Warfare that uses all means whatsoever - means that involve force or arms and means that do not involve force or arms; means that involve mil power and means that do not involve mil power; means that entail

casualties and means that do not entail casualties to force an enemy to serve one's own interests.” This is the definition of future war given by Colonel Liang and Xiangsui of the People’s Liberation Army of China in their book-*Unrestricted Warfare*, 1999.

b. **5 GW Educational Institute:** Located in Virginia, United States, this “Think Tank” facility first opened its doors in 2010 to facilitate the conduct of preemptive research into potential dangers. An expansion of insurgent and asymmetrical warfare, 5 GW is characterized by the enemy’s employment of all methods, including conventional and unconventional. It encompasses information operations as well as social, religious, and political factors. Disrupting and defeating opponents in order to achieve their will can be achieved by campaigns performed by organized or unorganized groups, whether headed by nation states or non-nation states.

c. **Military Review:** Five wars of global warming are defined by US Marine Colonel (retired) T.X. Hammes, author of *The Sling and the Stone-On War in the 21st Century*, as the result of continuous shifts in social and political loyalties towards causes rather than nations. Smaller enterprises will have an even greater impact in the future, and biotechnology will continue to grow at a rapid pace. ‘Nets and Jets War’ will be the true theme of 5 GW. Networks will disseminate crucial information, supply necessary materials, and open up a pool of potential volunteers. The weapons will be dispersed effectively and cheaply over the world by jets.

d. **Handbook of 5 GW:** Daniel H. Abbot while compiling this book on 5 GW in 2010 quotes a comprehensive definition as “5 GW is the **secret calculated manipulation** of actors, networks, organizations, states or any 0 GW / 1 GW / 2 GW / 3 GW / 4 GW forces to achieve a goal or set of goals across a combination of socio-economic and political domains while attempting to avoid or minimize the retaliatory offensive or defensive actions/reactions of 0 GW / 1 GW / 2 GW / 3 GW / 4 GW powered actors, networks, institutions and / or states.”³

Characteristics of 5 GW

5 GW has certain specific characteristics. Here are some of its traits:-

- a. The traditional military and its hardware are becoming obsolete.
- b. Impossible to hack the enemy’s weaponry, bombs, or guns in third or fourth generation combat. One may hack the enemy’s information weapons in 5 GW, though.
- c. 5 GW is a challenge due to the absence of Geneva agreements that establish and enforce standards of appropriate conduct.⁴

- d. Complete ineffectiveness of costly military hardware and methods in countering both conventional, low-tech weaponry and the innovative, ever-changing use of publicly available technology by non-state actors.
- e. Contrast to 4 GW, which emphasized the enemy's moral fortitude, 5 GW would place an emphasis on his intelligence.

Organisational and Operational Methodology of 5 GW

5 GW – A Growing Concept: The concept of 5 GW has emerged as a novel and intriguing notion within a group of committed specialists in the field of national security. The aforementioned individuals encompass diplomats, military, law enforcement agencies, intelligence operatives, cyber warriors, and specialists, who are supported by sociologists, psychologists, and policy makers.

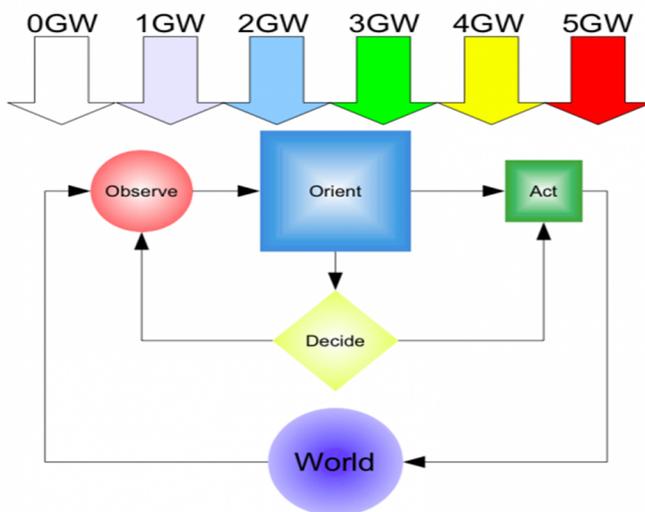
5 GW–A Threat: The emergence of 5 GW, unlike the preceding generations, there is no single or simple demarcation point. However, some aspects can be discerned are given below:-⁵

- a. The technical advancements represented by the internet.
- b. Information as an empowering and leveling force.
- c. The media as an independent organ that is robust, more pervasive and independent than ever before.
- d. Borders no longer obstruct data flow.
- e. Scalability of impact.

Operational Methodology: The operational methodology of 5 GW has heavily relied on the following:-

- a. Avoiding confrontation with state military and instead engage the soft underbelly of the society.⁶
- b. Process of reintegrating into the civilian population with minimal reliance on conventional military troops.
- c. Achieving success by remaining as discrete as possible.
- d. Conducting psychological operations like subversion, spreading despair through terror and propagating state's inability to control the situation through conventional means.⁷
- e. Using social media and internet to extreme advantage.
- f. Manifesting adaptability, innovation and unpredictability as key to success.⁸
- g. It is possible for one side to enter a 5 GW battle unaware of the other's identity.
- h. Decision-making process follows the OODA cycle, which means that you can "get inside" your opponent's decision-making process.⁹

Figure-2: 5 GW-Decision Making Process

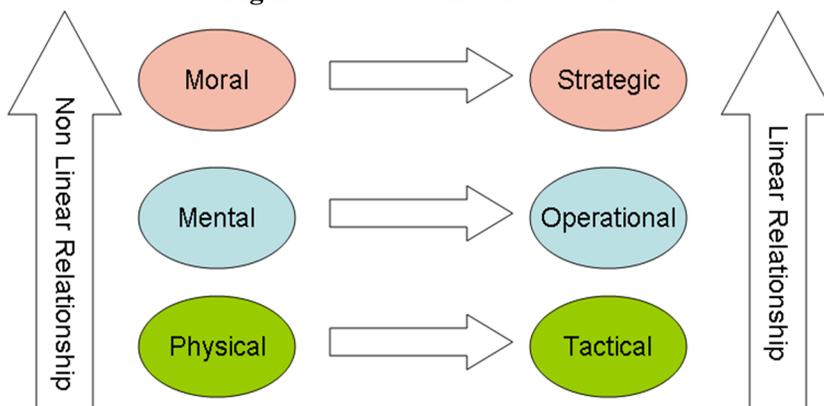


Source: Cheng Li, 'China's Fifth Generation-Is Diversity a Source of Strength or Weakness?,' *Asia Policy*, July 2008.

Objective of 5 GW: The distinguishing characteristic of 5 GW is that its objective is not to acquire power, but rather to undermine or eliminate state control in order to create a void.¹⁰

Levels of 5 GW: While 5 GW has strategic, operational, and tactical levels like past forms of warfare, it differs from previous generations in how it is implemented.¹¹ Unlike in earlier generations, the strategic repercussions of a single poorly planned tactical move in 5 GW can be devastating. Such disputes are multi-layered. These encompass the levels of the mind, body, and morality. When it comes to these kinds of disputes, the physical level—that is, the use of force itself—is thought to be the weakest.

Figure-3: 5 GW - Levels of War



Source: Sarah V. Marsden and Alex P. Schmid, 'Typologies of Terrorism and Political Violence,' 2011.

Implication of 5 GW on General Theory of War: Important consequences of 5 GW for a theoretical framework of war include the following:-¹²

- a. Conflict goes beyond just the use or threat of physical force.
- b. Energy and visibility are the shaping features to wage war.
- c. Violence can only comprise visible components of energy.
- d. War energy to influence can constitute both visible and invisible forms.
- e. Battle space dimensions can be expanded without limitations.
- f. On a power continuum, war lies somewhere between the two extremes of an extremely concentrated power and an entirely decentralized power vacuum.¹³

5 GW Conceptual Framework

The conceptual framework of 5 GW entails the following:-¹⁴

- a. The concept of 5 GW refers to a form of non-contact warfare that utilizes various ways of impact over the entire spectrum of conflict, encompassing unseen wavelengths. The act of manipulating the observable context of both visible and invisible energy purposes can be observed through various means such as diplomacy, propaganda, subversion, business, agitation, intelligence, and education. The network's capacity to draw individuals without cohesiveness and unity of effort extends beyond the confines of the fighting space, enabling it to conquer or defeat the adversary.¹⁵
- b. In the context of 5 GW, the spread of violence is so widespread that the defeated party may never fully grasp the extent of their defeat. Studying this generation of war is particularly challenging due to its inherent mystery. The occurrence of 5 GW attacks occurs below the threshold of observation.¹⁶
- c. Counterinsurgency in 5 GW refers to the proactive and systematic decline of 5 GW troops into less advanced levels of warfare. A 5 GW warfighter conceals themselves in a static environment, and the most triumphant 5 GWs are the ones that remain unnoticed.¹⁷

Components of 5 GW: The conceptual framework of 5 GW incorporates following components:-¹⁸

- a. **Influence:** Influence endeavors to convince and mold the collective viewpoint of the public. Manifestation requires a precise prediction of public opinion in order to stimulate the current trends and develop the strong desire of the general audience. Leadership is not capable of altering public opinion; instead, the circumstances compel them to conform to the anger. The dominance of influence in warfare is seen through the

incorporation of wisdom, inventiveness, and technology into the methods of warfare. 5 GW is integrated into this previously unobserved range of the electromagnetic spectrum.

b. **Networks:** The operational framework incorporates four interconnected virtual grids—information, sensing, impacts, and command—that together comprise the idea of network-centric thinking. Nodes in the networks can construct grids through interaction and can distinguish between people, platforms, and battle groups. Integrating any number of grids into a network can provide multi-dimensional effects since each node in the network is relevant and can efficiently manage the flow of information from other grids. The efficiency of a 5 GW system relies on how well the network is interconnected.¹⁹

c. **Combat Cloud:** A “**Combat Cloud**” can be formed by the integrated functioning of networks, wherein different nodes can retrieve data from each other as needed. Not only does this make long-range engagements more feasible, but it also improves situational awareness, makes sure no node is vital to mission success, lets nodes designate targets to each other, and makes the most of each node's unique capabilities.²⁰

d. **Multi-Domain Battle:** Land, water, air, cyber, and public opinion are the five recognized operational domains. The core idea is to unite cyber and popular will in a cross-domain system that can repair itself by leveraging each platform's unique weaknesses. In the event that a node in one domain becomes damaged, this system will swap it out for a node in another domain.²¹

e. **Strike Force Fusion:** Fusion warfare is a strategy that combines the use of force with the application of influence components to achieve specific aims. Its goal is to fix the command and control issues caused by incompatibilities, increased data flows, and inherent susceptibilities to attacks and deceit.²²

Means of 5 GW: Procedures and resources used within this field are given below: -

a. **Conflict in Cyberspace:** Conflict in Cyberspace refers to the strategic capacity to exploit, deceive, and disrupt the information systems of an adversary, while concurrently safeguarding one’s own information systems. Information warfare is a comprehensive and coordinated integration of physical and virtual strategies aimed at attaining specific objectives while concurrently impeding the adversary's ability to accomplish the same. This phenomenon encompasses various forms, including psychological operations, information operations, electronic warfare, military deception, cyber operations and operational security.²³

b. **Cyber Warfare:** Non-kinetic warfare refers to a form of warfare wherein assailants possess the capability to incapacitate servers, websites, and networks, impair the functioning of monetary systems, pilfer classified information, infiltrate adversary servers, and disrupt critical services. In specific aspects, cyber warfare has a higher level of complexity, potency, and detrimental impact on national security compared to

conventional methods of conflict. Cyber warfare is waged in the digital realm through the utilization of various tools such as cyber espionage, web sabotage, data collection, Distributed Denial-of-Service Attacks (DDoS), equipment disruption, targeted vital infrastructure, hacked counterfeit devices, and the dissemination of viruses and worms.²⁴

c. **Influence Operations:** In the context of peacetime, conflict, disaster, and post-conflict scenarios, influence operations refer to the strategic utilization of a nation's diplomatic, information, military, economic, and other capabilities. These operations aim to shape the behaviors, attitudes, or decisions of foreign target audiences in a manner that serves the nation's own interests and objectives. According to this perspective, the impact of influence operations on communications extends beyond the manipulation of attitudes and behaviors. It encompasses the utilization of military capabilities, economic development, and other tangible capabilities that can contribute to the reinforcement of these communications.²⁵

d. **Soft Power:** Soft power refers to intangible assets that states can use to further their goals, such as ideas, culture, and reputation. Influencing other players in international relations isn't enough; what really matters is being able to attract them, because acceptance is the result of attraction. So, the goal is to modify people's preferences in order to bring about change. American political scientist Joseph Nye first used the word in 1990 to describe the capacity to appeal and designate rather than force, with financial incentives playing a significant role. Soft power works through a variety of channels, including public perception, policy, non-governmental organizations (NGOs), and popular ideology. Intelligent power can be developed from soft power. The relationship between economic and military might is simple. Alternatively, the impacts of soft power, as well as their acceptance by the target audience, are more challenging to influence than hard power because these factors are beyond the authority of the government.²⁶

e. **Creative Chaos Theory:** According to John Briggs's definition of chaos theory, "when a system begins to veer out of balance, it is pulled in the new direction by a strange attractor which exerts a magnetic appeal for a system, seemingly pulling the system towards it." Chaos is either made worse or deliberately produced in 5 GW to change public opinion, create a more advantageous space and atmosphere, and achieve a policy goal. Conflict in the Middle East, and more especially in Iraq, is seen as an example of creative chaos theory, a branch of non-kinetic theory.

Key Takeaways

The important cardinals and key takeaways are as follows:-

a. 5 GW strategy employs both overt and covert means to exert influence and incite violence, making it the most challenging generation of warfare to analyze.

- b. 5 GW warfighter is concealed within a static environment, and the most effective initiations of 5 GWs are those that remain unidentified and pose significant challenges in terms of preemptive and exact response.
- c. Open societies are naturally well-defended from a 5 GW attack as the warfighter is forced to operate in the open risking the secrecy posing serious implications on the conservative societal structures.
- d. Presence of conflicting desires leads to the erosion of political and cultural identities, resulting in a sense of rivalry arising from idiosyncratic identities or individualistic ideologies.
- e. Fundamental objectives of 5 GW strikes are not to bring about changes in culture and ideas, but rather to provoke emotive reactions and elicit reactionary responses.
- f. To win information warfare, it's not about doing specific tasks; it's about changing the way people think, which means that soldiers will have to consider not only their physical ability but also the decision-making processes that determine the outcomes of these efforts.
- g. New technologies made modern militaries to reconsider their options but on the contrary it might be rediscovering what they already know all along.
- h. In future conflicts, the capacity to control perceptions and influence the attitudes of a target audience will decide the winner, far more so than the ability to deliver kinetic energy.
- j. Influence is the strategic form of power used to shape the adversary's knowledge in a manner to serve our interests.
- k. High tempo influence operation with more visibility is not 5 GW as it has to remain at low temp with minimum visibility or invisibility.

Conclusion

Since the beginning of combat, 5 GW has existed in many forms at a slow pace, influenced by the combination of public anger and political reasoning. This allows for the transformation of conflicts into opportunities to exploit. The initial indications of 5 GW were in their early stages of development and primarily utilized for the purpose of exploiting internal vulnerabilities. Due to the unexpected nature of the outcomes, these indicators were not prioritized by the parties involved in the conflict. The word "5 GW" appears futuristic and is not typically included in historical studies. The emergence of 5 GW coincided with the introduction of the generational idea of warfare and its associated terminologies. These notions are crucial for comprehending the evolving environment and predicting the future conduct of battles.

As a member of the armed forces, it is important to be aware that the Bangladesh Army will face both non-kinetic obstacles and kinetic dangers due to the difficult external and unstable internal environment. Therefore, an effort was undertaken to make a contribution by providing a definition and fostering comprehension of the concept of non-kinetic warfare, with a particular focus on 5 GW, and to bring attention to the evolving nature of conflict and warfare.

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Brief Biography



Lieutenant Colonel S M Saleh Bin Safi, SGP, psc was commissioned in 28 Bangladesh Infantry Regiment with 53 BMA Long Course on 20 December 2005. He is a graduate of Defence Services Command and Staff College, Mirpur and Command and Staff College, Quetta, Pakistan. He served in four Infantry Battalions and held all the regimental appointments within his capacity. He commanded 35 Bangladesh Infantry Regiment (Support Battalion) as pioneer Commanding Officer. As staff, he served as ADC to GOC at Headquarters 33 Infantry Division. He also served as Brigade Major of 26 Infantry Brigade. He served as Instructor in Tactics Wing of School of Infantry and Tactics. He also served as Platoon Commander in Bangladesh Military Academy. Apart from the mandatory courses, he attended Junior Command and Staff Course in Canada. He also had a stint of service as a Guest Directing Staff in Canada. He participated in the United Nations Peacekeeping Mission in Democratic Republic of Congo as Mechanized Platoon Commander and Central African Republic as Military Staff Officer-Chief U1 (Personnel) in Force Headquarters, MINUSCA. He was awarded with Sena Gourab Padak (SGP) for rendering remarkable contribution in Operation Uttaran at Chattogram Hill Tracts. Presently, he is serving as General Staff Officer, Grade-1 in General Staff Branch, Army Headquarters.

Understanding Conflict Through Johan Galtung's Conflict Triangle Model and Takeaways for the Members of Bangladesh Army

Lieutenant Colonel Md Alamgir Hossain, SBP, psc, G+, Artillery

Abstract

Conflict is a reality, be it within a family, community, area etcetera or between two states or nations. Conflict is viewed as positive manner when both the parties ensure a win-win situation and conflict is marked as negative manner when they are in a lose-lose situation with dire consequences. Therefore, understanding conflict in simple terms is a necessity for pursuance of conflict resolution to avoid severe consequences. Professor Johan Galtung's Conflict Triangle Model is one such conflict analysis tool which contributes to portray relations between active factors liable for retaining the dynamics of a conflict. Being, second largest troops contributing country, the peacekeepers of Bangladesh Army are ethically responsible to know and exercise conflict in detail for a better outcome in the peacekeeping mission areas. Johan Galtung argued that conflict should be judged as a hypothesis and not an apparent outcome. The idea appears promising for the peacekeepers for an acceptable settlement. Comparing goal-fulfilment to happiness and goal-deprivation to suffering, the model appears to work as a peacebuilding model in the present context. After analysing the model, few takeaways are found to be very much effective for the members of Bangladesh Army. So, it is important to know Johan Galtung's Conflict Triangle Model by the members of Bangladesh Army specially the peacekeepers employed in various peacekeeping missions. Military Training Directorate and BIPSOT may consider reviewing pertinent course modules and exercises relating Conflict Triangle Model for better dividend.

Keywords: *Conflict, Conflict Resolution, Conflict Triangle Model, Peacebuilding Model, Goal-fulfilment, and Goal-deprivation.*

Introduction

In the contemporary world conflicts are unavoidable reality and mostly exist with their usual cruel marks. The conflictual level determines the level of environment where the stakeholders of any conflict fit in. The degree of conflict in a family is not the same as conflict persists between two states or nations over a geographical area. Nevertheless, the tempo in any level of conflict seems to maintain a similar level of consistency with grave outcome. A familial conflict can never be under graded as the result could be disastrous for a family. A large-scale conflict such as Israel-Palestine conflict occasionally divide the world following its severe consequences. Therefore, understanding conflict in simple terms is expected for better apprehension to peaceful resolution. Professor Johan Galtung¹ has remarkable explanation of conflict through his Conflict Triangle

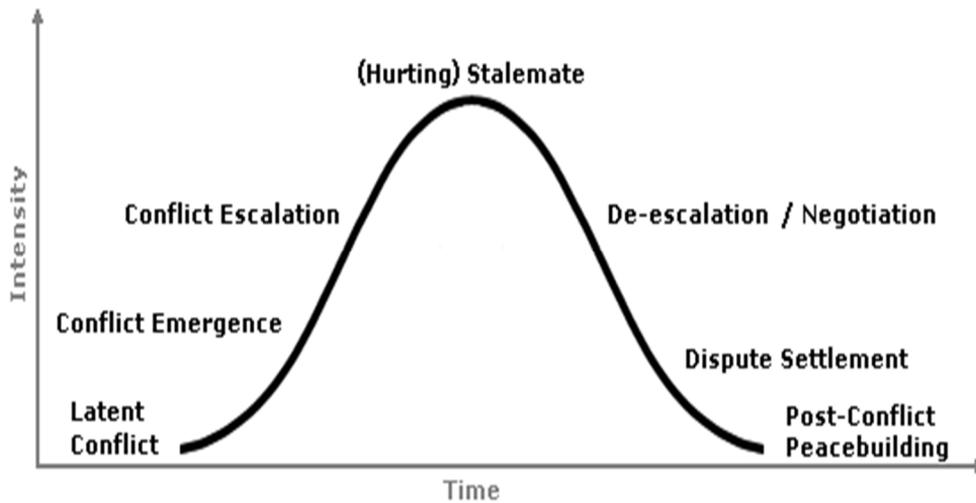
Model which is widely exercised to understand conflict in clear terms for negotiation and amicable solution.

As of 30 November 2023, Bangladesh, a peace-loving nation has contributed to United Nations (UN) peacekeeping missions around the globe as the second largest troops contributing country.² Bangladesh Institute of Peace Support Operation Training (BIPSOT) trains peacekeepers with the vision of promoting global peace and security.³ The success lynchpin lies into the inherent peaceful psyche of the members of Bangladesh Army. However, it is essential to understand the dynamics of conflict that persist around the world. Conflict can be analysed by using different conflict models. Johan Galtung's Conflict Triangle Model appears to be a simple, effective, and ultimate pathway to conflict resolution. So, there are good opportunities for few takeaways from this model by the members of Bangladesh Army. Though peace and conflict studies are covered in various levels of courses in Bangladesh Army for officers, junior commissioned officers, and other ranks yet there are great prospects to incorporate pertinent course module on Conflict Triangle Model in different army level courses.

This paper will focus initially on understanding conflict in simple terms and then the Conflict Triangle Model of Johan Galtung will be evaluated. After that, how Conflict Triangle Model helps to analyse conflict and Johan Galtung's argument of his model will be discussed briefly. Then, the paper will look for the opportunity to see if the Conflict Triangle Model serves the purpose of a peacebuilding model. An endeavour will be made to shortlist the takeaways out of the model for the members of Bangladesh Army. In the end, a few recommendations will be suggested for consideration.

Understanding Conflict

The word 'conflict' comes from the Latin word 'conflictus' which means collision or clash.⁴ Conflict is defined as a process through which two or more actors ('PARTIES') try to pursue incompatible aims or GOALS while trying to stop the other(s) from pursuing their goals.⁵ Conflictual understanding is clearly influenced by the way someone thinks about the nature of conflict. Some scholars argue that conflict is perceived as both negative and positive process. Conflict is negative if differences are not addressed, expectations are not controlled, the disagreement focuses on assumptions rather than facts, or the individuals involved have no desire to find a solution.⁶ To understand the negative process of conflict, it is crucial to realize where conflicts come from. In a negative process, it is the lose-lose.⁷ scenario for the actors involved in a conflict. The positive process of conflict is that where a dispute is managed and contains a definite result. Here, all actors have their needs met and disputed issues resolved. Mostly it is a win-win.⁸ situation for all the actors involved in that conflict.

Figure-1: Dynamics of Conflict

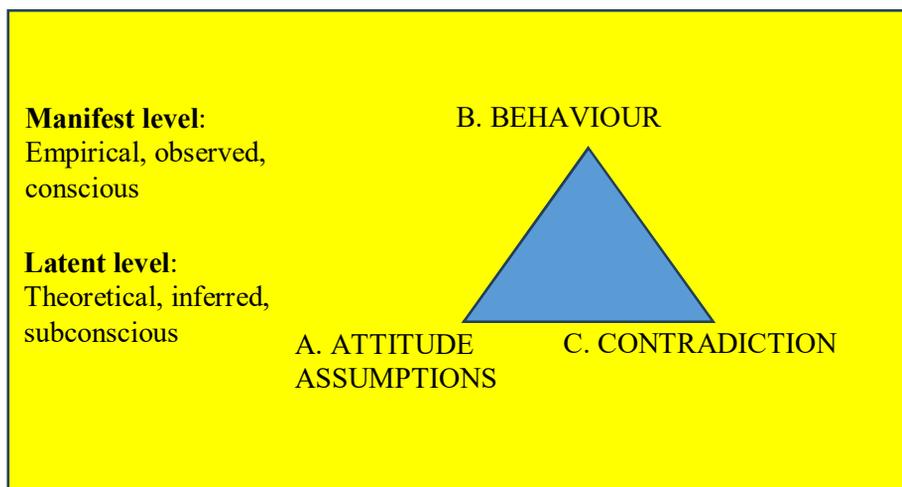
Source: https://www.beyondintractability.org/essay/conflict_stages

Conflict is an ever-changing process. Dynamics of conflict as shown in Figure-1 illustrate vividly the series of phases it poses. The first stage is latent conflict stage where potentially actors have different needs, values, or interests. At this stage, conflict is not tangible until a triggering event (incompatible aim or goal) yields it to a conflict emergence stage. From this stage, conflict may quickly follow either way to settlement for no conflict or conflict escalation for a severe consequence. Conflict escalation stage may lead to a stalemate where no actors can win. At this ‘hurting’⁹ stage, it is an ideal opportunity for a negotiation or potential settlement following a de-escalation stage. When the agreements are met, the post-conflict peacebuilding stage takes over to restore impaired relationships between actors. To pursue conflict resolution, a clear understanding of conflict through conflict analysis model is necessary. One such conflict analysis model is Johan Galtung’s Conflict Triangle Model.

The Conflict Triangle Model

Johan Galtung visualised explanation of a conflict as a triangle. The diagram in Figure-2 shows Johan Galtung’s Conflict Triangle Model which is used as a handy conflict analysis tool. He proposed the idea for analysing conflict and understanding the root causes deeply. In the diagram, the triangle has three sides, and they represent a factor each. A stand for Attitude, B for Behaviour and C for Contradiction. Again, the whole triangle is divided into imaginary two parts, one is named as latent level, and the other one is manifest level.

Figure-2: The Conflict Triangle



Source: Johan Galtung, 'Peace by Peaceful Means,' *SAGE*, 1996, p.72.

Attitude (A): It is the first corner of the triangle. The A (Attitude) is something that is internal. Attitude can be defined as the thought process of a human. It is the belief system. Attitude is intangible, others cannot see it, but it is visible through different actions. Attitude refers to the psychological and emotional aspects of a conflict. Attitude encompasses inner thought, belief, feeling, perception and will of an individual or groups toward each other during a conflict. These attitudes include prejudiced fear, mistrust, stereotype reaction etcetera that play a huge role in how conflicts and involved parties are perceived.

Behaviour (B): It is the second corner of the triangle. The B (Behaviour) is the observable part. Behaviour is the action of an individual towards certain issues on how they react or what they do. One's behaviour can be understood by one's communication and action. Behaviour is the outcome of attitude. Behaviour is shaped by one's attitude and consequence of Contradiction (C). It is the only visible part. Behaviour represents the visible actions taken by the parties in a conflict. It can range from positive to negative actions. Behaviour includes negotiation, communication, protest, strike, boycott, and physical violence such as killing, abuse, torture, clash etcetera.

Contradiction (C): It is the last corner of the triangle. The C (Contradiction) is when one's attitude and/or belief clashes with another. It can start from different factors like distribution, order, or position. When things don't match with other's aspirations or beliefs, then conflict arises. The level of contradiction can be measured by observing violent behaviour. Contradiction represents social, cultural, political, and structural factors contributing to a conflict. This corner examines how social structure, and cultural aspects can play a vital role in a conflict. It involves social injustice, economic disparity, and political tension etc. Contradiction encompasses imbalance in resource distribution, position of the elite and order of system. This is the inner aspects that lead to invisible attitudes people grow and visible actions they take during conflicts.

Relationship Between Factors in the Conflict Triangle: As per Figure 2, A and C are latent, those cannot be seen, and B is at the manifest level; that can be seen by violence with definite signature pattern. The model can be related to ongoing Israel-Palestine conflict. The mentioned conflict is a long outstanding one. As far as the A (Attitude) is concerned for both the parties, then the attitude of Palestinian will be the ownness of land what they believe is belonged to them. In contrast, the Israeli people believe that it is their holy land, and they deserve the whole land. The Contradiction (C) between parties arise when Israel started to show their power and international parties started showing support to Israel. The UN Partition Plan in 1947 was allotted in such a way that 55% Palestinian land along with most fertile land and coastal area became Israelis.¹⁰ Another term this different discriminating policy against Palestinian has been imposed. Thus, contradiction between two parties started. Finally, Behaviour (B) what is now being witnessed as extreme levels of violence between two parties. People are being killed from both sides. It has turned into a large-scale conflict.

Table-1: Relationship Between Factors in the Conflict Triangle Model

Serial	Factor	Level	Meaning	Indicator	Example
1.	Attitude (A)	Latent	Thought process or belief system	Visible through different actions	Positive-respectful, forgive. Negative-fear, mistrust
2.	Behaviour (B)	Manifest	React how and do what	Mediation, collaboration, protest, killing, abuse, clash et cetera	Positive-mediation, dialogue. Negative-violence.
3.	Contradiction (C)	Latent	Incompatible of goals	Social injustice, economic disparity, political tension et cetera	Imbalance in resource sharing, elite position, systematic order et cetera

Source: Author’s self-construct

How Conflict Triangle Model Help Analyse Conflict

The Conflict Triangle Model can help analyse conflict by making a structure to recognise and classify the various aspects and magnitudes of conflict. The model straightway indicates incompatibility of goals or contradictions between parties for what the conflict is still ongoing. Where there are goals there will also often be contradictions within the same organism or between them; here and now, here or there, now or later.¹¹ The model also refers to the patterns and level of behaviours which shape the conflict. How the three factors of the model are exposed in terms of magnitude of conflict and how they influence each other could also be figured out for analysis. It shows that windows of opportunities are there for conflict resolution and the correct ways to be

followed for pursuance. The model explains a systematic analysis of conflict for adopting a peaceful campaign to end the conflict for good.

With the help of the model, peace researchers can relate present state of attitudes and behavioural outcome of parties involved in a conflict for which contradiction is obvious and continuing as distressing unless the change of attitudes and behaviours are apparent to end the conflict. Attitude affects behaviour and altogether leads to contradiction. The model shows that positive attitude leads to constructive behaviour for a conclusive peace by eliminating conflict to happiness. On the other hand, negative attitude leads to destructive behaviour for a harmful contradiction by fuelling ongoing conflict to suffering. Overall, the model answers the questions of conflict bases, magnitudes, outcomes, and possible solutions for better apprehension of the array of conflict.

Johan Galtung's Argument

Johan Galtung portrayed conflict with the help of a triangle with three vertices such as Attitude (A), Behaviour (B) and Contradiction (C). He argues that the statement 'this is a conflict' should always be taken as hypothesis – not as something obvious, even trivial, about which consensus is easily obtained.¹² This optimistic statement is encouraging for the peacekeepers to pursue careful settlement in an ongoing conflict. However, destructive behaviours should be transformed into constructive behaviours to attain permanent solution. He debates that contradiction has to involve something wanted and what he calls it a goal. So, he equals contradiction in his conflict triangle model as incompatible goal-states in a goal-seeking system.¹³ He states that conflict is the sum of Attitude (A), Behaviour (B) and Contradiction (C). In other words, conflict = A + B + C.

The conflict is a triadic construct.¹⁴ So, it is very well understood that positive attitude and positive behaviour in a conflict would expect to address incompatibles (contradictions) leading to ultimate peace. In contrast, negative attitude would display negative behaviour and make the situation worse for protracted contradiction. The underlying problem is a contradiction among goals (and means), with attitudes inclining toward hatred and behaviour toward violence in the whole underlying A, B, C-triangle.¹⁵ According to Johan Galtung, "The only systems we shall accept as goal-seeking are live systems, capable of experiencing the realization of a goal as happiness (sukha) and the deprivation as suffering (dukkha)."¹⁶ Understandably, happiness is derived from goal-fulfilment and suffering is derived from goal-deprivation.

A Peacebuilding Model

Conflict analysis is a prerequisite for establishing peace. Johan Galtung's Conflict Triangle Model can be compared to a peacebuilding model as the analysis of the model through any conflict around the world would open a window to peaceful resolution. Analysis of conflict is a crucial skill for peacekeepers. Being simple to understand, the conflict triangle model invites peacekeepers

around the world to focus on the attitudes, behaviours and contradictions amongst the actors and various stakeholders involved in that conflict. The relationship of these three corners in the triangle directs a way to plausible solution by highlighting the causes, impacts and motivations of the actors. As the conflict triangle helps us understand the root causes and handlers of conflict so the design and implementation of peacebuilding interventions become obvious.

The model indicates that necessary dialogue between the parties can be facilitated after reviewing attitudes and behaviours to address the contentious contradiction. To have a dialogue with all parties in a conflict is the duty of the conflict worker,¹⁷ to map their goals, to stimulate the creativity of the parties, to play creative proposals back to them.¹⁸ The model allows the conflict parties to come to a common ground for negotiation and resolve their incompatibles peacefully. After identifying attitudes of the actors in a conflict, the Conflict Triangle Model promotes trust-building, settlement, and mutual respect for peacebuilding. To address behavioural outcomes, the Conflict Triangle Model supports non-violent actions, sponsorship, and defensive measures in an ongoing conflict. So, the Conflict Triangle Model helps us transform conflict into sustainable peaceful solution.

Takeaways for Members of Bangladesh Army

Conflict lies in between parties/states due to pursuance of their incompatibility of goals. Instead, compatible goals lead to ever higher level of peace, conviviality, and incompatible goals, conflict, are handled peacefully.¹⁹ All members of Bangladesh Army should comprehend this basic specially those are employed abroad as peacekeepers in different peacekeeping missions. Peacekeepers attitude and behaviour will be crucial to establish peace by addressing incompatibles/contradictions in response to conflict situation. Following takeaways are enumerated below for the members of Bangladesh Army:-

Conflict Should Always be Taken as Hypothesis: The idea is to consider any conflict as not an obvious option. However, it must never be misunderstood by underestimating a marginal conflict. A large-scale conflict might initiate from a minor conflict. There are always windows available to negotiate and resolve any conflictual situation. So, considering a conflict as hypothesis is the best way to deal with conflictual situations.

Looking at Conflict Through Positive Lenses: Positive attitudes are always rewarding, specially in a conflicting environment. A positive mind leads to a positive attitude which ensures positive behaviour. Latent positive attitude directs manifested positive behaviour for a compatible positive outcome.

Transforming Destructive Behaviours to Constructive: In an ongoing conflict, peacekeepers employed should be able to interpret destructive behaviours of parties involved at the first instance and take necessary steps such as mediation, dialogue, motivation etcetera to transform those behaviours as constructive for credible solutions.

Eliminating Contradiction by Addressing Compatible Goals: As the conflict lasts due to pursuance of incompatible goals of the parties involved, therefore it is necessary to eliminate contradiction by ensuring pursuance of compatible goals by the parties. By applying positive attitude and positive behaviour in a conflict, peacekeepers can ensure addressing contradictions.

Negative Attitude and Behaviour Lead to Protracted Conflict: Negative attitude and behaviour play catalyst role to instigate contradiction to much difficult proposition. Fate of a conflict is mostly decided by the outcome of attitude and behaviour. Positive attitude and behaviour address incompatibles where negative attitude and behaviour are liable leading to protracted conflict.

Conclusion

Understanding conflict in clear terms is an obligation to conflict resolution. Professor Johan Galtung's Conflict Triangle is a conflict analysis tool that effectively figures out the inner relation between factors responsible for maintaining the dynamics of a conflict. The triangle is also known as Galtung's ABC Triangle which is a framework that is used to understand different aspects of a conflict. It consists of three components Attitude (A), Behaviour (B) and Contradiction (C). Bangladesh being one of the largest troops contributing country in the UN Peacekeeping missions around the globe has moral responsibility to train her peacekeeping members on the gamut of conflict dynamics. Johan Galtung's Conflict Triangle Model looks like a simple tool to grasp various aspects of conflict in simple terms. In corporation of the model to pertinent course module of various Army level courses will benefit both the members of Bangladesh Army and the vulnerable people of peacekeeping mission host countries.

Conflict could be regarded as applied to both positive and negative manner. However, only positive manner ensures a win-win solution. The Conflict Triangle Model is a helpful tool to investigate the root causes, levels, effects, and likely solutions of an ongoing conflict. The actors and various stakeholders involved in the conflict are scrutinised for their active role in the conflict for logical reasoning. It tells us that any positive input is likely to bring out a positive outcome regarding applied attitude and behaviour in a conflict. Contradiction is the result of mismatch between parties hence a common ground is required for conflict resolution. The common ground refers to a win-win situation for both the parties. Johan Galtung argued in his conflict model that conflict is a hypothesis not an obvious result. So, the idea promotes peacekeepers initiative for a definite settlement. Conflict workers or the peacekeepers plot the goals of the parties, inspire their ingenuity, and offer them options for conflict settlement.

Peacekeepers can motivate themselves to ensure transformation of destructive behaviours of parties to constructive behaviours for addressing incompatible goals of the parties for peaceful negotiation. He claimed that happiness is compared to goal-fulfilment and suffering is compared to goal-deprivation. Therefore, the model firmly refers to a peacebuilding model in today's

conflictual world. With this model, peacekeepers of Bangladesh Army would be able to enrich critical skills of dissecting conflict analytically for conflict resolution. As the model emphasises on dialogues between conflicting parties which refer to negotiation so BIPSOT may consider arranging adequate real time situational exercises for the peacekeepers of Bangladesh Army under pre-deployment training module. Takeaways from Johan Galtung's Conflict Triangle Model are vital for the members of Bangladesh Army to consider and apply in present day's peacekeeping missions which are under complex security scenarios all the way.

Recommendations

Basing on the above discussion, following recommendations are made:

- a. Military Training Directorate of Bangladesh Army may revise pertinent course module of various Army level courses of officers, junior commissioned officers, and other ranks to include Johan Galtung's Conflict Triangle Model for better conflict management training by the peacekeepers of Bangladesh Army.
- e. BIPSOT may revise pre-deployment training module for the deployable battalions of Bangladesh Army to UN peacekeeping mission areas by including Johan Galtung's Conflict Triangle Model to the relevant course modules and arrange adequate real time situational exercises by emphasising on negotiation skill.

Notes and References

1. Johan Vincent Galtung (24 October 1930-17 February 2024) is a Norwegian sociologist who is the principal founder of the discipline of peace and conflict studies. He is known as the 'Father of Peace and Conflict Studies' vis-à-vis research work. Co-authored with Charles Webel his treatise *Handbook of Peace and Conflict Studies* is considered as a magnum opus in this discipline.
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18. Galtung *op. cit.*, 2004 p. 32.
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Brief Biography



Lieutenant Colonel Md Alamgir Hossain, SBP, psc, G+ was commissioned in the Regiment of Artillery with 42nd BMA Long Course on 07 June 2000. He has served in various staff, command and instructional appointments in Bangladesh Army. He served as Staff Captain (AQ) in Headquarters 6 Independent Air Defence Artillery Brigade. As a Grade Staff Officer-II, he served in Headquarters Army Training and Doctrine Command. He has also served as Instructor Gunnery and Senior Instructor Gunnery in Artillery Centre and School. He is a graduate from Defence Services Command and Staff College, Mirpur and Army Air Defence College, India. He holds Master degrees in Military Studies and (Technical) Special. He commanded 38 Air Defence Regiment Artillery. He served as a Military Observer in Liberia and a contingent member of Bangladesh Special Forces Company/1 in Central African Republic under 'Blue Helmet'. He also served as Principal, Ghatail Cantonment English School. Presently, he is serving as Additional Registrar (General) at Bangladesh University of Professionals.

Decoding Triumph and Defining the Endgame: Unveiling the Understanding of Victory and Defeat in Modern-day Battlefield

Lieutenant Colonel Abu Md Shahnour Shawon, psc, Infantry

Abstract

In the dynamic landscape of modern warfare, the concepts of victory and defeat are multifaceted and nuanced. This article, 'Decoding Triumph and Defining the Endgame: Unveiling the Understanding of Victory and Defeat in the Modern-Day Battlefield,' explores the critical importance of comprehending both success and failure in military operations. By examining historical precedents, strategic doctrines, and contemporary case studies, the essay delineates the operational, tactical, and strategic dimensions that underpin military outcomes. It highlights how learning from defeat fosters adaptability, innovation, and resilience, while also enhancing decision-making, leadership, and risk management. Furthermore, the author underscores the significance of institutional learning and the integration of lessons from the battlefield to refine military doctrines and operational practices. In unravelling the complexities of triumph and defeat, this analysis aims to equip military officers with the insights necessary to navigate the challenges of modern warfare, ensuring preparedness and effectiveness in achieving long-term strategic objectives.

Keywords: *Defeat, Defeat Mechanism, Victory, Culmination, Understanding Defeat, Strategy, Tactics, Doctrine.*

Introduction

Most of the militaries in the world engage in war with one definite aim of defeating the enemy at all costs. According to Clausewitz, the definition of victory is not in the battles won or lost, nor in territory occupied. Victory in war is fundamentally determined by whether the political objectives are achieved.¹ In the words of Winston Churchill (1874-1965),² "Victory, victory at all costs, victory in spite of all terror; victory, however long and hard the road may be; for without victory, there is no survival."

Pursuing victory in war has been a timeless and complex endeavour throughout human history, shaping the destinies of nations, societies, and individuals. The significance of triumph on the battlefield extends far beyond mere territorial gains; it is intricately woven into the fabric of a nation's identity, political stability and socio-economic prosperity. Wars waged for reasons ranging from ideological differences to geopolitical ambitions, often cast a long shadow on the course of history. Numerous reasons drive this pursuit of victory such as the safeguarding of citizens, the preservation of sovereignty, and the development of strategic interests. Understanding the importance of victory in war necessitates an exploration of the profound implications it holds for

the victors and the vanquished alike, as well as the enduring impact it leaves on the global stage. The classical description given by the renowned French Army commander and mid-1900s military strategist Ardant du Picq, tacticians go into war not to fight, but to win. Therefore, according to du Picq, it becomes very significant to visualise victory.³

Starting from days in the military academy, through the stimulated tactical discussion of the Junior Command and Staff Course, again in the formation during various tactical events and finally throughout the Staff College, the most raging debate takes place on defining victory or defeat in battle. The wider debate prevails, should it be based on force ratio, casualty, manoeuvre, the presence of the commander or any other factor? Ironically, victory is still commonly anticipated in ancient terms: the percentage of casualties, the defeat of armed forces, the capture of territories, the capture of the capital and most prominent leaders etc. In retrospect, it can be generally stated that in ancient times, the presence or survival of the commander was one of the most decisive factors for winning or losing any battle. Most of the men in uniform of present-day militaries will agree those do not stand true for modern-day complex battlefields. Today, perhaps it is more related to the achievement of military objectives. Where defining victory has become more complex than ever before. Cut to the heart, determining what constitutes a win or a loss is crucial, and a theological justification will improve the connections between tactical tasks and the development of the comprehensive strategy.⁴

This paper begins by looking through the prism of history and existing doctrines to understand the concept of defeat and victory. Then this article offers an approach to view the understanding of defeat at strategic, operational and tactical levels with a historical perspective. Then proceed to outline the importance of understanding defeat or victory for any military officer. Finally, the essay will highlight some major takeaways for understanding the importance of victory and defeat for any military officer.

Understanding the Concept of Victory and Defeat

Our Conventional Wisdom of Understanding Defeat: The traditional methods of comprehending defeat through territorial gain, calculation of casualties and duration of war have changed over time. For instance, how can someone measure defeat or victory in a counter-insurgency operation, hybrid warfare or low-intensity conflict? The recent war in Afghanistan has shaken the traditional wisdom of understanding victory and defeat. Just imagine, since 2001, the United States has incurred \$2.26 trillion in Afghanistan, winning most wars and conflicts there but losing strategically at the end.⁵ Can the engagement of the US in Afghanistan be defined as a victory? Perhaps everyone will agree that the US has not come out victorious and was forced to reestablish the Taliban Regime.

According to Biddle who wrote a book *On the Understanding of Victory and Defeat*, the most persuasive justifications for combat results centre on the relative strengths and capabilities of opposing armies, as well as the development of their military technology. He demonstrates how

these factors are constrained by several historical case studies and statistical analysis.⁶ Heretofore, our conventional understanding of defeat in war typically centres around the idea of one side experiencing significant setbacks that result in the inability to achieve its strategic objectives. The following paragraphs will examine the concept of defeat from a historical perspective and then through the doctrinal approach:

Historical Perspective of Defining the Concept of Defeat

Throughout history, the definition of defeat has been influenced by the changing nature of warfare, technological progressions, and evolving strategic thinking. The historical perspective of defining the concept of defeat has evolved, shaped by various military doctrines, theories, and historical events. A brief overview is given below: -

Ancient Warfare: In ancient times, defeat was often straightforward - the complete annihilation of an enemy's army or the capture of their territory. Battles were decisive, and defeat was often synonymous with annihilation or submission.

Medieval and Renaissance Warfare: During this period, warfare became more organised, but the concept of defeat remained largely focused on the battlefield. Defeat meant losing a battle, which could have significant consequences for the political and territorial aspirations of kingdoms and empires.

Napoleonic Wars: The Napoleonic era (1799-1815) saw the emergence of more complex military strategies and the concept of decisive battles. Defeat often meant losing a crucial engagement that could lead to the collapse of an entire campaign or military campaign.

World War I and II: The concept of defeat expanded beyond the battlefield during World War I (1914-18). It encompassed factors such as attrition, exhaustion, and the erosion of civilian morale. The concept of "total war" emerged, where defeat meant not only losing battles but also the will to continue fighting. Defeat in World War II (1939-45) was often measured in terms of territorial losses, industrial capacity, and the ability to sustain military operations. The defeat of Axis powers like Germany and Japan resulted from a combination of military defeats on multiple fronts, economic exhaustion, and political factors.⁷

Modern Warfare: In contemporary military doctrine, defeat is a multifaceted concept. It involves not only the obliteration of enemy forces but also the degradation of their capabilities, disruption of their command and control, and erosion of their will to fight. Defeat may occur at various levels, from tactical engagements to strategic campaigns.

Asymmetric Warfare: In conflicts against non-state actors or insurgencies, defining defeat becomes more complex. It may involve not only military victories but also addressing underlying grievances, winning hearts and minds, and building stable governance structures.

Defining Defeat and Victory- The Doctrinal Approach

Many may despise an academic approach to defining victory and defeat. Nonetheless, in all military academic settings, the tacit awareness of a common vocabulary is crucial for linguistic clarity and for laying the groundwork for shared understanding. Any military leader should also have a clear idea of what constitutes a failure and what it takes to achieve success. Biddle claims that it is concealed by the cloud of analysis.⁸ In the following paragraphs, this essay will outline some of the doctrinal definitions of defeat and related terms have been outlined:-

Culmination: To understand defeat, someone needs to understand the concept of culmination or culminating point first. The U.S. Army keystone warfighting manual *Field Manual* (FM) 100-5 and *Joint Publication* (JP)-5 explain the culminating point as one of the three key concepts of operational design. Additionally, it says that the idea can be used at the tactical, operational, and strategic levels.⁹ According to JP-5, “culmination is that point in time and/or space at which an operation can no longer retain momentum.” The culmination is that point at which a force is no longer able to continue functioning as an offensive or defensive force. For offensive operations, it is the moment at which the force must decide whether to adopt a defensive posture or try an operational pause since it is no longer feasible to effectively continue the attack. Our doctrine also propagates the same idea. According to Carl von Clausewitz, it is the moment when “the remaining strength is just enough to maintain a defence and wait for peace.” Once it was over, there would be no further chances to win unless the opposition capitulated without waging a decisive war.¹⁰

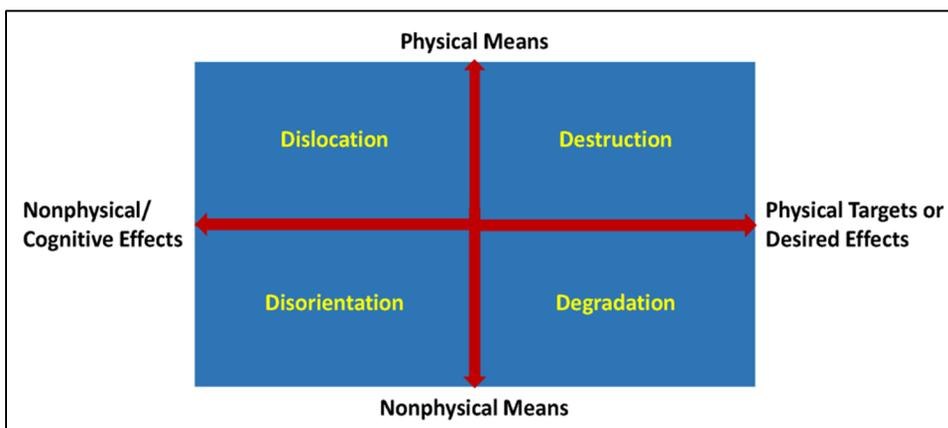
Victory: In modern warfare, a multitude of factors contribute to a battle’s outcome or victory. According to many military theories, these elements comprise manoeuvre, surprise, breakthrough, deployment, exploitation and shock resulting in enemy structural collapse. Ideally, if one side in combat exploits all elements successfully, the likelihood of victory increases.¹¹ There isn’t a comprehensive definition of victory in the literature and it’s difficult to respond without a consensus over what it means and is all about. Many studies suggest that victory can be defined according to the level of war.¹² Another scholar Collins suggests that “victory or defeat is a social construction of the participants themselves.” He also opines that “in decisive battles, there is general agreement on both sides as to the outcome.” Furthermore, he exclaims, “some battles are indecisive, a stalemate with no victory announced. Victory and defeat are above all emotional conditions; although physical destruction *contributes to a degree.*”¹³ Therefore, it is clearly understood at times defining victory can be very difficult and it has become more complex in the present-day context.

Defeat: It is to render a force incapable of achieving its objectives. Defeat has a temporal component and is seldom permanent.¹⁴ To achieve friendly force objectives and defeat the enemy force, any commander must deprive the adversary force and its commander of the means and will to seriously intervene with friendly force operations. Failure might result from using force or the threat of employing it.¹⁵ Clausewitz explained conflict as the only means of destroying the enemy's

forces to further the goal of policy. He added, ‘That holds even if no actual fighting occurs because the outcome rests on the assumption that if it came to fighting, the enemy would be destroyed.’¹⁶ Just as crucial as eliminating the enemy's desire and resources is taking away its fighting ability. Any commander can overcome a powerful enemy army if they can force the opponent to abandon a territory or project by destroying or depleting resources or stirring up enough public opposition to make further action unfeasible.

Defeat Mechanism: After getting a vivid understanding about defeat it is also imperative to gain understanding about the method of attaining it. Here comes the significance of the defeat mechanism. It is a method through which friendly forces accomplish their missions against enemy opposition. Army forces at all echelons use combinations of four defeat mechanisms: destroy, dislocate, disintegrate, and isolate.¹⁷ The US Army doctrine outlines four components of the defeat mechanism: destruction, dislocation, isolation and disintegration. On the contrary, although defeat mechanisms are not mentioned specifically in US Marine doctrine, the word is frequently and clearly understood in discussions.¹⁸ The army doctrine of the United Kingdom mentions disruption, dislocation, and destruction as the three ways ground forces attack the opponent’s physical and moral coherence instead of using the word defeat mechanisms.¹⁹ A possible diagram related to the defeat mechanisms which is propagated by the US Army is depicted in Figure-1. This matrix embraces current Army doctrine, except for dropping isolation in favour of disorientation and degradation and contrasts the means and intended effects of several mechanisms.²⁰

Figure-1: Defeat/victory mechanisms according to US Army Doctrine



Source: US Army Field Manual 3-0 Operations

Is the definition of Defeat Vary with the Level of War?

It is daunting to realize that, in all tiers of conflict, the definition and description of defeat must be considered. About 2,500 years ago, Chinese military strategist, Sun Tzu, wrote *The Art of War*. In that book, he stated, “Strategy without tactics is the slowest route to victory. Tactics without strategy is the noise before defeat.”²¹ Strategy and tactics are two sides of the same coin that should

constantly work in tandem with one another. It is evident that the nature of defeat certainly relates to different levels of warfare. At the tactical level, the definition of victory is very straightforward and relates to bringing the enemy to the culmination point. However, at the operational and strategic level, the measure of defeat is more complex and challenging to clearly distinguish. Declaring an enemy defeated strategically is a political act at the strategic level. Therefore, the policymaker's choice will consider a variety of considerations in addition to military advice. Senior military officials are required to employ fact-based measures to support the policymaker and support the policy declaration to fulfil their commitment to providing the best military advice when waging war.²²

Defeat at the Strategic Level

It's important to note that achieving defeat or victory at a strategic level is an extremely complex and challenging task, often requiring a combination of military, diplomatic, economic, and informational measures. Strategic defeat is the ultimate objective in conflicts where nations or entities are engaged at the highest level, and it involves a holistic understanding and application of statecraft. Policymakers decide what is victory and defeat; it is a political determination that takes the military into account. There are many examples where many superpowers had tactical and operational victories however, they had strategic defeats. A great example of such can be the Vietnam War where the US had strategic failure.²³ There is an overload between the policy domain and the strategic level of warfare. The goal for using the military in combat is the policy objective. As a result, all military operations serve to establish the framework necessary to achieve policy goals. As Clausewitz writes, "To bring a war, or one of its campaigns, to a successful close requires a thorough grasp of national policy. On that level strategy and policy coalesce: the commander-in-chief is simultaneously a statesman."²⁴ As shown in the following Figure 2 the reasons for strategic failure can be many:-

Figure-2: Common reasons for strategic failure



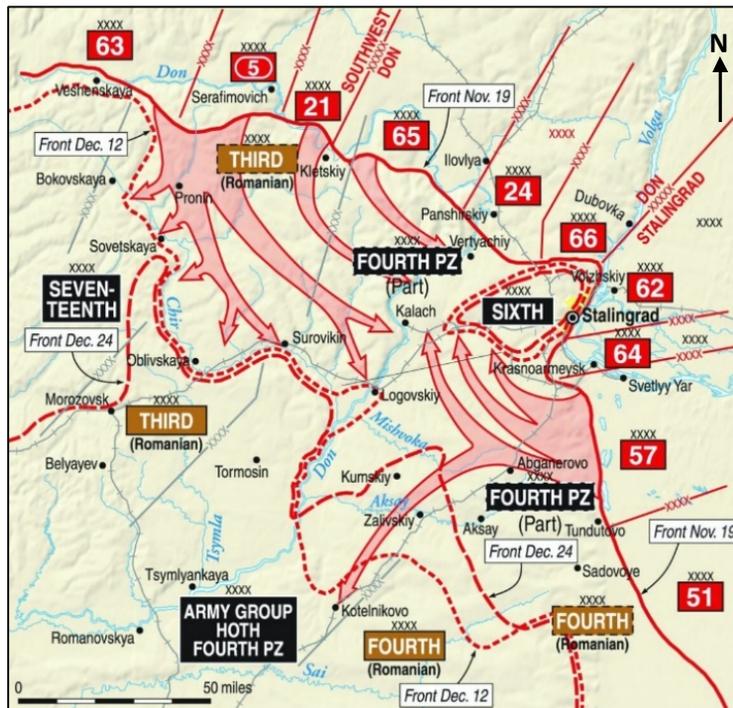
Source: Author's self-construct

Defeat at the Operational Level of War

Defeat at the operational level in military operations refers to the loss of effectiveness or failure of a military campaign or series of engagements within a theatre of war. This level of warfare bridges the strategic objectives set by national or coalition leadership and the tactical actions conducted by individual units on the battlefield. Understanding operational defeat involves analysing several key factors such as failure to achieve objectives, disruption of command and control, logistical failures, intelligence failures, technological and capability gaps and interruption of critical timelines.

One of the most well-known examples of operational defeat in military history is the German failure in the Battle of Stalingrad during World War II which lasted from August 1942 to February 1943. The German strategic objective was to secure the oil fields in the Caucasus and to capture the city of Stalingrad, which held symbolic importance and was a key industrial and transportation hub on the Volga River. The operational objective was to advance into the city, secure it, and establish a defensive line along the Volga. Which resulted in an operation defeat. When the Soviet Union began its strategic counteroffensive at Stalingrad (Figure 3), they were able to successfully encircle the German Sixth Army inside the city by exploiting the Romanian army's weaknesses.

Figure-3: Counter Offensive by the Russian Army in the Battle of Stalingrad

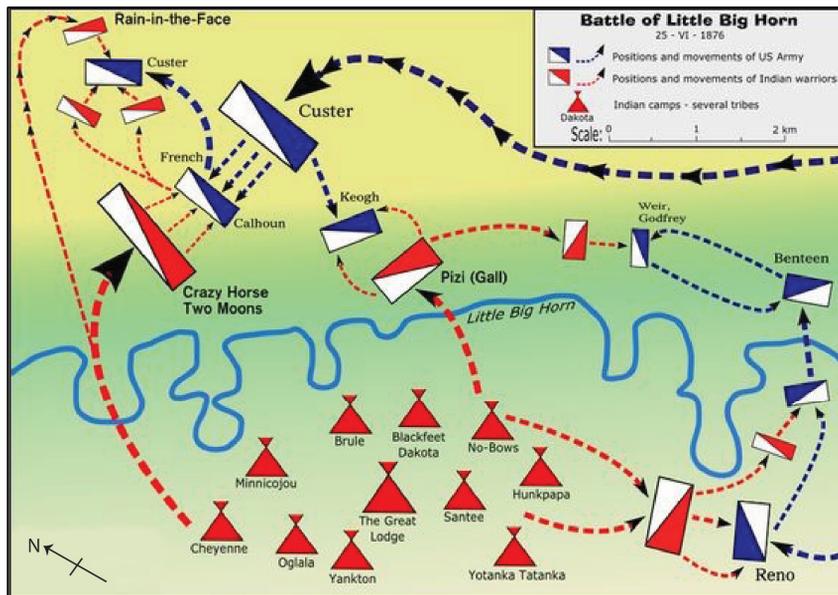


Source: <https://www.britannica.com/event/Battle-of-Stalingrad>

Defeat at the Tactical Level of War

Defeat at the tactical level in military operations refers to the failure of a specific engagement or battle due to shortcomings or errors in the immediate execution of combat activities. Unlike operational defeat, which concerns broader campaigns and their outcomes, tactical defeat pertains to the direct actions of units on the battlefield. Several key factors contribute to tactical defeat: poor tactical planning, command and control failures, inadequate force employment, and logistical shortcomings. A classic example of tactical defeat is the Battle of Little Bighorn, which took place in 1876, during the Great Sioux War. The Great Sioux War's most important event took place during the battle, which led to the defeat of American forces. It happened in the Crow Indian Reservation in southeast Montana Territory, beside the Little Bighorn River as shown below in Figure-4.

Figure-4: Counter Offensive by the Russian Army in the Battle of Stalingrad



Source: Charles J. Kappler, *Indian Affairs - Laws and Treaties*, Vol II, 1904.

Recognising Defeat: Attrition vs Manoeuvre from Historical Perspective

In most of our academic discourse in the military, we often recognise defeat in the scale of casualties. Interestingly, historical facts state the recognition/realization of defeat does not seem to be based on casualties. Recognition of defeat seems to be based on potential future losses rather than current or historical losses. When the enemy gains a position of advantage, loss appears more imminent. While attrition helps defeat an opponent, it is not the sole mechanism. It is also evident from historical records that manoeuvre is more decisive than attrition (Figure-5). In Fact, manoeuvre is not a choice, it is an earned right.

Figure-5: Historical Reason for Defeat by Percentage

<u>RECOGNIZING DEFEAT</u>	
<u>Shortages of Resources</u>	14%
- No reserves left.....	12%
- Supply shortfalls.....	2%
<u>Firepower by the Enemy</u>	12%
- Casualties or equipment loss.....	10%
- Enemy Artillery and air attacks.....	2%
<u>Manoeuvre by the Enemy</u>	64%
- Envelopment, Encirclement, Penetration.....	33%
- Adjacent Unit Withdrawal.....	13%
- Enemy occupied Key Terrain.....	6%
- Enemy achieved Surprise.....	8%
- Enemy was Reinforced.....	4%
<u>Conditions External to the Battle</u>	10%
- Truce or Surrender.....	6%
- Change in the Weather.....	2%
- Orders to Withdraw.....	2%

Source: Colonel Trevor Nevitt Dupuy, *Understanding Defeat: How to Recover from Loss in Battle to Gain Victory in War*, New York, 1987.

From the above table, which is contemplated by Colonel Dupuy it is evident that manoeuvre plays a far superior in recognizing defeat. Nonetheless, since an attrition strategy can be required in some situations, reputable historians see the dispute between attrition and manoeuvre as spurious. In combat, attrition is defined as physical destruction which is a required but seldom sufficient element. It is necessary to limit adversary capabilities to reduce physical assets as well as to psychologically shock the opponent into realizing they have lost the upper hand or to surprise them into realizing that continuing the campaign would only increase the cost of the outcome. It is not a particular kind of triumph that creates the circumstances, but rather combinations of force and velocity. Now the million-dollar question is do we give such due credit for superior manoeuvre in an academic environment?

IMPORTANCE OF UNDERSTANDING THE VICTORY AND DEFEAT

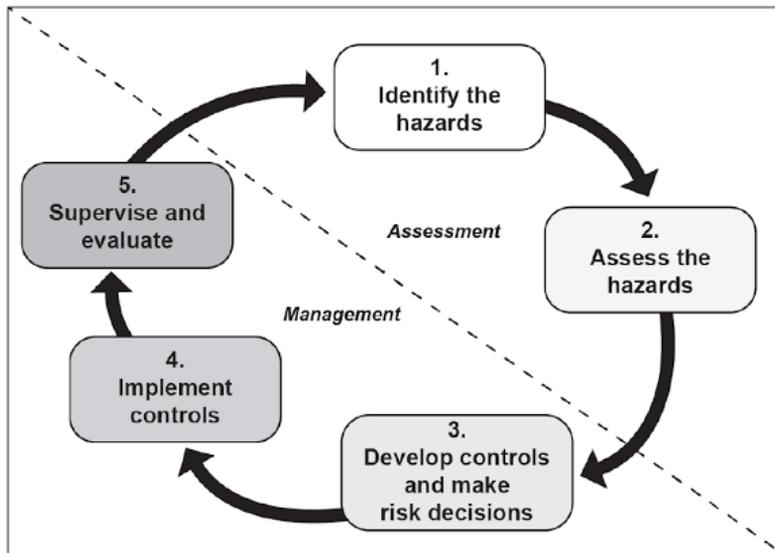
Why is it important? To Whom?

During the liberation war of Bangladesh on 16 December 1971, Lt Gen AAK Niazi, Commander of the Pakistan Eastern Command, signed the Instrument of Surrender. Nonetheless, it was reported that the 205 Infantry Brigade, led by Brig Tajammul Hussain Malik, who oversaw defending Hilli and Bogura, encouraged his men to continue fighting and refused to give up to the

Indian Army. However, he was detained during a fight later. From this instance, it is evident that understanding the defeat is important for any military leader. Therefore, it is very imperative to have a shared understanding and doctrinal definition of defeat for any military. The subsequent paragraphs will outline the importance of understanding defeat for any military leader.

Comprehending Clarity of Objectives and Making Correct Risk Assessment: In this present-day warfare, everyone needs to ask hard questions about understanding the ultimate objective of warfare. It is easy to comprehend why it is so important to clearly understand defeat. Understanding defeat helps military officers define what victory means. If one knows what constitutes defeat, then one can work backwards to understand what is needed to achieve to avoid it. Cognitive clarity about defeat and victory can assist a military leader in making the right decision at a critical moment. This clarity is essential in setting strategic and tactical objectives. Knowing what defeat looks like enables officers to assess risks accurately. When one can define victory or defeat then one can assess and manage the risk. The US Army's five-step process breaks risk management into two significant parts: assessment and management as shown in Figure-6. As the first step, someone needs to measure risks, take action and then evaluate in a continuous loop. Feedback and reassessment are critical to the process.

Figure-6: Risk Assessment Steps and Management Steps



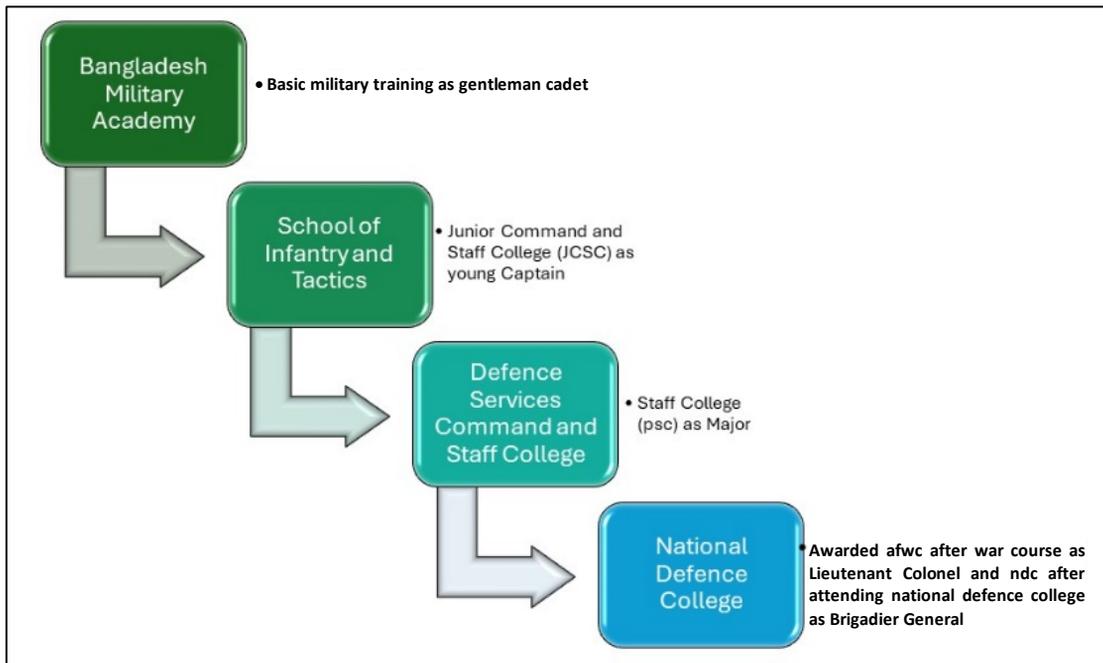
Source: US Army Doctrine ATP 5-19 Risk Management

Learning from History the Adaptation and Resilience: Military operations often face unforeseen challenges and setbacks. Officers who understand defeat can adapt more effectively to changing circumstances and bounce back from setbacks with resilience. Studying historical defeats provides valuable lessons for military leaders. By understanding past failures, officers can avoid repeating the same mistakes and incorporate successful strategies into their plans.

Important at the Joint Level for formulating Planning and Strategy: Understanding defeat helps in devising effective plans and strategies. Officers can anticipate potential threats and vulnerabilities and develop countermeasures to mitigate them. Professional officers must comprehend the meaning of defeat as agreed upon by the joint and service since they will be assigned policy responsibilities like “degrade and then defeat the enemy.” The unifying language used by the services is called a doctrinal definition, which forms the basis for useful performance and effectiveness measurements that link military activities to the ultimate aim of defeat. With improved definitions, top military leaders may more confidently inform their strategic leadership of the enemy's loss, as opposed to making ambiguous statements.

Educating the Military Officers at Different Military Training Institute: Two more issues can be solved by offering a strong theological foundation for the efficacy metric and performance measures in support of policy. First, a more accurate definition would advise military leaders on how to appropriately use the term “defeat” in their mission and objective statements. It provides more specific tasks like “clear,” “hold,” “build,” “demolish,” “secure,” and so forth that are appropriate for each stage of conflict. Secondly, a better definition might provide some context for the information that is given to policymakers when they are making decisions about using force. In this situation, military officials can inform decision-makers about what the use of force can and, more significantly, cannot achieve. The following diagram shows progressive training for any military officer to learn about victory or defeat at a different level:-

Figure-6: Progressive Training for Military Officers in Bangladesh Army



Source: Author's self-construct

Understanding Victory in the Context of Moral and Leadership: Officers must inspire and lead their troops, especially during challenging times. Understanding defeat allows officers to communicate the seriousness of the situation while instilling confidence in their ability to overcome obstacles. Many superior armies won all tactical engagements however they could not achieve victory due to not attaining the high moral ground. Examples can be the US invasion of Vietnam, Afghanistan, Iraq and so on. If the ultimate goal of war is to win, or at the very least, prevent loss, then understanding what victory is and what it takes to get there will help us determine what moral and legal standards should be applied to it. There is now a heightened expectation among the winning parties regarding their duties to the losers due to a growing interest in *jus post bellum*.

MAJOR TAKEAWAYS- GAINING A VIVID UNDERSTANDING OF DEFEAT AND VICTORY

Understanding defeat is essential for military officers to build a more resilient, adaptable, and effective force capable of overcoming future challenges and achieving long-term success in their missions. Finally, it will have the following impacts on any military officer:-

- a. Analysing defeats provides valuable lessons that can prevent similar mistakes in future operations. Therefore, it encourages a culture of continuous improvement and professional growth.
- b. Understanding the causes and consequences of defeat enhances an officer's decision-making capabilities. Therefore, it informs better strategic, operational, and tactical planning.
- c. Identifies potential vulnerabilities and risk factors in military operations. Thereby, it encourages the development of robust contingency plans and risk management strategies.
- d. Recognizing the reasons for defeat fosters adaptability and flexibility in military planning and execution.
- e. It helps in quickly adjusting tactics and strategies in response to changing battlefield conditions.
- f. Learning from defeat builds resilience and mental toughness among troops and leaders. It promotes transparent and accountable leadership during times of defeat and enhances trust and credibility within the ranks.
- g. Highlights inefficiencies and areas for improvement in logistics, command, and control. It ensures more effective allocation and use of resources in future operations.
- h. Ensures that lessons learned from defeats are institutionalised within the military organisation. Promotes a culture of shared knowledge and continuous improvement across the force.

Conclusion

In 1942 Sir Winston Churchill once remarked in his speech to the House of Commons, “The problems of victory are more agreeable than those of defeat, but they are no less difficult.” Old as Hills, to identify the issues around victory, it is a must first to have a deeper comprehension of what victory comprises, how it manifests, and how to attain it. In the past, defeat models have determined surrender or stance modifications based on hardcoded breakpoints of casualties. From ancient battles to modern asymmetric warfare, defeat has encompassed various dimensions, including the destruction of enemy forces, territorial losses, and erosion of willpower. Today, in an era of globalized threats and non-state actors, understanding defeat requires a multifaceted approach that considers military, political, economic, and social factors.

In conclusion, understanding defeat is paramount for military officers as it serves as the cornerstone of effective planning, decision-making, and leadership in armed conflicts. By comprehending what constitutes defeat, officers can better define objectives, assess risks, and devise strategies to achieve success on the battlefield. Moreover, a historical perspective reveals how the concept of defeat has evolved, reflecting changes in warfare, strategy, and the complexities of modern conflicts. By learning from historical failures and adapting to contemporary challenges, military leaders can mitigate risks, inspire their troops, and ultimately achieve victory. Thus, understanding defeat is not merely about acknowledging failure but using it as a catalyst for innovation, resilience, and strategic success. In essence, it is a central element in the art and science of warfare, guiding military officers in their pursuit of national security and defence objectives.

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Brief Biography



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Strengthening Cybersecurity Awareness and Resilience: A Comprehensive Framework for Individuals and Organizations

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Abstract

The paper highlights the dynamic nature of the digital ecosystem and the escalating threat landscape, emphasizing the critical role of individual awareness in combating cyber threats. A structured approach is introduced in the paper, addressing key facets such as understanding common threats, promoting a cybersecurity-conscious culture, practical tips for individuals, shaping organizational cybersecurity culture, education and training initiatives, leveraging technology for awareness, challenges, emerging trends, future directions, and collaboration between stakeholders. Recognizing cyber threats is crucial, it necessitates a thorough analysis of prevalent risks such as phishing attacks, malware, ransomware, social engineering, and advanced persistent threats (APTs). An understanding of cyber threats is highlighted in the paper by real-world case studies and insights gleaned from past breaches, offering valuable lessons learned. At the same time, individual responsibility in cybersecurity is emphasized through practical tips covering security hygiene, strong passwords, device security, software updates, and privacy measures. As an organizational initiative, the paper highlighted that education and training programs play a pivotal role, in evaluating for effectiveness and proposing a holistic curriculum with involvement from academic institutions and organizations. The paper also discussed utilizing technology for awareness including the role of security tools, threat intelligence platforms, security awareness programs, and leveraging artificial intelligence and machine learning for threat detection, along with gamification and simulations for interactive learning. Challenges in promoting individual cybersecurity awareness are addressed alongside the evolving landscape of cyber threats and future directions focusing on continuous improvement, collaboration between government, industry, and individuals, and the role of regulatory frameworks. By embracing shared responsibility and proactive measures, stakeholders contribute to building a secure digital future in the face of evolving threats.

Introduction

The digital landscape is a dynamic ecosystem constantly evolving with advancements, providing new avenues for communication, commerce, and societal progress. However, this transformative landscape also exposes individuals to an expanding array of cyber threats, ranging from sophisticated phishing attacks to insidious malware and ransomware campaigns. In the words of cybersecurity expert Dr. Emily Carter, “The evolving threat landscape is a dynamic ecosystem where cyber adversaries are continually innovating. Understanding this landscape is not just a matter of security; it is a fundamental necessity for survival in our digital age.” To comprehend the

urgency of bolstering cybersecurity, we must delve into the intricate layers of this growing threat landscape. The unprecedented pace at which cyber threats are evolving underscores the importance for individuals to comprehend the breadth and complexity of the challenges we face in the digital age.¹

As the digital landscape evolves, individuals find themselves at the forefront of the battle against cyber threats. The significance of individual cybersecurity awareness cannot be overstated, as each person becomes a potential target or a crucial line of defense. Recognizing the gravity of this responsibility is paramount, as emphasized by renowned cybersecurity analyst Mark Johnson: “In an interconnected world, the awareness and actions of individuals serve as the first line of defense against cyber threats. The consequences of uninformed actions can ripple through personal and professional spheres, underscoring the need for a proactive stance.”

Against the backdrop of an evolving threat landscape and the critical role of individual awareness, this paper introduces a comprehensive framework designed to empower individuals in the realm of cybersecurity. The paper is structured to address key facets of individual cybersecurity, ranging from understanding common threats to promoting a cybersecurity-conscious culture. The paper will delve into the details of this framework, offering insights into educational initiatives, practical cybersecurity practices, and the integration of technology to enhance awareness. By providing a guideline for individuals to navigate the complex cybersecurity landscape, this paper aims to equip readers with the knowledge and tools needed to contribute actively to a more secure digital environment. Drawing from established theories and practices, this paper also aims to provide a holistic approach to fortifying cybersecurity resilience at the individual and organizational levels.

Understanding Cyber Threats

In the digital age, a profound comprehension of common cyber threats is imperative for individuals aiming to fortify their cybersecurity resilience. It's crucial to thoroughly scrutinize prevalent threats, providing insight into the intricacies of phishing attacks, malware, ransomware, social engineering techniques, advanced persistent threats (APTs), and the risks they entail.² Studying real-life cyber-attacks teaches us a lot about how threats evolve. By looking at past incidents, we learn valuable lessons that help us understand and counter future risks. It's like learning from real-life stories to make ourselves safer online.

In-depth analysis of Common Cyber Threats

- a. **Phishing Attacks:** Phishing, a deceptive practice where cybercriminals masquerade as trustworthy entities to trick individuals into revealing sensitive information, remains a pervasive threat. Notably, a study by the Cybersecurity and Infrastructure Security Agency (CISA) revealed that 90% of successful cyberattacks begin with a

phishing attempt.³ Understanding the tactics employed, such as email spoofing and social engineering, becomes paramount for individuals to identify and thwart phishing attacks.

Malware and Ransomware: The landscape of malware and ransomware is ever-evolving, with cybercriminals employing increasingly sophisticated techniques. Reference to the Verizon Data Breach Investigations Report highlights that 30% of malware is delivered through deceptive emails.⁴ Analyzing the anatomy of malware, its modes of infiltration, and the devastating consequences of ransomware attacks underscores the urgency of proactive cybersecurity measures.

c. **Social Engineering Techniques:** Social engineering, a manipulative approach that exploits human psychology to gain unauthorized access or information, is a potent threat vector. By impersonating trusted individuals or leveraging psychological tactics, attackers seek to exploit human vulnerabilities. A comprehensive understanding of social engineering techniques, including pretexting and baiting, empowers individuals to recognize and resist these insidious tactics.

d. **Advanced Persistent Threats (APTs):** APTs represent a sophisticated and targeted form of cyber-attack often orchestrated by well-funded and organized threat actors. As evidenced by the Mandiant report on APT41, understanding the persistence, stealth, and long-term objectives of APTs is crucial.⁵ Recognizing the signs of APTs, such as prolonged dwell times and lateral movement within networks, enables individuals to detect and mitigate these highly orchestrated threats.

Case Studies: Real-world Examples of Cyber Attacks: In the relentless landscape of cyber threats, real-world case studies serve as powerful beacons, illuminating the consequences of cyber-attacks and providing invaluable lessons for individuals seeking to bolster their cybersecurity awareness and resilience. The focus here is on significant incidents, examining their effects to emphasize the importance of proactive cybersecurity measures.

a. **Notable Incidents and Their Impacts:**

(1) One poignant case study is the Equifax data breach of 2017.⁶ which stands as a testament to the severe repercussions of cyber vulnerabilities. In this incident, malicious actors exploited a software vulnerability to gain unauthorized access to sensitive personal information, affecting nearly 147 million individuals. The impact reverberated far beyond immediate financial losses, extending to reputational damage and widespread concerns about the security of personal data.

(2) The Equifax breach, documented in the Verizon Data Breach Investigations Report,⁷ underscores the interconnectedness of the digital ecosystem and the cascading effects of a single security lapse. Individuals faced

identity theft, financial fraud, and a profound erosion of trust in the institutions entrusted with safeguarding their data. The incident serves as a stark reminder that the consequences of cyber-attacks extend well beyond the digital realm, impacting the lives of individuals and the integrity of critical systems.

(3) Additionally, the case study of the Wanna Cry ransomware attack in 2017⁸ further emphasizes the widespread ramifications of cyber threats. The ransomware, leveraging a known software vulnerability, rapidly spread across global networks, affecting organizations ranging from healthcare institutions to government agencies. The attack crippled essential services, disrupted operations, and incurred substantial financial losses.

(4) Drawing insights from the Verizon report, these case studies elucidate the multifaceted impacts of cyber-attacks, from financial repercussions to disruptions in essential services. Notably, they highlight the urgency of cultivating a cybersecurity-conscious culture and implementing robust preventive measures. The interconnected nature of today's digital landscape necessitates a collective effort to fortify defenses against evolving cyber threats.

b. **Lessons Learnt from Historical Breaches:** Historical breaches in the realm of cybersecurity provide a rich tapestry of experiences, each woven with lessons that individuals and organizations can glean to fortify their defenses against future threats. These lessons extend beyond the technical aspects of cybersecurity, delving into the broader realms of organizational preparedness, response strategies, and the cultivation of a resilient cybersecurity culture. Drawing insights from these historical breaches is paramount in shaping proactive measures to mitigate the impact of cyber threats. The lessons derived from these case studies become catalysts for a renewed commitment to individual cybersecurity vigilance and the cultivation of a secure digital environment. The key lessons learnt are:-

(1) **Vulnerability Awareness and Patch Management:** Historical breaches underscore the critical importance of promptly addressing software vulnerabilities. In incidents like the WannaCry ransomware attack, which exploited a known vulnerability in Microsoft Windows, delayed patching proved to be a costly oversight. A proactive approach to vulnerability management and timely patching is crucial in preventing exploitation by cyber adversaries.

(2) **Importance of Cyber Hygiene Practices:** Breaches often reveal the consequences of lax cybersecurity hygiene practices. The Equifax data breach, initiated through the exploitation of a software vulnerability, emphasizes the need for robust cybersecurity hygiene, including regular software updates, secure coding practices, and continuous monitoring. Thus, establishing a culture of cyber

hygiene, encompassing routine security checks and updates is fundamental to reducing vulnerabilities.

(3) **Human Factor:** Cyber threats frequently exploit the human factor, relying on social engineering and manipulation. Lessons from historical breaches, such as phishing attacks leading to data breaches, highlight the importance of user awareness and education. As such, investing in cybersecurity education programs that train individuals to recognize and resist social engineering tactics is essential for enhancing overall resilience.

(4) **Incident Response and Preparedness:** The aftermath of historical breaches emphasizes the significance of robust incident response plans. In the Equifax case, the timely identification and containment of the breach were critical in mitigating further damage. As a result, organizations must invest in comprehensive incident response strategies, including detection, containment, eradication, and recovery plans, to minimize the impact of cyber incidents.

(5) **Interconnectedness of the Digital Ecosystem:** Cybersecurity incidents often have ripple effects across interconnected networks. The interconnectedness highlighted in historical breaches like Equifax's underscores the need for collaborative efforts in threat intelligence sharing and response. Thus, building a resilient cybersecurity ecosystem requires collaboration among organizations, government agencies, and cybersecurity professionals to collectively defend against evolving threats.

(6) **Trust and Reputation Management:** Breaches, such as the Equifax incident, not only result in immediate financial losses but also erode trust and damage reputations. As such, prioritizing trust and reputation management as integral components of cybersecurity strategy is essential. Organizations must communicate transparently and proactively address breaches to rebuild trust.

(7) **Continuous Adaptation to Emerging Threats:** Historical breaches serve as reminders that the threat landscape is dynamic. Lessons learned indicate the need for continuous adaptation to emerging threats. Hence, cybersecurity strategies must be agile, incorporating threat intelligence and regular assessments to stay ahead of evolving tactics used by cyber adversaries.

Individual Responsibility in Cybersecurity

Practical Tips for Individuals in Enhancing Cybersecurity: In the rapidly evolving digital landscape, individuals play a pivotal role in fortifying cybersecurity defenses. Indeed, there has been a growing emphasis on the significance of individual behavior in mitigating cyber hazards

in recent times. However, our understanding of the variations among individuals in terms of their awareness, knowledge, and cybersecurity practices when confronted with diverse cyber threats remains relatively limited.⁹ Individual responsibility in cybersecurity encompasses a multifaceted approach, from cultivating a proactive security hygiene regimen to adopting strong passwords, securing personal devices, and ensuring regular software updates. These provide actionable advice, such as secure browsing habits and data encryption practices, that individuals can incorporate into their daily digital routines. By internalizing these principles, individuals not only protect their digital assets but also contribute to the collective resilience against the ever-evolving landscape of cyber threats. As technology continues to advance, the role of individuals in maintaining a secure digital environment remains paramount, and adherence to these cybersecurity best practices becomes an integral aspect of digital citizenship. The following paragraph will briefly highlight various ways individuals can actively engage in cybersecurity.

a. **Security Hygiene:** In the realm of cybersecurity, the concept of security hygiene serves as the cornerstone of individual responsibility. It involves the disciplined and proactive approach individuals must adopt to safeguard their digital assets. Regular system scans, a fundamental aspect of security hygiene, enable the detection and removal of potential threats. Secure file management practices, such as encryption and secure cloud storage usage, contribute to the protection of sensitive information. Adherence to privacy settings across various platforms ensures that personal data remains confidential. By cultivating a robust security hygiene regimen, individuals create a formidable defense against a spectrum of cyber threats.

b. **The Role of Strong Passwords and Authentication Measures:** A critical aspect of individual responsibility in cybersecurity lies in creating and maintaining strong passwords. Every individual should understand password security, highlighting the significance of using complex and unique passwords for each account. Strong passwords act as a primary line of defense against unauthorized access. The discussion extends to the role of multi-factor authentication (MFA) as an additional layer of protection. MFA emerges as a powerful tool for enhancing account security. MFA, requiring multiple forms of verification, significantly enhances the security of accounts and adds a crucial barrier for potential attackers.

c. **Best Practices for Securing Personal Devices:** With the proliferation of personal devices, securing these gadgets becomes paramount in an individual's cybersecurity responsibility. Each person should understand the best practices for securing smartphones, laptops, and other personal devices. Encryption, both for data at rest and during transmission, emerges as a fundamental measure to protect sensitive information. Device tracking functionalities aid in the recovery of lost or stolen devices, preventing unauthorized access. Secure Wi-Fi usage, including the adoption of strong passwords and regular network checks, mitigates the risk of unauthorized network access. By

incorporating these best practices, individuals actively contribute to enhancing their overall cybersecurity resilience.

d. **Importance of Regular Software Updates and Patch Management:** Outdated software presents a significant vulnerability that cyber adversaries exploit to gain unauthorized access. Therefore, it's crucial to grasp the importance of regularly updating software and managing patches as part of one's cybersecurity responsibilities. Timely updates, which often include security patches, fortify software against known vulnerabilities. Recent cyber incidents underscore the severe consequences of neglecting updates, including data breaches and system compromises. Individuals need to be aware of these risks. To maintain a secure digital environment, individuals are encouraged to adopt proactive strategies for software updates and diligent patch management.

e. **Privacy Measures and Responsible Online Behaviour:** Privacy measures are integral to individual cybersecurity which should guide individuals on privacy-enhancing practices, covering topics such as secure social media usage and data privacy settings. Insights from privacy advocates contribute to a comprehensive understanding of responsible online behavior. The ability to monitor and respond to suspicious activities is a critical skill for individuals that enables recognizing signs of potential cyber threats and outlines steps for an effective response. Real-world examples of individuals thwarting cyber-attacks through vigilant monitoring enhance the practicality of the advice.

Promoting a Cybersecurity Culture

Shaping Organizational Culture for Cybersecurity: Beyond individual efforts, organizational culture plays a central role in cybersecurity. The focus here is on strategies for fostering a cybersecurity-conscious culture within organizations. For example, frameworks like the NIST Cybersecurity Framework provide a structured approach to cultivating a security-centric ethos. The following paragraph will briefly highlight various ways to promote cybersecurity culture.

a. **Encouraging Open Communication about Cyber Threats:** Open communication channels are essential for effective cybersecurity, enabling prompt threat detection and resilient response strategies. This approach prioritizes transparency within organizations, with leadership playing a pivotal role in fostering a culture of openness and vigilance. Real-world examples, such as the success stories of organizations promoting a culture of openness, underscore the benefits of this approach.

b. **Building a Proactive Approach to Cybersecurity Incidents:** Developing a proactive approach to cybersecurity incidents is paramount for mitigating risks. Implementing strategies like threat intelligence sharing and scenario-based training is crucial.¹⁰ Drawing insights from organizations with robust incident response frameworks

offers actionable guidance. This approach enables swift detection and containment of threats, minimizing potential damage. Emphasizing continuous monitoring and analysis of emerging threats strengthens resilience against evolving cyber risks. Collaboration with industry peers and government agencies enhances threat visibility and response capabilities. By prioritizing proactive measures, individuals and organizations can better safeguard against cyber threats and maintain operational integrity.

c. **Integrating Cybersecurity into Corporate Social Responsibility (CSR):** CSR underscores an organization's dedication to societal welfare. This alignment not only safeguards internal assets but also extends cybersecurity awareness initiatives to benefit the community. By integrating cybersecurity into CSR, organizations contribute to a safer digital environment for all. Examining case studies of companies successfully incorporating cybersecurity into their CSR programs offers valuable insights and inspiration for others to follow suit. This proactive approach not only strengthens cybersecurity measures but also reinforces the organization's commitment to social responsibility.

Education and Training Programs

Overview of Existing Cybersecurity Education Initiatives: A comprehensive examination of existing cybersecurity education initiatives provides insights into ongoing efforts. As such, we should explore diverse programs, from online courses to community workshops, to enhance individual awareness. Highlighting reputable initiatives such as the Cybersecurity Awareness Training provided by the SANS Institute or the October Cybersecurity Awareness Training organized by the Bangladesh Army boosts the credibility of this initiative.¹¹

Evaluating the Effectiveness of Training Programs: Assessing the impact of cybersecurity training programs is essential for continuous improvement. Drawing on metrics and success stories, we should evaluate the effectiveness of various initiatives. Examining the effectiveness of implemented awareness programs and incorporating insights from IT professionals provide valuable insights into the tangible impact of these initiatives on bolstering individual cybersecurity awareness.

Proposal for a Holistic Cybersecurity Curriculum: Recognizing the need for a comprehensive educational approach, there must be a holistic cybersecurity curriculum. It may outline key topics, teaching methodologies, the integration of practical exercises, etc. By aligning with organizational standards and emerging threats, this curriculum aims to equip individuals with the knowledge and skills needed for the evolving cybersecurity landscape.

The Role of Academic Institutions and Organizations in Providing Training: Collaboration between academic institutions and organizations is pivotal in shaping the future of cybersecurity education which advocates for partnerships that bridge the gap between theoretical

knowledge and practical application. Case studies of successful collaborations, such as the partnership between universities and industry cybersecurity experts, serve as illustrative examples.

Utilizing Technology for Awareness

Role of Security Tools and Technologies: Leveraging technological tools is essential in the fight against cyber threats. The discourse below elucidates the crucial role of antivirus software, endpoint protection, and supplementary security tools. By leveraging insights from industry reports and expert analyses, it enriches our understanding of the current technological landscape.

- a. **Antivirus Software and Endpoint Protection:** Antivirus software and endpoint protection are crucial components of cybersecurity, safeguarding devices from malicious threats like viruses, malware, and ransomware. Antivirus software detects, prevents, and removes such threats, while endpoint protection extends this defense to devices within a network, including computers, smartphones, and IoT devices. By continuously monitoring and analyzing system activities, they mitigate potential risks, ensuring data integrity and confidentiality. Effective deployment of these tools is essential for businesses and individuals to maintain a robust defense against evolving cyber threats in today's interconnected digital landscape.
- b. **Threat Intelligence Platforms:** Threat Intelligence Platforms (TIPs) are vital tools in modern cybersecurity, providing insights into potential cyber threats. They aggregate and analyze data from various sources, including malware analysis, vulnerability reports, and hacker forums, to identify emerging threats and vulnerabilities. TIPs empower organizations to proactively defend against cyberattacks by offering actionable intelligence and contextual information. Integrating TIPs into security operations enhances threat detection, incident response, and overall cyber resilience, ensuring timely and effective protection against evolving cyber threats.
- c. **Security Awareness Apps and Platforms:** Security awareness apps and platforms are essential for educating individuals and employees about cybersecurity best practices. They offer interactive modules, quizzes, and simulations to teach users about identifying phishing scams, password hygiene, and safe browsing habits. These tools also provide real-time updates on current threats and trends, fostering a culture of vigilance and responsibility in digital security. By empowering users with knowledge and skills, security awareness apps and platforms play a critical role in mitigating cyber risks and protecting sensitive information.

Leveraging Artificial Intelligence and Machine Learning for Threat Detection: Artificial Intelligence (AI) and Machine Learning (ML) revolutionize threat detection by enhancing speed and accuracy. These technologies analyze vast datasets, identifying patterns and anomalies indicative of cyber threats. AI-driven algorithms continuously adapt and learn from new data,

improving detection capabilities against evolving threats like malware and phishing attacks. By automating threat detection processes, AI and ML enable faster response times, reducing the risk of breaches and minimizing the impact of cyberattacks on organizations.

Incorporating Gamification and Simulations for Interactive Learning: Incorporating gamification and simulations into learning environments enhances engagement and knowledge retention. By transforming educational content into interactive experiences, users are motivated to participate actively. Gamification elements such as points, levels, and rewards make learning enjoyable and competitive, while simulations offer practical, hands-on learning opportunities. This approach fosters a dynamic and immersive learning environment, especially in cybersecurity training, where users can simulate real-world scenarios to practice skills and responses effectively. Ultimately, gamification and simulations promote active learning and skill development across various domains.

Challenges and Emerging Trends

Addressing Challenges in Promoting Individual Cybersecurity Awareness: Despite progress, challenges persist in promoting individual cybersecurity awareness, such as user complacency and information overload. Another common challenge is emerging trends in cybersecurity, such as the rise of ransomware-as-a-service and AI-driven attacks. The ever-evolving nature of cyber threats necessitates anticipation and adaptation. It guides on staying ahead of these trends and adapting cybersecurity strategies accordingly.

The Evolving Landscape of Cyber Threats and Countermeasures: The landscape of cyber threats is in a constant state of evolution, posing increasingly sophisticated challenges to individuals, businesses, and governments alike. From ransomware attacks targeting critical infrastructure to social engineering schemes exploiting human vulnerabilities, the range and complexity of threats continue to expand. As challenges evolve, it's imperative that our response strategies not only keep pace but also anticipate and address emerging threats. This necessitates a dynamic approach where countermeasures continually adapt and innovate alongside the changing landscape. This includes implementing robust encryption protocols, deploying advanced intrusion detection systems, and fostering a culture of cybersecurity awareness and education. Collaboration between stakeholders, information sharing, and continuous monitoring are essential components of an effective defense strategy in this ever-changing digital environment. By remaining agile and proactive, we can effectively mitigate risks and stay ahead of potential disruptions.

Future Directions and Recommendations

Proposed Strategies for Continuous Improvement: In the ever-evolving landscape of cybersecurity, continuous improvement is not a choice but a necessity. As individuals strive to enhance their awareness and resilience, adopting strategies for ongoing development becomes paramount. This involves regular updates to cybersecurity education initiatives, incorporating the

latest threat intelligence, and leveraging emerging technologies. Continuous improvement also extends to personal practices, where individuals must stay abreast of evolving cyber threats and adapt their cybersecurity hygiene accordingly. Collaborative efforts between industry professionals, educators, and technology experts can foster an environment conducive to perpetual learning and enhancement.

Collaboration between Government, Industry and Individuals: Cybersecurity is a collective responsibility that transcends individual efforts. Effective collaboration between government entities, industry stakeholders, and individual contributors is vital in creating a robust defense against cyber threats. Governments can enact policies that incentivize cybersecurity measures and establish frameworks for information sharing. Industry players, in turn, play a crucial role in developing and implementing security standards, fostering innovation, and sharing threat intelligence. Individuals contribute by staying informed, adopting best practices, and participating in community initiatives. This collaborative approach forms a holistic defense mechanism that is resilient against the dynamic nature of cyber threats.

The Role of Regulatory Frameworks in Enhancing Cybersecurity: Regulatory frameworks serve as a guiding force in shaping cybersecurity standards and practices. Governments and regulatory bodies can play a pivotal role in enhancing cybersecurity by establishing and enforcing regulations that mandate robust security measures. This includes data protection laws, industry-specific standards, and penalties for non-compliance. Regulatory frameworks also provide a foundation for fostering a culture of cybersecurity within organizations, encouraging investment in security measures, and ensuring accountability. Striking a balance between regulatory compliance and flexibility to adapt to evolving threats is crucial for the effectiveness of these frameworks.

Conclusion

In conclusion, the paper has focused on strengthening cybersecurity awareness and resilience at the individual level, key findings and insights emerge as guiding principles for navigating the complex digital landscape. The in-depth exploration of security hygiene, education initiatives, technological tools, and personal practices reveals the interconnected nature of individual cybersecurity responsibilities. Understanding the multifaceted threats, from phishing attacks to advanced persistent threats, reinforces the need for a holistic and proactive approach.

Individuals, organizations, and governments must recognize that cybersecurity is a collective effort. The lessons learned from historical breaches, the insights gained from training programs, and the incorporation of technological advancements collectively contribute to building a resilient defense against cyber threats. The collaboration between various stakeholders—government, industry, and individuals—is the cornerstone of a robust cybersecurity ecosystem. Recognizing shared responsibility and actively participating in collective efforts will fortify our defenses against the constantly evolving threat landscape.

The message in this paper resounds loudly, calling upon both individuals and organizations to take heed and act upon its directives. Individuals are urged to prioritize cybersecurity in their daily practices, from maintaining strong passwords to staying informed about emerging threats. Embracing continuous learning and implementing security measures on personal devices are imperative steps in fostering a cyber-resilient individual. Organizations are called upon to invest in cybersecurity education, promote a culture of openness about threats, and collaborate with industry peers and government entities. Governments are encouraged to enact and enforce robust regulatory frameworks that incentivize and ensure cybersecurity compliance. The journey toward strengthening cybersecurity awareness and resilience is ongoing. It requires a commitment to continuous improvement, collaborative efforts, and a collective understanding of the dynamic cybersecurity landscape. By taking proactive steps and embracing the shared responsibility for cybersecurity, individuals and organizations contribute to building a secure digital future. The paper outlined serves as a guide, emphasizing that in the face of evolving threats, our collective actions today will shape a more resilient and aware tomorrow.

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Brief Biography



Lieutenant Colonel Md Hafiz Al Asad, afwc, psc was commissioned in the Corps of Signals on 24th December 2003. Apart from serving in various capacities in number of Signal Battalions, he was deployed at Chattogram Hill Tracts as the Officer Commanding of a Brigade Signal Company to support Infantry Brigade in CIO. He also served at Army Headquarters, Military Secretary's Branch. Besides, he also commanded a Signal Battalion. As Grade One Staff Officer, he served at AHQ, Information and Technology Directorate. Excluding the mandatory military courses, he completed potential Platoon Commander Course from BD Military Academy. He is a graduate of Defense Services Command and Staff College, Mirpur, obtained Masters in Defence Studies from Bangladesh University of Professionals, completed Armed Forces War Course-2022 from National Defence College at Mirpur Cantonment, obtained Bachelor of Science degree in EECE from Military Institute of Science and Technology and also pursuing Masters in EECE from the same institution. Wearing 'Blue Helmet' he served as Signal Platoon Commander in United Nations Mission in Liberia (UNMIL) and also as Staff Officer Operations and Plan in U6 Branch at Force Headquarters in United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA). He is incumbent General Staff Officer Grade-1 at Army Headquarters, General Staff Branch (Signals Directorate).

Application of Geographic Information System in Army Operations and Options for Bangladesh Army

Lieutenant Colonel Mohammad Mahmudur Rahman Niaz, psc, Engineers

Abstract

The concept of command, control and communication in army operations are widely reliant on the availability of precise spatial information to formulate quick decisions. GIS system uses various software to superimpose necessary overlays on base map to display, visualise and analyse geographic information. In recent various battles GIS gave dividend to users. So, global defence GIS market is growing rapidly. Bangladesh Army also started using GIS in few sectors. Issues like full integration, data management, workforce development, funding, software innovation and lack of research are identified as challenges for Bangladesh Army. This paper critically analysed various secondary data and military campaigns conducted using GIS to suggest few options that can ensure better preparedness for Bangladesh Army. Bangladesh Army can apply it to analyse cartography, obstacle overlays, 3D model, weapon fan, terrain, weather and battlefield intelligence. Effective and innovative application can give us edge over potential adversaries.

Keywords: GIS, geospatial, remote sensing, data processing, Datum.

Introduction

In the fast-changing battleground of the 21st century spatial information and dynamic mapping are vital. A detailed base map with data on terrain use, configuration and habitation is essential for planning any military operations. The modern map should be up-to-date, transparent, understandable by the user and precise with 3-dimensional (3-D) data that supports military use to the greatest extent possible. The concept of command, communication, control, intelligence and coordination for army operations depend on precise spatial information to formulate quick decisions. Geospatial technology helps warfighters answer the where, what, when, who, and why questions that will help them make effective decisions. Geographic Information Systems (GIS) can address all these issues. GIS software collect information from a diverse data sources to map and examine changes on Earth.¹ In 1960's the GIS term came into existence. GIS data involves geo-referencing, trace, projections, contour and spatial features which are listed in a GIS database. Then using software on base map necessary overlays are placed to display, visualise, and analyse geographic information. GIS is a worthy ability at any commander's disposal to exploit enemy vulnerabilities and strengthen own capabilities.

In many army operations of present regional conflicts GIS outputs have given severe dividends. It assists military commanders in remaining updated about situation, making effective

defeat mechanism and engaging enemy precisely by armaments. It even gave upper hand to inferior force in confrontation against superior force. A few worth mentioning sectors are battlefield imitation, intelligence, datum, communication plan, command, control and logistics management. So, the demand for GIS gadgets are increasing at a compounding rate. The prospect of GIS in the army is abundant and unpredictable due to the secret nature of application in wide range. The use of GIS application in Bangladesh started in 1991. It is applied in sectors like Area of Operation (AOI) visualisation, military planning, engineering applications and disaster management. It can be applied in operational and logistics plan in United Nations (UN) where Bangladesh plays a dominant role.

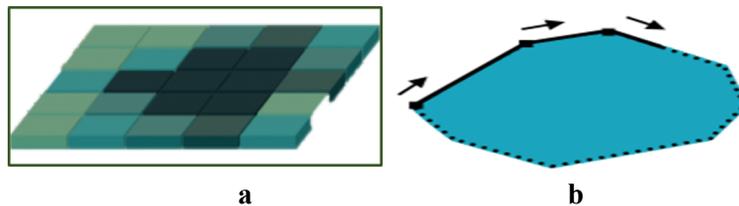
Bangladesh Army is going through modernisation process and becoming more digitised. Utilising spatial data is important to address threat from potential superior powers. In this regard data management, workforce development and software innovation are vital. At the backdrop of this context, at first few terminologies have been discussed in this paper. Then subsequently basic functioning of GIS and application of GIS in army domain will be highlighted. The paper brought forward few challenges for Bangladesh Army in integrating GIS. For logical reasoning analysis of few secondary data collected from journals and articles assisted. Finally, few options to enhance our capabilities in GIS applications are suggested.

Terminologies

Spatial Data Depiction: Spatial data of precise spot on the Earth's surface is depicted with raster or vector models. Though raster can be processed very fast, but vector is more accurate.

- a. **Raster Data:** They are composed of pixels and seem like grids because they stock data in columns and rows. A raster graphic with extension like gif or jpeg, is an exhibit of pixels of various paints, which jointly form an image. Land cover, temperature, data and images are often characterised as raster data.

Figure-1: (a) Raster (b) Vector



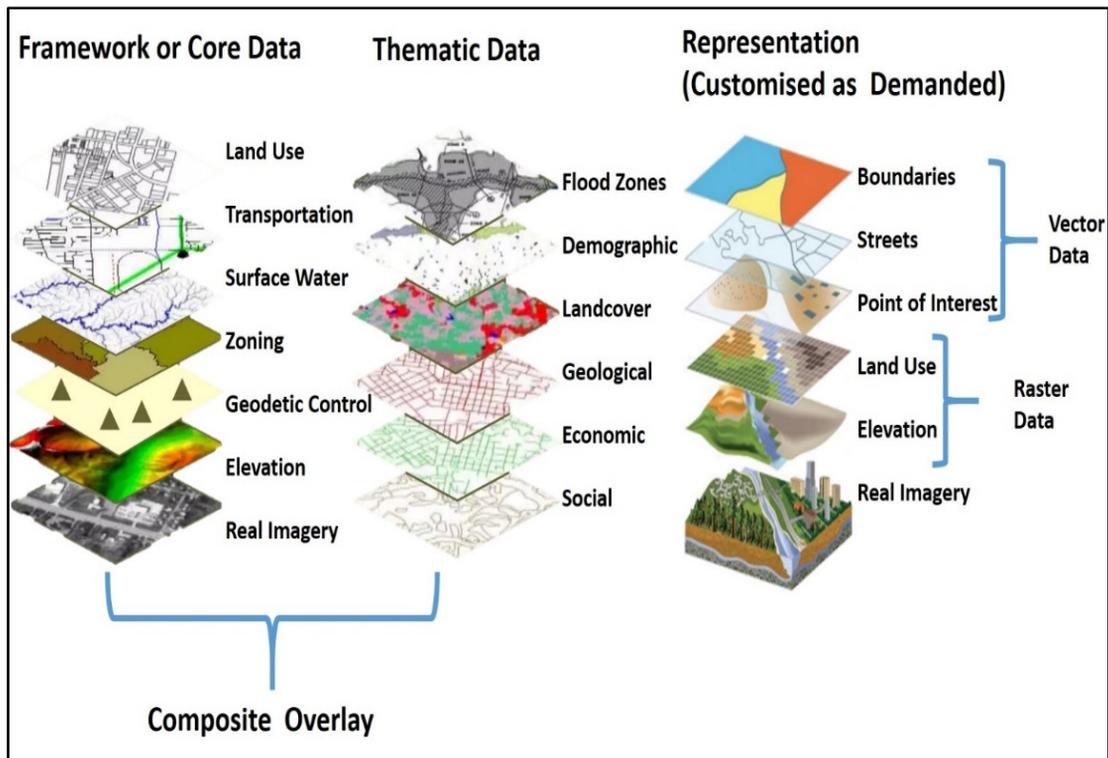
Source: Author's self-construct

- b. **Vector Data:** These are depicted by points, stripes and polygons with apices. They are scalable to any size. These are best to portray symbols, graphics, engravings, drawings, artwork, signage and sewing.

Remote Sensing (RS): RS is the procedure of identifying and monitoring the physical features of an area by quantifying its reflected and radiated radiation from platforms like satellites, drones and planes. RS measures changes of operational area or atmospheric issues over long time at tremendous spatial scales. Remotely sensed imagery and the products derived from analysis are one of the sources of data for GIS.

Geospatial Intelligence (GEOINT): GEOINT derives technical, geographic, and intelligence information after analysing images of superimposed layers in the form of data or information and overlays associated with a particular location. Data on static and moving targets data can be collected by electro-optical, synthetic aperture radar (SAR), sensors and non-technical means. It can identify intelligence breaches, own vulnerabilities and evaluation of friendly security measures.

Figure-2: GIS data layers

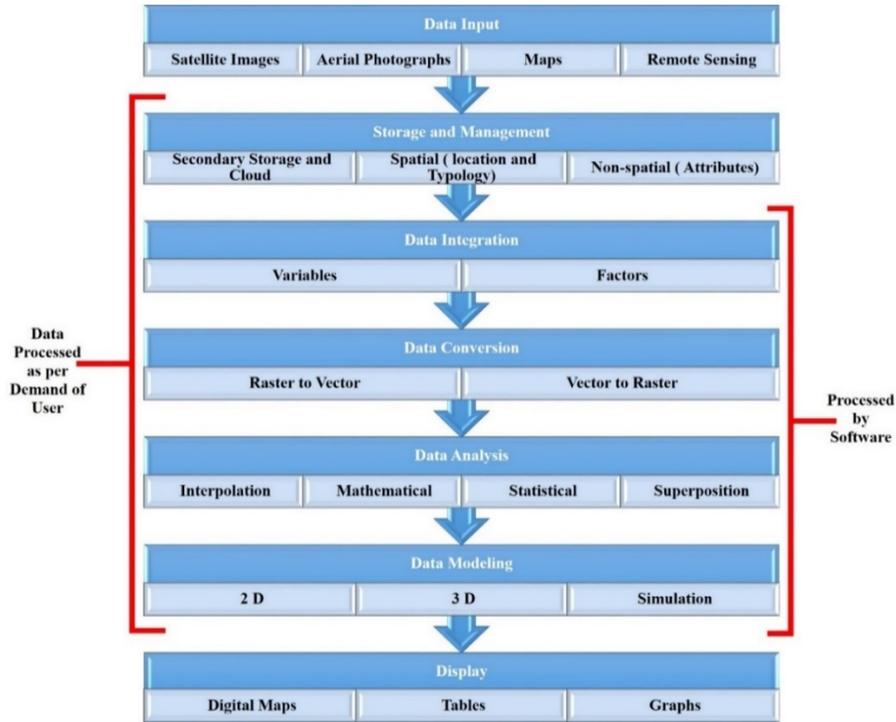


Source: Author’s self-construct

World Geodetic System (WGS84): GIS deals with flat projections of curved earth. Horizontal datums accurately indicate all locations on Earth’s surface mainly in longitude and latitude. WG84 is emerging as a common and popular datum for military operations. It is used as standard in cartography, geodesy, satellite navigation and Global Positioning System (GPS).

Basic Functioning of GIS

Figure-3: GIS Functioning Flowchart



Source: Author’s self- construct

Few relevant issues of functioning are described below:-

Data Processing Software: Stored data is retrieved and processed as per demand of user. Updated chip, Artificial Intelligence (AI) based processors, motherboards and graphics compatibility are needed to handle GIS software and data. GIS Software can accumulate, retrieve, manage and analyze all types of terrestrial or spatial data. GIS software assists in producing maps and other graphic exhibits of terrestrial evidence for analysis.

Table-1: Few GIS Software used in Military Purpose

Ser	GIS Software	Best applicable for
1	ArcGIS Pro	Military professionals
2	Maptitude	Mapping Software
3	PolicyMap	Many statistics including demographics
4	Boss 811	Locating
5	Plotter INVENTORY	Landscaping
6	QGIS	Geospatial data
7	Location IQ	Geocoding

Source: Author’s self- construct

Data Analysis: Data can be analysed by applying appropriate statistical or arithmetical algorithms to engender required information, representation or maps. As per demand Digital Elevation Model (DEM) can be prepared by buffer analysis, proximity analysis and interpolation process.

Data Modeling: GIS stores data and all geographic information of location of interest as thematic layers to create the base map. The GIS process simulates models of runoff, urban growth or any desired course for effective planning. It can create 2D and 3D models of earth surface with relevant overlays to assess in better way. For modeling GIS software uses arithmetical or statistical methods.

Prominent Applications of GIS in Army

Assessing Impact of Weather: Real time weather statistics are important for ground commanders operational planning. GIS can provide information regarding fog coverage, wind situation, trafficability, visibility and temperature limits which will affect decision cycle.² Superimposing humidity analysis on the wind flow pattern using GIS can assist to study the moisture distribution in the atmosphere. Again, Variation of soil condition in different weather is important to plan manoeuvre of own wheel or tracked vehicle and fixing counter mobility obstacles to hinder enemy movement.

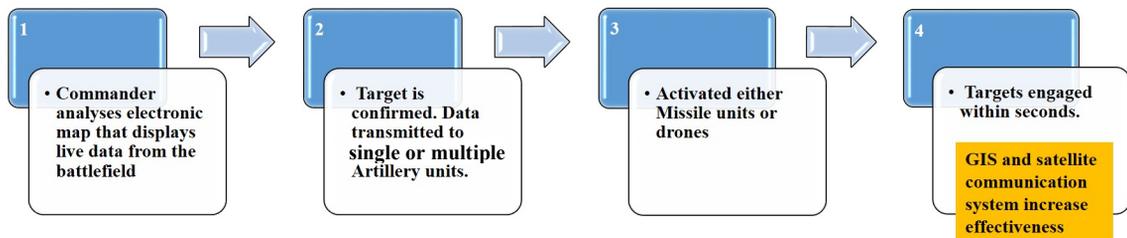
Geospatial Intelligence: GIS along with satellite imagery can interpret terrain. Geospatial intelligence software augmented with AI can provide data on route reconnaissance, site surveys, convoy plans, vulnerability assessments, target mapping, countering terrorism and any emergency response. It can also identify self-weakness. Regular updating can ensure fast and effective response in an emergency resource management, logistic movement and disaster preparedness. It can make predictions analysing historic data about inundation, mobility corridor and threat assessment. It can also show suitable attacking direction by assessing all firing effect of enemy forces. Here, reliability or right of satellite and source are vital. Again, jamming or hacking enemy surveillance capabilities can be integrated in bigger perspective with contingencies.

Tangible Landscape of Army Operations: GIS software can perform 3D analysis and it is important to enhance situational awareness, intelligence analysis, decision-making and operational effectiveness. Tangible landscape requires sophisticated computer simulation using cloud-based database and GIS. It creates a model of a real digital elevation by drawing with laser pointer and 3D printing. Virtual terrain modeling is highly interactive as it allows operators to blend elevation data with supplementary map layers. Here, desired illumination, flight through the model and modification of surface assets are also possible. Clients can substantially interact with digital prototypes by shaping, setting objects or drawing. It also allows to check effectiveness or validity of an army operation plan in a real target area.

Figure-4: Tangible Landscape

Source: Tangible Landscape, available at <https://i-bitz.co.th/tangible-landscape/>³

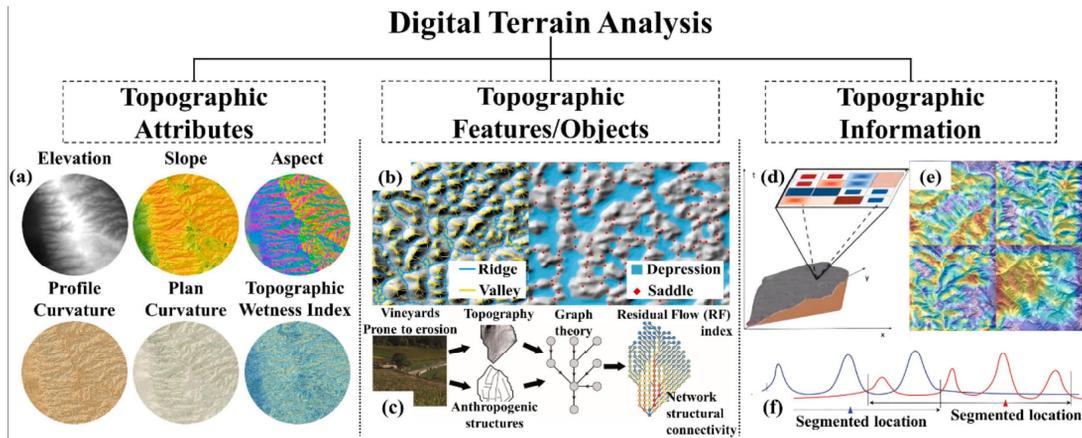
GIS for Artillery (GIS Arta): Ukraine developed GIS Arta which encompasses GIS and satellite communication. Analysing target type, position, and range it can assign fire missions to multiple guns in different locations to engage target. Till now it is most precise artillery system in NATO.

Figure-5: GIS Arta processing scheme

Source: Author's self-construct

Terrain Evaluation: It is the interpretation of topographic features like slope, elevation, relief, contour lines, water features and shades through GIS. For planning operations a georeferenced and geospatial map with standard datum like WGS84 is required. It can locate or track precisely when superimposed by GIS. AI software can ease up this process of evaluation. The analysis products can be overlays of combined obstacle, hydrology, slope maps, mobility, contour and camouflage.

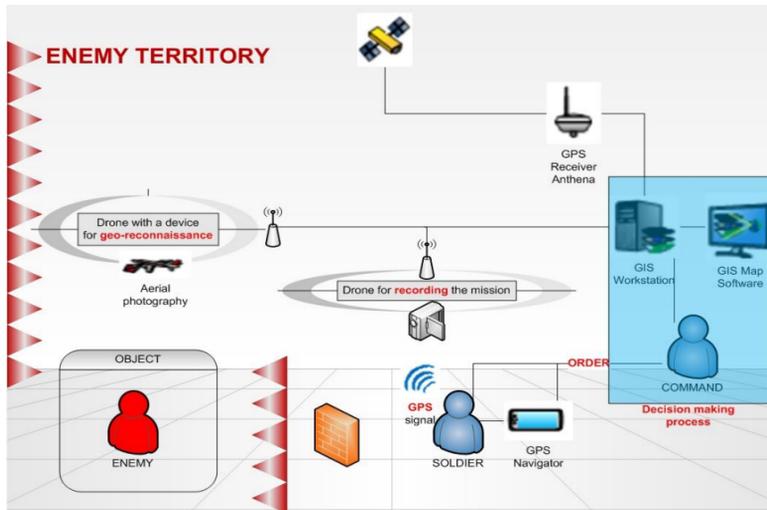
Figure-6: Terrain Analysis



Source: Liyang Xiong, ‘Geomorphometry and terrain analysis: data, methods, platforms and applications,’ *Earth-Science Reviews*, Volume 233, 2022, p.5⁴

Unmanned Aerial Vehicles (UAV) Operations: Georeferenced spatial data, cartographic maps, satellite images and DEM are a must for planning UAV missions. GIS can provide precise data about target position, contiguity of civilian regions, terrain assessment and atmospheric state besides navigational data to ease up these. Again, UAV mission can assist to update data, line-of-sight assessments, grid reference and terrain evaluation. Holistic visualisation of the landscape is remarkably useful because a ground commander can verify strategic positions, place to dominate or hold and planning contingencies.

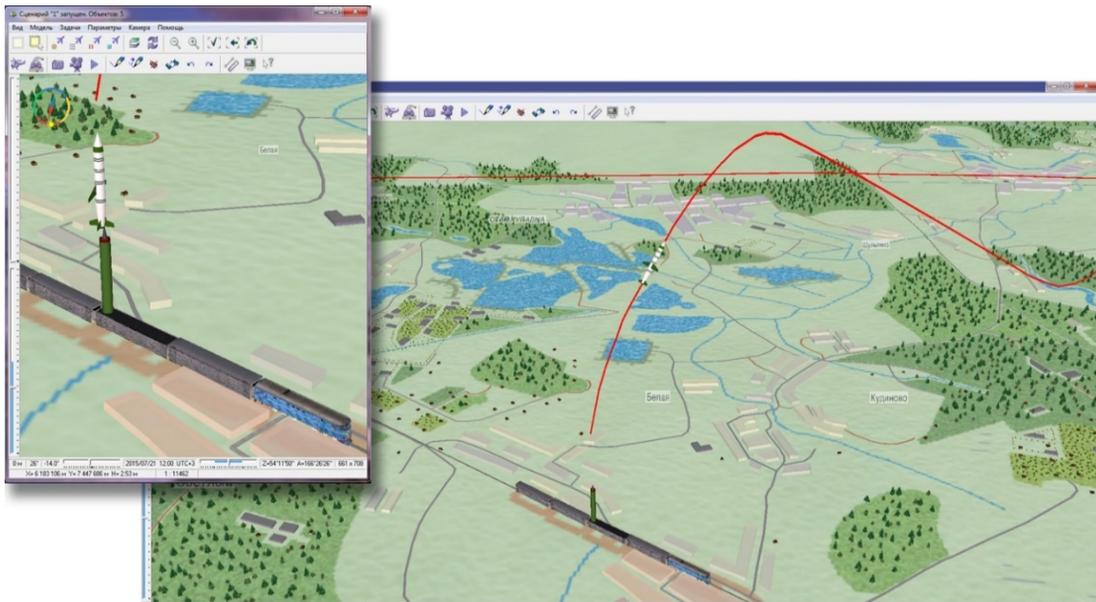
Figure-7: Model of Geo Reconnaissance



Source: Marko Radovanovic, ‘Use of unmanned aerial vehicles integrated into the C4IRS system in modern combat operations,’ *Researchgate*, 2022⁵

Modelling Movement of Projectiles: It can model the movement of missiles or projectiles on the background of satellite imagery and DEM. DEMs are usually generated from RS data. In modeling GIS can develop missile ranging system, calculate missile trajectory and visualise flight of missile in 3-D. The 3-D plan can be rotated, slanted or zoomed to identify if corrections are needed on launching.

Figure-8: Flight of missile on the background of 3D-model



Source: Simulation of the movement of special objects against the background of a 3D model, available at <https://gisinfo.ru/products/gisoperator.htm>.⁶

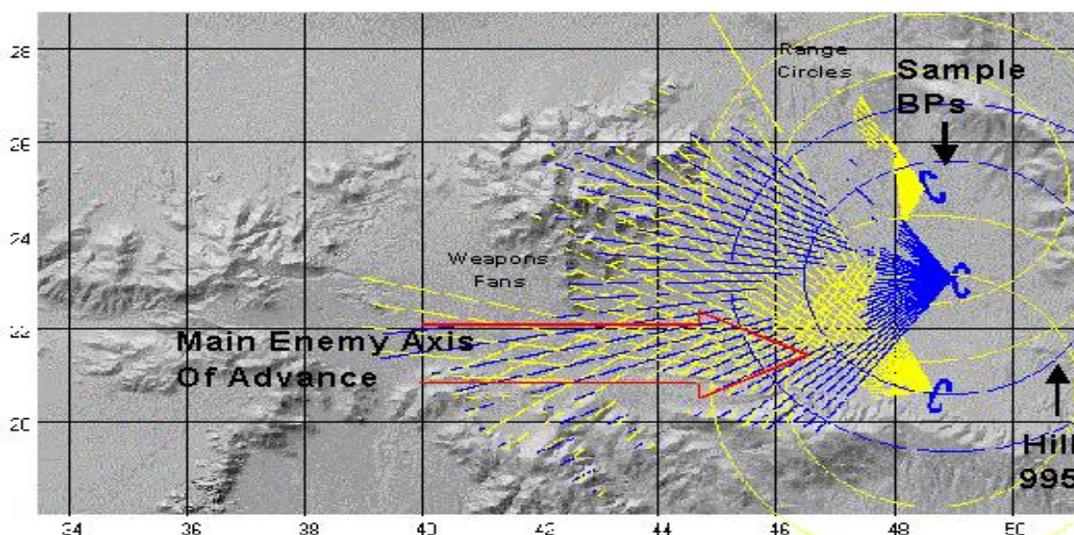
Combat Engineering Aspects: GIS provides terrain analysis with the impact of weather on soil profile.⁷ Analysing historic data it can predict the flood-inundated areas before setting up any maneuver plan. Again, route survey covering road and bridge classification data can be achieved beforehand. Even recording location of own laid mines by GIS can assist to remove safely later. GIS can also assist in formulating combined obstacle overlay, crossing site analysis, water modeling for easing up planning of commanders. Besides, before planning any military operations in unfamiliar terrain of UN mission determining trafficability and spotting suspected disturbance on road are vital by GIS.

Logistics: Army logisticians need to manage the movement of huge convoys, carriages, equipment and personnel through the stretch and width of the operational zone to support military campaign. The GIS based system generates highly detailed maps displaying arrangement of stationary or dynamic aspects and can trace convoys in real-time. It can also provide commanders with information like suitable bridge launching sites, helicopter landing sites, suitable alternative

routes and cross-country mobility. So, GIS can assist transfer of supplies, armament and troops where they are needed in a timely manner.

Fire Support Net: Integration of fire support of all available resources are vital. A weapons fire net fan is placed on a map with geospatial information and digital elevation data. The rays from the center of the weapons fan indicate lines of visibility and areas with no rays are not visible from the center. Obscure areas cannot be covered with direct fire. The range circles can be adjusted as per range of the selected weapon. The ground commander can identify effective zones considering ground pattern, day light and weather condition. It will also assist in planning contingencies.

Figure-9: Weapon fan and range circle product

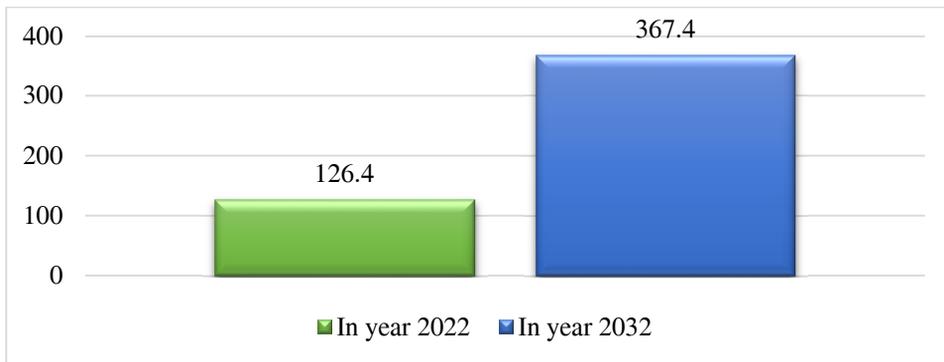


Source: Chris Kramer, Combined arms obstacle breaching tactics, available at https://www.globalsecurity.org/military/library/report/call/call_01-19_toc.htm⁸

Georeferenced Mapping: Cartography refers to the process of making a map. A common and standard datum like WGS84 must be fixed firstly. By analysing photogrammetry techniques, the user can create detailed maps. Apart from traditional topographic maps, customised or hybrid maps incorporating special overlays for specific operations may be needed. ArcGIS can formulate and analyse 3-dimensional map. It assists to build innovative applications combining real-time data with geospatial intelligence. These platforms are used to share information, make quick decisions and take the most appropriate action to protect citizens. Again, mapping cards developed by US Army kept usability fast and seamless. It even have photo overlay over satellite maps. It assists in finding safe passage, suspected insurgent buildings and later update the satellite maps. The ground commanders can assess projected traces by analysing the real time circumstances.

Demand in Military: GIS has proven to be an indispensable tool with potential strength of innovation and progress. The global defence GIS market will grow rapidly due to demand for reconnaissance, intelligence, logistics management and surveillance.

Figure-10: Global defence GIS demand in billion USD



Source: PR Newswire, available at <https://finance.yahoo.com/news/defense-geospatial-system-market-reach-141500681.html>⁹

Commendable Application in Recent Battles: In Gulf War the geospatial detachment of 3rd heavy brigade combat team of 3rd infantry division of USA launched a website called GPS for troops to ensure safety of soldiers with the supervision of extremely precise portable GPS units and mapping cards. In recent war against Russia the Ukrainian Army members used GIS and AI extensively for search and rescue missions, relief, rehabilitation efforts, frontline emergency communications and accurate assessment of the magnitude of infrastructure damage. Again, using geospatial intelligence Ukrainian experts tracked location of Russian troops in social media and could engage them effectively. UK Army has hybrid units to provide geographic information, survey data and mapping products considering operational requirement.

Challenges for Bangladesh Army

Reliable Data: Bangladesh has to depend on satellite data which are controlled by other states. Receiving consistent, timely and updated data are challenging as GIS software depends on spatial databases. Data management and interpretation may not be as desired. Representation, color coding and data layers can also vary time to time. Again, GIS system has complex map structures which is difficult to integrate with the traditional maps to interpret information.

Unskilled Workforce: Presently there is a workforce of company strength with limited capabilities. This is very meagre considering the potential applications. In house capacity building scope is very limited. Training packages comprising modern sophisticated software are available in modern countries.

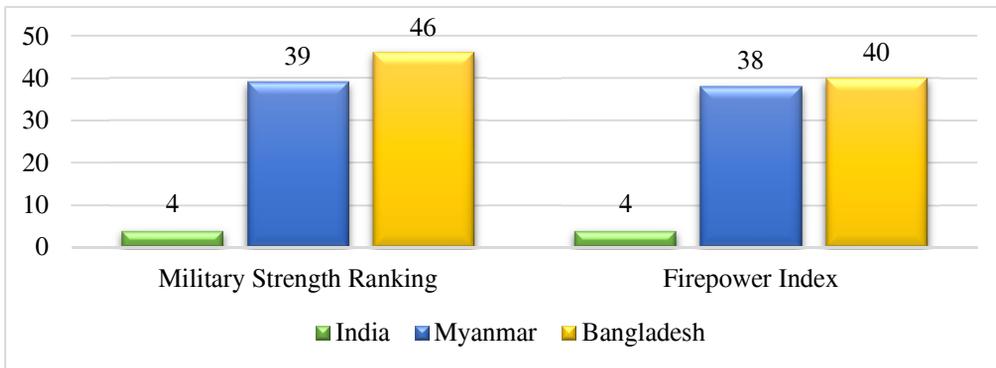
Research and Development (R&D): R&D for innovative application of GIS is missing in Bangladesh. Present capacity also does not have contingency to address any cyber threat. Archiving data foreseeing future demand is also not effective.

Absence of Policies: Policies for coordination with other sources and skilled organisations are missing. Considering security access, data handling and reporting channel is still obscure. Standard software considering demand is not specified for Bangladesh Army.

Suggested Options to Enhance GIS Capabilities of Bangladesh Army

Covering Inferiority of Army: Power projection acts as a diplomatic tool to influence the decision-making process of other states. Bangladesh’s neighbour India is a regional superpower with nuclear capability. Again, regional superpowers have strategic interest in Myanmar. The comparison below shows that Bangladesh is lagging behind the neighbours. This gap can be covered by modernisation, efficiency, and synergistic efforts. Certainly, GIS will increase efficiency of Bangladesh Army by predicting high value targets and precise engagement priority.

Figure-11: National Power Comparison



Source: 2023 Military Strength Ranking, available at <https://www.globalfirepower.com/countries-listing.php>¹⁰

Policies: Bangladesh needs to have a policy covering GIS source, access, channel of demand, coordination and integrated approach. It should integrate skilled workforce from outside considering security. It should also incorporate data sharing with other sister services.

Training: Primarily, training should provide insights on terrain conditions, elevations, interpretation of geospatial data and applying in decision making. Training will help trainees to interpret and decode the spatial data. Virtual reality domain can be created in simulator using GIS. It can project 3D terrains of various types to make training as realistic as possible for the trainee. At operation level training terrains, technical nuances of the air threat, deployed weapons, flight path details and kill effectiveness of Air Defence (AD) weapons can be superimposed. Applying

weather effect, visibility variation, innovative weapons of enemy and obstacles can enhance efficiency of participants.

In Aid to Civil Administration: In any emergency deployment like disaster management army members need to work with civilian aid agencies, non-governmental organisations and private organisations as per set standing order. GIS can assist risk management by assessing beforehand probable risky areas. Geospatial analysis on administrative boundaries, supply or evacuation mobility, damage assessment analysis, terrain analysis, rehabilitation site analysis, route and infrastructure analysis can assist these types of operations.

UN Peacekeeping Operations: Bangladesh is one of the largest contributors to UN peacekeeping operations where also GIS data and overlays can be used for boundary delineation, operation planning, humanitarian intrusion, logistics, resource allotment, critical investigation and conjuring up situational awareness and security.¹¹ GIS applications will confirm a paradigm shift in planning, intelligence, precision and lethality to achieve synergic effect in our operations.

R&D: Firstly, we should have a satellite of our own to get reliable data. Archiving and updating data considering future requirements is important. Concern organisation should have contingencies to provide reliable data in case of any eventualities. Innovation of secured and customised GIS software to address our requirements should get priority.

Conclusion

Warfare in future will be very complex, intense and dominated by sophisticated technologies. Traditional or non-traditional threats will demand coordinated response by joint forces. The military commanders focus their attention on the enemy's capabilities, behavior and intention to formulate defeat mechanism. After detailed evaluation forces, armaments and logistics are mobilised to defeat the opponent. GIS occupies a vital place in battlefield replication, operational planning, intelligence, communications planning, logistics management, command and control. Drones and satellites relentlessly obtain high-resolution satellite images or data and updates database. Spatial data depicts the feature by its exact position on the earth's surface, typically with either raster or vector models. GIS provides excellent military intelligence, surveillance, reconnaissance data and will substantially influence future military operations by presenting decision makers with precise information within a very short time. Various GIS software are used for geospatial data management, investigation, image treating and interpreting data. Besides, RS imagery and the products derived from analysis are one of the sources of data for GIS.

In recent many battles GIS gave dividends to users. Ukraine in recent war against Russia used GIS and AI extensively for search and rescue missions, relief, rehabilitation efforts, frontline emergency communications and accurate assessment of infrastructure damage. So, the global defence GIS market is growing rapidly due to demand for reconnaissance, intelligence, logistics management and surveillance. Tangible landscape is virtual terrain modeling formulated using GIS.

This innovative concept provides virtual interaction with real battlefields. Besides, GIS can provide information concerning fog coverage, wind situation, trafficability, visibility and temperature bounds which will affect decision cycle. UAV mission can assist in updating data, line-of-sight assessments, grid reference and terrain evaluation. Some other notable applications of GIS are geo-reconnaissance, tracking units, logistic planning, combined obstacle overlay, 3D model and formulating weapon fan. In UN mission area also, it will give dividend in sectors like boundary demarcation, operation planning, humanitarian intrusion, logistics, resource allotment, critical investigation and security.

Expansion and modernisation of Bangladesh Army is going on as per Force Goal 2030. Bangladesh Army also started using GIS in few sectors. Full integration of GIS in military decision-making cycle will be a challenge. Continuous surveillance on AOI and updating database are serious challenges as still we don't have dedicated satellite of GIS. It is vital to focus on GIS data management, workforce development, funding, and software innovation. Jamming or hacking enemy surveillance capabilities should be integrated in bigger perspective. However, our training should provide insights on terrain conditions, elevations, interpretation of geospatial data and applying in decision making. Finally, efficiency in using and interpreting GIS will certainly give an upper hand against potential adversaries.

Recommendations

- a. Formulating a policy Bangladesh Army should efficiently integrate GIS in operational, logistic and engagement plan which will give dividend against superior adversary.
- b. Training should be conducted to enhance interpretation skill at tactical level and joint operational handling skill at operational level. At strategic level Geo AI force should operate.
- c. Application of GIS in disaster management and UN operation can solve critical issues which will formulate a viable branding.

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Brief Biography



Lieutenant Colonel Mohammad Mahmudur Rahman Niaz, psc was commissioned in Corps of Engineers in December 1999. He served in various appointments in four Engineer Battalions, 43 Independent Engineer Company and one BGB Battalion. He served as Instructor class-C in Engineer Centre and School of Military Engineering, Instructor class-B in Non-Commissioned Officers' Academy and Instructor class-A in Military Institute of Science and Technology. He also served as Garrison Engineer and Commander Military Engineer Services. Besides Mandatory courses, he attended Mid-Career Course at Pakistan. He has completed his Bachelor of Science in Civil Engineering, Masters in Defence Studies and Masters in Business Administration. He has participated in a course on GIS at Jahangirnagar University. He has participated in United Nations mission in Darfur and DR Congo. He has to his credit some publications in various journals and national dailies. Presently he is serving in Bangladesh University of Professionals.

Journey of Bangladesh with the Belt and Road Initiative: Exploring Prospects for Co-operation through Connectivity

Major Akon Md Mehedi Daian, psc, AC

Abstract

Bangladesh, one of the fastest-growing economies in the world, holds geo-strategic importance due to its very location. For the economic transformation of Bangladesh, the Belt and Road Initiative (BRI) led by China seems to have opened a golden door. The BRI has made an immense contribution to achieving “Vision 2021” and will also contribute to the future development of Bangladesh. While bringing out the best through extensive connectivity, Bangladesh may face hurdles like international and regional power politics, accurate justification and feasibility studies, and a few other factors that are likely to create a geopolitical dilemma for Bangladesh. The study has demonstrated how Bangladesh may get the most from the BRI while avoiding geopolitical challenges by maintaining a balanced foreign policy, proper evaluation, and accountability. Initially, a generic overview of the BRI, followed by its involvement and financial contribution in Bangladesh, is discussed. Subsequently, a few challenges are identified that Bangladesh may face while involving the BRI. Finally, plausible measures, including a few recommendations to overcome those challenges are highlighted.

Introduction

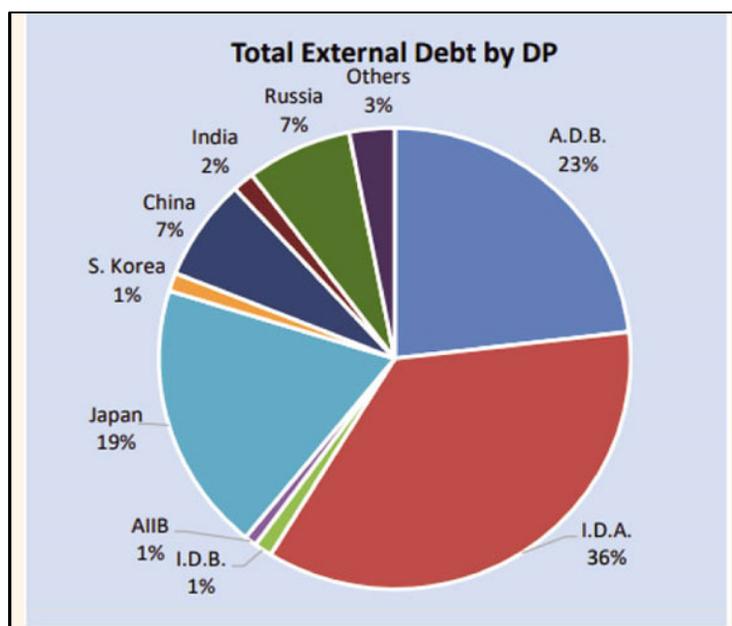
Bangladesh has emerged as a geopolitical soft spot in regional politics since President Xi Jinping took the helm of Chinese politics. Despite regional geopolitical tensions and disputes, Bangladesh has one of the fastest-growing economies in the world on an extraordinary scale. With the pace of its economic development and growth, the Belt and Road Initiative (BRI), led by China, seems to have opened a golden door for Bangladesh. On the other side, the BRI is believed by some analysts to be a way to extend geopolitical influence that reflects a Chinese vision of a world order based on “building a global community of shared future.”¹ In particular, the key part of the BRI is it provides an opportunity to achieve objectives in infrastructure and communication development for emerging economies such as Bangladesh, and establish it as economic hub. Accordingly, since October 2016, Bangladesh has become a party to this initiative.²

However, due to the influence of regional power politics, the proposed Bangladesh-China-India-Myanmar Economic Corridor (BCIM-EC) was discarded by China in 2019.³ Now, only the Myanmar-China Economic Corridor (MCEC) provides Bangladesh with possibilities of accessing this network, which will offer nearly equal economic development prospects in years to come. It will also provide Bangladesh an additional telescope to focus on Regional Comprehensive Economic Partnership (RCEP) for regional economic dynamics, trade partnerships, and geopolitical strategies in the Indo-Pacific framework. Moreover, a geopolitical dilemma for

Bangladesh is expected to arise from the dominance of the United States (US) in the Indo-Pacific region with the Quad at its disposal and a few other geopolitical factors.

Even though BRI provides huge investment, loans, and several areas of cooperation for development, there are some growing suspicion over ‘China’s Debt Trap,’ feasibility studies, accountability, timely completion of the projects, etcetera. Therefore, Bangladesh must examine the prospects of BRI for economic and geopolitical development to overcome those challenges.⁴ However, according to the latest Quarterly Debt Bulletin published by the Ministry of Finance of Bangladesh shows that country's external debt accounts for 37 per cent of the overall debt portfolio. Among others, debt to China accounts for only 7 per cent of Bangladesh’s external debt, a.k.a. 2.58 per cent of the overall debt and 0.98 per cent of GDP.⁵

Chart: External Debt Structure by Creditor as of June 2021



Source: *Quarterly Debt Bulletin*, Issue No.2, September 2021, Ministry of Finance, Bangladesh

In light of this context, this article will highlight the BRI and its connectivity with Bangladesh. Subsequently, different prospects of BRI in terms of development and probable challenges for Bangladesh will also be analysed. Finally, it will suggest a few possible ways that will assist in overcoming the significant challenges regarding the BRI so that Bangladesh can reap the benefits of it.

A Brief Overview of BRI

In September 2013, President Xi Jinping made an initial proposal to create the “Silk Road Economic Belt” and 21st Century Maritime Silk Road, commonly referred to as the BRI.

Enhancing regional integration, increasing trade, stimulating economic growth, and establishing China's influence around the world is part of an overarching initiative involving many infrastructure projects such as railways, highways, hydropower lines, ports or deep seaports etcetera. While the “Maritime Silk Road” will use a sea route to link China’s coastal regions with the South Pacific, South Asia, the Middle East, and Eastern Africa, “The Silk Road Economic Belt” in the BRI includes a transcontinental passage that will link China with South Asia, Southeast Asia, Central Asia, Russia, and Europe. Initially, BRI comprises of six economic corridors, i.e. 1. China-Central Asia-West Asia Corridor, 2. New Eurasian Land Bridge, 3. Bangladesh-China- India- Myanmar Economic Corridor, 4. China-Pakistan Economic Corridor, 5. China-Mongolia-Russia Corridor and 6. China-Indochina Peninsula Corridor. However, the second declaration of the BRI Summit in April 2019 did not mention the BCIM-EC. China has five main priorities in the BRI. As of August 2023, China has signed Memorandums of Understanding (MOU) with 148 countries and 32 international organisations.⁶

Map-1: Showing Economic Corridors of BRI



Source: <https://www.google.com/search?q=Economic+Corridors+of+BRI&client=firefox-b>

Involvement of Bangladesh in BRI

Soon stepping into a middle-income country, Bangladesh has been shifting its development focus and China has strongly established itself as an integral part of this journey. In October 2016, Bangladesh formally joined the initiative by signing a joint declaration, which emphasised the alignment of the development strategies of the two countries and pledged to work on the BRI to achieve sustainable development and share prosperity between the two countries. After almost eight

years, it is quite transparent how China has stepped on its clear footing in such objectives with approximately \$40 billion in overall economic investment in Bangladesh. Overall, the Chinese BRI envisages about 60 development projects in Bangladesh with a total estimated value of some \$24 billion that have been initiated by 27 projects.⁷ Under ministerial contracts, 17 of these have been prioritised by the government for areas like energy, railway connectivity, maritime transportation, road transport and information and communication technologies.⁸ Some of the key megaprojects in Bangladesh are the Padma Bridge Rail Link, Karnaphuli River Tunnel, Dhaka-Ashulia Elevated Express Highway, and Dhaka Power Distribution Company (DPDC)'s Power System etcetera. Most of them are financed by China. The recent American Enterprise Institute (AEI) data suggests that up until now, China has invested around \$7.07 billion into Bangladesh's development programmes, of which \$3.27 billion has entered into the power and energy sector, \$2.17 billion into construction, and \$1.1 billion into the country's construction sector. Recently, China also signed a new 'tied loan' for a water treatment plant worth \$276 million, suggesting the country is also stepping into water infrastructure projects.⁹

The plan is aimed at strengthening regional economic connectivity and trade complementarities by the means of an economic corridor. Furthermore, Northeast India could be helped by the connectivity of the economic corridor. Presently, Bangladesh is involved in 64 BRI projects, as stated by the Bangladesh Working Group on External Debt.¹⁰

Importance of Connectivity Basing on Theoretical Aspects of International Relations

Liberal Institutionalism, one of the two most influential contemporary approaches to international relations, argues that international co-operation between states is feasible and sustainable and such co-operation can reduce conflict and competition. Alongside neorealism, Liberal Institutionalism is one of the two most influential contemporary approaches to international relations. Liberal institutionalists highlight the role of international institutions and regimes in facilitating cooperation between states. International cooperation could be sustained through repeated interactions, transparency, and monitoring. According to Robert Keohane and other liberal institutionalists, institutions facilitate cooperation by reducing transaction costs, providing information, making commitments more credible, establishing focal points for coordination, facilitating the principle of reciprocity, extending the shadow of the future, et cetera.¹¹

As Bangladesh believes in multilateralism and aims for co-operative growth, which requires Foreign Direct Investment (FDI), infrastructure, and digital advancement, the BRI will definitely provide her ground for liberal trade and connectivity. It will improve not only Bangladesh's economy but also help the South Asian economy overall. As a result, Bangladesh will be more open to economic multilateralism based on free market and liberal international trade.¹²

Prospects of Bangladesh through BRI

Trade and Investments: The implementation of numerous Government-to-Government (G2G) and Business-to-Business (B2B) projects was agreed upon during President Xi's visit to Bangladesh in October 2016. Firstly, infrastructure growth of Bangladesh could be accelerated by investments linked to the BRI. In order to improve the overall connectivity of the country, Chinese financial assistance is being sought for road and rail projects. Bangladesh has able to attain the objectives laid down in the “Vision 2021” framework with China's investment initiatives. The second benefit of this proposal is that it would include Bangladesh in the global supply chain. China's economy is rapidly evolving both on production and consumption. As a result of this transition, Bangladesh would be able to attract investments into its developing industrial sector. The plan might make it easier for Chinese companies to set up a factory in Bangladesh, since there is lower labour costs.¹³

Financial Integration: China will invest around \$40 billion in Bangladesh. Although disbursement has been delayed, investment is expected in sectors such as production, infrastructure and electricity.¹⁴ Commercial lending in China is typically offered by Chinese lenders with high interest rates. It is important to note that China's southern landlocked region is close to the Chittagong seaport as opposed to Guangzhou port in mainland China. Exports from Bangladesh to foreign markets would rise due to Chinese participation in Bangladesh's two Special Economic Zones (SEZs) and establishment of an Export Processing Zone (EPZ) specifically for China. With regard to the expansion of Chittagong port, China is currently making substantial investments. Furthermore, China has allowed 99% duty-free entry of Bangladeshi goods which is much higher than India and USA. Additionally, in view of the fact that as Bangladesh shares three fourths of her border with India, therefore, Bangladesh is able to connect with the northeastern part of India, or technically the whole of India in significant trade. Bangladesh will be a promising place for Foreign Direct Investment (FDI), if better access is made to the immense markets of India and China.¹⁵

Connectivity: Investments related to the BRI could help Bangladesh in infrastructural development. The envisaged road and railway projects, financed by China's assistance, will be used to enhance connectivity. Moreover, to meet the increasing energy needs of Bangladesh, it is essential that Chinese investments are made in the power sector. To achieve economic targets, set by the “Vision 2041” framework, Bangladesh has received support from China's investment initiatives.¹⁶ In the geographical context, Bangladesh is in a very advantageous position to be used as transit routes by unpopulated neighbour countries like Nepal, Bhutan and North East India. However, in order to make this process easier, it is necessary to develop a regional interconnection architecture. The absence of sufficient routes for trade among regions, value chains and free zones is holding back the integration of sectoral trade in South Asia. It is roughly estimated that Bangladesh on average needs around USD 18 to 20 billion per annum, a total amounting around USD 320 billion, in cumulative infrastructure investment.¹⁷ China's infrastructure investments in

Bangladesh will contribute to reducing its labour cost and enabling it to create more goods that add value, particularly with respect to exports to neighbouring countries such as China and India.

Energy: There is a particular interest of China in the electrical industry of Bangladesh. Additionally, to build new coal-fired power stations with a total capacity of 14 terawatts, China has already made commitments amounting to \$ 5.1 billion. GCM Resources and Power China have reached a \$4 billion agreement to build a 2000 MW coal-fired power plant in Dinajpur utilising ultra-supercritical technology. Furthermore, the Chinese have shown interest in Bangladesh's atomic energy sector.¹⁸

Deep Sea Port Development: Port development is an important component of the BRI. Since it is accessible to Southern China and the Malacca Strait, Bangladesh plays a key strategic role in ensuring maritime security for China. 2.346 million twenty-foot equivalent units of containers and over 50 million tons of cargo have been transported through the port of Chittagong in 2016. In the following 15 years, the number is expected to increase thrice. In line with the agreement by China and Bangladesh, Mongla port's capacity will also be enhanced. The Port is in the process of connection to the national transport system after the completion of Padma Bridge is completed.¹⁹ For Bangladesh, Sea Lines of Communication (SLOCs) in the Bay of Bengal are critical components of its strategic priorities, influencing its economic development, energy security and strategic autonomy. The assertion of 'strategic autonomy' involves active diplomatic engagement, adherence to international laws, and a focus on maintaining a secure and stable maritime environment which will empower Bangladesh in maintain territorial integrity and balancing regional geopolitics.²⁰

Major Challenges for Bangladesh

Debt Issue: The charge of debt diplomacy is very often associated with BRI. However, the case of China's purchase of Hambantota port in Sri Lanka seems to have little connection with BRI according to an empirical study. The majority of Chinese loans are business as usual and have high interest rates. However, some issues remain to be tackled, including the potential for China's economic slowdown and how it might have an impact on the BRI, a sharp rise in world oil prices, possible slowing of remittances and RMG exports, and implications for Bangladesh's ability to repay its debts.²¹

In-Depth Feasibility Study: There are several problems associated with the detailed feasibility studies in Bangladesh. Consequently, the quality of the project is not good enough. It shall continue to revise this project, both in terms of time and also with respect to certain aspects after its launch. The other challenge is sometimes the executive body does not perform cost benefits analyses correctly for an economic rate of return. According to Planning Minister of Bangladesh, a series of projects based on policy considerations have been implemented in the country between 2009 to 2014 but failed meeting expectations.²²

Accountability and Transparency: Projects which result in budget overruns, schedule delays and bad quality of service can be adversely affected by the absence of a competitive public procurement process. The lack of openness has made it impossible to assess the project's financing risks and benefits, stop corruption or ensure that environment and society are sustainable. It will be the hardest internal hurdle for Bangladesh while implementing connectivity through BRI.²³

Bangladesh- Myanmar Relations: Currently, one of the most severe humanitarian disasters in the world is the FDMN crisis. The Rohingya crisis has multifaceted geopolitical dimensions involving humanitarian concerns, regional stability, diplomatic relationships, major powers, international organizations, and security implications. The complexity of the crisis attracts the attention and involvement of significant powers in the South Asian region and beyond. This crisis has made relations between Bangladesh and Myanmar more difficult. As a result, the Rohingya crisis has not only increased long-term insecurity in the Bay of Bengal region but also regional connectivity projects funded by the BRI may be at risk if this conflict is not resolved in a constructive manner. In addition to that, as India has withdrawn herself from BRI, hence, without Myanmar, Bangladesh has no other option to extend her connectivity.²⁴

Conflict in Indo-Pacific Region: For the first time in the history of US National Security Strategy (NSS), they declared China as a threat above all denoting as “America’s most consequential geopolitical challenge.” The Indo-Pacific region is also put on topmost attention even before Europe.²⁵ While China uses soft power to create roads, ports, bridges, schools, and other infrastructure, the US focuses its soft power exclusively on military assets. As a result, some believe that the region may be caught in ‘Thucydides Trap’ in which a rising power agitates the incumbent power to the point where they engage in a fight that leads to one of them being overthrown. Geopolitical tensions would therefore rise in the Indo-Pacific region and throughout the world, thus affecting developing nations of this area negatively.²⁶ As the US and China are important partners for Bangladesh, but this mainly depends on its policy and diplomatic skills, a strategic balance will have to be maintained against these tensions. How will this be implemented in South Asia in light of China’s BRI and the Free and Open Indo-Pacific (FOIP) initiative led by the QUAD (Will this return to a Cold War paradigm—a Balance of Power vs ‘Bandwagoning’?) is a big question. For Bangladesh, what will be the role and how Bangladesh will formulate its policies to deal with India, China, and the US will be a significant concern.²⁷

Plausible Measures to Overcome the Challenges

Prioritise Relations as per Economic Interest: Considering the development of its economy and future interests, Bangladesh should take the decision on connectivity. All forms of involvement in the field of economic development should be carefully accepted by Bangladesh. The policymakers should set the goal, whether it is only about getting into China, through China to Southeast Asia, or through South Asia to get into China itself and beyond. At the same time, Bangladesh must lay down its objectives in terms of economic benefits which it would like to

achieve from this connection. In addition to that, it should consider the types of inputs Bangladesh is seeking to improve its manufacturing sectors and raw materials so as to produce such exportable products. Finally, Bangladesh should consider soft infrastructure beyond complex infrastructure.

Maintain Neutrality and Balanced Foreign Policy: Dhaka must assure to the great powers that in view of Bangladesh's engagement with BRI, do not face a strategic threat. The economic potential of today's geopolitical situation needs to be exploited effectively by Bangladesh. Bangladesh's main fear is the possibility of a conflict of minds on both sides. Accordingly, in the case of future disputes between regional powers, Dhaka should remain neutral. However, the balanced neutrality policy will significantly impact the geo-political affairs of Bangladesh as in the 'Westphalian Sovereignty System,' it is difficult to change the neighbour. Therefore, Bangladesh should be strict with its present foreign policy of maintaining friendships with all. Consequently, it is vital to ensure that relations with regional and global power are balanced in favour of Bangladesh's interests.

Multipolarity in terms of Partnership and Alliance: The world is moving from a unipolar state to a multipolar one in the current geopolitical context. There is no way we can stop the polarization. For example, Bangladesh may be connected through IMT (India- Myanmar-Thailand) Highway also known as Asian highway. It is a little more than 2,200 km and is now extending to the Philippines from Vietnam, Cambodia, Laos.²⁸ Bangladesh, Myanmar and Thailand may take initiative to improve the livelihoods of the Rakhine population, which can have a spillover effect on the repatriation process of Rohingya. Moreover, this will attract China and Japan as they both have a common interest in stabilizing Rakhine. As a result, without going through geographically challenging and insurgent-prone Northeast India, direct connectivity using Cox's Bazar will be more feasible.

The US has been presenting its power through military means, while China is leading the multipolarity. India being an ally of the US has also become interested in a globalized world and carries out full business with China. It is impossible for Bangladesh to split from one or the other. We're going to have a lot more options, since it will be a multipolar world. It is therefore necessary for Bangladesh to preserve multipolarity and pursue friendships and allies as much as possible. A more sensible approach to Bangladesh can be based on the 'Singapore Model.'

Approving Only Financially Viable Projects: Bangladesh can be compared to Pakistan and Sri Lanka as an archetypal example of a debt problem while building a 'win-win' situation with the BRI. The current approach of the BRI, which is primarily based on economic terms, should thus be maintained by Bangladesh. A 'win-win' scenario would be achieved by Dhaka's modest and limited participation in the BRI, with a real bilateral collaboration between these two nations. In addition, Bangladesh could prevent the "debt trap" predicament that exists in Sri Lanka by adopting a prudent borrowing policy.

Develop Cohesive Society and Strong Institutional Structure: It will be complicated for Bangladesh if it possesses a fractured society as it cannot withstand considerable power. In addition to that, strong democratic institutions should be strengthened so that cohesion among the government apparatus is strengthened. Local government should be given more freedom of work, and decentralization of power is a necessity for the overall prosperity of a state. The country must pick up merits in various places. Bangladesh must portray itself as a nation that develops its institutional strength. The state should also promote speaking truth to the power. In combination, it will develop a systematic and cohesive society. More so, there is no alternative to developing professionalism in all sectors.

Modern and Capable Defence Power: There is no alternative to having the might to ensure the right. In order to establish sufficient deterrence against any power, Bangladesh as a nation should develop its military capacity at the same time. Bangladesh should develop a joint force's goal that will enhance her military security. Adequate air power, integrated air defense system, three-dimensional naval power will act as key components. To ensure national interests and development security, such as the "Singapore" model of Lee Kuan, a "Limited State" should have an efficient and effective armed military.

Conclusion

It is anticipated that the BRI will enhance connectivity, trade and infrastructural potentials of Bangladesh. Currently, Bangladesh imports highest from China and thus becomes one of the biggest partners in South Asia. During the Xi's visit to Bangladesh in October 2016, a number of agreements were signed under G2G and B2B treaty. In Bangladesh, China had promised billions of dollars for infrastructure projects as well as power plants. In addition, China has agreed to provide financial support. Currently, nine projects are ongoing and Bangladesh is preparing for the majority of these projects to focus on economic development.

Bangladesh, being a small and financially dependent on regional and great powers, will be in difficulties while expanding its connectivity through the BRI. She will find herself in a dilemma and face a difficult situation for economic development through multilateral connectivity due to regional power politics and the future volatile environment of the Indo-Pacific region. In addition, obstacles such as lack of accountability, feasibility studies prior to the project and good governance have an effect on situations like Sri Lanka that could lead to a crisis in Bangladesh while increasing connectivity through the BRI.

By adhering to multipolarity in terms of alliances and cooperation, Bangladesh can also improve its connectivity in an emerging multipolar world. Nevertheless, Bangladesh should maintain neutrality and balanced foreign policy as mentioned in her constitution and pay particular attention to economic interests avoiding rushing to lend from any helping hand. More so, it will be crucial to achieve cohesion in the society, institutional development and a strong military. By contrast, ensuring

the best outcome from any project and addressing geopolitical issues relating to BRI cannot be achieved without considerable feasibility studies, accountability and strong governance.

Recommendations

Considering the multipolar world system, the Indo-Pacific region will be volatile and power politics among global powers will be more intense and spread. Therefore, in future, Bangladesh will face significant internal and external challenges due to its involvement with the BRI. Maintaining a balanced foreign policy including prioritizing financial interest will be the key. Hence, Bangladesh should develop a holistic approach to overcome geo-political conundrum and challenges like ‘Debt Trap’ by the following recommendations:-

- a. A committee may be formed under the Ministry of Foreign Affairs (MOFA) to evaluate future geo-political challenges and will propose future action plans related to the BRI. The committee may also evaluate the concept of ‘Singapore Model’.
- b. An evaluation committee may be formed under the Ministry of Planning to evaluate future prospects of projects related to the BRI. The committee will also conduct feasibility study, take accountability and monitor progress of selected projects. This committee may also evaluate the possibilities and prospects of connecting with the Asian Highway and China-Myanmar Economic Corridor (CMEC).

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Brief Biography



Major Akon Md Mehedi Daian, psc was commissioned from Bangladesh Military Academy (BMA) with 59 BMA Long Course in 2008 in the Armoured Corps. He has a diverse experience of serving in the unit, as staff and in extra regimental employment. He served in Bengal Cavalry and 4 Horse in different command and staff appointments. As Staff Officer Grade-2, he served in Quarter Master General's branch, Army Headquarters. Apart from his mandatory courses, the officer participated in 'User training Course on MBT-2000 Tank' in China. The officer is a graduate from Defence Services Command and Staff College (DSCSC) Mirpur. He has also obtained his Masters in International Relations from University of Dhaka and Masters of Social Science in Security Studies from Bangladesh University of Professionals. Under blue helmet, the officer has participated in United Nations Peacekeeping Mission in MINUSMA (Mali) as Operations Officer. Presently, he is the Second-in-Command of 9 Bengal Lancer.

Incorporation of Satellite-Based Communication Structure (SBCS): a Pragmatic Approach to Enhance Combat Effectiveness of BD Army for Hybrid Warfare

Major Md Nazmul Hasan, SUP, psc, Signals

Abstract

Combat Communication of Bangladesh Army is based on the traditional Headquarters-based backbone with age-old radio sets and other equipment. On the other hand, with the passage of time, the nature of warfare has largely changed. In the present world, nation states are more interested in indirect conflicts degrading the opponents' key capabilities to attain their politico-military objectives. As a developing nation, Bangladesh is also vulnerable to such hybrid threats due to its geopolitical position and emerging economy. The neighbouring states of Bangladesh and other regional countries have already been involved in hybrid nature of warfare. The Rohingya problem, the Seven Sisters' separatist movement, etcetera. might all lead to low-intensity war between countries that heavily employ hybrid warfare. Therefore, it is more possible that the knock-on effects of a conflict with such a mixed nature will soon have an impact on Bangladesh. In this scenario, Bangladesh Army should look for enhancing combat effectiveness in consideration of what nature of threats it might envisage. In this connection, one of the most important aspects of combat effectiveness, communication structure must be enhanced to face these kinds of hybrid threats. To facilitate the enhancement of combat effectiveness, Bangladesh Army needs to restructure the combat communication incorporating Satellite-Based Communication Structure (SBCS) to provide necessary support to the fighting echelon in the face of Hybrid Warfare. Although hybrid threats include all Armed Forces, this article will mainly focus on Bangladesh Army keeping other sister services out of purview.

Introduction

The paradigm shift in technology in last century has brought the world into the era of hybrid warfare. Present and future battlefield are dominated by technological development, the notion of multi-domain warfare, artificial intelligence, network-centric warfare, and the hybrid characteristics of conflict. As a rising economy in Southeast Asia, Bangladesh has also become vulnerable to Hybrid threats.¹ Being an important stakeholder of national security, BD army is the primarily responsible organisation for countering these threats with vigour. However, to counter hybrid threats poised against BD, army needs to enhance its combat effectiveness to make its fighting capability at par with the modern trend of warfare. For this adaptation, incorporation of modern equipment in the inventory like the Satellite-based Communication Structure (SBCS) can be an effective way forward for the enhancement of combat effectiveness in the face of Hybrid Warfare. The combat effectiveness of a military unit in performing its mission depends on its

capabilities including equipment and personnel and its ability to use those capabilities. The organization or structure of a military unit can contribute to the cohesion of the overall entity.² Therefore, changes in the structure of various sectors like combat communication can greatly contribute to enhancement of the combat effectiveness of Bangladesh Army.

The author, from his personal experiences of serving in different combat units, feels that combat communication structure is one of the grey areas which needs to be restructured to counter the emerging hybrid threats. Satellite being one of the versatile communication media of the twenty-first century can be a solution to this requirement. Satellite communication links offer flexible data transmission for ground, sea, and airborne units. Military satellites use more expensive, complex, and jam-resistant technologies to reduce their vulnerability to jamming.³ Moreover, it can generate a base of interconnectivity among all the battlefield operating systems (BOS). It can also provide the required redundancy for the continuation of operations in the face of potential threats. Thereby, a reform in combat communication structure based on satellite can provide Bangladesh Army required amount of robustness and redundancy.

In the present context of modern warfare, it has become imperative for Bangladesh Army to increase its combat effectiveness incorporating modern trend of communication media. To facilitate the enhancement of combat effectiveness, Bangladesh Army needs to restructure the combat communication incorporating SBCS to provide necessary support to the fighting echelon in the face of Hybrid Warfare. Hence, this article will first focus on Doctrinal and Organisational grey areas those need to be restructured due to their vulnerability to Hybrid threats. Thereafter, it will unveil the conceptualization of incorporation of SBCS with the existing communication structure to enhance the combat effectiveness of Bangladesh Army for hybrid warfare. In its ultimate analysis, the article will highlight the challenges to incorporate SBCS with plausible measures to mitigate those challenges. This article will also suggest a roadmap to enhance the combat effectiveness with SBCS for Hybrid Warfare.

Doctrinal and Organisational Grey Areas Vulnerable To Hybrid Threats

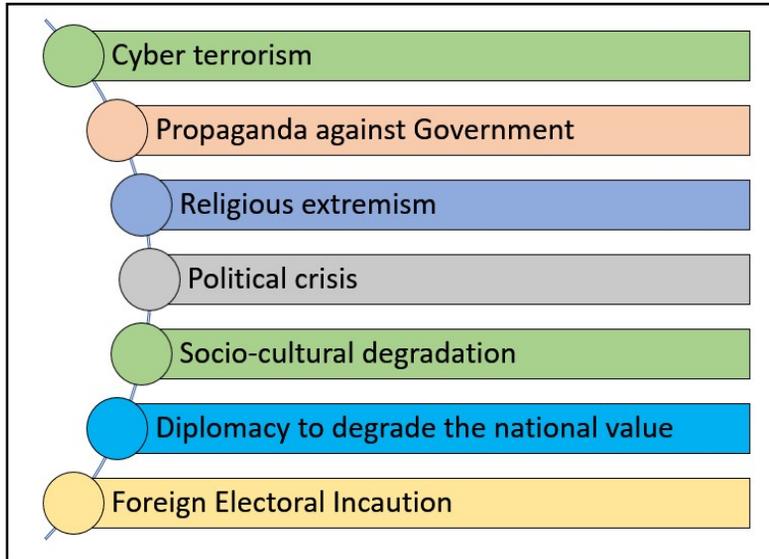
Hybrid warfare changes how troops participate in conflict, not its essence. However, when it occurs, it is war. Hybrid warfare helps analyse wars with regular and irregular forces fighting symmetrically and asymmetrically.⁴ Therefore, the threats developed which are termed 'hybrid threats' have a nature that can affect the plan at both operational and tactical levels. To identify gray areas in our doctrine and organisation, it is imperative to know about the threats of different levels which are pertinent to BD Army.

Levels of Hybrid Threats

Hybrid threats may be classified into strategic, operational, and tactical levels. Strategic hybrid threats often threaten a country's territorial integrity. Strategically, hybrid warfare might compromise all national power components. Operational level hybrid threats may target a specific

region or part of the national power structure before declaring victory through media campaigns. However, threats at the tactical level, however, may not endanger territorial integrity but instead do great harm to the country.

Figure-1: Possible Hybrid Threats against Bangladesh



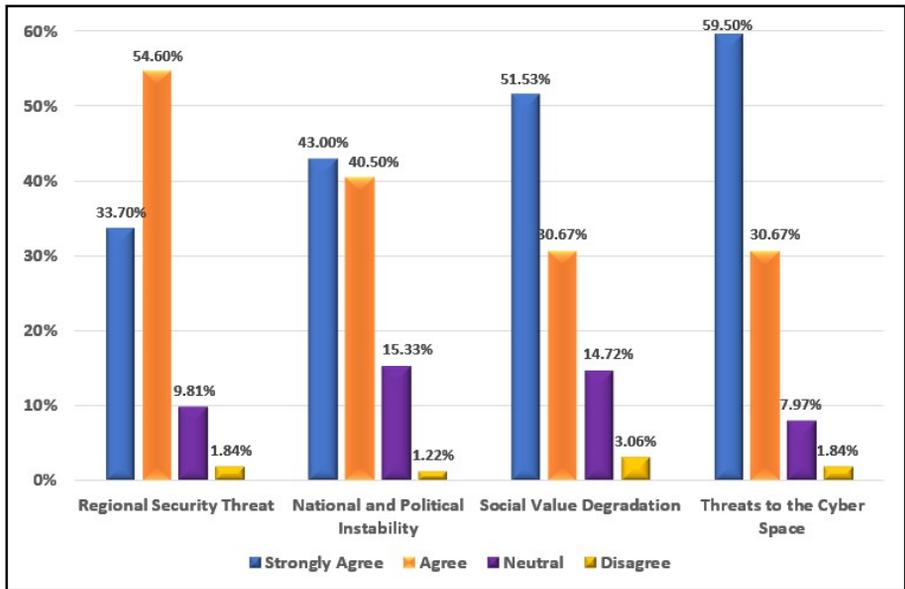
Source: Author's self-construct

Threats in Strategic Fronts

Regional and National Security Threats: One of the directors of NSI said Bangladesh is geo-strategically exposed to its neighbours. Though Bangladesh maintains good relations with all its neighbours, Bangladesh could be a victim of neighbouring states' solarism. Secondly, Bangladesh's technological progress has boosted social media's reach. This strengthens partnerships. Morality and morals are declining in modern culture. Social malice, drug abuse, and youth violence are indications of social decline.

Threats to Cyber Space: In one FGD with Directors of DGFI, NTMC, and NSI, all the participants agreed that in the present context, when Bangladesh is booming with digitisation in every sector, the country's cyberspace has automatically been threatened by both state and non-state actors. Bangladesh Bank incident was an eye-opener for both law-enforcing agencies and operators. It is now obvious that to be a self-solvent nation it is important to embrace the reality of cyberspace to be protected like any other space of the country.

Figure-2: Strategic Level Hybrid Threats

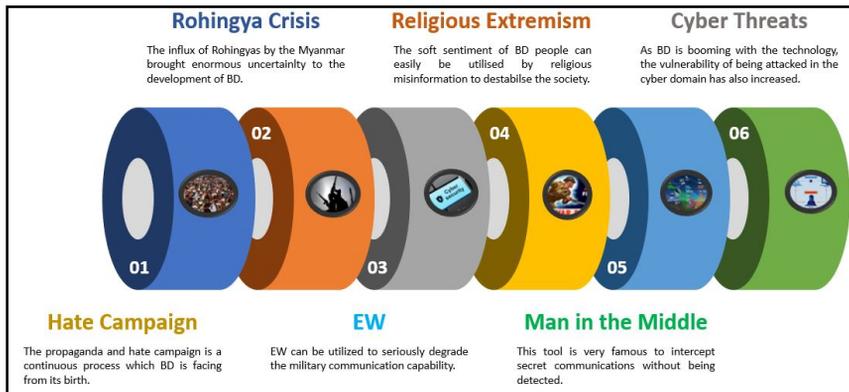


Source: Author’s self-construct

Operational Threats

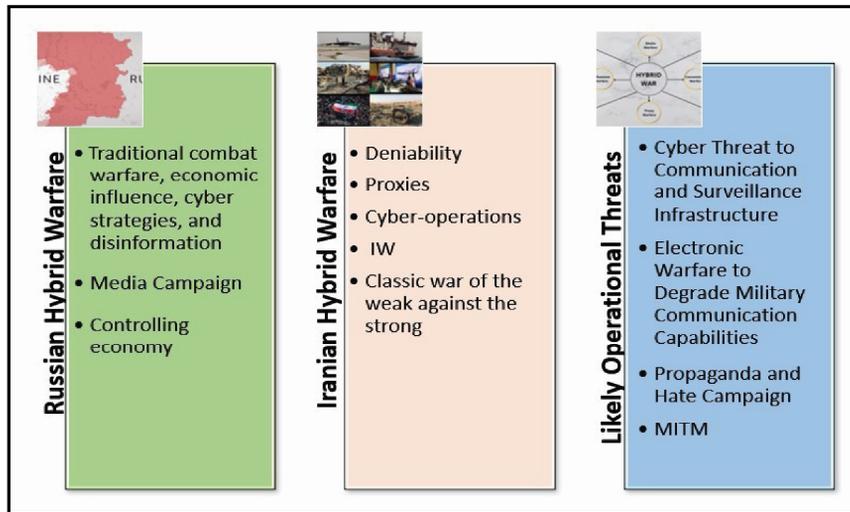
Armed Forces are the main target in operational hybrid threats. Non-state actors alone or with the military can be a serious threat to the opposing military. The threat could cause a national disaster. Hezbollah’s strike on Israeli Defence Forces and ISIL’s attack on Iraqi forces are examples of operational level hybrid threats. The rivals of BD may use Rohingya crisis, religious extremism and terrorists, Cyber Threat, Hate Campaign, EW to damage communication structure, and Man in the Middle to degrade the military capability.

Figure-3: Operational Level Hybrid Threats



Source: Author self-construct

Figure-4: Operational Level Hybrid Threats

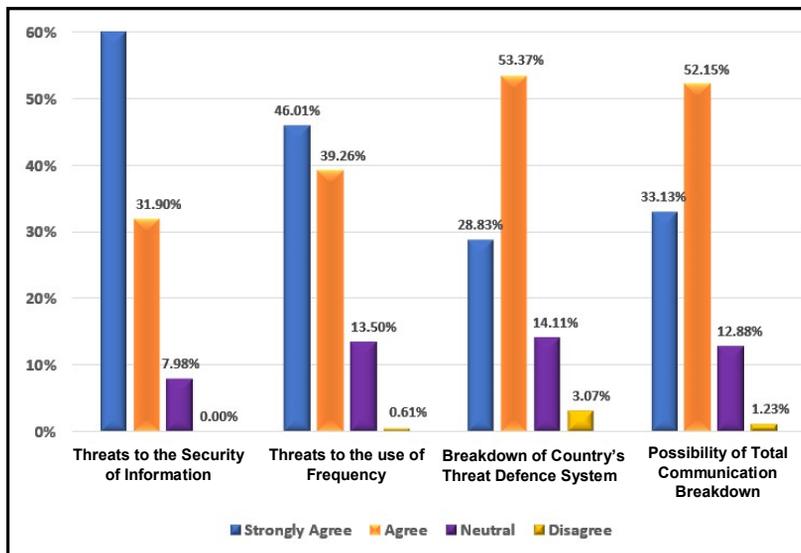


Source: Author's self-construct

Tactical Threats

Threats to information security, frequency usage, communication breakdown, and country's. Threat defence system are typical tactical dangers. BD Army dealt with similar threats in Operation CLEAN HEART, UTTARAN, and ALOR SONDHANEY. The Holey Artisan Bakery attack in 2016 and the Atiya Mahal attack in 2017 are two cases when the BD Army needed to intervene as the government's last choice.

Figure-5: Operational Level Hybrid Threats

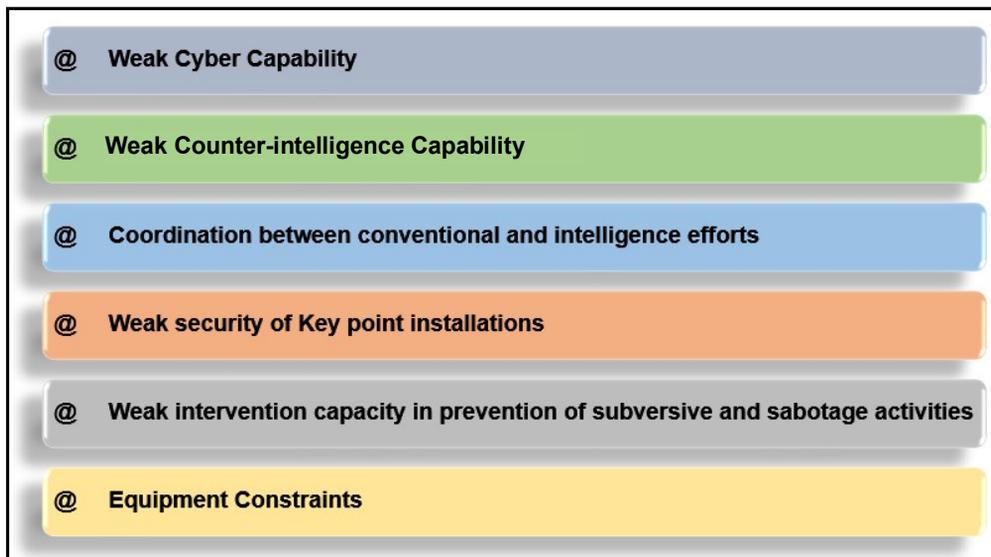


Source: Author's self-construct

Doctrinal Grey Areas

Hybrid warfare is often cheap and a matter of skill. It might upset the power balance. This is especially true for weaker nation states or non-state groups or power-imbalanced opponents. Hybrid warfare is vital to BD Army and can be successful. Considering the threats to which BD is exposed, following gray areas are identified:-

Figure-6: Doctrinal Gray Areas Vulnerable



Source: Author's self-construct

Organisational Gray Area

Lack of Adaptive or Flexible Organisational Structure: According to Director of Military Operations and Director of Signal Directorate, Bangladesh Army lacks in flexible operational communication structure. The existing radio, line and Radio Relay communication are costly, time consuming and dependent on the weather. This communication is also susceptible to electronic jamming, interception, and hacking. Therefore, more mobile, reliable, secure, adaptive, and flexible structure are required.

Lack of Institutional Training: From the training perspective, Bangladesh Army is more inclined to the conventional threats. Due to hybrid threats, it's time to expand asymmetric and symmetric training facilities. Modern technology should be used. All the BOS elements must be interconnected and that will give the combined effect on the battlefield.

No Planned Exercises on Hybrid Threats: All the exercises of Bangladesh Army are mostly conventional operation biased. There should be an adequate number of joint exercises based

on hybrid threats. All the modern technologies adopted in Army should be tested on the ground. Then the efficiency of the army can be tested and enhanced.

Requirement of Restructuring the Communication Structure: Communication system should be restructured based on threats. Instead of divided development, the entire system should be reformed using contemporary, secure technologies. The technology should have the following characteristics:

- a. Robust and Flexible doctrine to counter hybrid threats.
- b. Reliable and Secured Communication Structure to provide security.

Conceptualisation of Incorporating SBCS with the Existing Communication Structure

Introducing satellite-based communication with the existing structure is a need of time for the modernisation of BD Army. However, the criticality lies where SBCS is needed to be meshed with the existing structure. It can be ensured by establishing interconnectivity among BOSs, interfacing with conventional media, and by clearly defining the role and functions of satellite communication. Though the structure seems complex, the inception is not cumbersome.

Structure of SBCS

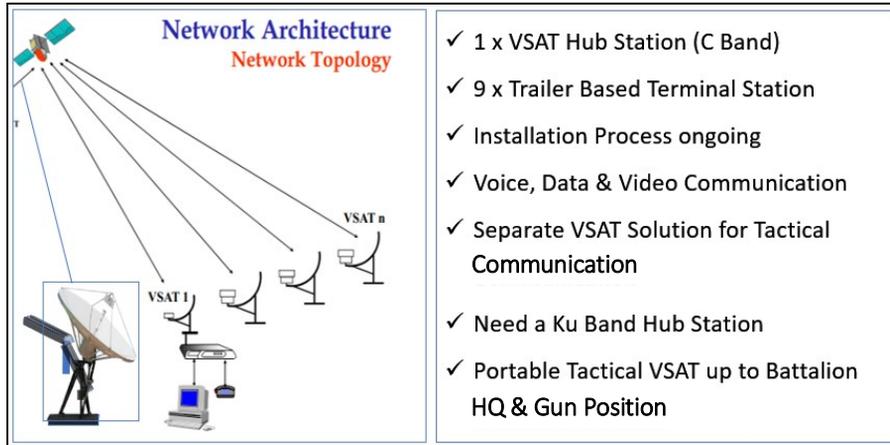
Interconnectivity among BOSs: Modern wars include synchronisation of BOSs. Each arm has distinct qualities, yet they may complement each other. When combined, their skills deliver a decisive victory. Both operational and tactical commanders must coordinate the BOSs. While conventional communication means are effective in a conventional environment, in the case of hybrid threats it will be difficult to maintain all BOSs interconnected. Therefore, a more robust structure is required. SBCS is a way forward for this. All elements of the battlefield will have interconnectivity with a never-ending source of global eagle eye which not only will provide the necessary robustness of fighting but also bring the best effectiveness out of Bangladesh Armed forces.

Interfacing with Conventional Communication Media: During peace and conflict, Bangladesh Army can provide up to Brigade Headquarters level communication. Again, an army's combat efficiency depends on how well its commanders and troops are networked.⁵ Bangladesh Army's communication structure may be separated into two major categories to assess SBCS and traditional methods. They are as follows:-

- a. **Tactical Ground Network:** The field level network of Bangladesh Army is decentralized. Units are responsible for communicating with subunits where radio and line dominate. While weather affects most radio communications, during the war, Artillery and sabotage activities may damage lines. In no way, these means can be suitable for any modern army. Bangladesh Army needs an autonomous framework to network battlefield

operators effectively. SBCS is a solution. It ensures subunit interconnection and ensures higher headquarters monitoring. Figure 7 shows the proposed army Satcom structure for an initial start:

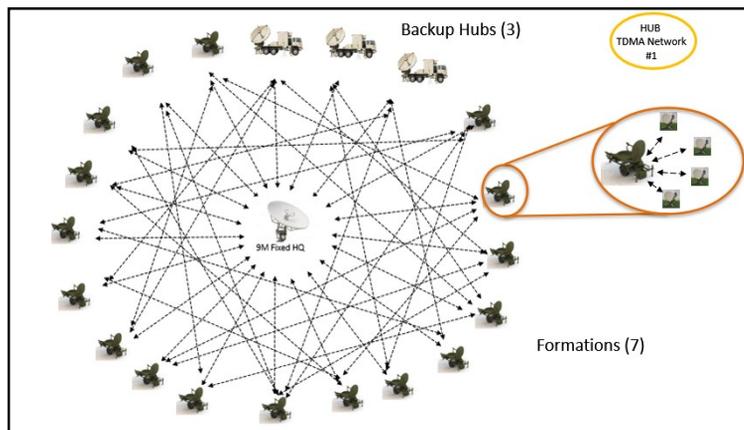
Figure-7: Proposed SATCOM Structure for BD Army



Source: Author's self-construct

b. **Command to Ground Network:** Presently, Bangladesh Army can provide communication up to the brigade Headquarters level. Voice and minimal data capabilities. Radio is used for voice. BD Army employs line and canopy for data connections. Since tall features will be destroyed on the battlefield, you must have alternatives. BD Army employs Dispatch Rider (DR) as an option. The standard communication network is unstable under normal conditions, much alone in a conflict situation. If SBCS can be implemented, then a stable and dependable framework can support to company headquarters. To have necessary interfacing Bangladesh Army can have a structure as follows:-

Figure-8: Proposed SATCOM Structure for BD Army

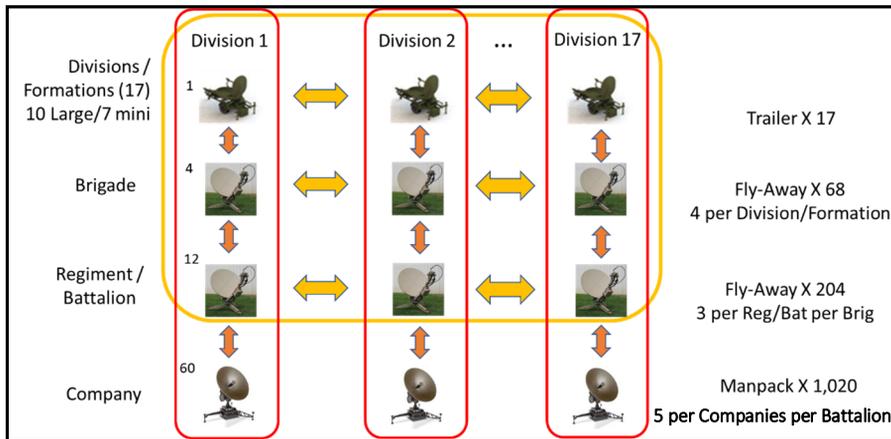


Source: Author's self-construct

Conceptualization of SBCS

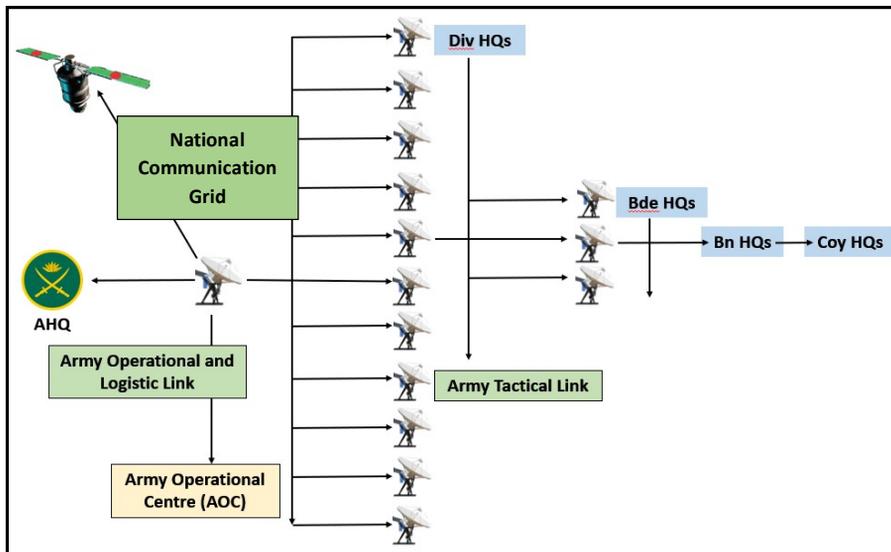
Structuring Satellite-Based Communication: For structuring SBCS a strong base is needed. It is possible by organising a TO&E for the structure. Normally, for any satellite communication, a hub station and remote nodal points which are also termed ground stations are required. All the ground stations are controlled by the hub station. The satellite works as the media for transmission and reception. As per Army Doctrine, following are the components for the smooth connectivity among the different elements of the BOSs:-

Figure-9: Proposed Division Level SATCOM Structure of BD Army



Source: Author's self-construct

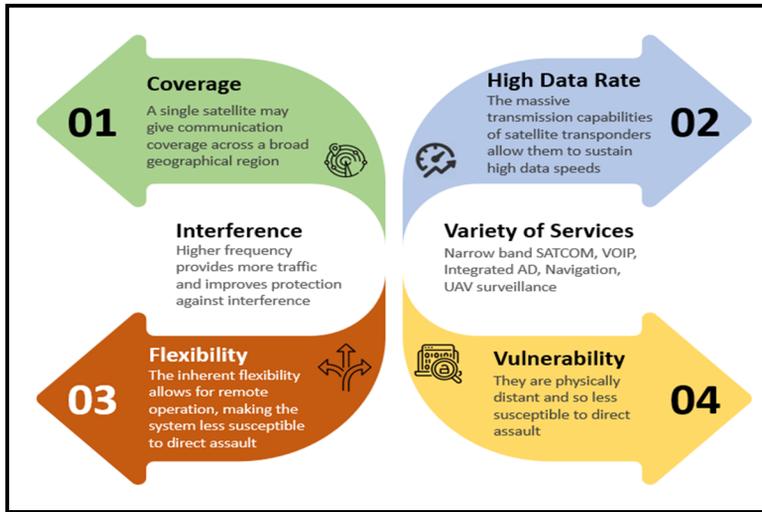
Figure-10: Operational and Tactical Level Communication Link



Source: Author's self-construct

Use of Satellites for Communication: The military makes considerable use of satellites for communication. Military satellites use UHF (9225-3400MHz) and SHF (7.2-8.4GHz) frequencies, which they share with terrestrial and other satellite systems. Other military satellite communication frequencies include 14/11 GHz, 30/20 GHz, and 40/60 GHz. The availability of higher frequency bands permits more traffic, improves protection against interference, and decreases the likelihood of detecting signals from hidden terminals. Satellite communication systems provide a variety of advantages that are being explored extensively for military purposes. They include the following:-

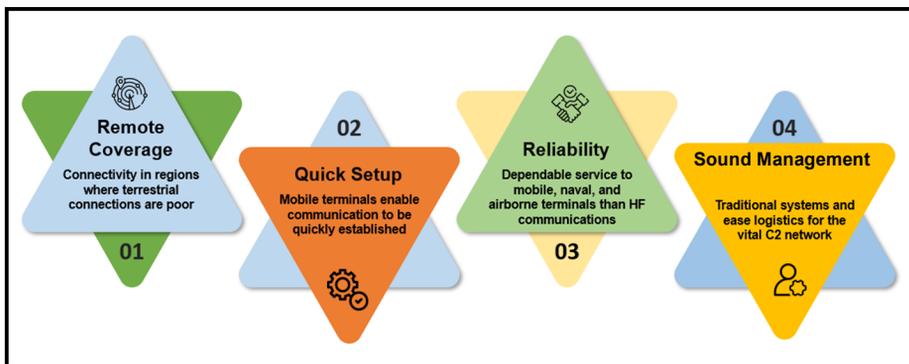
Figure-11: Use of Satellite for Communication



Source: Author’s self-construct

Advantages Offered by Satellite-Borne Terminals: In addition to the basic benefits stated before, satellite-borne tactical terminals provide the following additional advantages that make communication through satellites more appealing to military leaders:-

Figure-12: Advantages Offered by Satellite-Borne Terminals



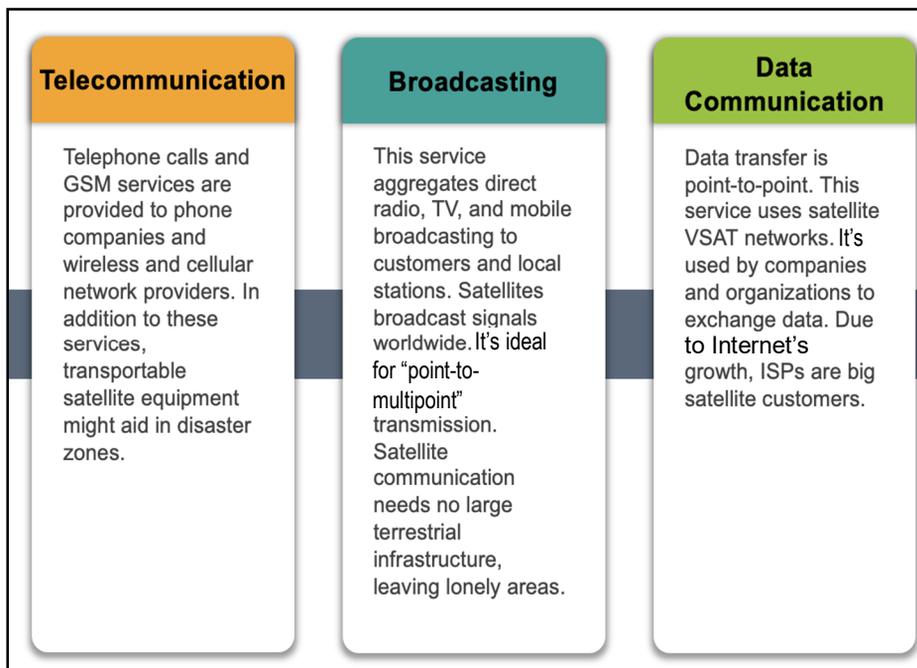
Source: Author’s self-construct

Time and Cost Requirement: As many industrialized nations developed space communications and technology, our country attempted to establish its cultural and geographical identity. The USSR, US, and Canada launched satellites after 1957. After the independence of Bangladesh in 1971, it's GDP was worth \$8 billion, while industrialized nations spent hundreds of billions on space exploration. Father of the Nation Bangabandhu Sheikh Mujibur Rahman revived the economy despite war-ravaged institutions and a dearth of inventive regulators. Bangladesh launched its satellite to lessen its dependency on other nations for sustainable development. Bangladesh Telecommunication Regulatory Commission (BTRC) began working with US-based consultancy firm SPI and the ITU to launch Bangladesh's first satellite.

Utility/ Outcome for BD Army: BS-1 would promote various national and defence enterprises, including broadcasters, ISPs, governments, and the military. Telephony, radio, and data communications are BS-1's main communication services. The national and military prospects for these main and specialized services is discussed below:

- a. **Communications Services:** Communication services are shown in the Figure below:-

Figure-13: Communication Services of Satellite



Source: Author's self-construct

- b. **Special Services:** Enhanced adoption of the communication services will allow various BS-1 services to enhance national and social development.

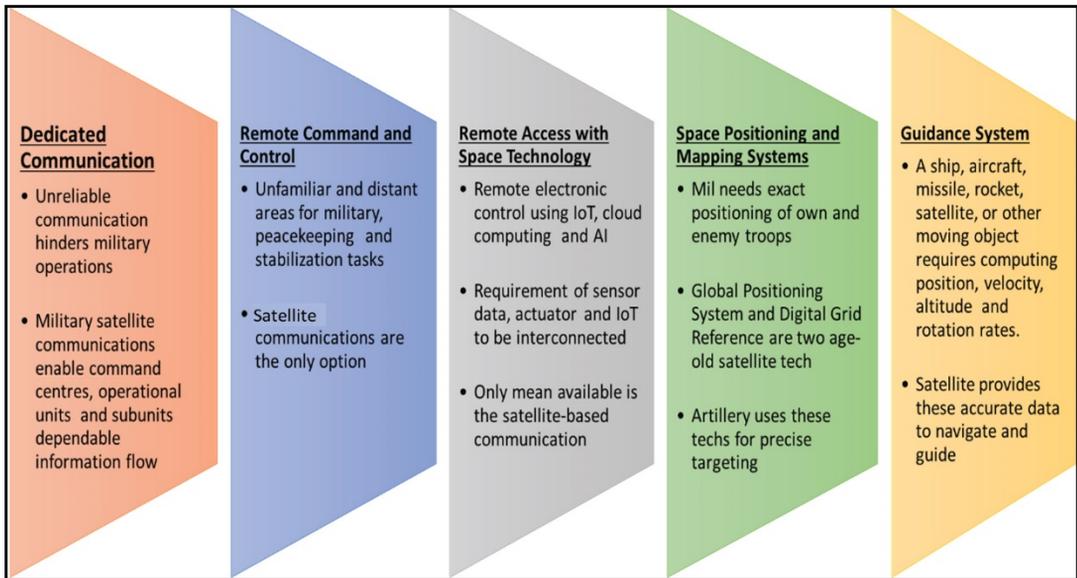
Figure-14: Special Services of Military Satellite



Source: Author's self-construct

c. **Military Services:** In addition to the special services for national development, Bangladesh Armed Forces Division may also establish distinct BS-1 services. Several of these specialized services are shown in the Figure below:-

Figure-15: Military Services of Communication Satellite



Source: Author's self-construct

Enhancement of Combat Effectiveness through Incorporation of SBCS

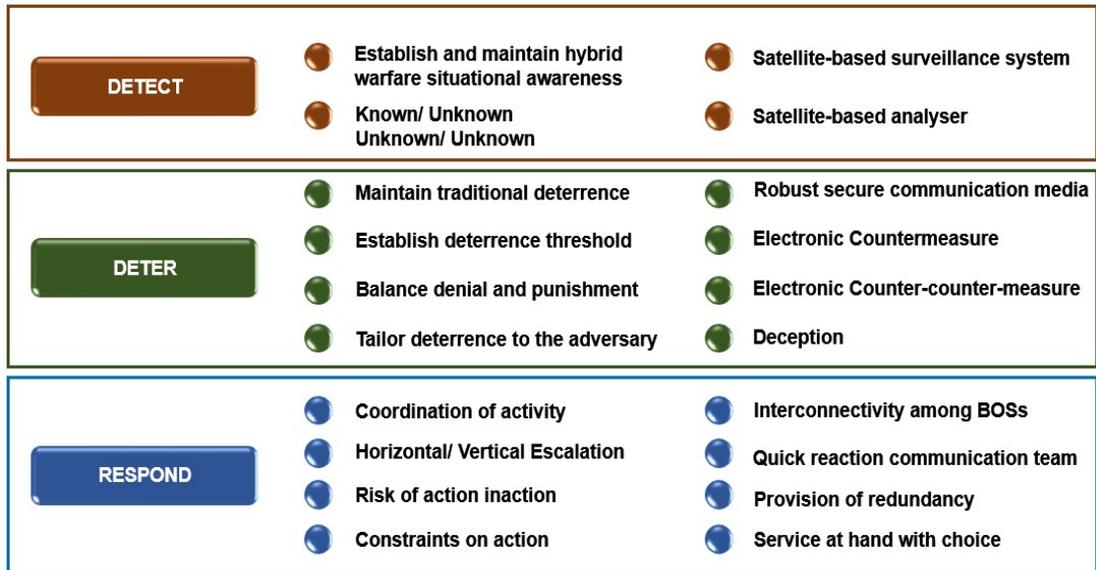
Value to Quantitative Factor: Philip Hayward provides a measure for combat effectiveness based on 'probability of success' in relation to personnel and military strategy. He analysed the measure against three primary factors: capabilities (human and material resources of

friendly and hostile troops), environment (weather and topography), and missions (region to hold in the specified objective and the latest time to do it while minimising the costs of achieving the objective).⁶ Therefore, as the incorporation of SBCS will add value to the capability of BD Army, it can be said that it will have a positive qualitative effect on the overall combat effectiveness of BD Army. Korean scholar Youngwoo Lee and Taesik Lee who used a ‘meta-network representation’ approach regarding the opportunities available for military units opined that there are two types of direct engagements with enemy forces in the network model: isolated attacks and coordinated attacks.⁷ To counter hybrid threats, a country needs to develop coordinated effort capabilities. In that sense, the incorporation of SBCS will not only add value to the quantitative aspect of combat effectiveness but also assist BD Army to enhance combat effectiveness in a hybrid war scenario.

Value to Psychological Factors: Cohesion can affect soldiers' fighting performance and help them attain shared goals. According to William Henderson in *Cohesion: Combat Humanity*: Smaller units have closer interactions, and these bonds are stronger the more they interact.⁸ Therefore, the psychological impact of the structure of military units on combat effectiveness is huge. Since SBCS will enhance the efficiency of the communication structure of BD Army, it will have a noteworthy impact on the psychological aspect of the combat effectiveness of our troops in terms of cohesion.

Capability Enhancement for Countering Hybrid Threats: To counter hybrid threats the ‘**Detect, Deter and Respond**’ formula is the most popular one. SBCS can be correlated with the enhancement of combat efficiency of BD Army based on this model:-

Figure-16: Enhancement of Capacity to Counter Hybrid Threat



Source: Author’s self-construct

Communication on the Move: Military communication should be smooth in terms of setup, control, and maintenance. Satellite communication involves vehicle-borne equipment and manpacks. This structure will provide BD Army to exercise a smooth and reliable means of communication on the move.

Flexibility and Redundancy: Another important aspect of military communication is to have redundancy and flexibility. The incorporation of SBCS will provide the necessary flexibility to the existing system. On the contrary, within the SBCS, as all the links are interconnected, it provides enough flexibility in the communication structure.

Enhanced Combined Effect of BOSs: In hybrid warfare, there is always a need for the enhanced effect of BOSs. If the threats are taken into consideration, it is evident that, without reliable and effective communication, the desired effect of the BOSs cannot be achieved. Based on the above discussion, it is evident that SBCS is a time-needed affair for BD Army. Though the conceptualisation of SBCS is a time and cost-expensive phenomenon, considering the benefit it must be adopted. Based on the above-mentioned benefits, it is undoubtedly proved that the conceptualisation of SBCS in BD Army will enhance the combat effectiveness of BD Army significantly.

Challenges, Ways Forward and Roadmap to SBCS Challenges

Lack of Experts: Though satellite communication is not new in Bangladesh, the concept of incorporating satellite communication in BD Army is relatively new. Therefore, relevant experts could not grow in BD Army. This is the challenge that must be addressed to incorporate this modern technology.

Phenomenal Capital Expenditure: Another challenge of the satellite communication structure is its phenomenal capital investment requirement. A five-year project was proposed for the satellite communication which will be a huge challenge for a country like Bangladesh.

Requirement of Costly Training Facilities: For growing expertise in BD Army, Army requires costly training facilities. As the training in satellite communication involves real-time satellite involvement, it will be difficult to manage slots in the functional satellite for training purposes only. Therefore, the required training facility involves expensive procedure which is a big challenge.

Rapid Changeover among Communication Means: The combat communication requires high degree of adaptability with the changes of the scenario in the battlefield. It encompasses availability of alternative means of communication media, all weather tenacious structure, required interfacing provision, and flexibility in terms of application. Hence, requirement of rapid changeover among the communication means is always a challenge for the new system to adapt with the existing system.

Interoperability with Joint Services: As different services have their own types of communication gadgets, it will be a huge challenge to incorporate SBCS with other services. Careful planning and management are very much essential to have smooth interoperability among services.

Security Concerns: Though it is not easy to intercept any satellite communication, it is not impossible. It requires huge efforts to breach any satellite-based network. Therefore, security concern in a functional point of view is less for SBCS. However, the physical security of the hub stations is the main problem.

Requirement of Redundancy: Since satellite-based equipment is costly, it is not possible to make provision of enough redundant terminal stations as reserves. Therefore, it is a big challenge for Army to influence the op without the redundant system of SBCS in case of any destruction by the enemy¹.

Ways Forward

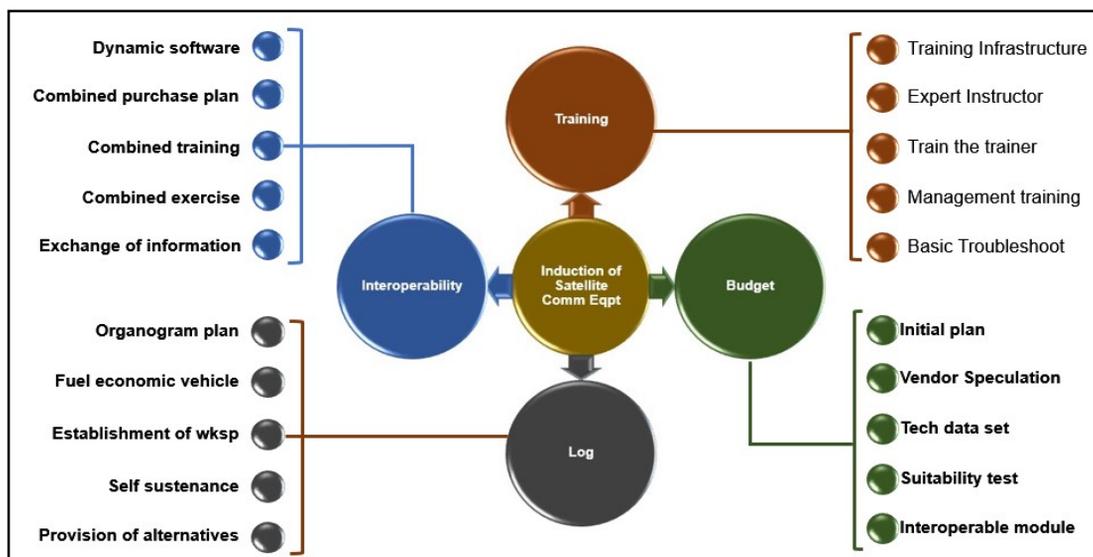
Provision of Communications in Irregular Warfare: Communication is vulnerable in a hybrid conflict situation. While conventional communication methods are tested to give conventional warfare communication to fighting echelons, it is a problem to communicate with unconventional warfare troops. Small aperture antennas can be established within a very short time in the forward bases to establish communication with unconventional warfare troops.

Ensure Secure Communication: Bangladesh Armed Forces Division inked an MOU with Bangladesh Satellite Company Limited (BSCL) on 13 May 2022. According to the MOU, Bangladesh Armed Forces can employ three Bangabandhu Satellite-1 transponders for contemporary, secure communications for military.⁹ Therefore, Bangladesh is in the right track to achieve more secure communication system using satellite.

Quick Reaction Communication Team (QRCT): Quick response must be incorporated. It will improve satellite ground communications. The powerful satellite communication equipment will test users. Moreover, in extreme scenarios users will have little time to troubleshoot. Therefore, QRCT will be needed to manage ground-based equipment.

Induction of Satellite Communication Equipment: Incorporating satellite communication equipment into the military won't be easy. The induction process will require funding, training, logistic plan, and joint environment interoperability. A model of this Induction can be suggested as follows:-

Figure-17: Induction of Satellite Communication Equipment



Source: Author's self-construct

Guidance on the Electronic Warfare (EW) Threats: Protecting command, control, and communication networks requires strong electronic warfare capability.¹⁰ Moreover, modern warfare requires superior EW equipment. The EW company was formed in 2009, but it could not acquire offensive ECM so far. Satellite Communication can be a way forward. In the fog of war, it is not a cost-effective solution to strike satellite networks by the enemy. Therefore, satellite links are automatically immune to EW threat.

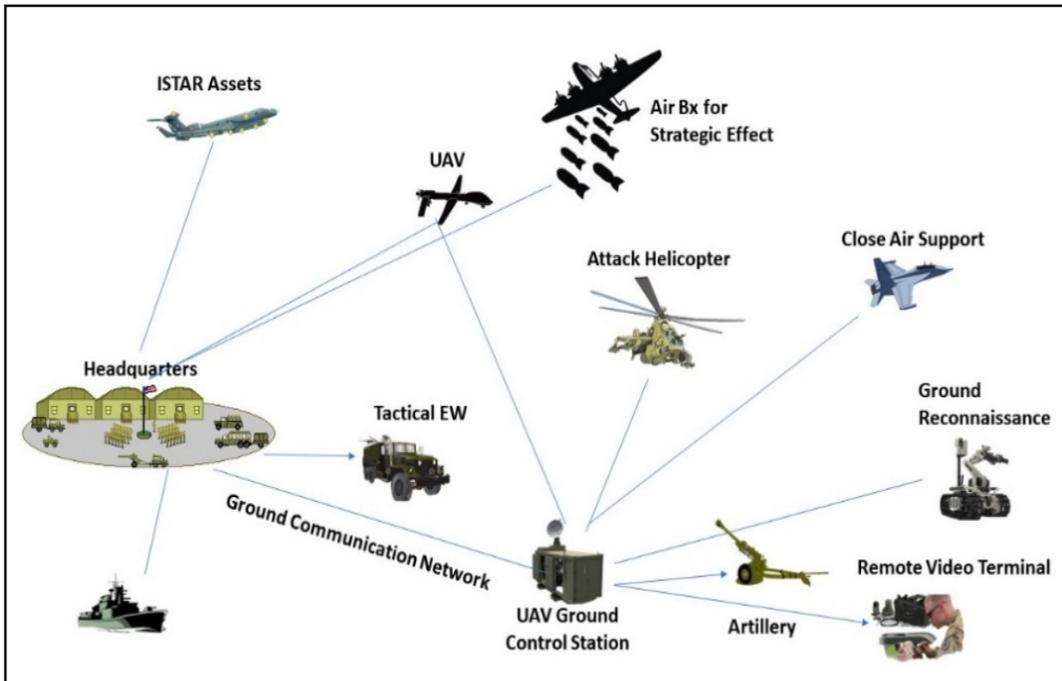
Provision of Communications in National Crisis: Communication is crucial in a national catastrophe to save lives. This communication is needed for emergency medical supply, relief program administration, transferring individuals to safe shelters, and post-event negotiations. Existing system solely uses radio to connect base. Radio isn't a secure or dependable communication method. During a national crisis, we cannot set up telephone lines. As satellite communication is more mobile, flexible, reliable, and secure, it can be used during national emergency flawlessly.

Sound Training Plan: As satellite-based communication equipment is complex in nature, the users require extensive training for the setup and management of the equipment. Therefore, BD army should have a sound training plan for its members in Satellite-Based communication equipment.

Plan for Joint Operation: Though different services have their own perspective plan to incorporate SBCS, there is no coordination among the services in this regard. The desired network-centric model or structure of the joint environment can only be achieved if the coordination is

established under a single perspective plan to incorporate the SBCS. A diagrammatic layout of jointness in satellite communication is shown below:-

Figure-18: Diagrammatic Layout of Jointness in SBCS



Source: Author's self-construct

Roadmap to the SBCS

Extensive Exercise to Institutionalise: After the successful induction of SBCS, there is a need for institutionalisation. The adaptability of the equipment to the organisational framework will render a considerable amount of time. Therefore, to make the institution habituated with the system and to be able to establish the logical links among the various stakeholders of army, BD army needs extensive exercises to be conducted to institutionalise SBCS.

Communication for all Eventualities: In hybrid scenario, all eventualities need to have enough options and contingencies. SBCS can be a milestone for contingency communication. As all battlefield elements will be inter-connected by satellite in SBCS, if one link fails, other elements of the network will broadcast the command to make it up. Therefore, the leaders will be able to influence the battlefield by communicating with their subordinates in all scenarios.

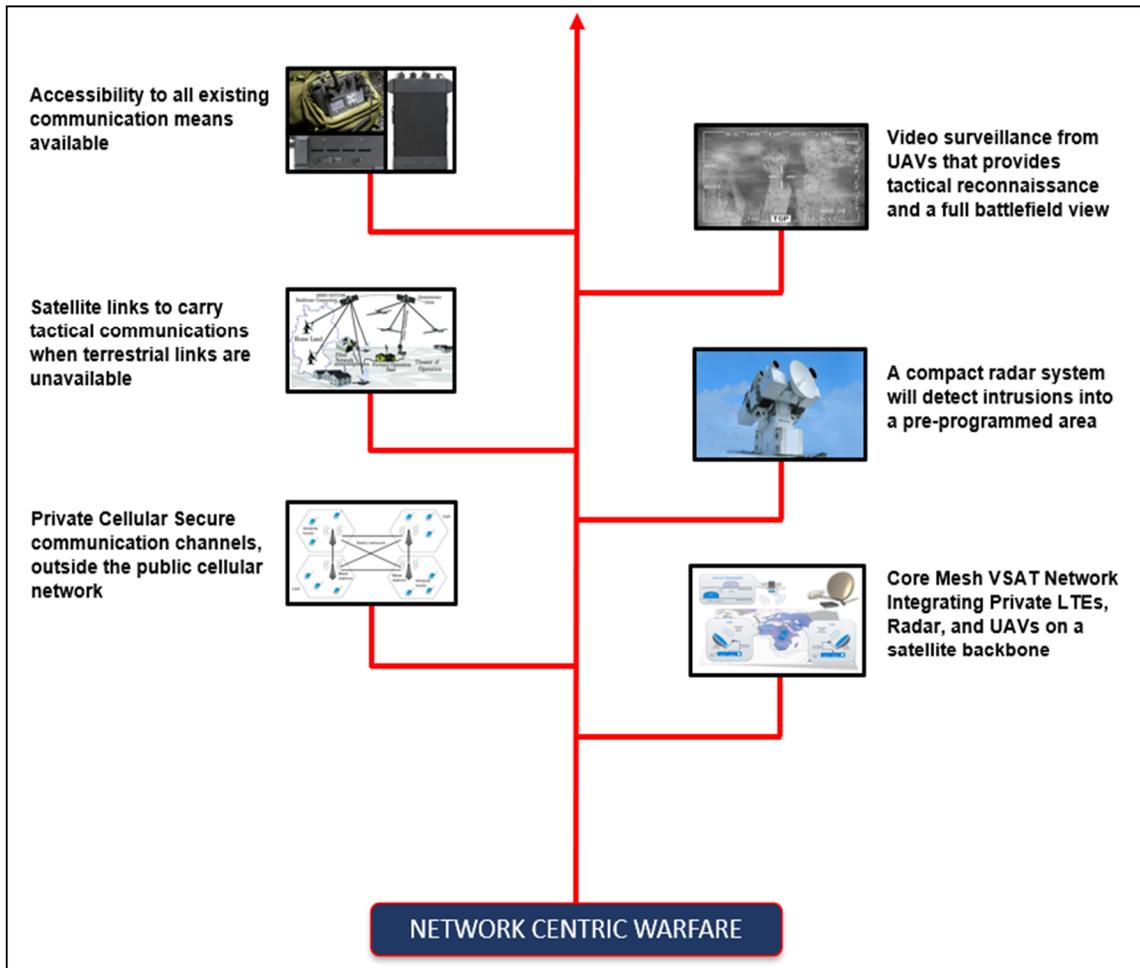
Provision of Head-to-Head Communication: Another important aspect of reaching every corner of the battlefield by the commander of the theatre is to ensure head-to-head to communication. It ensures unity of effort, leadership, full-scale operational execution, less chance of fratricide, and ease of planning. SBCS can ensure this. The main theme of incorporating SBCS

into the system is the concept of connecting men from the exact point of contact. BD Army needs to build a culture of head-to-head communication and SBCS is a suitable way of achieving it.

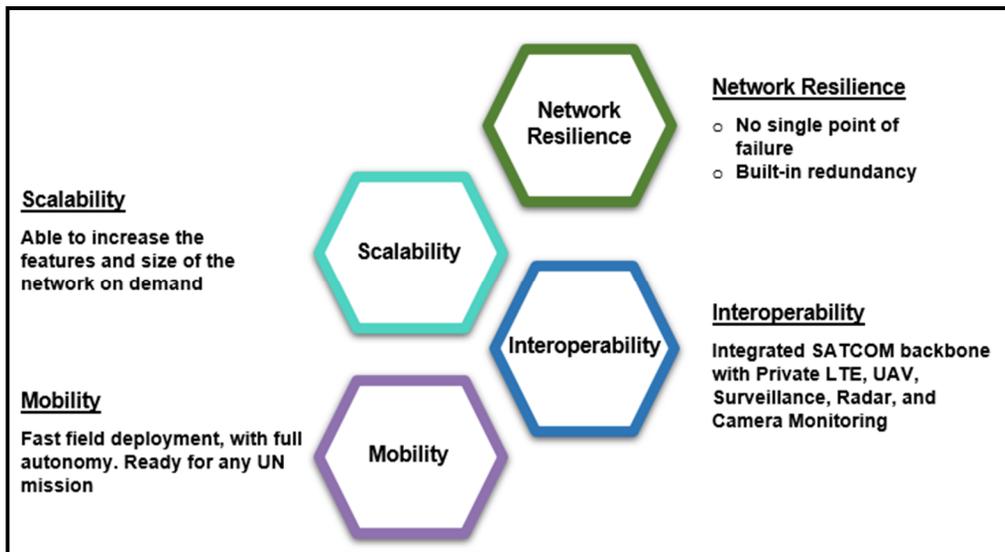
Enhancement of Command and Control: C4ISR cannot be implemented without command and control over every system in the theatre of operation. To accomplish that, the original conventional system must have a robust communication mechanism. Most modern militaries have embraced the SBCS to achieve it.

Network Centric Tactical Communication Architecture: To provide a C4ISR Network-Centric Tactical Communication Architecture for BD Army utilising a satellite backbone, a self-sufficient model is shown in the Figure below:-

Figure-19: Network Centric Tactical Communication Structure



Source: Author's self-construct

Figure-20: SBCS Network Feature Summary

Source: Author's self-construct

Conclusion

In this era of modern technology, battlefields have become fluid. The conflicts among nations are more hybrid in nature. The notion of multi-domain warfare, artificial intelligence, network-centric warfare, and the hybrid characteristics of conflict are more dominating than ever before. Bangladesh is no exception to this. Being the stakeholder of national security, BD army is primarily responsible to assess and analyse possible countermeasures to counter these hybrid threats. One of the countermeasures is to enhance the combat effectiveness to make the fighting capability of BD Army at par with the modern trend of warfare. For this adaptation, the incorporation of modern equipment in the inventory like the Satellite-based Communication Structure (SBCS) can be an effective way forward for the enhancement of combat effectiveness in the face of Hybrid Warfare.

The incorporation of satellite-based communication into the existing framework is imperative for the modernization of the Bangladesh Army. However, the crux of the matter lies in seamlessly integrating SBCS with the current infrastructure. This can be achieved by establishing interconnectivity among BOSs, interfacing with traditional communication mediums, and precisely delineating the role and functions of satellite communication. While the structure may appear intricate, the implementation process is not unduly burdensome. Hence, with the integration of SBCS, the capability of the Bangladesh Army stands to be significantly enhanced, thereby leading to a positive qualitative impact on its overall combat effectiveness.

In conclusion, the integration of SBCS into the framework of the Bangladesh Army presents both significant challenges and promising opportunities for enhancing its combat

capabilities in the modern warfare landscape. Addressing challenges such as the lack of experts, substantial capital expenditure, and the need for costly training facilities is paramount to successfully incorporating satellite-based communication technology. However, with careful planning and strategic initiatives, including ensuring secure communication channels, establishing quick reaction communication teams, and developing sound training plans, these challenges can be overcome. Furthermore, the roadmap outlined for the deployment of SBCS offers a comprehensive approach towards achieving enhanced command and control, seamless interoperability, and robust communication infrastructure. Ultimately, the adoption of SBCS represents a pivotal step towards modernizing the Bangladesh Army and bolstering its effectiveness in responding to the dynamic challenges of contemporary warfare scenarios.

Recommendations

Army Training and Doctrine Command (ARTDOC) may propose a comprehensive doctrine for hybrid warfare with a special emphasis on Cyber Warfare, Electronic Warfare, Propaganda Warfare, and Information Warfare.

The peculiarity of conventional communication and modern communication must be assessed by the subject matter expert in this field. The communication experts of the Military Institute of Science and Technology (MIST) may be incorporated into the feasibility study in terms of technical aspects.

While implementing SBCS, the interoperability among the Joint services should be considered. For that central procurement of the equipment is proposed.

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Brief Biography



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Military Perspective of Social Media: Threats, Challenges and Opportunities for Bangladesh Army

Captain Salman Rahman, Signals

Abstract

Social media platforms host a wealth of interactions and content sharing among over 4.7 billion users, offering unparalleled opportunities for communication, intelligence gathering, and sentiment analysis. However, they also present grave threats, such as information warfare and operational security breaches. This article provides a nuanced examination of these platforms as both a strategic asset and a potential liability. It discusses the imperative for monitoring, controlling, and leveraging social media for military advantages while safeguarding against privacy risks, information leaks, misinformation, and cyber espionage. The dualistic role of social media in military operations, with a focus on the Bangladesh Army has also come under scrutiny. Concluding, with strategic recommendations, this paper underscores the critical need for the Bangladesh Army to manage social media use effectively in order to protect national security interests and harness its power for information warfare.

Introduction

Social media, defined as a collection of internet-based platforms such as Facebook, Instagram, Twitter, and others, which are utilized by over 4.7 billion individuals globally, enables the creation, dissemination, and interaction of content that facilitates a global exchange of ideas and information with just a mouse click or a tap of a smartphone, vital military intelligence may be transmitted in a matter of seconds, thereby reducing the military's operational effectiveness.¹ With the ease of social media, in any part of the globe at any time, a military person can post pictures from a deployment or talk about a military mission. Social media fosters virtual communities, promoting global conversations and the sharing of diverse ideas, hence redefining how individuals and societies interact however, the open nature of these mediums can lead to information warfare disrupting operations and skewing public opinion.²

Essentially, the military's role in social media not only leverages its intelligence benefits but also acknowledges potential threats, seeking to mitigate them. This paper aims to delve into the complex arena of social media from the perspective of the Bangladesh Army, exploring the unique opportunities it presents, as well as the significant challenges it poses. The intent is to examine how these digital platforms can be strategically utilized for communication, intelligence gathering and public sentiment analysis, thereby contributing to more comprehensive military strategies. It will also highlight the potential threats that the openness of social media brings, such as the risk of information warfare that can distort public perception. This paper seeks to provide a

balanced view, emphasizing the importance of harnessing the power of social media while acknowledging and finding ways to mitigate the associated risks.

At this backdrop, the paper initially highlights the overview of social media from a military standpoint and emphasizes the importance of monitoring and controlling the social media landscape subsequently, the threat perspective encompasses discussions on security and privacy risks, information leakage and cyber espionage concerns. Then it explores the challenges such as operational security, misinformation and the balance between public engagement and national security. The paper then shifts to the opportunities presented by social media, including psychological operations and open-source intelligence. It concludes by emphasizing the pivotal role of social media in information warfare and the importance of monitoring and controlling the digital landscape, providing a structured framework for the Bangladesh Army to navigate this complex terrain effectively while safeguarding national interests.

Overview of Social Media from Military Perspective

The evolution of social media's role in warfare has been notable over time. During the 2006 Lebanon War, Hezbollah demonstrated adept utilization of social media platforms, such as blogs and YouTube, integrating them into their tactical operations to shape perceptions and constrain their adversary's options.³ In contrast, the Israeli military, relying primarily on conventional methods, encountered challenges in the information domain and faced perceived shortcomings. Drawing lessons from this experience, Israel subsequently enhanced its social media strategy during Operation Cast Lead in 2008-2009, effectively steering the media narrative and managing perceptions more adeptly. This underscores the imperative for continuous adaptation in leveraging social media in warfare, ensuring both effectiveness and security amidst the evolving landscape of platforms and technologies.

Social media is changing the way information moves around the world. Traditional and social media are becoming more intertwined and social networking tools are allowing for unprecedented collaboration. The military must adapt to these changes to be successful. One way to adapt is to develop strategies that take advantage of social media. By adapting to the changes in social media, the military can improve its ability to understand the environment, communicate more effectively and generate unity of effort throughout the organization. For the military, this represents an unprecedented opportunity to leverage social media's communication capabilities for enhanced situational awareness, public engagement and psychological operations. However, the military perspective on social media is multifaceted, recognizing not only its benefits but also the potential threats and challenges it poses.

Threat Perspective of Social Media in Military Domain

Security and Privacy Risks: The security and privacy landscape within the realm of social media is a complex one, necessitating a nuanced approach to understanding and addressing these critical issues. Risk assessment in this context is contingent upon evaluating the likelihood

of potential threats exploiting vulnerabilities and the subsequent impact on an organization. Importantly, the permanence of information posted online underscores the need for cautious consideration regarding online content. Regrettably, a significant majority of social media users tend to underestimate the gravity of privacy and security concerns when sharing information online.⁴ Simultaneously, cybercriminals are increasingly targeting social networks, capitalizing on the growing user base.

Aside from privacy concerns, popular social media platforms have also witnessed a surge in malicious activities, ranging from the propagation of viruses to phishing attempts and other forms of social engineering schemes designed to exploit user information. Recognizing that information, including personal data, held by any organization is an invaluable asset, it becomes apparent that safeguarding such information is of paramount importance.⁵ Consequently, when military personnel engage with social media, it is imperative to ensure the adoption of robust security measures. Furthermore, fostering education about appropriate content for posting serves as a proactive approach to mitigate risks and promote responsible online behaviour in the context of military operations and security.

Risks of Sensitive Information Leakage and Rumor Proliferation

One of the foremost concerns within the context of social media in the military domain is the risk associated with the leakage of sensitive information and the rapid spread of rumour. Social media platforms serve as virtual forums where military personnel may inadvertently or intentionally share confidential information, thereby posing substantial risks to security. These instances, whether deliberate or unintentional, represent potential breaches of security, creating explicit vulnerabilities in operational security (OPSEC).

Furthermore, unregulated communication channels on social media have the capacity to facilitate the swift dissemination of rumour, capable of imparting information rapidly to a vast audience. This dissemination can lead to considerable distress and confusion among users. Managing awareness of the perils associated with the rapid propagation of information and implementing effective rumour control mechanisms becomes not only a challenging endeavour but a crucial one within the military context.

Exposure to Cyber Espionage

In the ever-evolving global information environment, which encompasses a complex network of interconnected information technology infrastructure, including the internet, telecommunications networks, computer systems and embedded controllers, the risk of cyber espionage looms large. Social media platforms, due to their user-controlled content, can become unwitting hosts for malicious activities. Among the most conspicuous of these threats is the potential for users to be redirected to external malicious websites fully under the control

of malicious actors. Traditional tactics involve the dissemination of spoofed emails, masquerading as notifications from social network services, offering updates or enticing contests.

The Table below is an example of social media functionalities which might expose to cyber espionage:-⁶

Table-1: Social Media Functions and Potential Threat Perspectives to Organization

Social Media Functionalities	Potential Security Concerns	Impacts on Organizations
1. Private Messaging	Vulnerability to phishing attacks through malicious links and attachments.	Risk of data breaches and loss of sensitive information
2. Geo Tagging	Disclosure of users' real-time locations and routines, which could be exploited by malicious actors.	Risks to personal safety, potential for stalking and harassment.
3. User-generated Content	Spread of false or harmful content, including hate speech and misinformation.	Damage to reputation, potential legal consequences for hosting harmful content.
4. Live Broadcasting	Possibility of live-streamed incidents, including violence and illegal activities.	Potential for reputational damage, legal liabilities and need for content moderation.
5. Trending Hashtags	Potential for hash tag hijacking by malicious groups to promote their agenda.	Risk of association with harmful content or messages and damage to brand image.
6. E-commerce on social media	Exposure to counterfeit or fraudulent products and scams.	Potential financial losses, damage to trust among customers.
7. Information Sharing	Privacy concerns related to sharing personal information with third-party apps and advertisers.	Risk of data breaches, potential for identity theft and loss of user trust.
8. Video Tele Conferencing	Vulnerabilities in video conferencing software leading to unauthorized access and eavesdropping.	Risk of unauthorized access, data breaches and privacy violations during meetings.

Source: Author's self-construct

To access these purported updates, users are prompted to follow a link and log in, unwittingly surrendering their credentials to the attacker. The redirection of users can be accomplished through various means, including the use of social engineering tricks, wherein malicious links are sent or by embedding active content such as tags that automatically redirect users. A successful breach of a targeted vulnerability permits the execution of malicious code, which can insert malware, such as a Remote Access Trojan or establish a backdoor connection to the target system for data acquisition. The inherent challenge in combatting this form of social

engineering attack lies in the difficulty of distinguishing it from regular posts, necessitating rigorous scrutiny of each link to ensure its safety and harmless content.

Extremist and Cybercriminal Threats: Terrorist organizations have leveraged a plethora of social media platforms such as Facebook, Twitter, YouTube, and blogs, among others to execute various activities that pose significant threats.⁷ These include the identification, radicalization and recruitment of new members, the provision of training tools and resources for the radicalized, fundraising efforts, the dissemination of propaganda to showcase their successes and the manipulation of public perception concerning ongoing hostilities. Remarkably, most terrorist groups maintain their media infrastructure that disseminates videos and graphic content through online forums, blogs and dedicated file-hosting websites. This convergence of extremist activities and cybercriminal tactics underscores the multifaceted challenges posed by these entities in the digital age.

Efforts to counter these threats require multifaceted strategies. Governments, security agencies and social media platforms must collaborate to detect and remove extremist content, disrupt recruitment and monitor online activities. However, achieving this balance between security and freedom of expression is intricate with concerns over potential privacy and free speech infringements. The international nature of social media platforms further complicates regulatory approaches due to varying legal frameworks across nations.⁸ The dynamic digital landscape demands continuous adaptation to stay ahead of evolving threats. Striking a balance between countering these challenges and upholding core values of privacy, free expression and security in the digital age remains an ongoing and complex endeavour.

Challenges of Social Media

Operational Security Concerns:

- a. OPSEC is a paramount concern within the military domain and social media introduces a unique set of challenges. The very nature of social media encourages users to share aspects of their lives, including their military affiliation and activities.⁹ This inadvertently provides potential adversaries with valuable information, including troop movements, deployment schedules, and operational tactics. Such disclosures can compromise military operations and put personnel at risk. Moreover, relocation features on social media platforms can unintentionally reveal the whereabouts of military units, making them vulnerable to hostile actors seeking to exploit this information for their advantage.
- b. The challenge lies in striking a delicate balance between the military's desire to engage with the public and maintain transparency while safeguarding sensitive operational details.⁹ Military personnel are often required to undergo rigorous training in OPSEC to mitigate the risks associated with social media use. Furthermore, there is a need for

constant vigilance, as the evolving landscape of social media platforms and their functionalities demands ongoing education and awareness to protect operational security in an era of digital interconnectedness.

Misinformation and Information Overload

a. In the military domain, the propagation of misinformation and the challenge of coping with information overload have emerged as critical challenges linked to the widespread use of social media.¹⁰ The sheer volume of information generated and disseminated on these platforms can overwhelm military personnel tasked with sifting through vast amounts of data to identify credible sources and discern accurate intelligence from noise. The rapid spread of false or misleading information can have dire consequences, leading to misinformed decision-making and potentially jeopardizing military operations.

b. Additionally, the deliberate spread of misinformation by hostile actors poses a significant threat to the integrity of information shared on social media. This misinformation can range from false reports of military actions to distorted narratives aimed at undermining public trust in the armed forces. As social media continues to evolve, mitigating misinformation and information overload remains an ongoing imperative for military organizations striving to maintain operational effectiveness and public trust.

Public Engagement vis-a-vis National Security

Balancing the imperative of public engagement with the paramount concern of national security is a pivotal challenge in the military domain's use of social media. While these platforms provide opportunities for military organizations to engage with the public, foster transparency and build public support, the open and interconnected nature of social media can inadvertently expose sensitive information and compromise operational security. Striking the right equilibrium necessitates meticulous planning and stringent adherence to security protocols to safeguard national interests while effectively leveraging the benefits of public engagement through these digital channels.

Opportunities of Social Media in Military Sector

The ubiquity of social media has made it an inescapable force with inevitable implications for military operations. For instance, the U.S. Department of Defence has established a dedicated web portal, disseminating valuable insights into the military and civilian use of these platforms. Military can purposefully use social media due to the possibility of being able to support military operations such as:-

- a. Psychological Operations (PSYOPS).
- b. Open-source Intelligence (OSINT).

- c. Data mining in social media.
- d. Cyber espionage.
- e. Perception management.
- f. Blending into information warfare.

Psychological Operations (PSYOPS)

Social media networks have become pivotal platforms for executing Psychological Operations (PSYOPS) within the military domain. PSYOPS involve the strategic dissemination of information to influence the sentiments, emotions, motivations and objective reasoning of large audiences, including populations and governments.¹¹ As defined by the U.S. military, PSYOPS aim to convey selected truthful information to foreign audiences, ultimately shaping their behaviour, decisions and affiliations. In the digital age, social media offers the military a powerful tool to rapidly reach and influence critical masses, making PSYOPS an integral part of diplomatic, military and economic strategies.

Ancient military strategists like Sun Tzu (771-252 B.C.) emphasized the significance of psychological warfare, focusing on eroding an adversary's willingness to engage rather than physical destruction. In today's landscape, various cyber technologies, including social media platforms, enable the manipulation of sentiment on specific topics.¹² For example, propaganda operations on social media can provide followers with instructions for covert activities, while intelligence agencies orchestrate campaigns to disseminate both real and fabricated information to sway public sentiment. These campaigns flood social media with carefully crafted content and structured discussions, sensitizing and shaping user perceptions of events and issues, harnessing the psychological power of the digital realm. In summary, the principal advantages of using social media for PSYOPS are:-

- a. Due to the existence of social media platforms, social media can reach people.
- b. Anonymity may be provided through persuasive and cyber technologies.
- c. Social media's interactive, adaptable, and persuasive technologies enable an attacker to customize operations for extremely dynamic scenarios.
- d. Automated PSYOPS are more persistent and effective on social media than humans.
- e. In the social media space, it is simple to modify and alter the information being offered to influence to speak to the target audience.

Open Source Intelligence (OSINT)

Social media has emerged as a powerful resource for collecting, processing, analyzing, and disseminating information and it plays a significant role in intelligence operations, particularly in the realm of Open-Source Intelligence (OSINT).¹³ OSINT relies on the analysis of publicly available information, making social media platforms invaluable sources of data for intelligence agencies. The Defence Advanced Research Projects Agency (DARPA) in the United States recognizes the importance of understanding online behaviour for trend forecasting, highlighting the crucial role of social media in conducting complex analysis based on public data.¹⁴ These facilitate the surveillance of countless conversations and enable text analytics based on predefined criteria. OSINT can be derived from these sources, offering insights into the sentiments of participants in discussions on various topics and events.

It is well-documented that terrorist groups exploit platforms like Facebook for propaganda purposes and for exchanging tactical information, including reconnaissance targeting. Additionally, these groups use Facebook to share links to radical forums providing instructions on concealing true identities through false identities. Monitoring social media for OSINT purposes is not without its challenges, as social media users are dynamic, often maintaining distinct profiles across various platforms, making cross-analysis more complex. Nevertheless, with appropriate technological infrastructure and comprehensive monitoring systems in place, social media proves to be an effective and indispensable tool for gathering Open-Source Intelligence.

Harnessing Data Mining in Social Media

Data mining in social media involves the intricate process of representing, analyzing, and extracting actionable patterns from the wealth of data generated on these platforms.¹⁵ It encompasses fundamental concepts and crucial algorithms tailored to tackle the colossal volume of social media data. This practice of mining social media data is frequently undertaken by intelligence circles.

The vast expanse of the internet is susceptible to data mining, with social networks constituting a substantial portion of the data circulating online. Consequently, they serve as highly coveted sources for a wide range of analytical endeavour. Social media platforms not only furnish raw data for investigation but also illuminate relationships between various subsets of information, streamlining the data mining process.

Cyber Espionage

Cyber espionage facilitated by social media hinges on the extensive network of linked contacts, underpinned by data mining.¹⁶ Social media platforms serve as invaluable tools for cyber espionage and cyber intelligence, offering multifaceted benefits ranging from Psychological

Operations (PSYOPS) to cyber operations, intelligence reconnaissance, and target identification, such as identifying specific groups or events of interest.

Utilizing data mining techniques for contact and connection analysis, it becomes possible to establish intricate relationships between different individuals, a pivotal aspect of cyber intelligence operations. Moreover, these techniques enable the gathering of private contacts maintained by individuals who share them exclusively with a select group. In essence, social media becomes an essential arena for intelligence gathering, empowering cyber operatives to navigate the digital landscape with precision and efficacy.

Perception Management

Perception management, a strategic pursuit, aims to construct a profile of public sentiment surrounding a particular subject or event. For instance, a campaign designed to heighten interest in a forthcoming event can employ specific metrics to gauge whether social media users generally harbour positive or negative sentiments toward that event.¹⁷

Within the military domain, a form of perception analysis conducted through social media proves invaluable when preparing for propaganda campaigns, diplomatic initiatives, or intelligence asset acquisition. These operations all stand to benefit from a comprehensive understanding of public sentiment on specific issues. The outcomes of psychological and intelligence operations can be significantly influenced by the prevailing sentiments among the target population. Sentiment analysis via social media provides a more natural, extensive and less intrusive window into these sentiments compared to alternative methods.

Potential Roles of Social Media in Information Warfare

Information Warfare (IW) encompasses a spectrum of activities conducted to attain information superiority by influencing the adversary's information, information-based processes and information systems, while safeguarding one's own information assets. Information, when combined with directives, forms the crux of IW, characterized by transmission, storage and acquisition on one hand and actions such as corruption, denial, exploitation, destruction and protection on the other. Six fundamental activities underpin IW: acquiring, using, protecting, exploiting, denying and managing information and information systems. IW manifests in various forms targeting military forces and state infrastructures, including the following:-

- a. **Command and Control Warfare (C2W):** Aimed at disrupting the generation of commands and communication with deployed forces.
- b. **Electronic Warfare (EW):** Encompasses techniques that enhance, degrade or intercept flows of electrons or information.

- c. **Intelligence-Based Warfare:** Integrates sensors, emitters and processors into reconnaissance, surveillance, target acquisition, and battlefield damage assessment systems.
- d. **Psychological Warfare:** Designed to influence decision-makers, commanders, and soldiers by shaping their perceptions, intentions and orientations.
- e. **Cyber War:** Involves the use of information systems to target the virtual personas of individuals or groups.
- f. **Hacker War:** Deploys hacker techniques to disrupt, degrade, exploit, or compromise information systems.¹⁸

Given its pervasive presence, social media is poised to play an increasingly prominent role in information-based conflicts. However, it is likely to remain a tool rather than the sole catalyst for such activities. In the complex system of information warfare, social media is one variable among many, capable of both facilitating and impeding IW within the broader framework.

Monitoring and Controlling the Social Media Environment

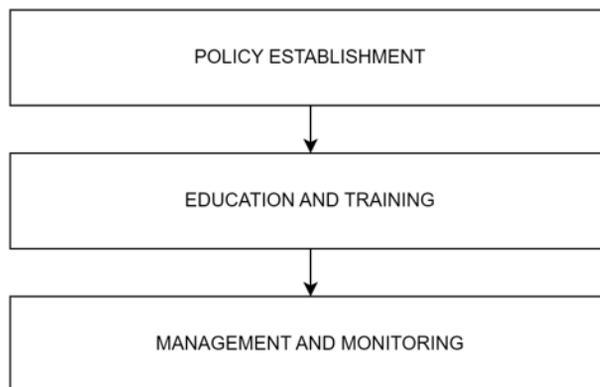
Social media wields unparalleled influence, extending its reach to soldiers and unclassified networks within the military. Despite this, the Bangladesh Army has instituted policies and procedures to uphold operational security (OPSEC). It is crucial to acknowledge the potential future scenario where an individual's social media 'status' could compromise an entire military unit's security. Soldiers and leaders must be well-versed in the associated risks and receive training to effectively counteract these threats emanating from social media. Adversaries actively scour social networks, blogs, and forums in pursuit of sensitive information related to our military objectives, making it imperative for all soldiers and their families to grasp the significance of practicing stringent OPSEC measures.¹⁹

While our dependency on social media is undeniable, it carries inherent dangers that necessitate prudent handling. OPSEC and personal privacy concerns should be paramount when engaging with social media platforms. Familiar adages like 'loose lips sink ships' and 'the enemy is listening; he wants to know what you know' are profoundly relevant in these circumstances. Embracing safe social networking practices underpinned by robust OPSEC is non-negotiable. The establishment of a vigilant monitoring and control system and policy is indispensable to regulate content and information shared on these platforms, given the elevated OPSEC risks.²⁰

The reality is that information dynamics continue to evolve, often beyond the military's direct control. Consequently, comprehensive training on the responsible use of social media is imperative for all military personnel. The Bangladesh Army can take proactive measures by instituting awareness-raising training programs, effectively transforming social media into a

manageable medium for conveying the right messages while upholding good order and discipline within the Armed Forces.

Figure-1: Monitoring and Controlling the Social Media Environment



Source: Author’s self-construct

Conclusion

The evolution of social media’s role in warfare, as seen in the contrasting experiences of Hezbollah and the Israeli military, underscores the necessity for constant adaptation and strategic development. Social media presents a significant threat perspective characterized by security and privacy risks, sensitive information leakage, and the rapid spread of rumours. These risks can compromise operational security, lead to data breaches and sow confusion among military personnel. Additionally, the platform’s vulnerability to cyber espionage and its exploitation by extremist groups and cybercriminals underline the ongoing challenges of maintaining security and privacy in the digital age.

The challenges of social media in the military domain encompass a range of critical concerns. Sharing military affiliation and activities on social media can inadvertently disclose critical information to potential adversaries, jeopardizing military operations and personnel safety. The propagation of misinformation on social media poses significant challenges, potentially leading to misinformed decision-making and undermining military operations. Social media offers a multitude of opportunities for the military sector, including the use of Psychological Operations (PSYOPS) to influence large audiences, leveraging Open-Source Intelligence (OSINT) for trend forecasting and surveillance, harnessing data mining for analysis and actionable patterns, conducting cyber espionage through extensive network analysis and using perception management to gauge public sentiment and shape strategies effectively. These opportunities underscore the evolving role of social media in military operations and intelligence.

Social media's pervasive presence in modern society positions it as a critical variable in IW, capable of both facilitating and hindering information-based conflicts. Monitoring and controlling social media in the military is crucial to protect sensitive information from adversaries. Comprehensive training and strict policies are essential to ensure responsible social media use and maintain discipline within the military while harnessing the benefits of these platforms. Lastly, if above mentioned measures are taken, Bangladesh Army may be able to effectively utilize social media and embrace the opportunities and challenges while prioritizing security in the modern military landscape.

Recommendation

Following steps are recommended to develop effectual uses of social media for Bangladesh Army:-

- a. A dedicated social media team may be established comprising personnel with expertise in communications, public relations and cybersecurity. This team should be responsible for monitoring social media platforms, crafting strategic messaging, and responding promptly to emerging trends or incidents.
- b. A robust monitoring and controlling mechanism, as well as a policy, should be used to regulate the information or material posted on social media to lower OPSEC risk.
- c. All levels of personnel should receive training in social media etiquette to deliver the proper messages and uphold order and discipline within the Armed Forces.
- d. It should be considered to foster partnerships with reputable social media platforms and technology companies to gain access to advanced analytics tools and insights. Collaborating with these entities can enhance the Army's ability to analyze social media data, identify emerging threats and optimize engagement strategies.

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Brief Biography



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BANGLADESH ARMY JOURNAL



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 - (3) Place of publication,
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2. Example:

Book Referencing

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8. Open and close double inverted comma will be given for quotation.
9. For a long quotation of five or more sentences please make INDENT PARA without quote and unquote marks whose font will be smaller than that of the article and which should be in single space.
10. Tables and illustrations submitted in the article must be numbered, must have a heading at the top with source mentioned at the bottom respectively. An illustration is only justified if it clarifies the text. All illustrations can be in black and white/coloured. Submit the original of line drawings of glossy photographs made of them. Photocopies of figures are not acceptable. Tables and illustrations should be planned to fit the journal page. Make sure that all lettering and symbols used in the figure will be able to withstand substantial reduction and still be legible.