

ISSN: 1683-8475

NDC JOURNAL



VOLUME 22

NUMBER 2

DECEMBER 2023

A Professional Journal of National Defence College
Bangladesh

“Read! In the name of your Lord Who has created (all that exists)”

Surah Al-Alaq (Verse 96)



A Professional Journal of National Defence College, Bangladesh

Volume 22 | Number 2 | December 2023

National Defence College
Bangladesh

EDITORIAL BOARD

Chief Patron

Lieutenant General Md Saiful Alam, SBP, OSP, SUP, awc, psc, PhD

Editor-in-Chief

Major General Md Mostagousur Rahman Khan, BSP, SGP, ndc, afwc, psc, M Phil

Executive Editor

Brigadier General ABM Shefaul Kabir, SGP, ndc, afwc, psc

Editor

Colonel Muhammad Nurul Amin, BSP, afwc, psc

Associate Editors

Brigadier General Syed Mohammad Shahed Rahman, nswc, afwc, psc

Lieutenant Colonel G M Mamunur Rashid, psc, G+

Assistant Editors

Assistant Professor Nishat Sultana

Assistant Director Md Nazrul Islam

DISCLAIMER

The analysis, opinions and conclusions expressed or implied in this Journal are those of the authors and do not necessarily represent the views of NDC, Bangladesh Armed Forces or any other agencies of Bangladesh Government. Statements, facts or opinions appearing in NDC Journal are solely those of the authors and do not imply endorsement by the editors or publisher.

All rights reserved. No part of this publication may be reproduced, stored in retrieval system, or transmitted in any form, or by any means, electrical, photocopying, recording, or otherwise, without the prior permission of the publisher.

Published by the National Defence College, Bangladesh

Design & Printed by : Ornate Care

70/2, Nayapaltan, Dhaka-1000, Bangladesh

Cell: 01911546613, E mail: ornatecare@gmail.com

CONTENTS

	Page
Message from the Chief Patron	v
Editorial	vi
Abstracts	vii
Balancing Strategic Policy Options for Bangladesh During the Time of Evolving Global Order	01
Brigadier General Md Mostafizur Rahman, ndc, hdmc, afwc, psc, PhD	
Maritime Security Dynamics in the Bay of Bengal: Challenges and Options for Bangladesh	24
Commodore A K M Afzal Hossain, (C), OSP, ndc, afwc, psc, BN	
Maritime Development of Bangladesh: Emerging Challenges and Opportunities	46
Commodore Md Moinul Hassan, (ND), BSP, BCGM, ncc, ndc, psc, BN	
Safe Food from 'Farm to Table': Consumer Awareness in the Armed Forces of Bangladesh	73
Captain Md Moazzem Hossain, (S), ndc, afwc, psc, BN	
Aviation Security in Bangladesh: A Case Study of Hazrat Shahjalal International Airport	98
Air Commodore Md Asif Iqbal, BUP, ndc, afwc, psc, GD(P)	
Malaysia Bangladesh: Rebooting the Strategic Partnership	120
Major General Noorru Azril bin Ariffin, ndc	
Readiness of Bangladesh Armed Forces to Respond during Chemical Disaster in Bangladesh-Current State and Ways Forward	138
Lieutenant Colonel Abu Tareq Mohammad Rashed, SPP, afwc, psc, Infantry	

Analyzing Performance Evaluation System for Senior Officers of Bangladesh Army: A Quest for Promoting Military Professionalism Lieutenant Colonel Syed Md Abdullah Zunaid, afwc, psc, Infantry	163
An Analysis of Forcibly Displaced Myanmar Nationals' Repatriation Initiative of Bangladesh: Challenges and Ways Forward Lieutenant Colonel A N M Sohel Arman, SUP, afwc, psc, Artillery	185
Problems and Prospects of Developing Military Industry for Communication Hardware in Bangladesh Colonel Sufi Mohammad Moinuddin, SUP, afwc, psc	206
Bangladesh-India Bilateral Cooperation: Progress and Prospects Colonel Omar Bin Masud, afwc, psc, G+	231
Padma Bridge - The New Gateway of Development for the South-West Region of Bangladesh Lieutenant Colonel G M Mamunur Rashid, psc, G+, Artillery	246

MESSAGE FROM THE CHIEF PATRON

It gives me great pleasure to introduce this journal from the National Defence College, which stands as a testament to our enduring commitment to excellence in leadership, defense, security, strategy, and development studies. Since its establishment in 1999, the National Defence College has remained committed in its mission to serve as the premier national centre of academic excellence, addressing the multifaceted challenges of the 21st century.

Within these pages, readers will find a collection of research papers that exemplify the dedication and intellectual rigor of our Course Members and Faculty. These papers cover a diverse array of topics, all of which are of utmost importance to our nation's security and development. Through original insights and analysis, our contributors demonstrate their deep understanding of contemporary issues and their implications on both a national and international scale.

I would like to extend my heartfelt congratulations to all the authors whose works are showcased in this journal. Your contributions reflect the culmination of rigorous research and thoughtful analysis, and I have no doubt that they will prove invaluable to readers seeking to deepen their understanding of critical issues facing our world today. Besides, my gratitude to the Research and Academic Wing for their unwavering dedication to fostering a culture of intellectual inquiry and scholarly excellence at the National Defence College. I also commend the editorial board for their diligence and commitment in bringing this journal to fruition.

Finally, as we continue to navigate the complexities of the modern world, it is imperative that we remain steadfast in our pursuit of knowledge and understanding. I am confident that the insights presented in this journal will contribute significantly to our collective efforts to address the challenges and opportunities that lie ahead.



Lieutenant General Md Saiful Alam
Commandant
National Defence College

EDITORIAL

National Defence College, Bangladesh is the premier national centre of excellence in Leadership, Security, Strategy and Development Studies. The College believes that a senior officer from the military and civil services should have a good understanding of the major economic, political and social issues of the nation and be able to recommend measures to meet the challenges. Hence, NDC regularly conducts various research works on contemporary issues of national as well as international importance.

NDC Journal is a bi-annual publication of the National Defence College, publishing selected research papers prepared by the Course Members. The articles for the journal (Volume 22, Number 2, December 2023) are primarily selected from individual research papers that the Course Members had submitted as part of the course curricula. National Defence College publishes the 'NDC Journal' every year. This speaks of the laborious effort and genuine commitment on the part of both the editorial staff and the writers.

A total of 12 (twelve) Research Papers have been adjudged for publication in the current issue in abridged form. The articles reflect complex and intricate multidimensional issues emanating from the long, diversified experience of the course members and the curriculum-based deliberations and discourse on various topics concerning comprehensive national security during the training. This volume includes papers of different categories that will be able to draw the attention of varied groups of readers.

We would like to express our sincere gratitude to the Chief Patron, Lieutenant General Md Saiful Alam, SBP, OSP, SUP, awc, psc, PhD, the Commandant of NDC, for his valuable guidance. As we all know, research is a highly committed undertaking. Despite all efforts, unintentional errors in various forms may appear in the journal. We ardently request our valued readers to pardon us for such unnoticed slights and shall consider ourselves rewarded to receive any evocative criticism. We hope that all papers included in this volume will be able to satisfy our readers.



Md Mostagousur Rahman Khan
Major General
Editor-in-Chief

ABSTRACTS

**BALANCING STRATEGIC POLICY OPTIONS FOR BANGLADESH
DURING THE TIME OF EVOLVING GLOBAL ORDER**

Brigadier General Md Mostafizur Rahman, ndc, hdmc, afwc, psc, PhD

Since the disintegration of USSR in 1991, the world had turned into USA led unipolar world till the recent years when China slowly has emerged into the strategic space to challenge USA. India is also aspiring to rise as a regional power. Russia is struggling to regain its lost status. It is no denying that the world is now a multipolar world. And the scenario makes Bangladesh an important player in the global south. Bangladesh is in pursuit of her Strategic Vision of “Sonar Bangla” the ultimate “Bangladesh Dream”. This article argues that Bangladesh’s geopolitical advantages should be fully explored. Bangladesh started its journey with an assumption which undermined Bangladesh to be a Prisoner of Geography with a mere opening in the south. In the given geopolitical situation and power politics of domination, Bangladesh sits in a position which offers an extra leverage. It has rather been argued in favour of Bangladesh to be a “Prince of Geography”. Bangladesh is strategically important to both India and China and other Pacific countries for several reasons beyond its geographical position. As for USA, it wants to deny Bangladesh to China for the obvious reasons. It is felt that Bangladesh is yet to explore its full benefits of its geopolitical leverage. Bangladesh needs to re-evaluate its foreign policy strategy in the rapidly changing global scenario where the Centre of Gravity (CG) of the Power Politics has been shifted in the Strategic Theatre in the Indo Pacific Region at the doorstep of Bangladesh. Lessons from Ukraine War has been deduced to suggest a course for Bangladesh to maintain a careful balance of relation in a contesting environment. Bangladesh enjoys a trusted friendship with India, but Myanmar has caused a great concern by creating Rohingya genocide issue. Bangladesh needs to adopt a smart, pragmatic, dynamic foreign policy strategy with a fine mix of hedging and balancing multilateralism.

Keywords: Balancing Strategy, Foreign Policy, Geopolitics, World Order, Indo Pacific Strategy.

**MARITIME SECURITY DYNAMICS IN THE BAY OF BENGAL:
CHALLENGES AND OPTIONS FOR BANGLADESH**

Commodore A K M Afzal Hossain, (C), OSP, ndc, afwc, psc, BN

Greater Indo Pacific and Bay of Bengal (BoB) have been put under limelight due to strategic power play of global and regional powers. Consequences of this

and prevailing potential Non-traditional Security (NTS) threats in the region are creating challenging maritime security dynamics for Bangladesh. To support her growing economy, ensuring maritime security in her maritime domain and maintaining safe Sea Lines of Communication (SLOC) are critically important. To that end, it is necessary to ascertain plausible options that enable Bangladesh to steer safely in this convoluted maritime security scenario. Consequently, the main objective of this study is to find out the maritime security challenges prevailing in BoB. This led to identify the possible options/ways ahead. Therefore, in addition to the desk research on both primary and secondary source materials, a survey was also conducted. The research found that Bangladesh's maritime security concerns stem from two distinct origins; the intensifying competition between the major regional and global powers and the threats to NTS affecting national security and development. At this backdrop, Bangladesh needs to correctly identify and devise pragmatic and balanced multinational engagement in both strategic relationships and maritime security cooperation approaches. Moreover, an adequately equipped active navy working in tandem with her neighbouring partners can augment maritime security. Finally, it suffices to say that for Bangladesh, astute foreign policy and confidence Building measures with the littorals and Capacity Building at national level are the two important aspects for ensuring maritime security.

Keywords: Strategic Power Play, Potential Non-traditional Security Threats, Maritime Security Cooperation, Confidence Building Measures.

MARITIME DEVELOPMENT OF BANGLADESH: EMERGING CHALLENGES AND OPPORTUNITIES

Commodore Md Moinul Hassan, (ND), BSP, BCGM, ncc, ndc, psc, BN

The geostrategic makeover of Bangladesh is land-based which needs an orientation towards the ocean. Soon after the delimitation of maritime boundaries with neighbours, the importance of the marine economy or Blue Economy transpired as a new avenue for economic development. The growing geostrategic importance of the Bay of Bengal coupled with transnational and environmental threats and the apprehension of traditional security issues pose a concern about the maritime order. The study explores the emerging challenges and opportunities in the maritime domain to identify the lines of action for sustainable maritime development considering the available resources and technological expertise, evolving maritime infrastructures, and geopolitical reality in the Bay of Bengal. The study followed the qualitative method and identified the requirement of an integrated policy and institutional arrangement, maritime investment, innovative diplomacy and a secure maritime domain for maritime development.

The evolving sectors of the maritime economy need to be prioritized and incorporated gradually to realize their full potential. The study also reveals that sustainable maritime development is a combination of maritime economy and ecosystem, is people-centric, and demands innovation and technology to attain our development vision of ‘Sonar Bangla’.

Keywords: Maritime Domain, Sustainable Development, Blue Economy, Maritime Security, Ocean Governance.

SAFE FOOD FROM ‘FARM TO TABLE’: CONSUMER AWARENESS IN THE ARMED FORCES OF BANGLADESH

Captain Md Moazzem Hossain, (S), ndc, afwc, psc, BN

Food safety is a critical issue in Bangladesh, where foods are adulterated or contaminated at different stages of production, processing, preservation, marketing, or consumption. Foodborne diseases due to consuming contaminated food impose physical, social, and economic costs on the individual, family, community, and nation. Foodborne diseases affect military personnel in the same way as the other citizens of the country. Maintaining food safety is everyone’s responsibility, and consumer awareness can be crucial here which must permeate the entire food supply chain. This study assessed food safety awareness among consumers (n = 384) of the armed forces of Bangladesh using a mixed method approach comprising qualitative and quantitative investigations. The research indicated that respondents were moderately aware of food safety, with favourable attitude but inadequate knowledge and practice. According to the study, food safety awareness does not vary by age, marital status, or education level. However, there are significant differences in awareness between officers and soldiers and between higher income groups. In addition, respondents’ unsafe shopping behaviours and ignorance of cross-contamination, food safety management systems, and temperature danger zones related to food preservation were observed. The findings demonstrate the necessity of effective measures to raise military personnel’s awareness of food safety.

Keywords: Armed Forces, Consumers, Food Safety, Food Safety Awareness, Knowledge, Attitude, and Practice (KAP) of Food Safety.

AVIATION SECURITY IN BANGLADESH: A CASE STUDY OF HAZRAT SHAHJALAL INTERNATIONAL AIRPORT

Air Commodore Md Asif Iqbal, BUP, ndc, afwc, psc, GD(P)

Hazrat Shahjalal International Airport (HSIA), being the aviation hub and the gateway for Bangladesh, contributes 0.1% of GDP including national security and development. Thus, the aviation security status of Hazrat Shahjalal International Airport is one of the prime concerns of all the stakeholders including national policymakers. Being the prime international airport, HSIA needs to maintain an aviation security environment as of International Civil Aviation Organization (ICAO) standards. The major security challenges of HSIA include lack of security awareness and mindset, insufficient manpower, poor command control (C2) structure, insufficient training facilities, insufficient security facilities, cyber security threats, absence of data-driven coordination platform, absence of research-driven database etc. This is a qualitative and explorative research based on primary and secondary data. The data were collected through Focused Group Discussions (FGD), Key Informant Interviews (KII), reviewing previous research works, official documents and personal observations. Besides, books, journals and open sources were consulted. Understanding the requirement, it is high time for the Hazrat Shahjalal International Airport authority to address the challenges for the betterment of aviation security environment as recommended by Annex 17 of the International Civil Aviation Organization (ICAO). The key suggested possible measures are developed security awareness and mindset, effective C2 structure, enhancing manpower and facilities, enhancing training effectiveness, effective cyber security management, the establishment of a data-driven coordination platform, the establishment of a research-driven database, aviation threats management mechanism etc. The impacts are likely to improve the comprehensive aviation security of Bangladesh, build confidence among the users, build HSIA and national image to the international community, improve national security and finally more contributions to national development.

Keywords: Aviation, Aviation Security, Hazrat Shahjalal International Airport, Bangladesh Civil Aviation, International Airports of Bangladesh.

MALAYSIA-BANGLADESH: REBOOTING THE STRATEGIC PARTNERSHIP

Major General Noorul Azril bin Ariffin, ndc

Malaysia and Bangladesh are both developing nations, and each offers significant economic, social, political and other growth-related advantages. However, it

appears that the precise collaboration has not been sufficiently developed and is becoming more and more tiresome each day. This article seeks to build a comprehensive broad new programme for bilateral cooperation at the national level that can be implemented over an extended period of time between the two nations. The investigation begins with a review of the variety of secondary sources, including literature, research papers, government documents, online content, country policies, and followed by interviews with knowledgeable and pertinent individuals. Malaysia and Bangladesh should work together to promote an investment-friendly environment and investigate the viability of negotiating and executing a Free Trade Agreement (FTA). Bangladesh and Malaysia can also profit on their Muslim majority populations by working together to create a halal environment and building the basis for the formation of a halal market centre in the area. Dhaka and Putrajaya must continue contact and expand collaboration on employment prospects for Malaysia to open its labour market to Bangladeshi migrants, given the demand for blue-collar workers in the plantation, construction, and manufacturing industries. The moment is right for Dhaka and Putrajaya to promote marine cooperation in their bilateral relations. This is a great opportunity for the defence planners of both the nations to develop ways to strengthen bilateral defence cooperation. Governments, businesses, tourist organizations, and citizens of Malaysia and Bangladesh may work together to boost the tourism reputations of their respective nations. When it comes to Malaysia-Bangladesh relations, the long-standing climate of harmony and mutual respect must be simplified and expanded for the benefit of both the countries.

Keywords: Bilateral Cooperation, Labour Market, Defence Cooperation, Malaysia-Bangladesh Relations, Strategic Partnership.

READINESS OF BANGLADESH ARMED FORCES TO RESPOND DURING CHEMICAL DISASTER IN BANGLADESH – CURRENT STATE AND WAYS FORWARD

**Lieutenant Colonel Abu Tareq Mohammad Rashed, SPP, afwc, psc,
Infantry**

Responding to disasters will continue to remain as one of the prominent peacetime responsibilities of Bangladesh Armed Forces (BDAF). Increasing trend of chemical disaster in Bangladesh (BD) is a concern for everyone. Presumably, BDAF will have to be deployed in rescue operations if there is any severe chemical disaster in BD. Chemical disaster being different than other disasters requires trained personnel with sophisticated gears and equipment. Without a trained outfit and required equipment, BDAF will not be able to perform effectively

during any chemical disaster in the country. However, BDAF is yet to make itself ready to perform such task. The objective of this study was to suggest modalities to attain readiness for responding during chemical disaster in BD. This is an ‘Exploratory Research’ and followed a ‘Mixed Method Approach’ where analysis of both qualitative and quantitative data was made. Primary and secondary data were collected through surveys, interviews, content analysis and Focused Group Discussion (FGD). This research examined the present and future likelihood of chemical disasters in BD and employment of BDAF. The paper also examined the present capability of BDAF to respond in case of a chemical disaster. At the end, the paper suggests several steps as to how BDAF can prepare itself to become credible responders in future. Services should have dedicated response teams to perform such task. The paper suggested organogram including equipment/gears for response teams. The paper also suggested training modalities for such teams. At the end, the paper recommended an action plan to be accomplished by Armed Forces Division (AFD) and service headquarters to attain readiness for responding during chemical disaster. It is expected that, findings and suggestions of the research will help the Services Headquarters formulating their own short and long term plan to raise response teams for chemical disaster in BD.

Keywords: Chemical Disaster, Chemical Disaster Response Team (CDRT), BNACWC, Training for CDRT, Chemical Disaster Management.

ANALYZING PERFORMANCE EVALUATION SYSTEM FOR SENIOR OFFICERS OF BANGLADESH ARMY: A QUEST FOR PROMOTING MILITARY PROFESSIONALISM

Lieutenant Colonel Syed Md Abdullah Zunaid, afwc, psc, Infantry

The Performance Evaluation System (PES) of the officers of Bangladesh Army is a combination of one’s Tabulated Records and Comparative Evaluation (TRACE) and reports from intelligence organizations. The TRACE constitutes of marks of Officers Performance Report (OPR), Physical Efficiency Test (PET) and Course Results. PET and Course performance being the outcome of one’s self-ability tested through time, the only changeable feature remains the marks achieved from OPR. The OPR form with the same attributes is used to judge/grade the professionalism of all officers of Bangladesh Army (BA), be it a Second Lieutenant or a senior officer. The measure of professionalism and the associated system of proper recognition gives an officer a sense of job satisfaction. BA faces difficulties to identify the perfect candidates for a particular challenging appointment due to over-grading tendency that is prevailing in BA. “Senior Officers” for this research are the lieutenant Colonel and Colonels

of BA. Core objective of this research was to identify the suitable changes in the OPR form for the senior officers of BA to make the system effective and increase the professionalism. Initially, the range of qualities desired from the senior officers were explored to validate against the presently followed attributes. Thereafter, the analysis of the challenges of the present PES for senior officers of BA and its effect on individual officers and the organization is found through qualitative/quantitative analysis to later identify the modifications requirements. As an outcome, the research presents with a set of essential attributes for senior officers while a few were recommended as not essential from presently followed attributes. There were a few other finding as branch to the research mostly related to OPR writing related recommendations.

Keywords: Performance Evaluation System, Officers Performance Report, Senior Officers (Lieutenant Colonel and Colonel).

AN ANALYSIS OF FORCIBLY DISPLACED MYANMAR NATIONALS' REPATRIATION INITIATIVE OF BANGLADESH: CHALLENGES AND WAYS FORWARD

Lieutenant Colonel A N M Sohel Arman, SUP, afwc, psc, Artillery

On 23 November 2017, the Governments of Bangladesh and Myanmar signed a Memorandum of Understanding (MoU) to repatriate Forcibly Displaced Myanmar Nationals (FDMN) from Bangladesh who fled Tatmadaw's atrocities in 2016 and 2017. A Joint Working Group was formed for repatriation. Despite Bangladesh's wholehearted endeavour, FDMN's repatriation attempts were unsuccessful twice in 2018 and 2019. The presence of 1.1 million FDMN in the southeast of Bangladesh depletes valuable resources and generates non-traditional security challenges. Repatriation is, therefore, the only solution to the FDMN issue. Repatriation process is hindered since Myanmar is failing to comply with the MoU. After the coup, the situation has deteriorated. Bangladesh is facing several difficulties in managing these 1.1 million FDMN and figuring out a way to send them back to their own country. Therefore, the study was undertaken to analyse Bangladesh's repatriation efforts in order to identify roadblocks and suggest ways to get beyond them. The study is a non-experimental exploratory research where both qualitative and quantitative methods were applied to collect data. Interviews and secondary materials are the main sources of this research. The key finding of this study are that Bangladesh and Myanmar adopt divergent approaches to settle bilateral disputes. Furthermore, the MoU has several ambiguities that must be resolved. Diplomacy has been regarded as the optimal negotiating method. In order to strengthen the claim for repatriation, Bangladesh must employ other

instruments of national power as well. As a result of this research, a variety of possibilities are outlined, which will unquestionably aid policymakers in developing strategies for repatriating the FDMN as soon as possible.

Keywords: Bilateral Disputes, Repatriation Initiative, Instruments of National Power, Non Traditional Security Challenges, FDMN Repatriation.

PROBLEMS AND PROSPECTS OF DEVELOPING MILITARY INDUSTRY FOR COMMUNICATION HARDWARE IN BANGLADESH

Colonel Sufi Mohammad Moinuddin, SUP, afwc, psc

Attainment of self-sufficiency in terms of communication hardware is of paramount importance in the context of modern warfare. Communication being a complex and costly affair, ever entails huge budgetary involvement which works as a dragging force for any developing country to be self-sufficient. However, since the importance and the significance of communication hardware cannot be overruled in the current days, hence, as a developing nation, Bangladesh should consider to develop its own military industry for communication hardware. Every year, a huge amount of foreign exchange is spent for the procurement of communication gadgets for the three services. It implies a huge budgetary involvement. Hence, we need to identify the rationales and justification for having a military industry for communication hardware if it can reduce the dependence on imported products, increase level of security and save foreign exchange. From this point of view, the idea of the research was perceived. However, since, communication is a wide arena to consider, hence, for the ease of conduct, the scope of the research is kept limited to radio communication gadgets only. To attain commercial viability, the Law Enforcing Agencies, Security Agencies, Private and Public bodies who all make use of radio equipment of different categories are studied. It is found that, such industry may have prospect for other non-military stakeholders as well. Considering the security, sensitivity of communication hardware, finance, and foreign dependence, it is deduced that Bangladesh may have such industry as run by the military. However, the three cardinal issues remain pertinent to identify the feasibility of such industry. These are the products, methodologies for production and venue. For that reason, the detail research was carried out. During the process of the research, a survey was carried out with open and close ended questions using the Likert Scale among 204 respondents. Besides, 30 interviews of representatives from various important policy level platforms (senior and mid-level), resource persons and subject matter experts were taken. Two Focused Group Discussions (FGD) were carried out where mid and senior level signal officers gave their valuable input

on the subject matter. Finally, through SWOT analysis, survey, consultation of official documents and interviews, a definitive road map and optimized solution could be derived. The functional recommendations were to have such kind of industry for our armed forces. Primarily with the manufacturing of walkie-talkie sets at BMTF following the process of Transfer of Technology.

Keywords: Self-sufficiency, Communication Hardware, Military Industry, Budgetary Involvement, Security, Radio Communication, Commercial Viability, Product, Methodology, Venue.

BANGLADESH-INDIA BILATERAL COOPERATION: PROGRESS AND PROSPECTS

Colonel Omar Bin Masud, afwc, psc, G+

Bangladesh and India share a history of similarities and have developed a friendly relationship based on sovereignty, equality, trust, and understanding. Their bilateral cooperation encompasses various areas, including border management, security, connectivity, trade and economic relations, energy and power, socio-cultural relations, and defence collaboration. However, there are several tasks to be accomplished, including water-sharing of common rivers, border issues, illegal migration, the influence of China, the Forcibly Displaced Myanmar Nationals' (FDMN) issue, and domestic conflicts. To enhance bilateral cooperation, strategic engagement should focus on resolving unresolved issues and strengthening the areas of successful collaboration.

Keywords: Bilateral Cooperation, Connectivity, Strategic Engagement, Land-Border Agreement, Water Sharing, Migration, Climate Change.

PADMA BRIDGE - THE NEW GATEWAY OF DEVELOPMENT FOR THE SOUTHWEST REGION OF BANGLADESH

Lieutenant Colonel G M Mamunur Rashid, psc, G+, Artillery

The Padma Bridge, a monumental infrastructure in Bangladesh, is poised to usher in a new era of development and transformation in the Southwestern region of the country. This abstract summarizes the impact of the Padma Bridge from its one year journey emphasizing its significance in terms of economic growth, connectivity, and social progress. The Padma Bridge, connecting Dhaka to the Southwestern region, is expected to be a game-changer for this area. Economically, it will stimulate trade, reduce transportation costs, and catalyze industrial and agricultural activities. This, in turn, will have a positive impact on employment opportunities and poverty alleviation. Moreover, the improved connectivity will enhance access to essential services, such as healthcare and education, fostering

social development. The bridge's potential to boost tourism and regional integration cannot be overstated. However, the project's environmental impact necessitates careful monitoring and mitigation efforts. At the end, the paper shall also highlight few recommendations which can accelerate the developments impacted by the Bridge. In a nutshell, the Padma Bridge is set to be a catalyst for progress in the Southwestern region, with the potential to reshape its economic landscape, improve accessibility, and elevate living standards.

Keywords: Padma Bridge, Impact, Economic Development, Growth, Connectivity, Social Development, Southwest Region, Environmental Impacts.

BALANCING STRATEGIC POLICY OPTIONS FOR BANGLADESH DURING THE TIME OF EVOLVING GLOBAL ORDER

**Brigadier General Md Mostafizur Rahman, ndc, hdmc,
afwc, psc, PhD**

Introduction

Bangladesh, a country of more than fifty years with a thousand years of legacy of rich political and cultural history is on its track for development and wellbeing of its people. International Relation (IR) and political science scholars have long disputed the concept of small states and the optimal way to establish strategies to safeguard their own interests. In this globalized world, no nation can survive in isolation. Each state must maintain a relationship with every others. Foreign policy often achieves this. Bangabandhu Sheikh Mujibur Rahman's first foreign policy dictum was "Friendship towards all, malice towards none". The country has risen to the top of South Asia's Human Development Index (HDI) and economic progress rankings. The country has experienced ups and downs, is now a flourishing nation. Bangladesh has reoriented new allies like China, the US, and Middle Eastern countries while preserving long-standing allies like India and Russia. Bangladesh's location provides benefits and drawbacks. Global political changes affect Bangladesh greatly. The equation changes as international politics, power balances, and power aspirations. China is a rising power, while the US contests in IPR, Russia thrives, and India aspires to secure global hegemony. The US, China, and Russia all want a major presence in South Asia. Bangladesh has become a popular place for Power Players to exert or deny influence. But question remains, is that all, the people of Bangladesh deserve! Bangladesh hasn't leveraged stakeholders enough to resolve its major concerns. Bangladesh has not yet achieved its security objectives, which are backed by a comprehensive foreign policy. Myanmar has generated a crisis concerning the Rohingya Muslim minority, with terrible ramifications for Bangladesh's security. India

and China have remained indifferent during this crisis. Nobody has taken any effective steps to modify Myanmar's direction. The military operation against the Rohingya by Burmese Military has been defined as genocide. However, Bangladesh could not bargain its geopolitical significance compared to Myanmar, despite Myanmar's democratic and humanitarian failings. Bangladesh's unique geography should be explored. So, any relationship with these countries must be well-balanced. This Research will try to explore the global political disorder, challenges, and opportunities of Bangladesh in formulating strategic policy options to its best interest. (Mearsheimer, 2022)

Literature Review

A good number of books on the subject have been studied and reviewed for deep understanding of the subject and finding the gaps. In most of the literatures reviewed are mostly published by foreign publishers although few are authored by Bangladesh scholars but most are focused on Regional and Global powers. These books contain little suggestive measures for Bangladesh. So, this research analyzed the theories of IR relevant to Bangladesh in a testing environment and the existing perceptions and suggested the balancing strategic policy options for Bangladesh.

Objectives of the Research

The study aimed at following objectives:

To study, analyze and identify the present Geopolitical Environment and Global Power Politics in South Asia and its impacts on Bangladesh with a view to suggesting a balancing Strategic Policy Options for Bangladesh for the best of her National Interests.

Research Questions

Following were the research questions:

- What is the current and future Geopolitical scenario in the Neighbourhood, Regional and Global perspectives for Bangladesh?

- What kind of Strategic Policy Bangladesh should adopt to maximize the leverage in the present competing geopolitical environment?

Theoretical Framework

According to the theories of realism and neo-realism, the international system is anarchic, with nation states extending their influence worldwide to ensure a steady supply of energy for development while protecting their borders. Bangladesh identifies and evaluates theories such as small state theory, neighborhood theory, bandwagon theory, hedging and balancing theory and other aspects to produce policy alternatives. The Russia-Ukraine Crisis has highlighted the need for Bangladesh to develop a balanced foreign policy stance.

Research Methodology

Research Paradigm

Geopolitical issues are more of perception of individuals, communities, and states. For this research an Input-Process-Output (IPO) Model had been followed as a Paradigm where the existing knowledge collected, and Input process done to find plausible options for Bangladesh. The Independent Variables were the Balancing Strategic Policy Options while the Dependent Variable was the National Strategic Objectives of Bangladesh.

Research Strategy

The rationality of the behavior as to how the Nations behave depends on the cumulative psychological perceptions of the people. It was not very easy to quantify the perceptions. As such constructivism methods had been used to analyze the geopolitical realities. To study the existing narratives of the global players in the IPR, an interpretivism methodology has been adopted in the Epistemological approach. In the logical development and analyzing the theories, perception, realities and dreams of the people, the suggested outcome of the research has been logically inducted.

Geopolitical Realities of Bangladesh and Theories of IR in Application

Geographic Location of Bangladesh

Bangladesh is bordered by India in the east, west, and north and by the Bay of Bengal (BoB) in the south. Myanmar has connected Bangladesh with the Southeast Asian region. Geographically The People's Republic of China is very close with only 100 km of Indian Territory. Bangladesh is separated from Nepal and Bhutan in the northern border by 22 km and 30 km respectively. The maritime boundary has been resolved with both India and Myanmar. Bangladesh is in the Centre of a Circle which includes a large geographical area as far as Afghanistan in the West, China in the North, Vietnam, and the South China Sea in the East, and the Indian Ocean in the South. South Asia is a region with plenty of resources and home of about one fourth of the world's most dense population.

Indo-Pacific Region (IPR)

The IPR has gained traction recently. Japanese Ex-Prime Minister Shinzo Abe cited a Mughal Prince Dara Shikoh's words for "Indo-Pacific." Abe expressed Freedom of Information and Protection of Privacy (FOIP) in 2017. The 2017, The National Security Strategy (NSS) recognized the Indo-Pacific as a unique geostrategic zone. Indo-Pacific will be crucial in the geostrategic and geo-maritime conflict between growing and competing states. (MG ANM Muniruzzaman, (BIPSS, 2019).

Geopolitical Importance of Bangladesh

The topography of Bangladesh has a crucial geopolitical influence giving access to Myanmar and India. Its placement at a crossroads makes Bangladesh a natural link between South and Southeast Asia. Bangladesh must be included in any regional partnership between ASEAN and SAARC. The strategic ally of India can aid in the integration of Northeast

and Central India. Bangladesh is in an exceptional position to promote regional integration and development. China desires to establish deeper diplomatic ties with Bangladesh due to the country's distinctive topography. Bangladesh is a viable choice as a "String of Pearls" and "Maritime Silk Road" partner for China. This possibility has elevated Bangladesh's status to that of a major actor in shaping Asia's destiny. In the present context USA's requirement for Bangladesh is to keep it free from the grip of China rather than USA's own strategic requirement per se. It can be said with a very high confidence level that Bangladesh is not Prisoner of Geography rather a Prince of Geography. The Padma Bridge and existing Bangabandhu Bridge over Jamuna give connectivity all over Bangladesh offering overall connectivity in the Region. (Rahman, 2021)

History and Heritage of Bangladesh National Character

Bengal had a distinct geopolitical, cultural, and historical significance. The Pala Empire was the second to last Buddhist Empire. By 750 CE, it was the dominant force in northern India. The 12th century Hindu Sena dynasty assumed control. Trade between the Pala Empire and the Abbasid Caliphate spread Islam to the Region. The Bengal Sultanate, which was established in 1352, grew to become one of the world's wealthiest trading states. Bengal Subah was the most prosperous province of the Mughal Empire after its conquest in 1576. It became a major exporter and hub for the production of cotton fabrics, silk, and ships. Its economy included 12 percent of the world GDP, which was more than that of Western Europe. After the Battle of Plassey in 1757, the Bengal Presidency came under the British East India Company. In 1971, leading to Bangladesh's independence after fighting Pakistan Army, Bangladesh pursues a foreign policy that is non-aligned, non-interventionist, non-aggressive, non-imperialist, and non-expansionist. Bengalis have always been colonized and subjugated in the past. Bengal had been ruled by the Mughals, the East India Company, the British Raj, and most recently Pakistan. Bengalis had traditionally disregarded foreign rules and rulers. The 'Father of the Bengali Nation,'

Bangabandhu Sheikh Mujibur Rahman, led Bangladesh to independence. After analyzing the decades-long struggle for independence, the fight for language, and the influence of the Bengali culture and peaceful religious harmony, the National Character of Bangladesh's Population may be defined in general; Political Autonomy; Lingua-Cultural Homogeneity; Religious-Cultural Harmony; and Resolute -Humility (Ahmed, 2022) (Sen, 2009) (Sofa, 1981) (Kabir, 2022).

Theories of IR in Application

To understand the IR between the states it is important to understand the theories of IR which dictate the policy makers, political leaders and the people of the country to adopt the strategies for pursuing their specific National Interests and National Security goals. These interests are not always expressed in tangible and visible gains but also as the intangible things like pride, domination, satisfaction, ego, etc. The theories which will be important to understand for this research are; Realism, Offensive Realism, Defensive Realism Neo-realism, Liberalism, Hedging, Balancing Power Theory, Neighbourhood Theory, Insecurity Theory, Bandwagoning etc. While Bangladesh would tend to believe and stand on its ideological fundamentals and values such as democracy, human rights, equality based on liberalism. But it also strongly believes and endorses in the pragmatic senses that the world moves on the realism theories with little local variations.

Case Study on Russia-Ukraine War and Lessons for Bangladesh

In February 2014, following the Ukrainian Revolution of Dignity, Russia and Ukraine went to war over the future of Crimea and the Donbas. On February 24, 2022, Russia launched a military invasion of Ukraine. (Mearsheimer, 2022) A study of the Ukraine War will be useful in the perspective of analyzing geopolitical scenario for Bangladesh.

General Trends of War and Conflicts

Begins with an Order but for Ending Requires an Environment

While Vladimir Putin ordered his invasion of Ukraine on February 24, he envisaged a quick seizure of Kyiv and a change of government. The war is still raging, and no one knows when or how it will end.

Conflict is a Multimodal Phenomenon

The issue was the use of cities as fortified strongholds that deplete enemy assets, capabilities, energy and men. Moreover, this conflict was also notorious for the involvement of more modern and arsenal. Weapon system and technologies that Ukraine has been employing are too sophisticated, for them to possess without direct involvement of NATO or USA. The Ukrainians are adopting with asymmetric tactics. (Alonso-Trabanco, 2022)

Geography is a Main Issue of Contention in IR

Geography matters, which is why this maxim is the logical basis of geopolitics. As Hans Morgenthau explained, the geography is one of the important drivers of state behavior. Naturally, the type of Ukraine as a disputed battlefield for centuries is not situational.

There is a Remaking of New World Order

After cold war period was over with the disintegration of Soviet Union in 1992, Unipolar USA dominated politics of the world. The Balance of Power is never static like that of Newton's law of Static. While Russia is trying to recover its lost pride, China has gone quite so far to get their slice of power in the world order.

Leaders' must be Battle Hardy

Political leaders run Nations in different situations. But war is considered to be kind of gamble. Because all the moves in the war do not go as per

set course. Initiatives do not remain in one side. That is seen in Ukraine. The war which was presumed to be over in one or two months is still in the mid-course. The President of Ukraine who was a Standing Comedian still resolute and fighting the war.

General Lessons

- Effectiveness of nuclear deterrence.
- Economic dependence does not prevent war.
- Economic imbalance is sometime/often exploited by independent.
- Economic sanction does not prevent aggression.
- Information warfare does create difference in warfare.
- Cyber attack is not the ultimate decision maker.
- Fate of the war is always uncertain.

Big Power Dilemma

- It is no more just like overrunning a country and capture as a whole.
- Population rather than geographical area matter.
- Present era of connectedness, people are more world citizens as such strong bonding and morale support.
- Righteousness of the cause matters more.
- Even Strongest of the militaries struggles to sustain the protracted war.

Small Power Dilemma

- Maintaining deterrent Military Capability is important to increase the cost for major power.
- Not to test the patience of the big power where it could be avoided.

- Better to maintain a balance of power and relation.
- Multilateralism for the economic emancipation with all possible friends.
- Military pacts with any country and antagonizing others.
- Use of smart powers combining soft and hard powers.

Balancing Strategic Policy Options for Bangladesh

Once Henry Kissinger mocked Bangladesh saying as bottomless basket. The country has now presented itself as a role model of development. In last fifty year it has been able to achieve remarkable progress in different parameters and upgraded from LDC and envisioned for achieving strategic visions of 2031, 2041 and 2100 step by step.

Statehood of Bangladesh

National Values

The statutory guidance, spirit of Liberation War and evolvement of the nation through last fifty years the national values listed as follows:

- Democracy and Human Rights.
- Socialism and freedom from exploitation.
- Secularism.
- National Unity (People's Bonding).
- Equality and justice.
- Humanity.
- Mutual respect for cultural diversity and religious beliefs.

National Purpose

The aim and purpose of Bangladesh are stated in the preamble of the Constitution which constitutes the reasons for our Independence,

aspiration for our existence, and urge to prosper as an independent state to achieve the ‘Golden Bengal a ‘Bangladesh Dream’.

Strategic Vision

The Strategic Vision of Bangladesh in the current geopolitical scenario and in the light of the constitutional guidance is concluded as “Secured, prosperous and enlightened Bangladesh with peaceful, stable and dignified position in the competing world. The enhanced capability to pursue her SDGs to ensure better living for the people with complete political autonomy and economic independence aspiring to become a high-income country by the year 2041 and a climatic resilient country by achieving DP Objectives by the year 2100”

National Interest

In Bangladesh perspective her vital interest is the – “Sovereignty and territorial integrity, Spirit of the Liberation War, Political Autonomy and economic independence, Cultural integrity and heritage and Internal Peace and Stability of the State.” Significant interests are so important to the country’s wellbeing that it can only be compromise up to a certain point.

Dynamics of National Security Situation

Environment Around

As the World’s only surviving superpower, the U.S. will not abandon its military preeminence in the IOR, and it will use soft and hard force to accomplish so. China’s official policy is “development without confrontation,” suggesting the country will enhance its weight through diplomatic and economic means. India will continue to dominate the Indian Ocean. A stable, independent Bangladesh free of Chinese influence would help the US and India.

Non-Traditional Security

In the past, whenever Bangladesh had flourished, fortune seekers came here and tried to subjugate the people. Today internal peace and stability much depends on the happenings beyond her national boundary. They may also cause great security hazards by sponsoring ethnic or extremist groups for their gains.

Maritime Security

Sunil Bangla (Blue Bengal) is very crucial for the progress of the country. To get the desired blue growth, Bangladesh needs unhindered access to the living and non-living resources of the seas under national jurisdiction. From that consideration, any military confrontation is likely to strike the very lifeline of Bangladesh.

Conventional Security

It is widely perceived that military/physical threat is remote under the prevailing international order. However, there is no guarantee of the stated perception that would not become real.

Challenges Ahead

Coming to new century, Bangladesh started rising over the horizon changing its fate from aid receiving to achieving self-reliance. Challenges those lay ahead can be categorized to security and development related one with some having both implications.

Rohingya Issue

Over the time this issue has become one of the top security concerns of the country with very little or no response from Myanmar. Couples of times even the border security forces engaged for small scale conflicts

and skirmishes. It is an ongoing issue which may turn to be a hot flash point any time with huge refugee burden onto Bangladesh posing serious national security concerns.

Impacts of the Russia – Ukraine War

Due to worldwide fuel price increases, rising transportation and electricity expenses are hurting the economy. Bangladesh uses 6,000,000 metric tons of fertilizer annually. Her agricultural performance, especially in rice, depends on fertilizers. Fertilizer subsidies will cost \$3.2 billion this year (Tk 30,000 crore). Russia and Ukraine export 29% of global wheat.

Effect of Climate Change

Phenomenon of climate change is one of the most serious challenges that have pulled back the national development and endangered security from the climate refuge. Many development projects had to be abandoned to meet with this kind of situation and are likely to happen in future too.

Strategic Options for Bangladesh

Strategic End State of ‘Sonar Bangla’

Bangladesh must utilize multipliers, catalytic, and complementing actions bilaterally, regionally, and globally to protect its total sovereignty and political and economic autonomy in pursuit of IR. To get the most out of IR, Bangladesh will need to think outside the box and make some significant changes to its strategy.

Strategic Ways

Bangladesh needs to have her Border secured as like any independent Nation strives to have. The nation must preserve its Political Autonomy for which the nation has struggled hundreds of years. The country must have economic and infrastructural development. And then, to sustain the

development and internal stability to be maintained. It may be acronymed as BADS expressing Border, Autonomy, Development and Stability.

IR Theory Basis for Foreign Policy Options

Bangladesh by and large believes in rule based international order and effectiveness of the international institutions. While Bangladesh may tend to rely on the IR theory of Liberalism and expects the states to behave accordingly. But it accepts the fact that the anarchical international system, as such Bangladesh may base its IR on the basis of Defensive Realism Theory.

Friendship on the basis of Sovereignty and Equality

Bangladesh seeks friendship to all. It also expects other nations also to extend their friendly hands on the basis of sovereignty, equality and dignity. It is a part of the National Strategic culture of Bangladesh to offer cooperation but also very resistant if there is an element of dictation which tantamount to an interference. As such Bangladesh will look for an engagement policy with other Nations on the basis of gains on both sides not exploitation.

Smart Foreign Policy

Flexible, intelligent, adaptable, sensible, recyclable foreign policy with built in feedback system should be incorporated. Foreign Policy should be able to assess the call of the moment and seek the appropriate decision for the Government to the best interest of the nation.

More Engagement with People to People; Culture to Culture

While at the policy engagements would continue on the basis of a structured policy by different Government offices, the people to people contact shall have to be facilitated. Specially it is related with the neighbouring countries and countries of interest like USA, China, Japan etc.

Development is the Slogan

Only slogan Bangladesh should have is “Friendship for Development”. Bangladesh should make the international stake holder clear that Bangladesh only pursues its National interest for the development.

Soft Power Development; Education and Technology

Bangladesh needs to invest heavily in education and technology. Experts say that agriculture shall continue to meet the food security while the education will lead the nation to a new destiny. Education should give more emphasis on STEAM; Science, Technology, Engineering, Arts and Mathematics.

Rohingya Issues to Handle with Specific Aim under a Plan

It has to be carried since it is a major issue possibly turning vital for Bangladesh security as well as for South Asian Region in the long run. Bangladesh needs to make it a common agenda whatsoever repetitive it might appear.

Strategic Means

Geographic

The land mass itself may not generate much strength, but if it can be utilized as regional connectivity hub then can yield some benefits. Bangladesh may act as regional hub offering maritime, land, air connectivity and adding information highway turning the country like today’s Singapore or Dubai.

Political

Bangladesh needs to work more to revitalize the political energy in the spirit of the War of Liberation to four cardinal principles of our constitution.

Diplomatic

Bangladesh can gain from the Indian Ocean competition, but without choosing sides. Our diplomatic missions should look for new opportunities in the still unexplored world.

Economic

As a small nation, we shouldn't actively develop regional enemies. Diplomatic line should be maintained to balance multilateral activity to secure economic progress, security, and international status. Open new missions to expand our people's opportunities to a higher rate. (Economics, n.d.) Bangladesh should engage economically more towards African Nations well supported by Bangladesh UN Peace Keeping Missions.

Military

Bangladesh should make the strategy so as to project an impression that it has no desire to go beyond its boundary. But if any venturous elements come around shall have enough bite to be paralyzed to roll back. We may also call it a Poisonous Defensive Strategy. (BUEHLER, 2020) While working on the broad framework of Defensive National Security Framework, the Military should also be trained, equipped and ready to work proactively where the situation demands as assessed by the Government. Then participation in UN peace keeping operations must continue. It must work closely to risk reduction and mitigation of the disaster related threats and continue to engage in the nation building activities. Regional and international defense cooperation platforms should be utilized for both confidence building and projecting professionalism.

Strategic Policy Options

Option A: Balanced Multilateralism/Engagement

Multilateralism refers to the engagement with many actors or groups on the basis of interest. On the other hand, "Balancing" is the action to equalize

the odds against more powerful states without antagonizing anyone. Mixing these two, Bangladesh may look for interest-based engagement with all actors. The strategy of Multilateralism would give number of dividends to Bangladesh— firstly, it will provide global connectivity; secondly, it will help shape world opinion in her favor for materializing her interests; thirdly, it will provide leverage in negotiating any crisis with anyone; and finally, it will help resist any major power to coerce Bangladesh. Bangladesh will maintain relation with India as its closest neighbour, while maintaining relation with China. Bangladesh also have relation with USA, Japan, Russia, Australia, and ASEAN whichever country makes its strategic dividend for Bangladesh.

Option B: Hedging Strategy

Hedging is a Strategic insurance policy for a Nation like Bangladesh. If in future the rising powers resort to aggressive behavior may to some extent need hard balancing and smart and pragmatic choice of bandwagoning. In the existing geopolitical scenario Bangladesh may not expect a direct military threat from any of its neighbors. But the FDMN issue may take Bangladesh to its limit. For which Bangladesh has to take step based on meticulous strategic calculation and adopt a proactive strategy as needed with the combination. On the other hand, Bangladesh may be a bystander of strategic competition of global and regional powers in the IPS theatre. Bangladesh may have to make use of diplomatic as well soft balancing tools under rubric of hedging strategy.

Option C: Independent (Self Help)/ Autarkic Foreign Policy

To be considered as “strategic autonomy,” a country must be able to pursue her own national interests and implement its own foreign policy without relying on other nations. This is a fairly autonomous approach to foreign policy, meaning that it does not rely on any one country or its influence over a particular topic or time period. In today’s interconnected world, not even a powerhouse like the US can exercise complete strategic independence. Bangladesh is neither able to or thinking of adopting such strategy.

Option D: ‘Bandwagoning’

In this option, a weaker state aligns with a stronger adversarial power and concedes that the stronger adversary-turned-partner disproportionately gains in the spoils they conquer together. Bangladesh may opt for this option making a strategic choice to partner with any of the major powers. The options can be USA / China / India centric. Interest of USA lies in security sector but hardly interested in the development process. On the other hand, China wants to engage economically but not in any kind of security cooperation, neither Bangladesh is interested. In the present context, Bangladesh in fact does not require Bandwagon with for security purpose for any country. China has the higher capability at this point in time but a clear picture of the future is yet to be visualized by Bangladesh. On the other hand, India herself is quite burdened economically let alone support Bangladesh sufficiently for fulfilling her need to the scale required.

Recommendations

To materialize the development dream following Balancing Policy, Strategy, Actions and Philosophy are recommended:

- In the rapidly changing scenario in the IPS and the BoB Region, Bangladesh should adopt a smart, dynamic and pragmatic foreign policy with a combination of Option A and Option B that is ‘Balancing Multilateral Engagement’ and ‘Hedging’.
- Comprehensive foreign policy and dynamic Diplomacy will be supporting to the Strategic visions, goals and objectives of the Nation.
- A credible military will be required to represent the nation as bold, a deterrent for National Security, and value add to as a regional and global strategic partner to maintain internal as well as regional stability.
- Bangladesh maintains a good neighbourhood relation with India with more enhanced people to people relation reinforcing the heritage and

historical bonding. As a larger neighbour and rising Regional Power India has greater responsibility.

- Summit diplomacy has been historically proved to be more effective especially in regards to India-Bangladesh relation.
- Bangladesh should try its last resort to resolve the FDMN issue peacefully and also prepare Proactive Strategy to resolve the same in case it is required.
- China, USA, Japan, Russia, India, UK, Australia etc. whoever has interest to support Bangladesh on the basis of equality and dignity, Bangladesh should not shy off.
- On different issues Bangladesh must go for calculated Alignment Protocols with countries and forums as required on specific issues.
- Bangladesh should not go for any military alliance with any country. Bangladesh should try and join as many forums as possible.
- Bangladesh does not take any side when two or more friends are engaged in conflict. Bangladesh should have strategic insurance, not being affected in such situations which demands absolute military neutrality.
- Bangladesh should continue to be loud on the issue of FDMN in any and every bilateral, Regional and Global forum to force Myanmar to repatriate Rohingyas to Myanmar by creating a sustainable and peaceful environment.
- Bangladesh may take initiative to propose a greater regional platform where Bangladesh may have a greater space for multilateralism.
- Bangladesh should extend her diplomatic reach by increasing her diplomatic missions to as many countries as possible to explore the opportunities for Bangladesh. Especially in South America and Africa.

Conclusion

Bangladesh was born with the spirit of the Liberation War of Bangladesh after suffering of exploitation of thousand years. During the very emergence, the country faced strategic noncooperation from USA, China and some of their allies. Though for a nation, 50 years is somewhat moderate time, Bangladesh has so far been able to turn the tide. Bangladesh has reoriented the operational environment besides achieving tremendously despite facing many odds. US, China are now amongst closest strategic and development partners. India remains as the closest friend and neighbour of Bangladesh. Besides, Russia, Japan, KSA, EU etc. remain Bangladesh's dependable friendly countries. But the current geopolitical scenario is rapidly changing. With growing interest of USA in the IPR and aggressive economic rise of China are bringing USA and China in the brink of strategic tug of war at the doorstep of Bangladesh. Growing India-China competition and USA's backing behind India making it triangular flash points where Bangladesh may extract strategic dividend if appropriate strategy can be applied on the basis of pragmatic geopolitical Calculus.

Bangladesh as a country born through the War of Liberation has its Aim and purpose based on her values and specific national characters. This specifies the national aspirations. A dream of the Father of the Nation "Sonar Bangla" an overall, correct articulation of strategy along with smart execution through vigorous implementation policy duly supported by "Bangladesh Dream" and "Sonar Bangla", "A poverty and exploitation free prosperous and respectful Bangladesh" needs to be achieved.

For this, Bangladesh requires to pursue IR with other countries. Especially the country that has the ability to influence. As the paper has discussed; Bangladesh may formulate and compare four major strategic options. Such as; Balanced Multilateral Strategy, Hedging Strategy, Independent (Self-help/autarkic) Strategy and Bandwagoning Strategy etc.

References

1. Ahmed, D. I., (2022) . Professor [Interview] (02 June 2022) .
2. Alonso-Trabanco, J. M., (2022). A World Remade? Lessons from the Ukraine War. Geopolitical Monitor, 10 June.
3. Anon., (2022). Bangladesh an important security partner, says US. The Financial Express, 06 February .
4. BIPSS, T. D. S. a., (2019). Indo-Pacific Strategy: Implications for the Region” on. Dhaka, The Daily Star New Paper.
5. Bolton, D. (2021). Balancing Identify: The Sino-Soviet Split. Ontological Security, and North Korean Policy, Security Studies, , Vol, 30, No. 2(271-301).
6. Britannica, T. E. o. E., (2021). “foreign policy”. Encyclopedia Britannica,. 6 Dec .
7. Colin Flint, n.d. Introduction to Geopolitics. Issue 3rd edition.
8. Div, H. 1. I., (2022). Upates on the Rohingya Issues and Myanmar Relation. Ramu: HQ 10 Inf Div .
9. Elman, M. F., (1995). The foreign policies of small states: Challenging neo-realism in its own backyard.. Volume 25(2).
10. Galal, A. M., (2019). External behavior of small states in light of theories of international relations, s.l.: s.n.
11. Governance, G. C. f. S., n.d. Phase A – Assess National Strategic Context, Strategies, Policies and Priorities.
12. Haque, A. S., (2022). Transforming/Translating National Values and Interests. Dhaka: s.n.
13. Hasan, P., (2022). Strengthening Myanmar – Bangladesh trade and economic ties. CNG Media, 21 March .

14. Islam, D. M. T., (2021). Bangladesh-China bilateral relations: Influences of geopolitics and Rohingya crisis. *The Business Standard*, 14 March .
15. Islam, M. S., (2019). A decade of Bangladesh-India relations: 2009-2019. *New Age*, 05 November .
16. Jackson, R. a. S. G., (2013). *Introduction of International Relations Theories and Approaches*. 5th Edn ed. Oxford: Oxford University Press.
17. Joseph, N., (2002). *Paradox of American Power: Hard and Soft Power of in America*. s.l.:s.n.
18. Kabir, M. H., (2022). DG BEI [Interview] (16 May 2022).
19. Karim, L. G. M. A., (2022). Professor [Interview] (01 June 2022).
20. Karim, M. A., (2012). Strategic Vision of the United States and China in the Suth Asia. *Korean Journal of Defence Analysis* , 24(2)(175).
21. Larson, D. W., (2021). The Return of Containment What the Cold War policy means for our current moment. FP, 15 JANUARY .
22. Longley, R., (2021). *National Security Definition and Examples*, s.l.: s.n.
23. Lt Col Sajjad Zahir, B. P., (2013). Role of India in the Liberation War of Bangladesh in 1971 [Interview] (15 March 2013).
24. Mearsheimer, J., (2011). *The tragedy of great power politics*, New York: W.W.: Norton & Company.
25. Milner, H., (1992). International theories of cooperation among nations: strengths and weaknesses.. *World Politics* , Volume 44(3).
26. Mondal, N. A., (2016). *Bangladesh-Myanmar Relations*., s.l.: s.n.
27. Nawar, N., (2022). *Bangladesh-Myanmar Relations: Time to break the stalemate?. modern diplomacy*.

28. Office, U. F. a. C., (2008). Engagement: Public Diplomacy in a Globalised World.
29. Pattanaik, S. S., (2005). Internal Political Dynamics and Bangladesh's, Foreign Policy Towards India [Interview] (Jul-Sep 2005).
30. Power, G. F., (2022) Bangladesh Military Strength. 05 February.
31. Quinn, A., (2012). Clinton 'bets on Bangladesh' despite turmoil. Reuters,.
32. Rahman, M., (2019). Making the most of Bangladesh–India trade. EastAsiaForum.
33. Rahman, Z., (2021). Bangladesh's geopolitical position provides for unique opportunities, Dhaka: s.n.
34. Rothstein, R., (1968). Alliances and Small Powers, , New York, NY.: Columbia University Press.
35. SAMSANI, S., (2021). China–Bangladesh strategic linkages. ORF Observers Research Foundation, 11 May.
36. Schneider-Petsinger, M., (2016). Geoeconomics explained. Chatham House.
37. Sen, D. R., (2009). Bangladesher Samajik Stor Binnas. Dhaka: Bangla Academy .
38. Shreyas, D., (2018). The Battle for the Bay of Bengal, s.l.: Pragati.
39. Sofa, A., (1981). Bangali Musolmaner Mon. Dhaka: Khan Brothers and Company.
40. Studies, C. f. G., (2022). Opium Production in Myanmat, Dhaka: Dhaka University.
41. Vedrine, H., (2001). The United State and Globalization. s.l.:s.n.

42. Vital, D., (1971). *Survival of Small States: Studies in Small Power/ Great Power Conflict*, Washington DC: Oxford University Press, .
43. Waltz, K., (1979). *Theory of International Politics*, s.l.: s.n.
44. Yasmin, L., (2019). *India and China in South Asia: Bangladesh's Opportunity and Challenges*. Millennial Asia.

Author

Brigadier General Md Mostafizur Rahman, ndc, hdmc, afwc, psc, PhD was commissioned on 20 December 1992 in Infantry. His staff tour of duties includes the appointments of GSO-3 Training in the School of Infantry and Tactics, BM in Headquarters 65 Infantry Brigade (CHT), and GSO-1 in HQ DGFI. He served as both GSO-1 and Colonel Staff in the Headquarters of the 9 and 11 Infantry Divisions. He also served as Platoon and Term Commander at Bangladesh Military Academy. Brigadier General Mostafiz Commanded 34 E Bengal, 77 Infantry Brigade and 46 Independent Infantry Brigade. He also commanded the NS Brigade in MONUSCO. He was an Independent Director of Dhaka Stock Exchange Limited. Besides attending the Army Staff Course, Armed Forces War Course, and National Defence Course in Dhaka. He attended the Combating Terrorism Executive Course in the USA, the Legal Aspects of Combating Terrorism Course in the USA, and the Higher Defence Management Course in India. Brigadier General Mostafiz achieved degrees in Master of Management Studies, Master of Security Studies, and Master of Defence Studies from Osmania University (India), BUP, and the National University of Bangladesh respectively. He also obtained a Ph.D. degree from the Department of the Government and Politics of Jahangirnagar University. He participated in UN Missions in Sierra Leone, Sudan, and the DRC. He visited many countries in Asia and Africa besides the UK, the USA, and Australia. Currently, he is serving as the Chief of Doctrine Division at HQ Army Training and Doctrine Command.

MARITIME SECURITY DYNAMICS IN THE BAY OF BENGAL: CHALLENGES AND OPTIONS FOR BANGLADESH

**Commodore A K M Afzal Hossain, (C), OSP, ndc, afwc,
psc, BN**

Introduction

The Bay of Bengal (BoB), which comprises the northernmost portion of the Indian Ocean, is the world's largest bay. It is roughly triangular in shape and is bounded to the east by Myanmar and the Andaman and Nicobar Islands, to the north by Bangladesh, and to the west by India and Sri Lanka. Due to its geostrategic and economic potential, the BoB has become a focal point. Robert Kaplan's predictions of the bay as the demographic and strategic center of the world in the twenty-first century have highlighted the bay's geopolitical significance as the center of gravity of the world has shifted from the trans-Atlantic to the Indo-Pacific (Kaplan, 2010).

The Indo-Pacific security architecture is undergoing significant changes as a result of a great power rivalry driven by interests, geopolitical competition, and escalating conflicts. Due to the growing influence of extra-regional countries in the area, the power vacuum of the post-Cold War era shrank rapidly, giving rise to a complex multipolar environment. The recently released US Indo-Pacific Strategy and the formation of Quadrilateral Security Dialogue (QUAD) are clear manifestations of this. After the United States' withdrawal from Afghanistan in August 2021 and the military takeover of Myanmar in February 2021, South Asia is likely to become a focal point for geo strategic competition between the major international and regional powers.

Non-traditional security (NTS) issues concerns both the Indian Ocean Region (IOR) and BoB littorals in similar measures. Among the vulnerabilities, challenges, and threats in the maritime domain in the BoB are the safety and security of oil rigs and offshore assets, piracy, armed robbery at sea, maritime

terrorism, drug and arms trafficking, human smuggling and trafficking, illegal migrations, Illegal Unreported and Unregulated (IUU) fishing, Search and Rescue (SAR), disaster mitigation, and other risks. It is evident that, despite the Rohingya crisis, the two big Asian powers (China and India) will continue to interact with Myanmar in the area of maritime security due to their own energy needs and the need for a safer route for its transportation, particularly for China, which desires an alternative route to the Malacca Strait. Therefore, persecution of Rohingya people by Myanmar will continue to pose maritime security consequences in the BoB. Similar threats originating at BoB due to the above mentioned situation arising from ongoing Myanmar issues, may have disastrous impact for the economy and development of the littorals, most importantly Bangladesh.

The interests of IOR states practically converge in the marine realm. Consequently, maritime security in the region is of the utmost importance. To address the marine security concerns, global, regional, and sub-regional cooperation is required. Consequently, international cooperation and partnership are essential. There are numerous obstacles as well. Therefore, no single nation can provide the necessary skills and coordination to successfully combat these diverse marine threats. Bangladesh is an aspiring maritime nation in the region, so she shares regional concerns regarding maritime security too.

Indo Pacific-The Geo Political Playground of Great Powers

The Indo Pacific, a collective term for the Indian and Pacific Oceans, is the new geostrategic battlefield for the world's superpowers. It has become more prevalent in contemporary geopolitical and geostrategic discourse. In the 20th century, the global strategic and economic center of gravity began to shift towards the Asia Pacific region due to the rise of china and Asian tigers. The reorientation of the global economy towards Asia is primarily a result of China's and India's rapid economic growth and the subsequent expansion of regional trade and investment. The Indo Pacific system is defined by geographically expanding interests and influence of china and India, as well

as the United States’ ongoing strategic involvement and presence in the Pacific and the Indian Oceans. The Indo-Pacific region has gained increased attention in international relations due to the shifting geopolitical dynamics, economic developments, and security concerns. The involvement of China, India and the United States plays a significant role in shaping the Indo-Pacific system.

Strategic Competition in the Indo Pacific: Present and Future Chinese Belt and Road Initiative. The Belt and Road Initiative (BRI), formerly known as One Belt, One Road, was introduced in 2013 with the goal of enhancing China’s connectivity with the rest of the world. At the first Belt and Road Forum in Beijing in May 2017, President Xi Jinping stated, “In pursuing the Belt and Road Initiative, we should focus on the fundamental issue of development, unleash the growth potential of various countries, achieve economic integration and interconnected development, and deliver benefits to all.” However, political observers, especially in the West, argue that China is actually advancing its strategic objective of expanding its influence in the Indo- Pacific through MSR.



The US Indo Pacific Strategy (IPS). The United States used to maintain a balance in the region while relying on India to act as a counterweight to Chinese influence. The Obama administration’s “Rebalance Asia”/”Pivot to Asia” policy was a notable acknowledgment of this geopolitical shift and evolved into a plan for America’s Indo- Pacific vision. The primary objectives of IPS are to prevent China’s growing influence in Asia from endangering American interests and to alter the strategic dynamics of the Indian Ocean in the United States’ favour through closer cooperation with India.

Quadrilateral Security Dialogue (QUAD). The United States, Japan, India, and Australia comprise the four-nation security coalition known as QUAD, whose stated mission is to defend regional democracy and free navigation. It should be emphasized that QUAD is primarily a framework for security cooperation with a growing military component. One indication of this objective is the annual Malabar naval exercises, which have evolved into a platform for QUAD security cooperation (Press Release, 2022).

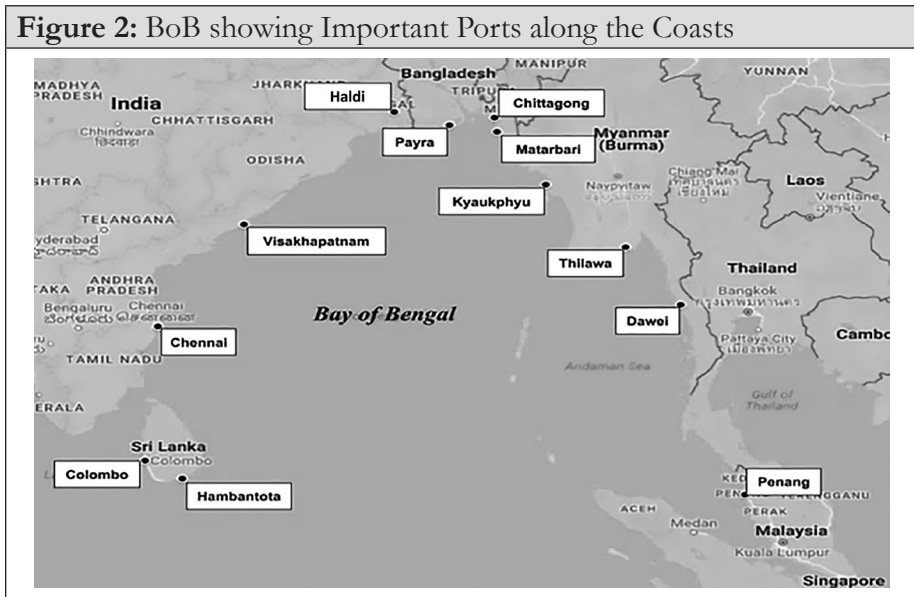
India-QUAD-China Entangled? Notable is the fact that India is the only member of the QUAD operating outside of the United States-led security alliance structure with a land border with China and no direct maritime issues. However, Indian leaders view China as their greatest security threat, and tensions escalated in 2020 following an incident involving Indian and Chinese troops on their shared (and disputed) border (Kugelman, 2023). Chinese financial and military assistance to India’s long-time rival, Pakistan, an increase in Chinese naval operations in the region, and significant Chinese infrastructure investments along India’s border have heightened Delhi’s concerns.

Strategic Implications of on-going Power Play for Bangladesh. Due to her long-established foreign policy stance of “Friendship to all and malice to none,” Bangladesh has avoided taking a clear side with any of them. However, after Russia’s advance into Ukraine, western allied discussions are mostly focusing on choosing a side. Thus, for a number of recent developments, this stance is being questioned and put to the test. Bangladesh recognizes that it has reaped substantial financial benefits from

Chinese BRI projects and hopes to continue to do so. However, in addition to business opportunities, the United States also provides Bangladesh with documented military assistance (Abdul Momen, 2022).

Maritime Security Dynamics in the BoB

The BoB is strategically significant to major world powers for a variety of reasons, including economic, political, and strategic factors. Robert Kaplan asserts that the Indo-Pacific will become the demographic and strategic center of the world in the twenty-first century, thereby increasing the region's significance (Kaplan, 2010). Brewster argues that BoB is rising both strategically and economically (Brewster D. D., April 2015).



A quarter of the world's traded goods, including vast quantities of Persian Gulf oil and liquefied natural gas, pass through the BoB, providing energy-scarce countries with a corridor to securing resources. Some of the most important trading routes also pass through the BoB. Together, the BoB littorals are home to one-fourth of the world's population, and their current GDP growth rate is \$3 trillion (Release, <https://www.me.gov>).

in/, 2019). The BoB is home to vast, largely untapped natural resources, including fishing stocks, mineral ores, oil, and gas, which attracts economic and strategic interest from China, Japan, and the United States. Taking into account all of these factors, Brewster asserted that this region is likely to become much more well-known in the coming years and may even be prepared to become a new Asian economic development hub

Divergent Interests Converging in the BoB

China's Geopolitical and Economic Interest in the BoB. From a geopolitical and economic standpoint, China is hugely interested in the BoB. The BoB directs China's expanding seaborne trade with the Middle East, Africa and Europe through the congested Strait of Malacca. Beijing has steadily developed alternative land-based transportation corridors between the bay and south-western China via Myanmar out of concern for potential threats to its vital SLOCs.

India- the Big Regional Actor in the BoB. India, a major regional actor in BoB, has a strong interest in the Chinese projects and makes no secret of it in her communications and response strategies. India has recently begun to give the BoB the strategic consideration it has long merited, thanks to the Act East Policy. India desires to be the BoB's net security provider.

Japan and Her BIG-B Plans. Japan is a major player and has given the BoB considerable thought as a key growth area and economic link between the Pacific and Indian Oceans. Similar to China's MSR initiative, Japan's plans to construct new infrastructures in the region that would feed back into Japan. Developing Bangladesh as a "lynchpin of the Indo-Pacific" and a "node and hub" of the regional economy is part of Japan's "BIG-B" (Bay of Bengal Industrial Growth Belt) initiative (Reporter, 2021).

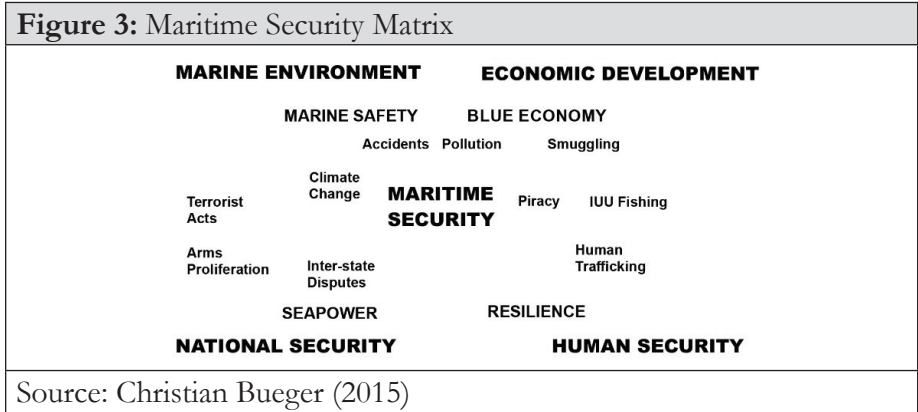
Myanmar- Energy Conduit for China. Myanmar views the bay as vital to its strategic security and economic development, with its position as a geopolitical hub in the BoB playing a crucial role. Myanmar has longstanding ties with China, its neighbour and long-time development partner. China

maintained extremely close ties with Myanmar despite its closed-door policy and avoidance of outside contact. Myanmar offers China not only economic opportunities, but also an alternative energy supply route that circumvents the Strait of Malacca.

Bangladesh: What's at Stake? Bangladesh has an obvious strategic interest in maintaining the ancient Indo-Pacific connectivity in which it has historically participated. This has numerous implications, especially for the maritime domain of the BoB, which provides access to a larger Indo-Pacific. All energy imports of Bangladesh arrive in the greater Kutubdia region of Matarbari via the maritime route. In addition, almost all export and import cargo trade utilizes sea routes that pass through BoB. For the maintenance and expansion of her economy, the maritime region's potential for the blue economy is also essential (Alam A. M., 2022). BoB is more important for Bangladesh due to its strategic and economic implications. Bangladesh has an interest in a secure, accessible, and hospitable maritime domain in the BoB and elsewhere.

Maritime Security Scenario in the BOB

Traditionally, maritime security refers to the protection of the maritime domain against potential threats. However, it is difficult to define maritime security because it encompasses both conventional and unconventional threats posed by non-state actors. According to Christian Bueger, maritime security transcends conventional boundaries. Another objective of maritime security is the protection of sea lanes of communication, whether for commercial shipping routes, the exploitation of natural marine resources, or other sea-based activities. Bueger views maritime security beyond the traditional concept encompassing the other aspects of maritime domain including human security.



Sources of NTS Threats. Examining the NTS reveals three common sources of NTS threats to maritime security. The first is illegal maritime activity. The unauthorized exploitation of marine resources and pollution constitute the second threat. Among the pertinent issues are gun running and drug trafficking, human trafficking and illegal immigration, ship hijacking and maritime terrorism, and illegal, unreported, and unregulated fishing (IUU fishing). As tropical cyclones or tsunamis, the ocean itself is the third source.

Land Connections to NTS Threats. The majority of NTS and vulnerabilities in the maritime domain originate on land and migrate to the water. From a security standpoint, the aforementioned threats and their consequences are presented in table 1.

Table 1: Threats Vis-a-vis Zone of Occurrence and Security Implications

Category of Threat	Source	Zone of Occurrence	Security Implications
IUU Fishing, Poaching, Natural Resource Exploitation	Internal & External	Territorial Waters, EEZ, High Seas	Conflict between Stake holders, also neighbours
Pollution	Mostly Internal, also External	All Zones	Threat to ecology, marine health, environment etc
Armed Robbery, Piracy	Internal & External	All Zones	Violence, Loss of life, Impact of maritime trade & Commerce
Illegal trafficking, arms, drugs, Human	Internal & External	Shore to High seas to shore abroad	Internal security, Health & Human security, International Relations
Terrorism	Internal & External	All Zones	Threat to stability, peace
Maritime Insurgency, Hijacking etc	External parties concerned	Beyond EEZ	Threat to stability, peace

Source: Azad, 2009

Therefore, it is evident that the vast majority of threats either originate on land or terminate there. The situation involving Myanmar as a potential source in the region is a genuine case in point. The internal political resistances and government’s indiscriminate oppression of minority population in bordering areas are definite sources of arms and drugs proliferation with spillover effect in the adjacent maritime domain of the

BoB. This is more prominent source of NTS threats to the upcoming economic hub of Matarbari, Khiakphu and adjacent regions.

NTS Threats in the Region. This region has recently attracted attention due to problems with human and drug trafficking, insurgency and inter-communal violence in Myanmar's border regions with maritime implications. Illegal fishing, natural disasters, human and drug trafficking, and marine pollution are common threats to littorals. However, it is believed that piracy in BoB does not pose the same threat to international shipping as it did in the Malacca Strait or the Gulf of Aden. In the coastal regions of Bangladesh, incidents that are now classified as sea robbery rather than piracy were once reported. The NTS threats in the region are, Piracy and Armed Robbery, Human Trafficking, Illegal Immigration, Drug Trafficking, Gunrunning, Maritime Terrorism and Insurgency, Illegal, Unreported and Unregulated Fishing (IUU), Maritime Pollution, Natural Disaster etc.

Maritime Threats Associated with Rohingya Influx. The displacement and persecution of Rohingyas have a significant effect on the potential growth of maritime NTS threats such as drug, human, and arms trafficking, IUU fishing, theft, robbery and piracy, and others. As a result of the influx, there are already indications that these criminal activities, particularly human and drug trafficking, are becoming more prevalent along the sea route. In spite of the fact that the Rohingya population in Bangladesh is currently confined to the south-eastern coastal region (Teknaf), there are indications and a high probability that it will spread to the area.

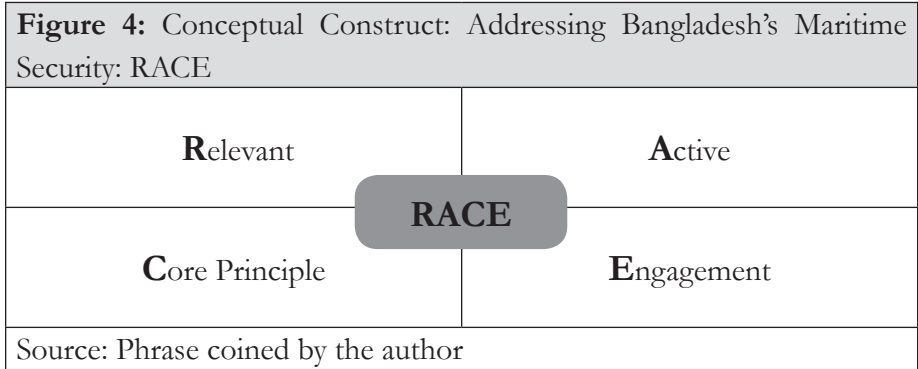
Threat to BoB Economic Hubs: Matarbari/Kyakphu. The Kyakphu region in Myanmar and the Matarbari region on the coast of Bangladesh are two upcoming massive economic, industrial, and energy supply chain hubs in the BoB. These commercial and energy hubs could be the targets of criminal acts. As the blue economy expands, such threats are likely to materialize, despite the fact that BoB has not yet encountered them. Again, if China's energy supply routes were threatened, China could send

out surface and sub-surface naval platforms to defend its interests and investments. Such actions will undoubtedly contribute to the militarization and security dynamics of the region (Rear Admiral Anwarul Islam, 2022). Therefore, it is of the genuine interest of Bangladesh, Myanmar and even India, to keep the area safe. Some structured bi or tri lateral measures may also need to come into the thinking process of the decision makers.

Increased Military Dependency on the BoB Region. There are three countries with nuclear capability in the region. Every day, a large number of naval ships, submarines, and aircrafts are deployed in the Indo-Pacific and BoB region. As indicated by World Bank data and global Fire power web sites, the annual defence expenditures of most global and regional actors have increased in a mentionable percentage. Moreover, the on-going Ukraine Russia war has further fuelled this trend. In addition, the eastern neighbour of Bangladesh is presently being ruled by a military regime, who is exercising military power on its own citizens. The regular incidents of military atrocities and attacks are being reported in media.

Addressing Maritime Security Issues

Security Strategy Option for Bangladesh. In this strategic convergence, in any case, Bangladesh must effectively run its own RACE (Relevant, Active, Core Principle, and Engagement). This perhaps gives a pragmatic path for Bangladesh to design her overall strategic discourse in the parlance of evolving BoB Maritime security dynamics.



Operationalising the Idea of Bangladesh’s Strategic RACE- Ways and Means

Remaining Relevant (to both sides). Bangladesh needs to maintain its relevance in the eyes of the United States and China, as losing their interest would be extremely challenging and potentially detrimental. For instance, there are numerous parallels between the relationships between India and Japan and the United States and China. She cannot abandon her significant business interests in Japan and China. For Bangladesh, this is unquestionably not at par with India or Japan. However, Given the BoB, the United States needs a stable and prosperous Bangladesh, just as Bangladesh needs the United States as a continuing interdependent development partner (Karim T., 2022). Once again, the economic growth and size of Bangladesh enable the Chinese investment strategy to support the accomplishment of their strategic goals. In this range, Bangladesh focuses on the economic growth and national interest benefits.

Remaining Active (in Global, Regional and Sub-regional Platforms). Bangladesh has demonstrated and validated its commitment to remain actively involved in the majority of significant global, regional, and sub-regional engagements since achieving independence. In his first address to the United Nations General Assembly, Bangabandhu Sheikh Mujibur Rahman, the father of the nation, espoused two fundamental concepts regarding Bangladesh’s participation in international affairs. One is her

foreign policy of having no enemies. The second is her commitment to promoting global peace. Bangladesh consistently plays a leading role in organizations such as NAM, UN PKO, Climate Change, UNGA, and WTO, far beyond its size and capacity. It must be capitalized to provide significant diplomatic and security leverage.

Maintaining Its Core Principle of Friendship to All. Since achieving independence, Bangladesh has remained committed to her foreign policy principle of extending friendship to all nations. Bangladesh was also a staunch supporter of non-alignment movements. It is noteworthy that she has benefited thus far from this policy. Malice to none has been the subject of occasional heated debate and discussion, particularly in the aftermath of the Rohingya crisis in 2017. However, the highest levels of government have repeatedly emphasized that Bangladesh will adhere to its fundamental foreign policy, which has been validated over time. In addition, it is believed that there is no reason to alter a successful strategy at this time.

Remaining Engaged with Neighbours, both Nearby and Distant. From Bangladesh's perspective, regional and international neighbours play a significant role in the overall geo-strategic dynamics, evolving maritime security scenarios, and development of other play acts. Bangladesh has a long history of engagement with India in business, trade, commerce, and other areas. Unfortunately, the exact opposite is true of Myanmar, the eastern neighbour. Therefore, it may be more crucial than ever to expand engagement with Myanmar via Track One, Track Two, and other informal channels.

Addressing NTS Threats in the BoB

Need for Security and Good Order at the BoB. In the modern, globally interconnected world, no nation is isolated from any threat. Therefore, it is difficult to argue that the region's current NTS threats and challenges are not transnational and do not require a concerted international effort to address. These maritime security issues pose a grave threat to peace and stability at the national and international levels. Participation in multilateral cooperation is, therefore, a reasonable and logical response for states.

The strategic objective of such a partnership is to preserve the safety and security of the oceans for the use of all nations (Galdorisi, et al., 2012).

Modelling the BoB Maritime Security. The world's nations are currently referred to as "hyper-connected" due to their increasing dependence on one another through trade. In this situation, a single state cannot achieve security. Regional states are required to collaborate in a coordinated effort. The result of combining individual skills and resources can be greater than the sum of its parts. Bangladesh, like many other small littoral states, would benefit from a multi-national engagement-based strategy to ensure her maritime security (Till, 2004).

Regional Cooperation Models

ASEAN and ARF. The Association of South-East Asian Nations (ASEAN) was established in 1967 with the dual goals of promoting regional peace and stability with a focus on the rule of law in accordance with the principles of the United Nations Charter, as well as economic growth and social progress. In 2003, ASEAN's leaders determined that the organization should be supported by three pillars: a socio-cultural community, an economic community, and an ASEAN security community. The ARF, which serves as the principal forum for security discussions among Asian states, provides participants with the opportunity to exchange ideas on how cooperative action can enhance the region's peace and security.

Indian Ocean Naval Symposium. The Indian Ocean Naval Symposium (IONS) is a collaborative effort to reach a consensus on the escalating asymmetric threat. Indian Navy initiated and facilitated the organization involving the maritime forces of states sharing the Indian Ocean's coastline. The IONS seeks to advance maritime cooperation to a new level, establish allied maritime agencies, achieve a high level of interoperability, share information to combat common transnational maritime threats and natural disasters, and maintain maritime law and order (IONS, 2016).

Regional Maritime Information Sharing Models

ReCAAP. Asian states adopted ReCAAP, which promotes and strengthens cooperation against piracy and armed robbery in Asia within the legal frameworks and terms agreed upon by member countries. The three pillars of the ReCAAP agreement are cooperation with like-minded organizations, information sharing among member nations, and capacity building among member nations through the exchange of best practices in the fight against piracy and armed robbery.

Information Fusion Center. The Royal Singapore Navy operates the Information Fusion Center (IFC), a center for sharing information on maritime security in the region. There are 64 agencies from 34 countries participating. Since its inception, it has been instrumental in resolving maritime security incidents and crises. Its primary objective is to enhance partner cooperation and information sharing among littorals in order to enhance maritime security. Moreover, the Information Fusion Centre – Indian Ocean Region (IFC-IOR) stands as a pivotal regional maritime security center, graciously hosted by the Indian Navy. Notably, a distinguished officer from Bangladesh Navy has recently assumed the role of liaison officer in IFC from BD side. Over the year, the IFC has evolved into a comprehensively equipped maritime information hub, fostering collaboration and strengthening regional partnerships.

Challenges. Despite the willingness of many to participate in this concept of partnership and cooperation, common interests and goals must be taken into account. Admiral Mullen of the United States Navy observed that establishing trust is essential for any potential partnership. These qualities require a great deal of trust and cooperation to develop. The fact that the region's nations, navies, coast guards, and maritime forces are vastly dissimilar and may also hinder the IOR nations' efforts to collaborate and achieve long-term maritime security. Political and cultural diversity are prevalent in the region. Moreover, not all countries base their maritime strategies on shared maritime issues. The primary objective could

range from SLOC protection to resource exploration to tourism security. Consequently, they may operate in the maritime space with diverse objectives and interests.

Bangladesh's Engagements in the Regional and Global Efforts.

Bangladesh is extensively engaged either as a member or an observer of numerous multilateral cooperative structures in the expansive Indo-Pacific region. Bangladesh has always emphasized the value of neighbourly cooperation. As evidenced by its participation in the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), it has consistently promoted regional and sub-regional cooperation at a level far above its weight class. Bangladesh can and should now seek to collaborate with other BoB littoral and neighbouring nations, whose populations represent a quarter of the world's total. Bangladesh may take the initiative to facilitate this process.

Bilateral Cooperation. Bangladesh has been prompt and active in creating and maintaining maritime engagements and interactions with her neighbours. Specially Bangladesh Navy, since early days have been keenly taking part in most regional and bilateral navy to navy exercises, goodwill visits, training exchanges etc. Below are some of the established arrangements with her neighbours:

- Staff Talks between BN and IN (Conducted yearly since 2013).
- Staff Talks between BN and MN (Conducted irregularly since 2016).
- Coordinated patrol, or CORPAT, with the Indian Navy since 2018.
- Goodwill voyages (naval diplomacy) and passing exercises involving ships.
- Trainings and exchanges of high-level delegations.
- Bilateral exercises with the United States Navy, India, and others.

The BoB area stands out as an NTS hotspot based on a comprehensive assessment of the security situation. If the emerging security issues are not addressed appropriately, the littoral regions could suffer severe

consequences. Many of the issues have an impact on the majority of littorals. Human and drug trafficking, illegal fishing and fishing management, natural disasters, marine pollution, the presence of armed non-state actors, etc., are examples of non-traditional security concerns that may threaten the stability of the BoB region. In order to maintain peace and stability, the littorals of the BoB must adopt a coordinated, cooperative regional or sub-regional strategy.

Conclusion

Indo Pacific Region is essentially a mental map that transcends the boundaries of the Asia-Pacific and Indian Ocean regions. In the contemporary strategic discourses around the world, this region has been significantly illuminated by the increased focus put on the Indo-Pacific region as an interconnected strategic system. The BoB is at the heart of this new battlefield of the world's superpowers. The recent economic developments of so called Asian tigers in the greater BoB region and increased strategic competition in Indo Pacific has put renewed attention on the evolving maritime security dynamics of the BoB.

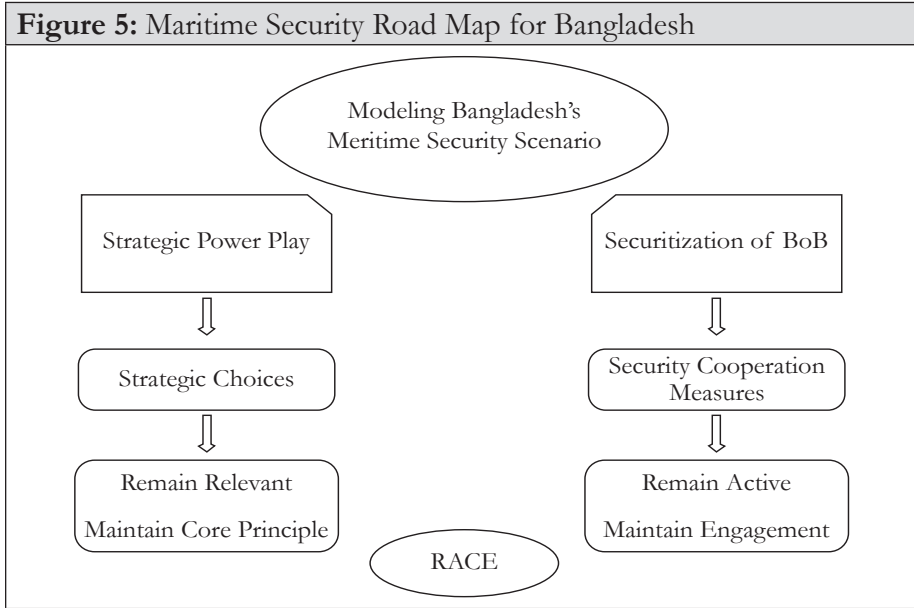
Historically Bangladesh has mostly maintained its non-aligned stance and a prudent foreign policy of friendship to all. As for the US and China's ongoing Indo-Pacific conflict, Bangladesh has avoided taking a clear side with any of them. However, after Russia's advance into Ukraine, and other recent developments, this stance is being questioned. Bangladesh recognizes that it has reaped substantial benefits from Chinese BRI projects and hopes to continue to do so. In addition to business opportunities, the United States also provides Bangladesh with documented military assistance.

Bangladesh's concerns regarding maritime security stem from two distinct origins. Primarily due to the competing geostrategic interests in the region of the major regional and global powers and the intensifying competition between them. And then the NTS threats and their potential fall out that may affect maritime trade, commerce, and ultimately the entire national

development process. Based on the comprehensive assessment of the security situation as discussed in the paper, the BoB area stands out as a potential NTS hotspot. If the emerging security issues are not addressed appropriately, the littoral regions could suffer severe consequences. Human and drug trafficking, illegal fishing and fishing management, natural disasters, marine pollution, the presence of armed non-state actors, etc., are examples of non-traditional security concerns that may threaten the stability of the BoB region.

Notably, maritime security is a complex web of multifaceted ever changing affairs. Any single state cannot achieve security. In order to maintain peace and stability, the littorals of the BoB must adopt a coordinated, cooperative regional or sub-regional strategy. The possibility of a framework for cooperation that combines the contributions of nations with similar perspectives to address maritime security concerns shared by all. Cooperation can be used to combat threats to shared maritime security interests. Bangladesh, like many other small littoral states, would benefit from a multi-national engagement-based strategy to ensure her maritime security. To that end, measurable coordinated steps need to be taken, both by individual nations and also collectively.

It is essential for a pragmatic security strategy, to integrate development, diplomacy, and defence in a way that they are complementary. Combined with proactive, agile diplomacy and a flexible defence strategy, would be a more plausible option for Bangladesh. In the midst of major players' power play, Bangladesh has to steer her course with prudent pragmatism. As mentioned earlier, she has to run her own RACE, than joining others or band wagoning. So long Bangladesh can play her cards right, with the potential the country has, she can keep the economic, security and development relations with US, China and India well balanced. Remaining relevant to the major players can give Bangladesh the leverage to stay away for distinct partisanship, which would be detrimental. On the other hand, being active in global forums and maintaining focused engagement with neighbours will also bring edge to overall smart diplomacy.



In addition, Bangladesh being a predominantly maritime nation, must always defend its maritime interests proactively. Therefore, she must take the initiative to engage the littorals to further her own interests. Bangladesh also has to make proactive and positive moves to coordinate and cooperate with neighbours and other sub regional actors on the matters of maritime security. In order to maintain peace and stability, the littorals of the BoB must adopt a coordinated, cooperative regional and/or sub regional approach. Navies and Coast Guards need to cooperate and work together in surveillance, monitoring, information sharing etc. Bangladesh Navy, being the cardinal Maritime Security Instrument of the government, must remain vigilant and active to patrol and monitor Bangladesh’s maritime space on a continuous basis to guard against the emergence of any non-traditional threats, in addition to its traditional responsibilities.

References

1. Abdul Momen, M., 2022. NDC Lecture [Interview] (13 July 2022).

2. Akihiko, P. T., 2021. Connectivity in the Bay of Bengal Area: Challenges and Options for Bangladesh. Dhaka, South Asia Institute of Governance.
3. Alam, A. M. k., 2022. Strategic-Significance-of-Bay-of-Bengal-and-Bangladesh's- Balancing-Capability. Dhaka, The Daily Sun.
4. Alam, M. K., 2004. Alam, M. K., 2004. Bangladesh's Maritime Challenges in the 21st Century. First ed. Dhaka, Bangladesh: Pathak Shamabesh.. First edition ed. Dhaka: Pathak Samabesh.
5. Ambassador Momen, M. b., 2022. NDC Lecture [Interview] (26 June 2022).
6. Azad, A. K., 2009. Maritime Security of Bangladesh : Facing the challenges of Non Traditional Threats. Dhaka, BIIS.
7. Bhubhinder Singh, S. T., 2020. Minilateralism in the Indo-Pacific. First ed. Delhi: Routledge.
8. Brewster, D., 2014. The Bay of Bengal: the Indo-Pacific's new zone of competition.
9. The Australian Strategic Policy Institute/ The Strategist, 2 December.
10. Brewster, D., 2015. The Rise of Bengal Tigers: The Growing Strategic Importance of the Bay of Bengal. Journal of Defence Studies, April-June, pp. 81-104.
11. Brewster, D. D., April 2015. <https://www.idsa.in/>. Journal of Defence Studies, 2(9).
12. Brigadier General Mohammad Saber, n. p. G., 2008. National Security Of Bangladesh: Challenges And Options. Ndc Journal, Volume 7, No. 1, Pp. 1-26.
13. Chanda, J., 2021. The China Myanmar Economic Corridor: A Reality Check.

14. National Security, 4(3), pp. 272-305.
15. Chowdhury, I. A., 2018. Balancing Bangladesh's foreign policy. Inter Press Agency/Asia Pacific, 13 August.
16. Till, G., 2004. Seapower A Guide for the Twenty First Century. First ed. London: Frank Cass Publishers.

Author

Commodore A K M Afzal Hossain, (C), OSP, ndc, afwc, psc, BN joined Bangladesh Navy on 01 January 1990 and was commissioned on 01 July 1992 in the Executive Branch. He graduated from German Naval Academy and Completed his basic course in their training schools. Commodore Afzal has 30 years of naval career with impeccable records, He has attended Communication Specialization Course at India. He is a graduate of Defence Services Command and Staff College, Mirpur, Dhaka. He completed his both National Defence Course and Armed Forces War Course from National Defence College (NDC) Bangladesh. He has also obtained Masters in Defence Studies (MDS) from the National University Dhaka, Masters in Strategic Studies from BUP and MBA from South East University, Dhaka. He obtained diploma in National Security and Joint Operations from Naval War College Newport, RI and is an alumnus of this prestigious Institution.

Commodore Afzal had a good mix of command, instructional and staff appointments. He was at the helm of two specialized Command- Special Warfare, Diving and Salvage Command (COMSWADS) and Naval Aviation (COMNAV). He had been commandant of Bangladesh Naval Academy. Besides, he commanded a number of smaller craft and medium size ships. He commanded a Large Patrol Craft under UNIFIL MTF in Lebanon. He served on deputation in Kuwait Armed Forces as Naval Liaison Officer. The officer also commanded Bangladesh Navy Frigate BNS SOMUDRA JOY. In Naval Headquarters, he served as Director Signals and Director

Submarines. He also served as a Secretary to Chief of Naval Staff of Bangladesh Navy. Presently, he is perusing Navy's future development as Director of Naval Plans. Commodore Afzal, received Commendation from the Chief of Naval Staff for his outstanding performance and professional excellence in the Navy. He was also awarded one of the highest achievement awards from navy 'Osamanyo Sheba Padak' (OSP) in recognition of his professional excellence and distinguished services in Bangladesh Navy. Commodore Afzal is a widely traveled person and visited various countries around the globe that includes most of Europe, Middle East, few other countries in Asia and USA. He participated in multi-national exercises and symposiums. The Commodore is happily married to Begum Sajida Hoque and blessed with a son and a daughter. He likes to pass his time playing golf and reading.

MARITIME DEVELOPMENT OF BANGLADESH: EMERGING CHALLENGES AND OPPORTUNITIES

**Commodore Md Moinul Hassan, (ND), BSP, BCGM,
ncc, ndc, psc, BN**

Introduction

Bangladesh is an emerging maritime nation with a rich maritime heritage. The Bay of Bengal (BoB) is the only gateway through which our maritime connectivity is maintained and our trade passes to and from different parts of the world. After two landmark verdicts on maritime boundary delimitation issues against India and Myanmar, Bangladesh now enjoys jurisdiction over an area of 118,813 sq km in her maritime zones. This has unlocked enormous opportunities to utilize our unexplored maritime potential sustainably and led to the Government's Blue Economy initiative stated in Perspective Plan 2021-2041 (PP 2041), Bangladesh Delta plan (BDP) 2100 and Five-year plans (FYP). The territorial waters gained are now considered a new 'development space' in Bangladesh (PP2041, 2020). The political leadership of Bangladesh emphasizes the optimal utilization of the blue economy and envisioned appropriate policies and investments as it will be the prime mover of national development in the coming days.

Being the maritime underbelly of this deltaic country, the BoB has geostrategic and geopolitical significance because of the growing sphere of influence by regional and rising powers in this region. The maritime strategic presence of regional and global powers in the Indian Ocean (IO) is also a cause of concern for the BoB littorals like Bangladesh. Besides, the exodus of Forcibly Displayed Myanmar Nationals (FDMN) known as Rohingya was a strategic shock, and the military build-up of Myanmar by the Military Junta with the tacit help of regional and rising powers created a fragile security environment in the BoB.

Bangladesh's future development and economic growth would be decided by the expansion of the marine economy. The Government of Bangladesh (GoB) specified its attention to pursuing the blue economy concept, however, it is yet to engage itself in a more committed way in examining the integration of marine space in national development strategy (Alam, 2021). As per the World Bank Group Study conducted in 2018, the ocean economy contributed US \$6.2 billion in Gross Value Added (GVA) to the Bangladesh economy in the year 2015, which is approximately 3 per cent (Patil et al. 2018). The new development space provided by our accredited maritime domain needs careful study in line with the internal and external environment. Against this backdrop, the paper identifies the challenges and opportunities in the maritime domain of Bangladesh and suggest lines of action for sustainable maritime development to realize the development vision, the dream of the father of the nation "Sonar Bangla".

Methodology

Due to the pattern of the subject, exploratory research has been carried out. The information and data were sought as per the qualitative research method. Key Informant Interviews (KII) were conducted and respondents were Subject Matter Experts, Government Officials, Chairmen of maritime ports etc. Focused Group Discussion (FGD) was conducted through a semi-structured questionnaire. Content analysis of existing literature related to the subjects, Statistical data and various official documents were carried out. Secondary data were complemented by a Perception Survey on professionals attached to maritime sectors. The collected data and information were evaluated using standard analysis techniques.

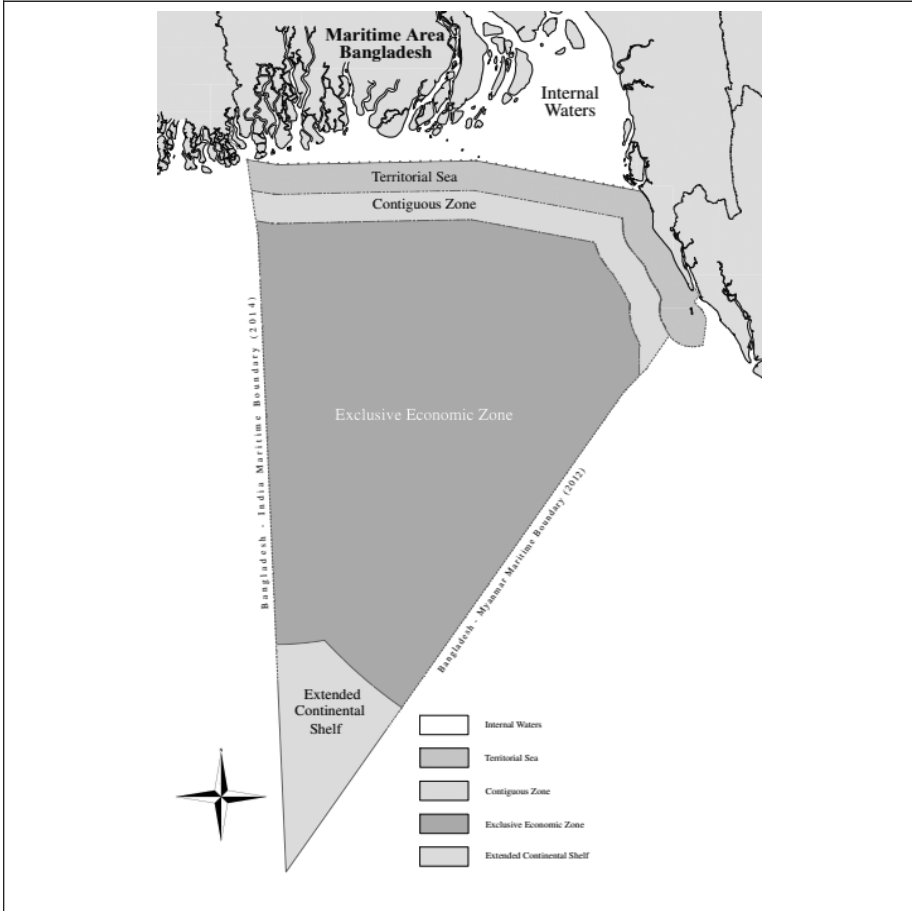
Bangladesh Maritime Domain: A Challenging Seascape

Bangladesh Maritime Domain

There is a rising awareness of the universal importance of the oceans and seas for the global economy and economic development as maritime

resources are vital for developing national economies (Safe Seas, 2018). Bangladesh is progressing to the status of a High Income Country by 2031, and a Developed country by 2041, and the resources in the maritime domain would be a great saviour to attain such achievements. A considerable coastline of 710 km spanning over various islands and shores of 19 coastal districts and 118,813 sq km maritime zones with 200 nautical miles of EEZ including inland waters and estuaries comprises our maritime domain. The coastal area covers approximately 47,201 sq km and the continental shelf constitutes an area of about 37,000 sq km (Iqbal, Kutub, 2021).

Map 1: Maritime Domain of Bangladesh (Source: BN Hydrographic Department, 2022)



Our interests in this maritime domain originate due to vast and untapped resources both living and non-living, the SLOC, the livelihood of the resilient coastal people, preservation of the environment, maritime security, peace and stability. Our challenges and threats in the maritime domain are fragile, complex and entwining.

SWOT Analysis- Bangladesh Maritime Domain Strengths (S)

S1: Geostrategic Position. Bangladesh's geostrategic position in the northern BoB is significant for domestic and external affairs for economic growth and future sustainable development. Laying between two economic blocks - SAARC and ASEAN, our maritime domain connects South Asia with South-East Asia and acts as a global centre for maritime development (Benson, 2020).

S2: Living Resources (animals and plants). An abundance of living resources both fish and plants (Algae, seaweeds etc.) are available in our maritime domain. To date, 511 marine fish species identified and 133 species of seaweeds are available in our maritime domain (PAAL, April 2022). Besides, marine non-traditional species (oysters, mussels etc.), marine biotechnology and blue carbon sequestrations are the potential economic sectors in our maritime domain (Hussain et al. 2017a).

S3: Resilient Coastal Population: Our coastal people are resilient and prone to various natural disasters and climate-related emergencies. One-fifth of our total population is dependent on marine resources. They can absorb climate shock and adjust quickly to earn their livelihood in the maritime domain.

S4: Maritime Trade and Logistics. More than 90% of Bangladesh's trade is carried by sea and the trend is rising every year (Alam, 2019). The Chittagong and Mongla ports are the main gateways and economic nerve centres of Bangladesh and handle 94% of international trade (Alam, 2021). The inclusion of Payra port, the development of Matarbari deep-sea port and the future Bay terminal will usher new window of opportunity for maritime trade and commerce.

S5: Coastal and Marine Tourism. Coastal and Marine Tourism (CMT) contributes around 25% of the current blue economy sectors of Bangladesh (Patil et al., 2021) and over US\$ 9 billion (3% of the total economy) to the GDP in 2019, and created approximately 2 million direct and indirect jobs (8FY Plan, 2020). Our maritime domain houses the potential of CMT due to the presence of long coastal areas, and aquatic biodiversity including the world's longest unbroken sandy sea beach, mangrove forest, the Teknaf peninsula, and the coral island St. Martins (Islam and Sarker, 2021).

S6: Probable Reserve of Natural Gas and Minerals. According to a desktop study conducted by Maritime Affairs Unit under MoFA, it is estimated that 0.11 to 0.63 TCF natural gas hydrates deposits are available in our EEZ only, which is equivalent to 17-103 TCF natural gas deposits (Hoque, 2022). Promising potentials of deposits of marine minerals (Crude sand, heavy minerals, zircon, rutile, magnetite etc.) are also likely (Hussain, et al. 2017b).

S7: Ship Recycling Industries. Bangladesh is ranked 2nd and 3rd largest ship recycling industry in the world considering the number of ships and terms of gross tonnage respectively (Bhuyan, et al. 2021). The industries have an average annual turnover of about 13,000 crore BDT and they employ 50,000-100,000 workers based on the availability of the ships (Business Inspection BD, 2022).

S8: Ship Building/Boat Building. The demand for the construction of small and medium-sized ships is on the rise due to global and Intra-Asia shipping. Bangladesh can avail of the opportunity by building ships in more than 200 government and private-owned shipyards (Rahman, 2017). These shipyards are capable to fulfil almost 100% requirements of inland vessels (Alam, 2021).

S9: Marine Renewable Energy (MRE). There is a potential for naturally available energy sources in the maritime domain viz. wind, wave, solar radiation, tide, water currents etc. which can be converted into renewable energy with appropriate technology (Hussain, et al. 2017b).

S 10: Sea Salt Production. In coastal areas, crude salt is produced mostly along the coastal belt of Cox's Bazar area. The sea salt industry is the largest labour-intensive cottage industry in Bangladesh engaging 5 million people directly or indirectly (Mamun, et al. 2014).

S11: Growing Maritime Education and Research. Several maritime education and training and research organisations like universities, marine academies, marine fisheries academy, marine technology institutes and research organisations like Bangladesh Oceanographic Research Institute, Bangladesh Institute of Maritime Research and Development etc. are growing and up skilling the maritime professionals.

S12: Marine Ecosystem. The BoB is the largest bay in the world and occupies an area of about 2,173,000 sq.km. Hosting a wide range of biodiversity, the BoB is considered one of the 64 largest ecosystems globally (Hoque, 2022).

Weaknesses (W)

W1: Lack of Maritime Domain Awareness (MDA) and Knowledge Gap. Bangladesh's oceanic space is unknown nationally, and people including policymakers seemingly unaware of how to maximize the maritime benefits of this unexplored domain (Kalam, 2019). Various ministries working in the maritime domain have very few professionals and experts, thereby a wide knowledge gap among the policymakers hinders integrated maritime growth.

W2: Lack of Survey in the BoB. Till now, there are no quantifiable estimates of our living resources (Alam, S., 2021) due to a lack of proper oceanic surveys. Bangladesh's offshore basin has been little explored, exploration data is insufficient and exploration drilling is almost non-existent (Sakawat, 2022).

W3: Damage to Ocean Ecosystems. Damage to Bangladesh's ocean ecosystems is caused by coastal and marine pollution, overfishing,

habitat degradation, unplanned coastal development, plastic wastes, and discharge from industries including ship-breaking activities. Sea level rise and salinization threaten 40% of productive land in southern Bangladesh (Benson, 2020). Natural disasters like cyclones, erosion and man-made hazards cause damage to coastal ecosystems thereby affecting the coastal residents.

W4: Lack of Investment. Private sector investment is yet inadequate for maritime development. The entrepreneurs are unaware of the potential of the maritime domain due to lack of adequate knowledge and required data for investment (Chief GED, Planning Commission, 2022).

W5: Lack of Skilled Human Resources. The growing maritime education and training institutions are yet to attain the standard of the global market to produce skilled human resources due to a lack of R&D and focused patronizations.

W6: Poor Coordination among Stakeholders. The management of resources in the coastal and ocean space of Bangladesh is sectoral where more than 20 ministries are involved and they follow very traditional approaches (Alam, S., 2021). Individual ministries take up their projects without proper integration and coordination.

W7: Lack of Marine Spatial Planning (MSP). MSP is an effective tool for the management of ocean resources that integrates all relevant maritime sectors (Bhuyan et al. 2022). The lack of data and knowledge base, legislative protection, stakeholders' engagement, climate change impacts, balancing between economic growth and conservation etc. hinder the progress of MSP in our maritime domain (Shuva & Uddin, 2021).

W8: Lack of Policies and Strategies. A survey carried out on maritime professionals by the researcher reveals about 55% of respondents' view that there is a lack of policies and strategies on blue economy.

Opportunities (O)

O1: Regional Maritime Cooperation. The BoB offers ambient conditions for regional cooperation through SAARC, ASEAN, IORA, BIMSTEC, BCIM etc. (Sakhuja, 2015). These multilateral institutions provide opportunities to cooperate at the regional level on common goals such as economy, connectivity, security, environment, etc. (ibid).

O2: Regional Connectivity. Bangladesh is poised as a regional hub for connectivity. Access through Bangladeshi ports to India's seven sisters and for the development of Northeast India cannot be underestimated. Besides, Bangladeshi ports can be used to transport the cargo of landlocked Nepal, Bhutan, and Kunming of China.

O3: Collaboration in Blue Economy Sectors. Bangladesh has been strongly pursuing regional cooperation in the field of blue economy in all regional forums. Bangladesh has so far conducted two international workshops in 2014 and 2017 to secure international momentum on the progress of blue economy (Alam, MoFA, 2019).

O4: Investment in Coastal Zone. Bangladesh's productive dynamics in the maritime economy may attract foreign investors (Kalam, 2019). Various projects are being undertaken by Bangladesh Export Zone Authority (BEZA) along the coastal belt to foster investment and boost maritime-related industries.

O5: Cooperative Maritime Security. Maritime security cooperation is vital for any regional order. Bangladesh and its BoB neighbours could be employed in joint actions like information sharing, and coordinated sea-air patrols to deal with maritime malevolence such as IUU fishing, drug and human trafficking, piracy, arms smuggling etc. (Kalam, 2019).

Threats (T)

T1: Geopolitical Competition. The rising interest of external powers such as the US and China in the Indian Ocean, particularly towards the BoB littorals, has led to many transnational and multilateral initiatives (Len et al. 2021). In this region, the US-led Indo-Pacific Strategy (IPS) and the Chinese-led Belt and Road Initiative (BRI) converge and diverge, paving the way for other countries in the region to attain leverage and strategic advantage (Shahab, 2021). The growing interest and involvement of regional and extra-regional players created geopolitical competition in the BoB.

T2: Threat to Sea Lines of Communication. The importance of the BoB as a transit region for the SLOC is increasing, which resulted in the expansion and intensification of naval presence (Kabir, Ahmed, 2015). Protection of SLOCs has supplemented the importance of growing maritime power projection capabilities in the region which may generate confrontation among the states hindering trade and commerce.

T3: Maritime Crimes Related to FDMN. Bangladesh hosts more than one million FDMN (RRRC, 2022). Lack of economic opportunity may drive members of FDMN communities to participate in illicit maritime activities with the help of organized gangs along the border of Myanmar. These FDMNs are already engaged in human and drug trafficking and other transnational crimes (10 infantry Division, 2022) which made maritime security in the BoB unpredictable. There may be snowballing effects of security hazards and gradual radicalizations of Rohingya by so-called ARSA and similar groups may result in a potential rise of maritime terrorism.

T 4: Lack of Maritime Cooperation. The BoB region lacks overarching security architecture and stands as one of the least economically integrated regions of the world (Alam, 2021a). Many sub-regional groupings that are working in the region, but their effort is limited to conversations rather than the implementation of shared maritime challenges (Shahab, 2022).

Maritime Development: Emerging Challenges, Evolving Opportunities

Marine Economy: Emerging Sector for Development

A detailed description of the SWOT analysis of Bangladesh's maritime domain reveals the importance of developing maritime sectors which needs to be attained through clear articulation of ends, ways, and means. Strategies for maritime development need to be made taking into consideration of our strengths, weaknesses, and opportunities in the prevailing internal and external environment. The maritime industry encompasses all maritime-related business activities which take place within the country's maritime environment both offshore and onshore (Amuka & Ezinna, 2021). Maritime development demands a broad-based approach in the maritime domain where the preservation of marine ecosystems is vital, people are the principal driver of growth backed by proper policies and strategies. Recently the GoB has been taking some major steps like planning to formulate policies, and mobilizing resources to achieve sustainable, efficient and effective use of maritime resources available in the Bay and coastal waters.

GoB's Vision, Policies, Strategies and Plan

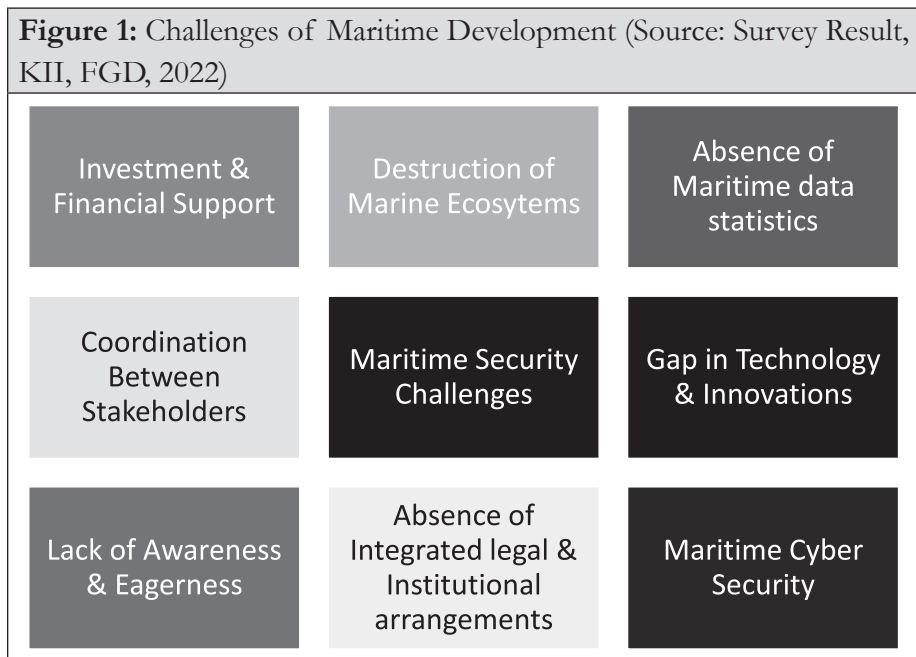
The GoB's plan for maritime development has been generally articulated in the PP2041, BDP 2100, 7th FY Plan, 8th FY Plan and blue economy paper coined by the Maritime Affairs unit of the Foreign Ministry (Alam, 2019). A 25-member Coordination Committee to tap marine resources and proper management was constituted through a gazette notification (dated 22 October 2014). A 'Blue Economy Cell' established in 2017 within the Energy and Mineral Resources Division is carrying out the institutional coordination related to the blue economy activities.

The PP 2041 envisioned number of goals to be achieved for the accomplishment of blue economy activities and to adopt a green

growth strategy. In the 8th FY Plan, the strategies devised for maritime development are sectoral and extended to various ministries of the government to execute. It is revealed that in PP 2041 and 8FYP, not much emphasis was given to the emerging sectors of the marine economy like extraction/exploration of marine hydrocarbon, seabed mining, marine biotechnology, and renewable energy from the ocean etc. Statistics/data revealed in the documents provide a sectoral view and performance of different ministries, thereby, an overall picture of the maritime sector was unclear.

Emerging Challenges of Maritime Development

The prime challenge in maritime development is the right kind of investment and financial support. The investments in maritime development are capital intensive, prone to ecological vulnerability, multi-sectoral, and uncertain. Bangladesh is yet to conduct a full-scale oceanic survey, thereby investment return in maritime sector is unclear.



As per the GED projections, with a growth of 5% between 2020 and 2035, the current Bangladesh blue economy will be increased to \$12.9 billion and it will demand about \$2.5 billion investment (Alam, S., Blue Bond, 2021). The initiation of getting capital from the domestic and international markets needs to be started. The GoB's plan to initiate the 'Blue bond' is a manoeuvre in the right direction (ibid).

With a continental mind-set, our policymakers are still unaware of the link between the hinterland economy and the maritime economy. "Understanding the linkages between the maritime and continental economies is very important for designing maritime economic policy" (Nankivell et al., 2017, p 2) by the policymakers. Besides, the absence of integrated legal and institutional arrangements also hinders the focus on maritime development.

The damage to the marine ecosystem by overexploitation of fishing in shallow waters and rampant plastic pollution needs to be checked through awareness and enforcement of regulations. Bangladesh currently consumes 750,000 tons (Alam, S., 2021) of plastics every year. Huge plastic waste deposition in our sea has already created a dead zone in the BoB.

The perpetrators involved in maritime crimes may take the opportunity to deter the increasing maritime activities in the coastal area and deeper waters. The NTS threats in the maritime domain are to be prevented through a gapless maritime surveillance network. The emerging cyber threat in the maritime domain jeopardizing the on-board integrated systems and security of the SLOC grows appropriate concern for maritime cyber security.

Evolving and Future Sectors of Maritime Development

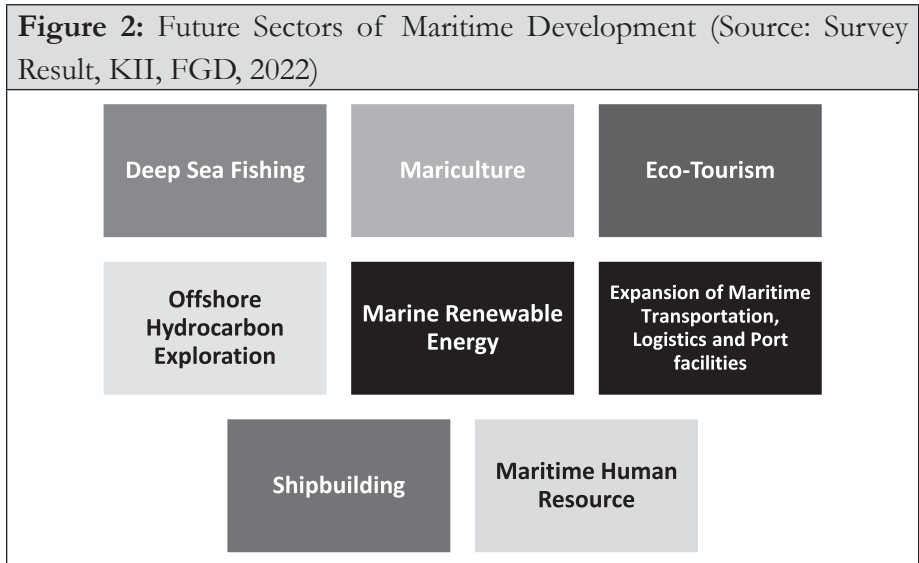
The opportunities for maritime development are to be explored by enhancing the traditional sectors and delving into the emerging sectors of marine economy. Pelagic fishes like Tuna fishing have a great prospect in EEZ as well as in Areas beyond National Jurisdiction (ABNJ). Seaweed farming has a great prospect in the coastal area and it has substantial demand in

the global market. There is a great prospect of marine aquatic-based value-added products in domestic and international markets (Wahab, 2022).

Eco-tourism in Sundarbans, Teknaf and St. Martins may be promoted by building necessary infrastructures and facilities and developing awareness and knowledge among the business stakeholders and consumers.

Bangladesh has divided maritime areas into 11 shallow water and 15 deep water blocks where thermo-genic and biogenic gas is present (Sakawat, 2022). Geological evidence suggests that gas blocks adjacent to the Rakhine basin of Myanmar have great potential to be gas-rich and there is gas hydrate occurrence offshore 250-440 m below the sea floor (ibid).

Power generation from renewable energy sources may be enhanced as per the GoB's target (10% by 2021) from tidal and wind energy. Sandwip Island has a greater prospect for tidal power generation with a tidal range of 5.53 m on average (Ahmed, 2022). The government has also built wind battery hybrid power plants in Kutubdia and more such plants are planned at Matarbari (100 MW), Mongla (55 MW), Cox's Bazar ((50 MW) and Patuakhali (10 MW) (ibid).



The national shipping needs to be expanded to tap international shipping markets as per the guideline of ‘The Bangladesh Flag Vessels (Protection of Interest) Act, 2019’. The performance of ports needs to be improved to remain competitive in the international market by enhancing port logistics capacity, reducing turnaround time, digitization, improving the container and cargo handling capacity, and ensuring prompt administrative support. Bangladesh has launched a direct freight service to Europe (Italy) to lower the time of export for our RMG items. Future inclusion of larger ships in the route will be more cost-effective and effort may be taken to direct freight to other markets like Eastern Europe and the US (April 2022 | CPA News, 2022).

The shipbuilding industry needs inducement to grow to acquire international markets for small and medium ships. “Bangladesh’s shipbuilding industry has the enormous potential to grow by 10%-15% over the next decade” (Patil, et al. 2018, p51). The expansion program of public and private shipyards including shipyards/dockyards managed by Bangladesh Navy may be undertaken to build 50,000 DWT ships in future.

The growing marine education and training institutions and research organizations have the potential for producing maritime professionals to work with the diversified maritime sectors nationally, regionally and globally (Shahadat et al. 2017).

Coastal Industrial Growth: New Avenue for Maritime Development

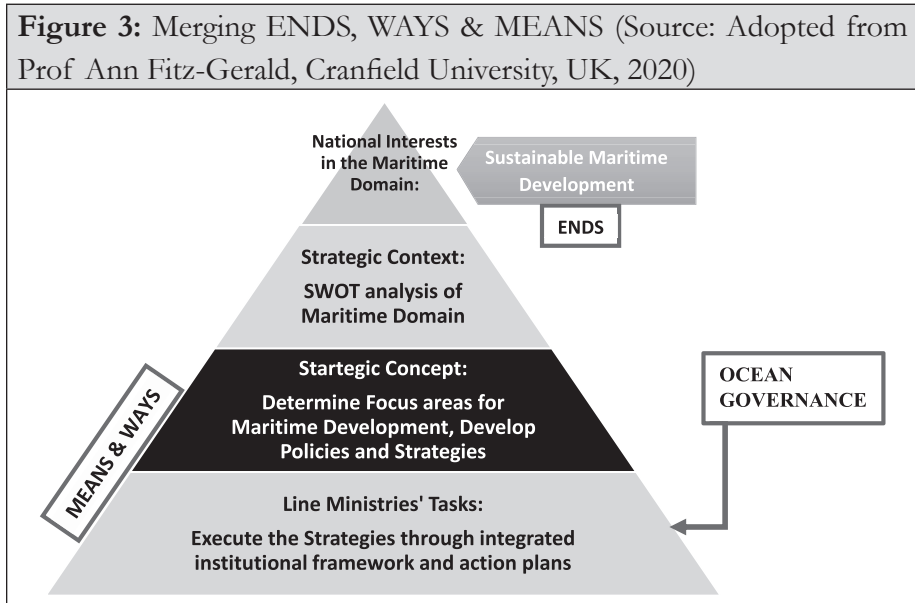
Several initiatives have been taken by the GoB in the maritime sectors like the building of special economic zones, offshore energy clusters, deep-sea ports, multimodal freight corridors, eco-tourism parks, coastal industrial growth belts and other maritime facilities (Iqbal, Kutub, 2021). The GoB’s endeavour in setting up various projects and maritime facilities along the coastal belt for maritime development is likely to enhance the national GVA and will create many upstream and downstream industries.

Table1: Coastal Industrial Growth (Compiled by author)			
Projects	Description	Utilisation	Remarks/ Executing Authority
Special Economic Zones			
Bangabandhu Sheikh Mujib Shilpanagar (BSMSN), Mirsarai	The flagship, 'smart city/ economic zone' as part of development on the eastern coast.	Multi-modal transport and logistics platform incorporating port, rail, roads and airport connectivity.	Established by BEZA (BEZA, BSMSN, 2020).
Eco Tourism Parks			
Sabrang Special Economic Zone Tourism Park	Located in Sabrang union of Teknaf Upazilla of Cox's Bazar district.	Exclusive tourist zone with various entertainment facilities.	BEZA is the executing authority (BEZA, 2022; BEZA, 2016).
NAF Tourism Park	Premier island-based park located on 'Jaliardwip' in the Naf River. Borders both Myanmar and Bangladesh.	Do	BEZA (BEZA, NAF Tourism Park, 2020a).
Maheshkhali-Matarbari Integrated Infrastructure Development Initiative			

Table1: Coastal Industrial Growth (Compiled by author)			
Projects	Description	Utilisation	Remarks/ Executing Authority
MIDI Projects	Thermal power plants, Matarbari deep Seaport and LNG terminal, Maheshkhali Economic Zones, Sonadia Eco Tourism Park	Integrated development of Coastal belt of Maheshkhali-Matarbari zone	The GoB with financial assistance from JICA.
Offshore Energy Clusters			
Floating Storage and Re-gasification Units (FSRU)	Two FSRUs having an LNG storage capacity of 1,38,000 cubic meters were installed near Moheshkhali.	GOB's long-term strategy in the context of Power System Master Plan (PSMP).	US-based Excelerate Energy Bangladesh Limited (EEBL) and Summit LNG Terminal Co. Ltd. (PP 2041, 2020).
Matarbari Coal Power Plant	As part of the MIDI project (estimated investment of \$4.5bn from JICA).	Do	Developed by Coal Power Generation Company Bangladesh
Single Point Mooring (SPM)	Outer anchorage area of Matarbari.	Crude oil will be discharged from large tankers.	Bangladesh Petroleum Corporation

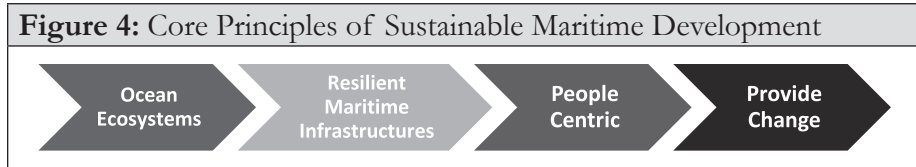
Towards Sustainable Maritime Development: Merging Ends, Ways and Means

The evolving opportunities for maritime development in our maritime domain necessitate merging ends, ways and means to pursue our development vision. The SWOT analysis of the maritime domain has considered the strategic context based on which the strategic concept of maritime development or the lines of action are to be identified, and then individual ministries/departments will execute the strategies through an institutional framework. “The level of development of the marine industry has become a significant indicator to measure a country’s comprehensive national strength” following scientific management of the sea, sea-land coordination, and ecological protection of the sea (Kedong, Yin et al., 2021, p3).



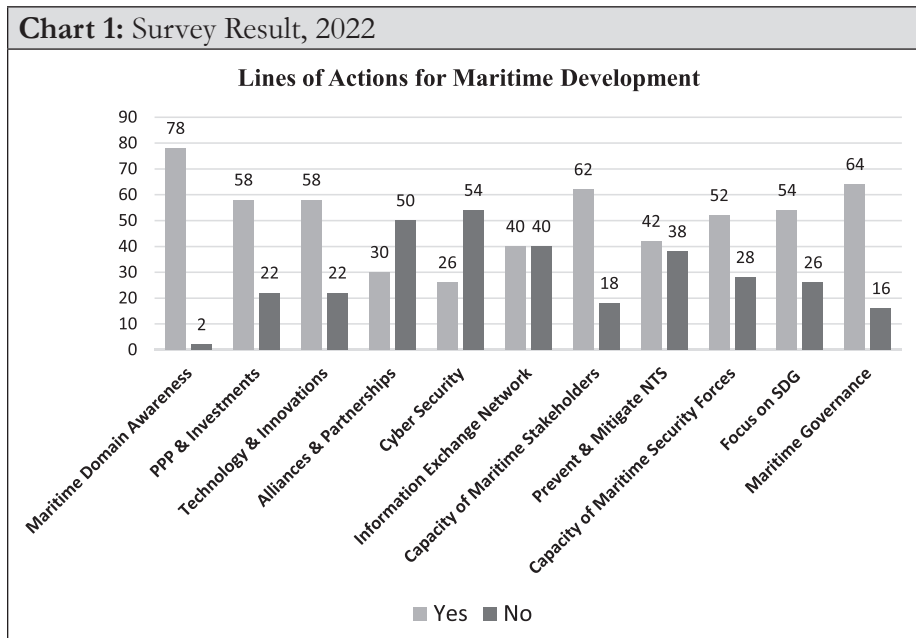
Maritime development demands harnessing our ocean and coastal resources sustainably to strengthen food security, create job opportunities and ensure economic prosperity (Alam, S., 2021). Sustainable maritime development should cater for the ocean ecosystems, resilient maritime

infrastructures (Shahab, 2022), social development or well-being of people and provide change or transformation.



Lines of Action for Sustainable Maritime Development (Means to Meet the Ends)

Maritime development will be the prime determinant of Bangladesh’s future development and economic growth, be it the extension of maritime infrastructures, expansion of maritime trade and commerce, exploitation and use of mineral and living resources including protection of marine environment. Determination of the means or lines of action is crucial. The survey carried out by the researcher identified the focus areas for maritime development. Some of the important lines of action are discussed below:



MDA: Understanding what happens at sea (Bueger, 2016) is important to redraw the conceptual map of the land and maritime space. Building coherence across various ministries, departments and agencies to develop an understanding of various maritime activities affecting our interests domestically and internationally is paramount (UK NMSS, 2014). Enhancing MDA is thus important for policymakers, entrepreneurs, and all strata of society.

Capacity Building. The capacity-building activities may include the development and expansion of maritime Infrastructures like ports and shipyards; promote emerging industries like shipbuilding & recycling, marine fish processing, mariculture, sea-salt production, MRE, CMT; expanding hinterland connectivity with ports and SEZ; develop skilled human resources and encourage maritime education and research etc.

Technology and Innovation. We need to use both indigenous technology and seek foreign technical assistance in the maritime sectors, viz. shipbuilding and green shipping, ocean survey, sustainable ship recycling, marine fishing, marine biotechnology, seabed mining, extracting MRE etc.

Maritime Investments: The acceleration of maritime development in Bangladesh demands a “whole society approach” and needs strong financial support from the private sector as well as FDI where the government will play a crucial role to materialize the implementation.

Maritime Statistics and Data. An increase in the collection of data from the ocean economy must be prioritized to aid further policy-making. There is a need for a separate maritime account, and a yearly ‘Sea Statistics Yearbook’ or ‘Marine Economic Statistic Bulletin’ may be prepared.

Maritime/Ocean Governance. Maritime/Ocean governance deals with coordination; domain awareness; strategy, knowledge and Law; and capacity building (Bueger, 2016). Maritime-related institutions should be brought under a common umbrella to implement the plans and policies of maritime development. An integrated institutional framework is necessary

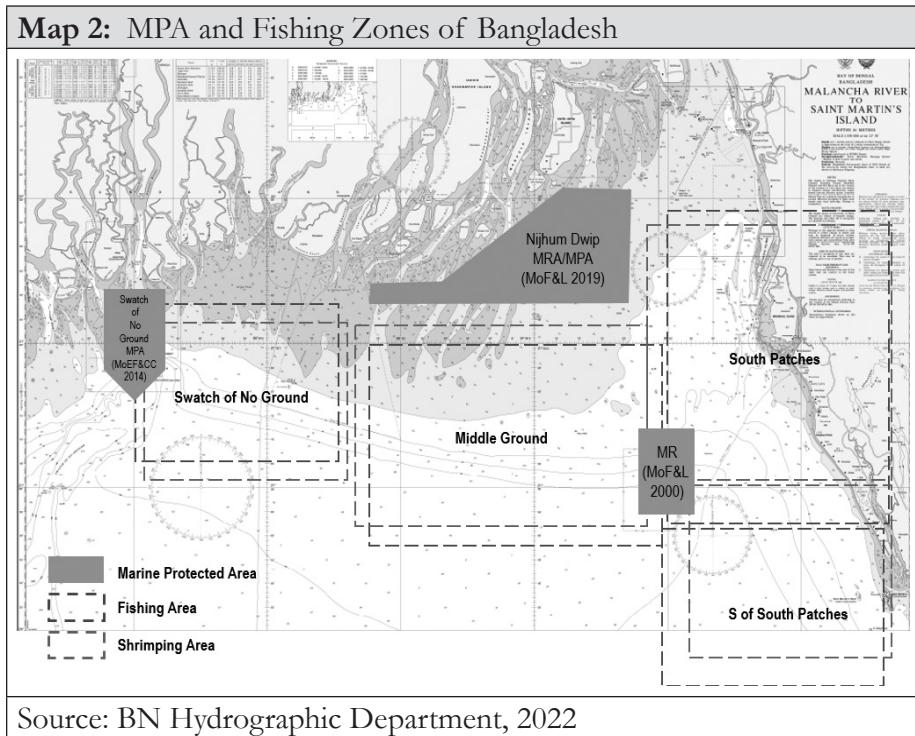
to deal with various cross-cutting issues. Recently, demand for a separate ministry or division for ‘matters maritime’ is being raised among the intelligentsia for central coordination.

Maritime Diplomacy. Establishing a link between maritime cooperation, maritime security and economic development is necessary through proactive maritime diplomacy. We must signal our political will to the regional and international actors in the BoB and the IO how much we value our possessions in the ocean and the national interest attached to it. SAARC, BIMSTEC and IORA may address the issues related to blue economy sectors, preventing transnational threats, preserving the ecosystems, sharing real-time data for maritime safety etc. Instruments of maritime diplomacy i.e. Navy and Coastguard must be strengthened to persuade our agendas of maritime development regionally (Shahab, 2022) and to maintain strategic autonomy. Maintaining balanced relationships with global and regional powers like the US, China, India, EU, UK, Japan, and Australia and cultivating relationships with emerging powers are also essential to withstand the dynamics of geopolitics.

Blue Economy. The sectors in the blue economy must be prioritized so that the economic benefit can be achieved in the short, medium and long terms. It may emphasize exploring high-value fish species and new fishing grounds; applying new technologies to adapt to climate change; providing coastal communities direct access to financial support; restoring and protecting climate-resilient ecosystems and strict rules and policies for sustainable use of marine resources etc. (Sarker et al. 2019; Failler et al. 2021).

SDGs and Ocean management. The ocean-based industries affect the health of the ocean and demand an integrated approach to ocean management like MSP, establishment of Marine Protected Areas etc. Maritime development aligns well with SDG goals, particularly SDG 14 (Life below water), SDG 2 (Reduce hunger), SDG 8 (create job opportunities) and SDG 16 (Building strong institutions). The MSP in Bangladesh is currently non-existent, and marine use is fragmented. Bangladesh is yet to

establish 10% of MPA in EEZ by 2020, whereas our current progress is approximately 5%. The MPA includes 698 km² in the middle ground of South Patches of the BoB; 1738 Km² area in the Swatch of no ground, and Nijhum Dwip MPA covering an area of 3188 km² in the mouth of Hatia Island to Rabnabad Channel (GED, SDG Progress Report, 2020b; Nahid, 2022). Our progress in SDG 14 is insignificant and we need greater effort in operationalizing the SDGs for sustainable maritime development.



Maritime Security. Maritime security needs to be understood and accepted as a vital national security enabler for achieving sustainable maritime development. Protection of SLOC, security of the people and infrastructures, and maintaining gapless maritime surveillance is a challenging task. The surveillance effort needs to be innovative and may be enhanced by placing coastal surveillance networks, air and sea patrols, vessel tracking and monitoring systems, satellite communication links, automatic identification system, and information-sharing systems where

all maritime stakeholders need to converge their resources. The following model may be adopted for a secure maritime domain:

Fig 5: Principles of Maritime Security

PREVENT	PROTECT	RESPOND	COOPERATE
<ul style="list-style-type: none"> • Ensure gapless surveillance in the BoB. • Share information with regional partners. • Pursue capacity-building efforts. • Tackle problems at the source to avert maritime crimes. 	<ul style="list-style-type: none"> • Protect critical infrastructure, trade and people in the maritime domain. • Reduce vulnerability of marine ecosystems. 	<ul style="list-style-type: none"> • Build range of capabilities of maritime security forces to respond to seaborne threats to protect people, infrastructures and territorial integrity. 	<ul style="list-style-type: none"> • Pursue regional and international cooperation to prevent transnational threats including maintenance of sustainable ecosystems.

Source: Prepared by author adopted from UK National Strategy for Maritime Security, 2014

Developing Policies and Strategies (Ways to Attain the Ends)

Maritime/Ocean Policy. An Ocean policy may be prepared for ocean use and marine planning which has to be interdisciplinary catering to the common ocean interests and ensuring a sustainable ocean ecosystem in line with the development vision of the country. “The main elements would be conservation of marine biological diversity, marine planning, maintenance of ecosystem integrity, multiple ocean use and MPAs, etc.” (Iqbal, 2019, p 18).

Maritime Development Strategy. The strategies may “define key policy objectives, with actionable clear directives, enshrined with measurable indicators and roles of the relevant public or private sectors” and will interpret the tenets of Ocean Policy. (Kalam, 2019, p 49-50)

National Maritime Security Strategy. There is also a requirement of national maritime security strategy for the active management of risks and opportunities in the maritime domain to strengthen our prosperity, security and resilience.

Conclusion

The geostrategic makeover of Bangladesh is land-based which needs an orientation towards the sea. The BoB and the possessions herein provide this rising maritime nation with a strategic outlook, be it for prosperity or security. The maritime domain of Bangladesh is almost equal to its land area and will be the prime mover for the future growth and development destiny of this nation. Merging ends, ways and means for sustainable maritime development demands a strategic analysis of the maritime domain, developing a concept of policies and strategies and finally focusing on key maritime sectors utilizing skilled human resources and adequate investments. The wider and inclusive areas of maritime development need to be prioritized and phased in gradually to accrue economic benefits. We need to continue with the traditional maritime sectors and focus on some emerging sectors of the maritime economy based on the capability and capacity at hand. Maintaining and preserving the ecosystems and health of the ocean is the key. A secure maritime domain ensuring the protection of people, resources and maritime infrastructure is vital. We need to strengthen our capability in innovation and technology to advance emerging maritime industries and use marine resources in an orderly manner. We should articulate our foreign policy and maritime diplomacy in the context of geopolitical reality, develop partnership and cooperation, and leave a healthy maritime domain for our future generations.

References

1. Alam, R. A. M. K. (2004), Bangladesh's Maritime Challenges in the 21st Century. Dhaka: Pathak Shamabesh, Dhaka.

2. Alam, R. A. M. K. (2017). Ocean/Blue Economy for Bangladesh. Paper presented at the Conference of Ministry of Foreign Affairs, Bangladesh.
3. Azam, M. S. (2013), Development of Shipbuilding Industry in Bangladesh: Prospects and Problems. National Defence College Journal, Dhaka, pp 1-16.
4. Ahmad, H. (2019), Bangladesh Coastal Zone Management Status and Future Trends, Journal for Coastal Zone Management, Vol. 22 Issue. 1 No: 466
5. Bimal N. P., Malik, A. K. and Nunes, W. ed. (2017), Indian Ocean and Maritime Security Competition, Cooperation and Threat, Routledge.
6. Brewster, D. (2015). Beyond the ‘String of Pearls’: is there really a Sino-Indian security dilemma in the Indian Ocean? The Indian Ocean Region, 10(2), 133-149.
7. BIMRAD Outcome Document. (2022). Prospects and Challenges of Ocean Shipping in Bangladesh.
8. China Ocean Statistics Yearbook; China Marine Economic Statistics Bulletin (2002-2017).
9. Choudhury, M. M. H. (2021), Maritime Logistics Development Strategies and Performance Measurement: A Case Study of Bangladesh Experiment Findings, March 2021, DOI: 10.13140/RG.2.2.36221.90085.
10. Daniel, G. H. and Kwopnan, B. (2018), National Security Challenges and Sustainable Development in Nigeria: A Critical Analysis of the Niger Delta Region, Global Journal of Political Science and Administration Vol.6, No.4, pp.32-50.
11. General Economics Division (2018), Bangladesh Delta Plan 2100, Bangladesh Planning Commission, Ministry of Planning, Government of the People’s Republic of Bangladesh.

12. Germond, B. (2015), The Geopolitical Dimension of Maritime Security, *Marine Policy*, Vol 54, April 2015, p 137-142.
13. Gupta, M. (2010), *Indian Ocean Region: Maritime Regimes for regional cooperation*, Berlin: Springer, 2010, p 19.
14. Hossain, S., Zhang Hao, Hosain Sajjad and Yun Li (2020), Rohingya Refugee Crisis: Security Concerns for Bangladesh, *South Asian Journal of Social Studies and Economics* 8(2): 24-34, 2020; Article no.SAJSSE.61929 ISSN: 2581-821X.
15. Iqbal, K. S., Zakaria, N. M. G. and Hossain, K. A. (2010), Identifying and analyzing underlying problems of shipbuilding industries of Bangladesh, *Journal of Mechanical Engineering*, 41 (2010) 147 - 158.
16. Kaplan, R. D. (2010), *Monsoon: The Indian Ocean and the Future of American Power*. New York: Random House Publishing.
17. Kaplan, R. D. (2014), *The Critical Bay of Bengal*, available at <https://worldview.stratfor.com/article/critical-bay-bengal>, (accessed 21 April 2022).
18. Lee, E.-S., & Song, D.-W (2010). Knowledge management for maritime logistics value discussing conceptual issues. *Maritime Policy and Management*, 37(6), 563-583. doi:10.1080/03088839.2010.514959.
19. Leonard Mark (2016), *Geo-economics with Chinese Characteristics: How China's economic might is reshaping world politics*, *World Economic Forum*, January 2016.
20. Mohanty, S. K., Dash, P., Gupta, A., & Gaur, P (2015). *Prospects of Blue Economy in the Indian Ocean*. New Delhi, India.
21. Natalie K., Joanna Mossop and Donald R.(2010) ed., *Maritime Security: International Law and Policy Perspectives from Australia and New Zealand*, Rothwell, Routledge.

22. Rahman, Rubaiyat (2020), Dynamic Realms of Maritime Diplomacy, available at <https://medium.com/strategic-lenses-international-law-international/dynamic-realms-of-maritime-diplomacy-56bd13ec9969> (accessed 15 May 2022).
23. Sakiko Fukuda-Parr (2011), Poverty and Violent Conflict: Rethinking Development in Neclâ Tschirgi, Michel S. Lund, Francesco Mancini ed. Security and Development Searching for Critical Connections, Viva Books.
24. Till, Geoffrey (2004), Sea Power: A Guide for the Twenty-First Century, London: Frank Cass Publishers.
25. Zhao, Tiantian. (2020), The Changes and Implications of Indian Maritime Diplomacy Policy during Modi Administration. In: Journal of Social and Political Sciences, Vol.3, No.4, 1071-1081.

Author

Commodore Md Moinul Hassan, (ND), BSP, BCGM, ndc, ncc, ndc, psc, BN joined Bangladesh Navy in 01 July 1989 and commissioned in the executive branch of Bangladesh Navy on 01 January 1992. His service career has fine blend of command, staff and instructional appointments. He is a navigator and devoted great length of service at sea in navigational duties. The commodore contributed immensely to shape the naval aviation wing of Bangladesh Navy and served as Commodore Naval aviation and Commanding Officer Flying Wing. The Commodore commanded one Corvette, two Offshore Patrol Vessels, three medium and small Fast Attack Craft, and one missile boat of Bangladesh Navy. He was a Directing Staff (Naval Wing) of the Defence Services Command and Staff College (DSCSC). Commodore Moinul served as Director of Naval plans and Director of Naval Aviation in Naval Headquarters. His tour of duties also include Deputy Director General of Bangladesh Coast Guard under the Ministry of Home Affairs. Currently, the officer is serving as Naval Secretary of Bangladesh Navy. Apart from all mandatory training,

Commodore Moinul had undergone number of training courses both at home and abroad. Few mentionable are: Meteorology Course, Bridge Simulator Operator Course from Italy, Long Navigation and Direction Course from Pakistan, Defence Services Command and Staff College, Mirpur; Defence Services Staff Course from Wellington, India and National Defence Course (NDC) from National Defence College, Mirpur. He has done Masters in Defence Studies (MDS) from National University Bangladesh and Masters in Strategic Studies from Tamilnadu University, India. Commodore Moinul is also an alumnus of Naval War College, Rhode Island, USA where he had completed Naval Command College Course (NCC 2017). Commodore Moinul served as Military Observer in United Nations Mission in Cote d'Ivoire in 2007-08. Due to his distinguished service in the Navy he has been awarded with Bishista Sheba Padak (BSP). He has been also awarded with Bangladesh Coastguard Medal (BCGM) for his operational service in Bangladesh Coastguard.

SAFE FOOD FROM ‘FARM TO TABLE’: CONSUMER AWARENESS IN THE ARMED FORCES OF BANGLADESH

Captain Md Moazzem Hossain, (S), ndc, afwc, psc, BN

Introduction

Safe food is a fundamental physiological need for humans (Nagyová et al. 2019); in his lifetime, a man consumes 30 tonnes of food (De Varies 2021), and poor people in developing nations spend 60–80% of their income on food (Muthuraman and Chandrasekaran 2020). However, consumption of contaminated food causes millions of illnesses with around 200 different foodborne diseases, including diarrhoea, kidney and liver failure, brain and neurological problems, reactive arthritis, cancer, and even death, resulting in the loss of 33 million healthy life annually (Fung, Wang and Menon 2018; WHO 2022). One in 10 individuals falls ill worldwide after consuming contaminated food, leading to over 420,000 deaths yearly (WHO 2022; Zhou, Zhang and Wang 2022). Besides, foodborne diseases have unacceptable social (human suffering) and economic (healthcare, lost working days) costs (Gallo et al. 2020). As such, food safety is one of the most critical issues in human life, meaning food should not endanger human health (King et al. 2017; Shang and Tonsor 2017). However, there are unfair practices at various stages of the food chain, such as deceptive marketing and misrepresenting products (Kamble 2021) including malpractices during production, processing, handling, preservation, and consumption. Any breach at these levels affects food safety (Burgus 2016). As such, farmers, manufacturers, processors, transporters, merchants, caterers, and consumers all must maintain food safety (De Varies 2021). Bangladesh encounters food safety challenges due to its history of adulteration and associated casualties (Arefin et al. 2020; Kamruzzaman 2016). The country’s food safety system and regulatory framework are in an infantile stage (Suman et al. 2021), with little policy attention and modest investment in food risk management (Jaffee

et al. 2019). For example, unscientific farming, low-quality feed, medicine abuse, excessive antibiotics, and growth promoters contribute to unhealthy poultry meat production in Bangladesh (Hafez and El-Adawy 2019; Suman et al. 2021). The food supply chain lacks Total Quality Management (TQM), resulting in intentional or unintentional contamination. Chemicals and antimicrobials are used arbitrarily, resulting in antimicrobial-resistant microorganisms and chemical residues in food. Traditional bazaars often jeopardise food safety systems, while unhygienic food processing in kancha bazaars increases the danger of contamination (FAO 2017). Improper preservation of food and cooking methods at home also lead to cross-contamination and poisoning.

To ensure TQM, all stakeholders from “farm to table,” i.e., from origin to consumption, must ensure food safety since an unhealthy food supply chain promotes foodborne illness and risks human health. However, as one of the most critical links in the food chain, consumers can significantly improve food safety by increasing their food safety awareness and demand for safer foods (Chen, Gibson and Feng 2021; Nadarajan 2021). It is important to note that unaware consumers will not look for or buy safe food (Nagyová et al. 2019). But consumers in Bangladesh seem to be largely unaware of their responsibilities. Even when a serious health issue is exposed due to unsafe food, they blame the government or other stakeholders ignoring own obligations. People seem to think that food adulteration is normal, and they have nothing to do with it. But consumers have a significant role to play here. Being conscious citizens of the country, the armed forces members should be even more concerned about food safety. Because, soldiers are unique consumers (Fitzgerald 2020), and food safety is the first line of defence for any military (Parrish 2015). It is well known that food quality is vital for maintaining the physical well-being, morale, and fitness of military personnel. Foodborne diseases can adversely affect the health and morale of soldiers and, consequently, their combat effectiveness. Due to the abundance of contaminated food in Bangladesh's market, soldiers are highly prone to foodborne diseases. Therefore, soldiers must consume safe food to prevent foodborne diseases, and this may be

possible if they are aware of food safety. On this backdrop, the research intends to determine the level of food safety awareness among the military personnel of Bangladesh and promote a food safety culture among them.

Research Objective

To explore food safety awareness among the consumers of the armed forces in Dhaka City, Bangladesh.

Hypotheses of the Study

Considering the previous literature and the nature of military service, the following hypotheses have been developed for this research:

H₁: Respondents with higher ranks (officers) have more food safety awareness than the lower ranks (soldiers).

H₂: Food safety awareness is proportional to the age of the consumers.

H₃: Married consumers are more aware of food safety than unmarried consumers.

H₄: Consumers' food safety awareness levels rise with income.

H₅: Consumers with higher educational qualifications have higher levels of food safety awareness.

Materials and Methods

The research used a mixed method approach (Creswell and Clark 2018) comprising qualitative and quantitative studies. According to the research objectives, the quantitative study investigated relationships between variables and explained trends (Creswell 2014). Knowledge, Attitude, and Practice (KAP) analysis assessed the consumers' understanding of food safety. A questionnaire-based survey was conducted to collect data to ensure objectivity (Creswell 2014; Creswell and Clark 2018). Closed-ended questions were framed in four sections (Demographic profile, Knowledge,

Attitude and Practice). As a case study, this research primarily focused on consumers' awareness and concerns about safe poultry meat. The armed forces personnel in Bangladesh were the target population, and the personnel serving in Dhaka City were taken as the study population. Two pilot surveys with 20 randomly selected samples were conducted to identify the necessary stimuli for this study. Three hundred eighty four samples, 128 from the Army, Navy and Air Force, each were selected for the quantitative survey through a 3-stage (service, ranks, and sub-categories of ranks) non-probability stratified sampling method (Akanda 2019). As a part of the qualitative study, three Focused Group Discussions (FGDs) were conducted to better understand the food safety awareness and food purchasing behaviours of the consumers. FGDs were purposefully sampled with ten officers, ten Junior Commissioned Officers (JCO), and ten soldiers, and they were randomly chosen from quantitative samples. FGDs were conducted for pertinent themes and factors like consumers' food safety knowledge, attitudes, and practices. In addition, relevant books, journals, articles, documents, and government policies were reviewed. Materials from open and secondary sources like internet, prominent libraries and organisations were also used.

Data Analysis

Statistical Package for the Social Sciences (SPSS) version 25.0 was used to analyse the data. A one-way ANOVA and an independent sample t-test were utilised to test the hypotheses and determine the relationship between food safety awareness and demographic variables. A p-value <0.05 was considered significant. Categorical data has been descriptively summarised using frequencies and percentages, and numerical data has been summarised using means, medians, and standard deviations. For KAP studies, Bloom's recommended cut-off points: (1) 80–100% for high knowledge, a positive attitude, and good practice; (2) 60–79% for moderate knowledge, a neutral attitude, and fair practice; and (3) less than or equal to 59% for low knowledge, a negative attitude, and poor practice (Okello et al. 2020; Olum et al. 2020; Wahidiyat et al. 2021) have been used to categorise participants' knowledge, attitude, and practice about food safety. The respondents were

given 1 point for ‘Yes’ answers and 0 for ‘No’ or ‘Do not know’ answers in the knowledge component. A total score based on the responses to respective statements on a five-point Likert scale has been computed for the attitude and practice components. The combined scores of KAP have been used to determine the respondents’ level of awareness (Alnasser et al. 2021): KAP scores of 80% or more were classified as “Highly Aware,” scores of 60–79% as “Moderately Aware,” and scores $\leq 59\%$ as “Poorly Aware.” Out of 384 samples, 13 were excluded as outliers.

Demographic Profiles and Descriptive Statistics of the Respondents

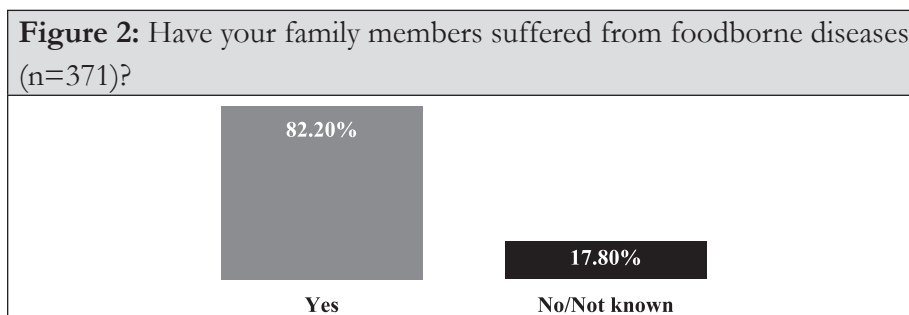
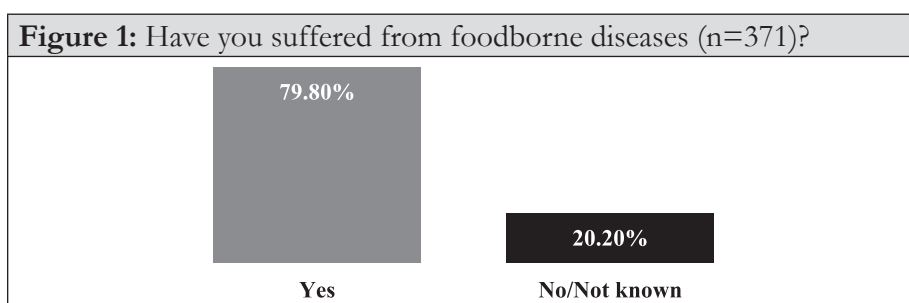
The demographic profile of the respondents are as follows:

Table 1: Demographic profiles and descriptive statistics of the respondents			
Variables	Categories	Frequency	Percentage (%)
Rank	Officers	129	34.8%
	Soldiers	242	65.2%
Age	Up to 30 years	151	40.7%
	31 to 40 years	117	31.5%
	41 to 50 years	88	23.7%
	Above 50 years	15	4.0%
	Mean (SD)	34.19 (9.237)	
Marital Status	Married	285	76.8%
	Unmarried	86	23.2%
Income	Up to 30000	137	36.9%
	30001 - 50000	179	48.2%
	Above 50000	55	14.8%
	Mean (SD)	36986.63 (18267.482)	
Education	Up to HSC	280	75.5%
	Undergraduate	73	19.7%
	Postgraduate	18	4.9%
	Mean (SD)	1.29 (.552)	

Results

Respondents' Experience of Foodborne Diseases

Foodborne diseases affect most Bangladeshi soldiers, as the survey revealed that 79.8% of respondents and 82.2% of their family members had experienced it. The respondents portrayed a similar picture during FGDs.



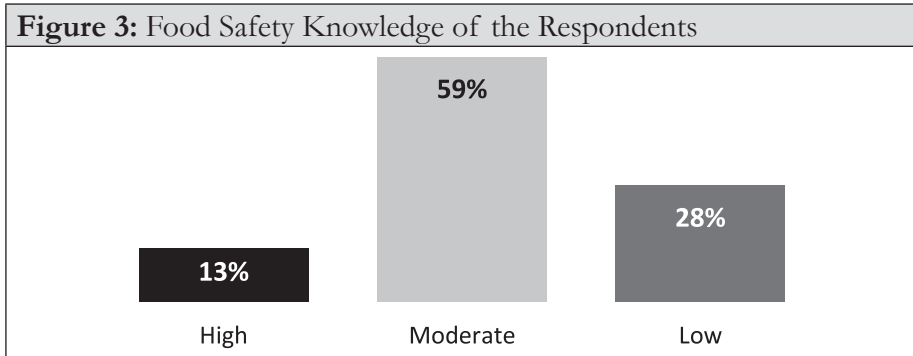
Levels of Food Safety Knowledge

290 (78.2%) respondents answered that they know about food safety, and most (81.1%) agreed that consuming contaminated food can cause foodborne diseases. Nevertheless, they did not know much about food safety management systems (like HACCP), temperature danger zones for preserving food or recognising contamination in foods like poultry meat. The participant's responses to the questions related to food safety knowledge are presented in table 2.

Table 2: Responses to the questions related to knowledge of food safety

Questions on Knowledge	Yes		No/Not Sure		Mean	SD
	N=371					
	N	%	N	%		
Do you know what is 'food safety'?	290	78.2%	81	21.8%	.78	.414
Do you know you may suffer from 200 diseases by consuming unsafe food?	301	81.1%	70	18.9%	.81	.392
Do you know what 'HACCP' is?	95	25.6%	276	74.4%	.26	.437
Do you know who the worst sufferers of foodborne diseases are?	370	99.7%	1	.3%	1.00	.052
Do you know that poultry meat may be harmful to health?	368	99.2%	3	.8%	.99	.090
Do you know that excessive antibiotics, growth promoters, and pesticides produce unsafe poultry meat?	316	85.2%	55	14.8%	.85	.356
Are you aware that antibiotic residue and heavy metals in poultry meat are a health hazard?	305	82.2%	66	17.8%	.82	.383
Do you know how to detect contaminated poultry meat?	00	00	371	100.0%	.00	.000
Do you know the temperature danger zone for food preservation?	00	00	371	100.0%	.00	.000
Do you know that risks of food adulteration and contamination exist from 'farm to table'?	221	59.6%	150	40.4%	.60	.491

Based on the respondents' replies, only 48 participants (12.9%) were found to have a high level of knowledge. Qualitative findings in FGDs also go along with this result. Figure 3 shows the different levels of food safety knowledge of the respondents:



Levels of Food Safety Attitude

Most participants showed positive attitudes towards food safety, as the median scores for most statements were 4 or 5. However, "Awareness of cross-contamination" received a median score of 2, indicating only a few respondents are familiar with it. The median score of 3 on the statement "To remain free from foodborne illness, I should buy safe food" means that the respondents occasionally consider they should buy safe food. Table 3 summarises the respondents' answers to the statements related to their food safety attitudes.

Table 3: Responses to the questions related to food safety attitude

Statements	Always	Mostly	Sometimes	Rarely	Never	Median	Mean	SD
Food safety is a worrisome issue in Bangladesh. (n=371)	121(32.6%)	127(34.2%)	67(18.1%)	55(14.8%)	1(0.3%)	4	3.84	1.050
I may suffer from foodborne diseases. (n=371)	130(35.0%)	90(24.3%)	81(21.8%)	63(17.0%)	7(1.9%)	4	3.74	1.163
Foodborne diseases may cost me money and mental and physical suffering. (n=371)	107(28.8%)	95(25.6%)	133(35.8%)	32(8.6%)	4(1.1%)	4	3.73	1.008
Following food safety practices is important. (n=371)	238(64.2%)	100(27.0%)	32(8.6%)	0	1(0.3%)	5	4.55	.674
Poultry meat may be contaminated during production, processing, or preservation. (n=371)	286(77.1%)	76(20.5%)	6(1.6%)	2(0.5%)	1(0.3%)	5	4.74	.541
Informal poultry farmers use low-quality feed, growth promoters, and excessive antibiotics. (n=371)	181(48.8%)	160(43.1%)	26(7.0%)	4(1.1%)	0	5	4.40	.667
I am aware of cross-contamination of food. (n=371)	5(1.3%)	8(2.2%)	3(0.8%)	191(51.5%)	164(44.2%)	2	1.65	.732
Kitchen hygiene (cleanliness and sanitation) should be maintained to prepare safe food. (n=371)	188(50.7%)	101(27.2%)	69(18.6%)	11(3.0%)	2(0.5%)	5	4.25	.895
To remain free from foodborne illness, I should buy safe food. (n=371)	6(1.6%)	131(35.3%)	151(40.7%)	58(15.6%)	25(6.7%)	3	3.09	.915
By being aware, I can ensure safer food for my family. (n=371)	371(100%)	0	0	0	0	5	5.0	.000

Based on their responses, as seen in Table 4, 164 participants (44.2%) were deemed to have a positive attitude toward food safety with a score of 80% or more, while no one had a negative attitude. The mean attitude score of the respondents was 77.94 (SD 6.289). Qualitative findings (in FGDs) also support this result.

Table 4: Level of Food Safety Attitude of the Respondents				
Level of Attitudes	No of Respondents	Respondents (%)	Mean	SD
Positive (Score 80% or more)	164	44.2	77.94	6.29
Neutral (Score 60-79%)	207	55.8		
Negative (Score \leq 59%)	0	0		
Total	371	100.0		

Levels of Food Safety Practice

Many respondents demonstrated negligible food safety practices at the personal and family levels. The median score of 5 for considering safety factors while purchasing food items means that most respondents always consider the safety factor, and most never consider price before quality (median score of 1). However, these answers differ from their food purchasing behaviours as they mostly buy poultry (median score 4) and process it (median score 3) from unsafe local markets. They rarely purchase HACCP-certified food items (median score 2). The respondents preserved raw and cooked food together (median score of 4). They also sometimes (median score 3) use the same knife and cutting board for fresh meat, fish, vegetables, and fruits. Table 5 summarises the participants' food safety practices.

Table 5: Responses to the questions related to food safety practices

Statements	Always	Mostly	Sometimes	Rarely	Never	Median	Mean	SD
I consider food safety factors while purchasing food items. (n=371)	261(70.4%)	15(4.0%)	17(4.6%)	6(1.6%)	72(19.4%)	5	4.04	1.602
I consider price before quality while purchasing food items. (n=371)	91(24.5%)	15(4.0%)	16(4.3%)	15(4.0%)	234(63.1%)	1	2.23	1.732
I purchase live chicken from the Kancha Bazar. (n=371)	151(40.7%)	79(21.3%)	125(33.7%)	15(4.0%)	1(0.3%)	4	3.98	.965
I process chicken from the local kancha bazaar. (n=371)	82(22.1%)	84(22.6%)	103(27.8%)	71(19.1%)	31(8.4%)	3	3.31	1.243
I ensure the halal slaughter of poultry. (n=371)	138(37.2%)	46(12.4%)	80(21.6%)	63(17.0%)	44(11.9%)	3	3.46	1.431

Table 5: Responses to the questions related to food safety practices									
Statements	Always	Mostly	Sometimes	Rarely	Never	Median	Mean	SD	
I purchase HACCP-certified poultry meat. (n=371)	30(8.1%)	30(8.1%)	58(15.6%)	82(22.1%)	171(46.1%)	2	2.10	1.290	
I practice safe food handling and preservation at home. (n=371)	174(46.9%)	108(29.1%)	64(17.3%)	20(5.4%)	5(1.3%)	4	4.15	.979	
I maintain kitchen hygiene at home. (n=371)	180(48.5%)	103(27.8%)	72(19.4%)	12(3.2%)	4(1.1%)	4	4.19	.933	
I preserve cooked meat and fresh item together in the refrigerator. (n=371)	88(23.7%)	99(26.7%)	83(22.4%)	36(9.7%)	65(17.5%)	4	3.29	1.390	
I use the same knife and cutting boards for raw meat, fruits, and vegetables. (n=371)	101(27.2%)	69(18.6%)	97(26.1%)	64(17.3%)	40(10.8%)	3	3.34	1.329	

Based on the responses, only 27 (7.3%) participants were found to have a good level of food safety practices. The respondents’ mean score was 63.8, with an SD of 12.215. Qualitative findings from FGDs also go along with this outcome. Table 6 reflect the food safety practices of the respondents.

Table 6: Level of Food Safety Practices of the Respondents				
Level of Practice	Number of Respondents	Percentage of Respondents	Mean	SD
Good (Score 80% or more)	27	7.3	63.58	12.22
Fair (Score 60-79%)	235	63.3		
Poor (Score ≤59%)	109	29.4		
Total	371	100.0		

Levels of Awareness of the Respondents

The respondents’ collective scores of KAP were used to assess their overall awareness levels. It was found that only 3.8% of the respondents are highly aware, 84.4% are moderately aware, and 11.8% are poorly aware of food safety:

Correlation of Knowledge, Attitude, and Practices with Food Safety Awareness

A bivariate Pearson correlation coefficient (r) was calculated to determine the relationship between food safety awareness scores and knowledge, attitude, and practice scores. Table 7 summarises the results of the bivariate correlation between the variables:

Table 7: Correlation of Knowledge, Attitude, and Practice with Food Safety Awareness					
		Awareness Score	Knowledge Score	Attitude Score	Practice Score
Awareness Score	Pearson Correlation	1	.779**	.436**	.728**
	Sig. (2-tailed)		.000	.000	.000
	N	371	371	371	371
**Correlation is significant at the 0.01 level (2-tailed).					

A significant positive correlation was found between awareness and knowledge scores, $r(371) = .779$, and awareness and practice scores, $r(371) = .728$, both $p < 0.01$. Awareness and attitude scores have a moderately positive correlation, $r(371) = .436$; $p < 0.01$. Before calculating r , the assumptions of normality, linearity, and homoscedasticity were assessed and found supported.

Hypothesis Testing

H₁: Respondents with higher ranks (officers) have more food safety awareness than the lower ranks (soldiers).

An independent sample t-test was conducted to compare officers' ($n=129$) and soldiers' ($n=242$) mean food safety awareness scores. The test revealed that the mean food safety awareness score of officers ($M=68.68$, $SD=5.89$) was significantly higher (with a mean difference of 1.76, 95% CI) than the soldiers ($M=66.92$, $SD=7.72$), $t(369) = 2.26$, $p = 0.024$, two-tailed.

H₂: Food safety awareness is proportional to the age of the consumers.

A one-way ANOVA was performed to compare the effects of the four different age groups of the respondents on their food safety awareness.

Table 8. One-way ANOVA – Age (Awareness Score)					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	186.314	3	62.105	1.207	.307
Within Groups	18877.593	367	51.438		
Total	19063.907	370			

One-way ANOVA (Table 8 above) revealed no statistically significant difference in food safety awareness among different age groups. ($F(3, 367) = [1.207], p = 0.307$).

H₃: Married consumers are more aware of food safety than unmarried consumers.

An independent sample t-test was carried out to compare the mean food safety awareness score of married ($n=285$) and unmarried ($n=86$) respondents. The test revealed that the mean food safety awareness score of married respondents ($M=67.50, SD=7.30$) was not significantly different from that of unmarried respondents ($M=67.62, SD=6.78$), $t(369) = -0.129, p = .898$, two-tailed.

H₄: Consumers' food safety awareness levels rise with income.

A one-way ANOVA was performed to compare the effects of the three different income groups of the respondents on their food safety awareness. One-way ANOVA revealed that there was a statistically significant difference in mean awareness scores between at least two groups ($F(2, 368) = [3.460], p = 0.032$) as appended in Tables 9 and 10:

Table 9. Descriptives - Scores of Incomes				
	N	Mean	Std. Deviation	Std. Error
Up to 30000	137	67.6253	6.98685	.59693
30001 - 50000	179	66.8007	7.56111	.56514
Above 50000	55	69.6848	5.92665	.79915
Total	371	67.5328	7.17803	.37266
Test of Homogeneity of Variances				
Awareness Score				
Levene Statistic	df1	df2	Sig.	
2.339	2	368	.098	

Table 10: One-way ANOVA - Income (Awareness Score)					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	351.821	2	175.911	3.460	.032
Within Groups	18712.085	368	50.848		
Total	19063.907	370			

Post Hoc Tests

Table 11: Multiple Comparisons - Income (Dependent Variable: Awareness Score)							
	(I) Income Category	(J) Income Category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Lower Bound
Tukey HSD	Up to 30000	30001 - 50000	.82456	.80946	.566	-1.0803	2.7294
		Above 50000	-2.05954	1.13827	.168	-4.7382	.6191
	30001 - 50000	Up to 30000	-.82456	.80946	.566	-2.7294	1.0803
		Above 50000	-2.88410*	1.09935	.025	-5.4711	-.2971
	Above 50000	Up to 30000	2.05954	1.13827	.168	-.6191	4.7382
		30001 - 50000	2.88410*	1.09935	.025	.2971	5.4711

*95% CI

According to Table 11, Tukey’s HSD Test for multiple comparisons found that the mean value of awareness score was significantly different between the income groups of 30001-50000 and above 50000 ($p=.025$, 95% CI= [-5.47, -.29]).

There was no statistically significant difference in mean awareness scores between the income groups up to 30000 and 30001-50000 ($p=.566$) or between up to 30000 and above 5000 ($p=.168$).

H₅: Consumers with higher educational qualifications have higher levels of food safety awareness.

A one-way ANOVA was performed to compare the effects of the respondents’ education levels on their food safety awareness. According to Table 12, the test revealed no statistically significant difference in food safety awareness among different education groups. ($F(2, 368) = [0.728]$, $p = 0.484$).

Table 12: One-way ANOVA - Education (Awareness Score)					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	75.079	2	37.539	.728	.484
Within Groups	18988.828	368	51.600		
Total	19063.907	370			

Discussion

Both qualitative and quantitative studies identified food safety as a serious issue in Bangladesh. Though Bangladesh has a long history of being victimized by severe adulteration in foods with 50% of food products being adulterated (Kamruzzaman 2016), only 32.6% of the respondents believe that food safety is always an issue in Bangladesh. It might be due to respondents’ lack of conceptual understanding about food safety. However, during FGDs, all the respondents expressed that it is always a serious issue. It is encouraging that 64.2% of the respondents concurred

with the necessity of always observing food safety. Nevertheless, the rest of the respondents did not feel this necessity also shows their ignorance of the risks related to unsafe food. Consumers frequently feel compelled to purchase and consume unsafe foods due to lack of alternatives, but they might not know that they are consuming risky foods. Moreover, it is surprising that only 1.6% of the respondents agreed that they should always buy safe food to remain free from foodborne diseases. It has also been discovered that good number of respondents care more about price than quality. They shop from unsafe sources because it is convenient, and prices are low there. Respondents are found reluctant to practise the required food safety at home also. They do not feel to sanitise the kitchen as they might not know its impact. Due to their ignorance about cross-contamination, the respondents use the same knife and cutting board for fish, meat, fruits, and vegetables. They store cooked and uncooked food together in the refrigerator for the same reason. None of the respondents use hand gloves or cooking caps, indicating their reluctance to maintain personal hygiene in the kitchen.

The study revealed military personnel's limited knowledge of food safety with only 13% having a high level of knowledge. This finding contradicts that of Abuhlega (2020); and Abuhlega and Greesh (2021), who found that more than half of the respondents had a high level of knowledge. However, with a mean score of 77.94, the respondents showed better attitudes towards food safety. This result is the same as what Evans et al. (2021) found: most dietetics students had a good attitude about food safety. Regarding practices, the respondents demonstrated a disappointing position. They hardly practice food safety while shopping, food processing, cooking, preserving, and handling. Most respondents (48.8%) think that low-quality feed, growth promoters, and excessive antibiotic use by unlicensed poultry farmers produce low quality poultry meat. 77.1% of the respondents stated that poultry meat may be contaminated during unhealthy processing. Unexpectedly majority of them purchase and process poultry from unhygienic sources. Though the respondents have a positive attitude about food safety, they do not practice it well at the personal or

family level. These findings are congruent with those reported by Bolek (2020). There are also contradictions in the statements. Though 70.4% of respondents said they consider food safety factors while purchasing food items, only a few never buy (0.3%) and process (8.4%) poultry meat from unsafe sources. Only 10.8% of consumers use a different knife and cutting board for cutting raw meat, fruits, and vegetables. The findings on food safety practices in this study differ from those of Ayad et al. (2022) and Evans et al. (2021), where the researchers found that respondents in Saudi Arabia had good practices in food safety.

The study discovered a strong positive correlation between consumer food safety knowledge and practices with food safety awareness, which is consistent with the findings of Mirzaei et al. (2018). The findings indicate that consumers with high levels of knowledge and food safety practices have a high level of food safety awareness. In the study, only 3.8% of the respondents were highly aware, as merely 13% had high knowledge and 7.30% had good practices. Thus, the respondents' awareness level remains low because of insufficient food safety knowledge and practices. The findings suggest enhancing educational and motivational activities to increase awareness. Consumers' food purchasing behaviours and practices must also be embedded in their safe food purchasing behaviour at the individual and household levels. The respondents will be able to demonstrate a better awareness level with enhanced food safety knowledge and practices.

The study discovered that military officers were more aware of food safety than soldiers. Officers' educational, social, economic, and living conditions possibly promote this awareness. However, the study finds no significant difference in food safety awareness among the respondents' different age groups, marital status, and education levels. The non-significant relationship between age and food safety awareness agrees with the findings of Abuhlega and Greesh (2021); Shafiee and Wahab (2021), and Stratev et al. (2017) but contradicts with findings of Islam et al. (2021); and Taha et al. (2019). This non-significant association may be because representatives

of different age groups have similar exposure to the various factors of food safety issues. An insignificant association of food safety awareness against marital status supports the findings of Shafiee and Wahab (2021). However, it contrasts with studies of Islam et al. (2021) and Osaili, Al-Nabulsi and Taybeh (2021), who found married respondents more aware than unmarried. The findings of an insignificant association between education level and food safety awareness contradict those of Arefin et al. (2020); Ayad et al. (2022); Farhana et al. (2020); Osaili, Al-Nabulsi and Taybeh (2021); and Teffo and Tabit (2020), but it supports the studies of Cheng et al. (2017); Mamun et al. (2020); Mubark et al. (2020) and Shafiee and Wahab (2021) who found no significant relationship between these two factors. As price is a determinant factor for food purchases, the income level of the respondents acts as a prime reason for purchasing safe food. Thus, the higher income group was found to be more aware. This finding partially supports the study of Nagyová et al. (2019), who determined the income of consumers to be positively correlated with food safety awareness levels but contradicted Mamun et al. (2020).

Most respondents of the survey were found to be concerned about foodborne diseases. As such, they suggested that food safety problems must be prioritised. Nonetheless, the study uncovered consumers' lack of food safety knowledge and practices and their contradictory purchasing behaviours. It also revealed their lack of knowledge on cross-contamination, kitchen hygiene, food safety management systems, food supply chains, etc. All the respondents agreed that by being aware, they could ensure safer food for their families. But they also felt the necessity of a collective approach by all stakeholders. For this, ensuring all stakeholders' ethical behaviour and motivating them to prioritise human health over business is necessary. According to the respondents, more structured consumer awareness programmes are needed to make them aware. Consumers believe HACCP or similar food safety management systems are essential to ensure safer food. The respondents suggested that food safety lessons should be included in textbooks to develop consumer awareness. Consumers will benefit from broadcasts about food safety on television and social media.

They suggested organising street drama near bazaars and short plays on television. Regular seminars, symposiums, and professional discussions will also help promote consumers' food safety practices.

Conclusion

Food safety situation is a serious problem and widely discussed issue in Bangladesh. The armed forces members live with the same problems as other citizens of the country. Most of the respondents of this study and their family members have experienced foodborne illness at some point in their lives. This creates a serious concern about the physical health, mental well-being including fitness of the soldiers and their availability during crises. Soldiers are critical consumers since they work in a unique environment and sometimes under significant mental stress. For them, food safety is even more vital. In this research, the food safety awareness of military personnel has been investigated by determining their knowledge, attitude, and practices (KAP).

Most consumers in Bangladesh's armed forces are found to be moderately aware of food safety. Only a few of them are highly aware. It is found that only a small portion of the respondents possess high-level food safety knowledge, and most of them hardly practise food safety at personal or family levels. The respondents' ignorance about food safety management systems like HACCP, cross-contamination, safe food handling, or temperature danger zones makes them reluctant to food safety compliance. Nearly all the respondents showed a negative attitude towards poultry meat quality, especially those traded in the kancha bazaar. Despite knowing that it is unsafe, most of them purchase and process chicken from these bazaars. Price and convenience play a role here. Surprisingly, only a few respondents felt they should always buy safe food to remain free from foodborne diseases which depict their disappointing purchasing behaviour. Many of the consumers consider price over quality due to their obliviousness to food safety and financial constraint. Using the same knife for vegetables, fruits, raw fish, and meat and preserving cooked and

uncooked food together in the refrigerator result from their reluctance of safe food practices. It indicates the necessity of significantly improving food safety knowledge and practices among military consumers.

The study finds no statistically significant difference in food safety awareness among the respondents' different age groups, marital statuses, and educational levels. There is a need for effective education to ensure that people in the armed forces know how to ensure safe food for them. However, food safety was influenced by purchasing power, as there was a significant correlation found between awareness and income. Moreover, the officers were found to be more aware than the soldiers. As such, officers must motivate soldiers to be more aware of food safety issues. A holistic approach will be required, incorporating all the stakeholders in the food chain to produce, trade, and consume safe food. For this, consumers need to know more about the safety problems in the food supply chain. Compliance with food safety management systems, like HACCP, will promote safe food production. Finally, to maintain the well-being, morale, and discipline of military forces and their combat effectiveness, the armed forces members of Bangladesh must be made aware of food safety issues through enhanced knowledge and practices. Further research could be undertaken on enhancement of food safety knowledge and practices of the consumers.

References

1. Abuhlega, T 2020, 'Awareness of Food Safety among 1874 Secondary Students in Tripoli city, Libya. Jordan', *Journal of Agricultural Sciences*. Available at: 16. 2020. 10.35516/jjas.v16i2.58, [Accessed 14 April 2022].
2. Akanda, MAS 2019, *Research methodology – a complete direction for learners*, Akanda & Sons Publications, Dhaka.
3. Alnasser et al. 2021, 'Public knowledge, attitudes, and aractice towards COVID-19 Pandemic in Saudi Arabia: A web-based cross-sectional survey', *Med. Sci.* vol. 9, no. 1, Article no. 11, Accessed 12 April 2022.

4. Arefin, A, Arefin, P, Habib, MS and Arefin, S 2020, 'Study on awareness about food adulteration and consumer rights among consumers in Dhaka, Bangladesh,' *Journal of Health Science Research*. Available at: 05. 24-29. 10.18311/jhsr/2020/25038. [Accessed 12 May 2022].
5. Ayad, AA, Abdulsalam, NM, Khateeb, NA, Hijazi, MA and Williams, LL 2022. 'Saudi Arabia household awareness and knowledge of food safety,' *Foods*, 11(7), p.935, Accessed 23 April 2022.
6. Bolek, S 2020, 'Consumer knowledge, attitudes, and judgments about food safety: A consumer analysis,' *Trends in Food Science & Technology*, vol. 102, no. pp. 242-248, Accessed 23 April 2022.
7. Burgus, H. and Neetoo, H., 2016. 'A study on food safety knowledge and perceptions among poultry consumers in Mauritius,' *The Journal of World's Poultry Research*, vol. 6, no. 3, pp. 121-130, Accessed 22 June 2022.
8. Chen, H, Gibson, K and Feng, Y 2021, 'Identification of food safety education needs for military veteran farmers,' *Food Protection Trends*, vol. 41, no. 6, pp. 534-546, Accessed 25 May 2022.
9. Creswell, JW and Clark, VLP 2018, *Designing and conducting mixed methods research*, 3rd edn, Sage publications, California, Accessed 13 April 2022.
10. Evans, EW, Redmond, EC, Alwan, N and Ilic, S 2021, 'Awareness and attitudes of student dietitians in Lebanon, UK and USA towards food safety' *Foods*, 10, 1875, Accessed 23 May 2022.
11. FAO, 2017, *Bangladesh Food Safety Cluster Evaluation*, Food and Agriculture Organization of the United Nations, Office of Evaluation (OED), Available at: <http://www.fao.org/evaluation> [Accessed 23 March 2022].
12. Fitzgerald, D 2020, 'World War II and the quest for time-insensitive foods,' *The University of Chicago Press Journals, OSIRIS*, vol. 35, pp. 291-309, Accessed 23 June 2022.

13. Gallo, M, Ferrara, L, Calogero, A, Montesano, D and Naviglio, D 2020, 'Relationships between food and diseases: what to know to ensure food safety,' *Food Research International*, Available at: [https:// doi.org/10.1016/j.foodres.2020.109414](https://doi.org/10.1016/j.foodres.2020.109414). [Accessed 23 May 2022].
14. Hafez, MH and El-Adawy, H 2019, 'Foodborne diseases of poultry and related problems', *Science Repository, Journal of Food Nutrition and Metabolism*, vol.1, no.1, pp. 1-5, 24 June 2022.
15. Islam, MT, Dola, TA, Islam, MN, Amin, MA and Islam, MS 2021, 'Food safety awareness among the Vasantek Slum people of Dhaka City,' *Journal of Brahmanbaria Medical College*, 3(1), pp.24-28, Accessed 06 April 2022.
16. Jaffee, S, Henson, S, Unnevehr, L, Grace, D and Cassou, E 2019. *The Safe Food Imperative: Accelerating Progress in Low- and Middle-Income Countries. Agriculture and Food Series*; Washington, DC: World Bank. © World Bank.
17. Kamble, S 2021, *What is Consumer Awareness? – Consumer Rights and Responsibilities Explained*, Available at: <https://www.feedough.com/consumer-awareness/> [Accessed 27 June 2022].
18. Kamruzzaman, M 2016, *Formalin crime in Bangladesh: a case study*, *European Journal of Clinical and Biomedical Sciences*, vol. 2, no. 5, pp. 39-44.
19. Nadarajan, RD 2021, *Consumer Awareness Campaigns on Food Standards and Safety in Cambodia, Lao PDR, Myanmar, and Viet Nam – ASEAN Regional Stocktaking*, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Accessed 22 May 2022.
20. Parrish, SM 2015, *Food Safety in Kosovo*, Defence Visual Information Distribution Service, Camp Bondsteel, Kosovo. Available at: <https://www.dvidshub.net/news/151717/food-safety-kosovo> [Accessed 17 June 2022].

21. WHO, 2022, Foodborne Diseases, Available at: https://www.who.int/health-topics/foodborne-diseases#tab=tab_1 [Accessed 21 March 22].
22. Wahidiyat, PA, Yo, EC, Wildani, MM, Triatmono, VR, and Yosia, M 2021, 'Cross-sectional study on knowledge, attitude, and practice towards thalassemia among Indonesian youth,' *BMJ Open*, vol. 11, no. 12, pp. 1-11, Accessed 12 May 2022.
23. Zhou, Q, Zhang, H and Wang, S 2022, 'Artificial intelligence, big data, and blockchain in food safety,' *International Journal of Food Engineering*, vol. 18, no. 1, pp. 1-14, Accessed 19 April 2022.

Author

Captain Md Moazzem Hossain was commissioned in the Supply Branch of Bangladesh Navy on 01 January 1992. The officer held various Command and Staff appointments aboard in various naval ships and bases. He served at Naval Headquarters as Director of Naval Education Services and Director of Naval Supply and Transport. He Commanded the School of Logistics and Management, Khulna, and Naval Stores Depot, Chattogram. He also served as the Director of Finance at Khulna Shipyard Limited. He attended various courses at home and abroad. He is a Defence Services Command and Staff College, Mirpur graduate and an alumnus of the Armed Forces War Course 2015 and National Defence Course 2022 of National Defence College, Mirpur. He did Long Logistics and Management Course from INS Hamla, India, in 2005-06 and Naval Staff College Course from Naval War College, Rhode Island, USA, in 2010. He also did Senior Staff Course from Bangladesh Public Administration Training Centre, Savar. He served as Military Observer in UNMIS, Sudan 2006-2007. He obtained his MPhil degree from Bangladesh University of Professionals in 2020. He has a diploma in Supply Chain Management from ITC, Geneva, Switzerland. He is happily married and blessed with a son and a daughter.

AVIATION SECURITY IN BANGLADESH: A CASE STUDY OF HAZRAT SHAHJALAL INTERNATIONAL AIRPORT

Air Commodore Md Asif Iqbal, BUP, ndc, afwc, psc, GD(P)

Introduction

Aviation security involves multi-dimensional and multi-faceted threats, importantly damage to valuable equipment and human lives. Thus, aviation security threat management gets an important apprehension for all aviation stakeholders including aviation industries, organizations, managers and operators. The 9/11 incident exposed before the world the significance of aviation security and its deadliest consequence on human lives, assets and international peace and security. The world has witnessed two bloody wars, the Afghan War in 2001 and the Iraq War in 2003, as the sequel to the 9/11 incident. It is also worth mentioning that the present-day security concept is hybrid, complex, volatile, hectic and ambulatory.

Hazrat Shahjalal International Airport (HSIA) being the aviation hub and the gateway for Bangladesh contributes 0.1% of GDP including national security and development. Thus, the aviation security status of HSIA is one of the prime concerns of all the stakeholders including national policymakers. A safe and secure airport environment can build confidence among travellers, businessmen and investors as well as enhance the image of HSIA and Bangladesh to the international community. No denying the fact that an aviation security assessment is important for HSIA like all other international airports which will contribute identifying the challenges related to aviation security to provide options to Civil Aviation Authority, Bangladesh (CAAB) and HSIA to improve and ensure International Civil Aviation Organization (ICAO) standard security environment by formulating necessary policies, counter mechanisms, practices and tools. This will ultimately give a comprehensive idea to justify the implementation

benefits and quantify the organizational efficiency enhancement before its implementation. It is prophesied that HSIA with its improved security environment will be able to contribute further to national security and development.

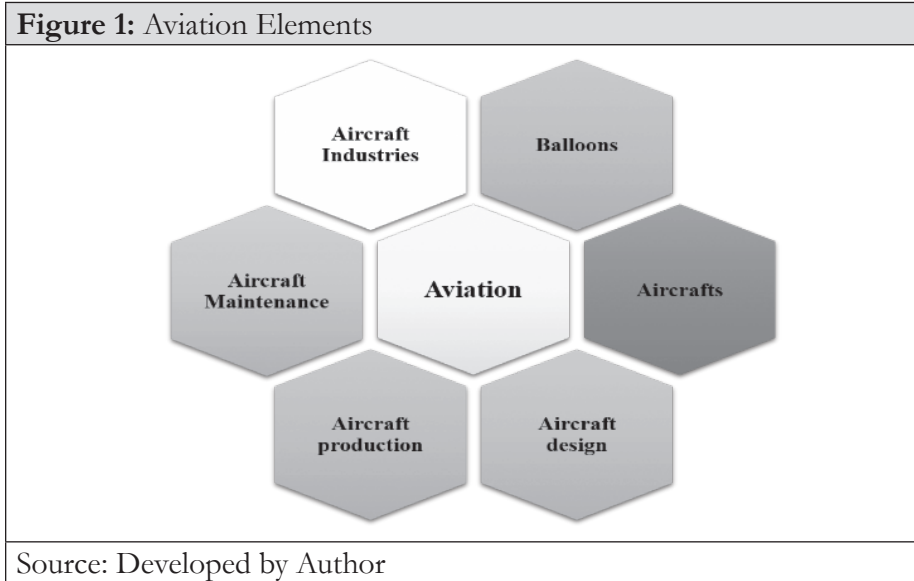
Methodology

An explorative and qualitative research approach has been followed. Primary data have been collected through qualitative research methods i.e. Focus Group Discussions (FGD), Key Informant Interviews (KII) and site visits. Both FGD and KII have been planned with the key personnel of CAAB, HSIA authority, management and operators of different aviation companies and experts on aviation security. To supplement the primary data, secondary data have been gathered from previous research and internal documents. Besides, books, journals, newspaper articles, periodicals, open-source documents have also been reviewed. The author being an aviator and administrator of Bangladesh Air Force (BAF) included personal observations during the analysis and argument but remained conscious of his position and status as the author, avoided any interest conflict and biasness and followed the standard objectivities and ethics criteria.

Theoretical Concept and Overview of Existing Aviation Security Status of HSIA

Theoretical Concept

Aviation. Cambridge Dictionary defines aviation as the activity of flying, designing, producing and maintaining aircraft in good condition. Merriam-Webster includes the operation of the aircraft as part of aviation definition as well. However, Wikipedia defines aviation as the activities surrounding mechanical flight and aircraft industries. Here aircraft is considered as fixed-wing, rotary-wing, morph-able wings, wing-less lifting bodies and lighter-than-air craft such as hot air balloons and airships. The aviation elements are given in Figure 1.



Aviation Security. Aviation Security is all about safeguarding international/national civil aviation against acts of unlawful interference. According to the ICAO’s Aviation Security Manual, (Document 8973) aviation security is defined as “a combination of measures, human and material resources intended to safeguard civil aviation against acts of unlawful interference”. This definition includes articles, devices or substances that could be used to commit such acts as well as any other threats to the safety and security of civil aviation.

Airport Security. As per ENCYCLO.CO.UK, airport security refers the techniques and methods used in an attempt to protect passengers, staff, aircraft, and airport property from malicious harm, crime, terrorism and other threats. The fundamentals of airport security are given in Figure 2.

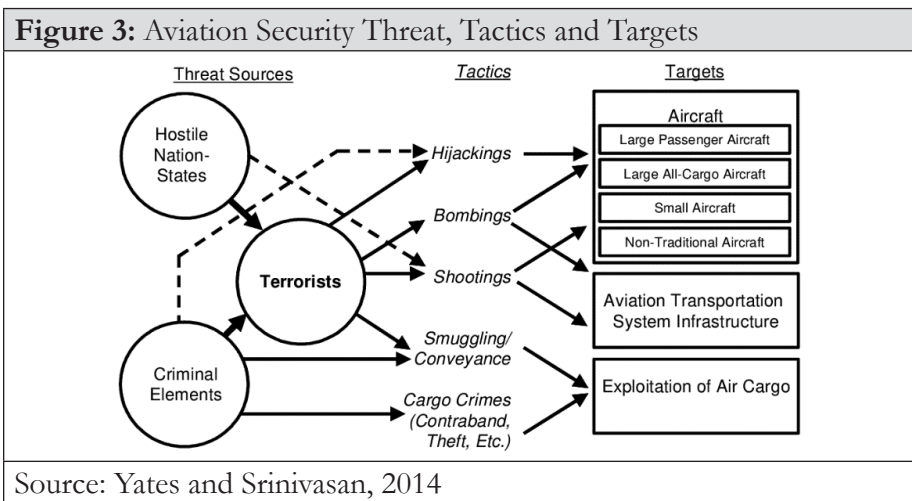
Figure 2: Fundamentals of Airport Security



Source: JT Aviation Solution

Aviation Security and National Security Nexus. The dramatic change in the geo-politico security scenario has brought changes in the concept of national security from the traditional military outlook to non-traditional security (NTS) issues which is presenting new challenges for developing security architecture. After the horrific 9/11 attack, there have been many calls for adopting a new conception of comprehensive national security where aviation security would claim a due share of importance. The aviation security threats, tactics and targets are delineated in Figure 3.

Figure 3: Aviation Security Threat, Tactics and Targets



Source: Yates and Srinivasan, 2014

Aviation Security and National Interest Nexus. Terrorists, criminals, and hostile nation-states have long viewed aviation as a target for attack and exploitation against national interests. It is therefore vital that the essential valued aspect of a nation like airports are to be protected appropriately. In economic parlance, within the framework of aviation strategy, aviation security can strengthen the investment base and in turn, stimulate the country's economic growth.

Overview of Existing Security Status of HSIA

The following disciplines are considered to review the present aviation security status of HSIA:

- **Policy and Directives.** HSIA runs its own Airport Security Programme (ASP). Besides, it has different post/location-wise Standard Operating Procedures (SOPs), Airport Permit Policies etc. It has to comply with the national/regulatory requirements as laid in the National Civil Aviation Security Programme (NCASP) of CAAB. All the programs/manuals/policies/SOPs are derived from ICAO Annex-17 and ICAO guidance manual Document-8973. Bangladesh is a signatory to the convention on international civil aviation (the Chicago Convention 1944).
- **Regulatory Body.** CAAB, an organ of the Ministry of Civil Aviation and Tourism (MoCAT), is the appropriate regulatory body to formulate and implement aviation law, rules and regulations following the ICAO-provided guidelines and national law of the country. However, the task and role of the regulatory body are not properly delineated yet to other stakeholders of aviation.
- **Command Control (C2) Structure.** CAAB is the appropriate authority to protect civil aviation from the act of unlawful interference (aviation security) and is legally empowered to arrange the security of the airports through the Civil Aviation Act 2017 and Civil Aviation Authority Act 2017. All the employees of CAAB recruited under the

Aviation Security Division (AVSEC) at the CAAB Headquarters are named as AVSEC personnel. CAAB AVSEC is responsible for aviation security and all other agencies coming under the 'In Aid to Civil Power' to supplement the AVSEC of CAAB. Any government agency or state agency coming to render service is controlled by CAAB. However, the security duties performed by 'In aid to civil power' agencies and APBN needs a clear mandate to be given by CAAB.

- **Level of Security Awareness and Mindset.** ASP, SOPs and Security Post Instructions (SPI) are provided with details instructions regarding the Modus of Operandi. In addition, to enhance awareness, General Security Awareness Training (GSAT) are also conducted periodically. To build security awareness among the passengers HSIA authority displays festoons, billboards, markings, TV advertisements, posters, security instructions etc.
- **Manpower and Management.** The actual strength of CAAB security personnel at present is hovering not more than 900 with less than 500 effectively employed for pure security functions against an approved organogram of 1602 personnel. Personnel from Ansar and APBN deployed for AVSEC are from different backgrounds and environments having no association with aviation and enduring under individual services C2 arrangements. APBN deployed for strengthening the perimeter security is without a specified Charter of Duties and Memorandum of Understanding (MOU) with CAAB. Security duty under the present arrangement is very random.
- **Security Equipment and Facilities.** HSIA is trying to maintain its aviation security environment with limited but modern equipment and facilities. CAAB has ordered few new security equipment and scanners which are yet to arrive or are under validation. CCTV coverage is limited without infrared (IR) facilities. There is no dedicated Quick Reaction Force (QRF), Bomb Disposal Unit (BDU) or dog squad for security duties to meet the immediate crisis. The list of security equipment of HSIA is given in Table 1.

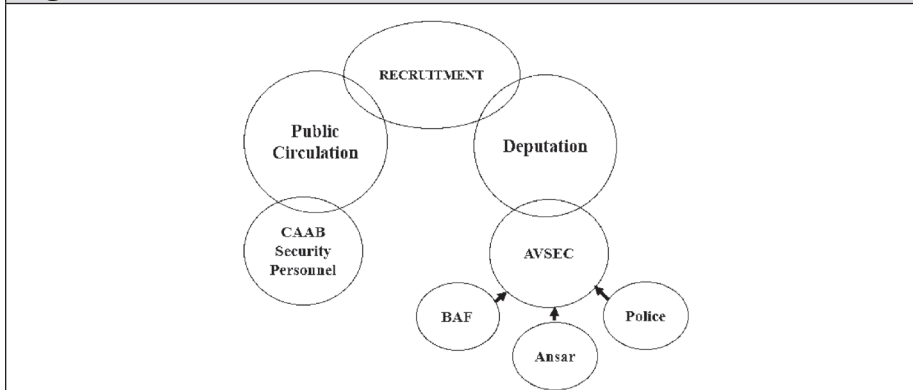
Table 1: List of Security Equipment

Hold Baggage Dual View Scanner	Walk Through Metal Detector	Explosive Trace Detector (Implant Science)	Flap Barrier	PA System
Hold Baggage Single View Scanner	Hand Held Metal Detector	Explosive Trace Detector (Morpho)	CCTV	Walkie Talkie
Cabin Baggage Dual View Scanner	Explosive Detection System (Smiths)	Explosive Trace Detector (Smith)	FIDS Monitor	X Ray machine
Cabin Baggage Single View Scanner	Explosive Detection System (Rapiscan)	Body Scanner	Pass checker	ID Punch Machine

Source: Developed by Author

- Recruitment and Training.** CAAB Security personnel are recruited through public circulation. AVSEC personnel come on deputation from BAF, Police and Battalion Ansar. The security personnel receive short training sessions at the CAAB training centers. The recruitment process is given in Figure 4.

Figure 4: Recruitment Process

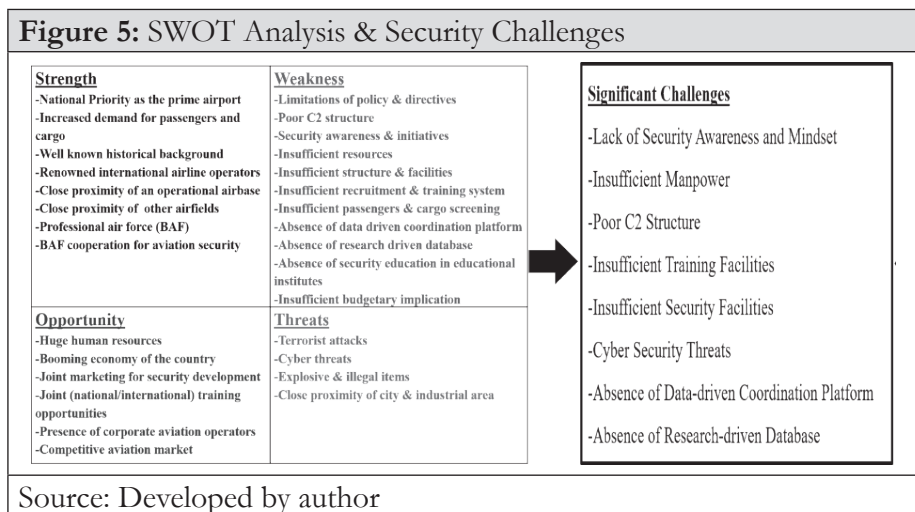


Source: Developed by Author

BAF Contributions. BAF Base Bangabandhu (BAF BBD) provides all necessary support to HSIA to maintain aviation security and to combat traditional and non-traditional security threats under a signed MOU. BAF already formed the backbone of AVSEC by providing 161 BAF personnel including 12 officers. BAF BBD provides experts, fire vehicles, QRF, Explosive Ordnance Disposal (EOD) Team, explosive and metal detectors, Fire Fighting Team, Medical Team, etc. during any requirement. This base also conducts regular joint training and exercise with HSIA for the improvement and better coordination regarding aviation security. It may be mentioned that BAF BBD played a significant and appreciated role during the hijacking attempt of Bangladesh Biman and the COVID-19 pandemic at HSIA.

Aviation Security Challenges of HSIA

Aviation security challenges of HSIA have been ascertained through a detailed Strength-Weakness-Opportunity-Threat (SWOT) analysis exploring its weakness and threats. The SWOT Analysis and the security challenges of HSIA are shown in Figure 5.



Limited Security Awareness and Mindset. A far-fetching action plan is needed to be developed for aviation security. Presently CAAB is only foreseeing what awaits in the future and how to strengthen the system to adapt to it. More so, negligence toward rules and regulations among the security personnel is also found.

Shortage of Manpower. CAAB lacks 50% of effective manpower for pure security functions. On the other hand, empirically, HSIA needs 7-8 thousand people based on the tremendous undergoing growth potential. Presently, there is a manpower shortage to ensure security at HSIA as well as to handle the present day's aircraft and equipment. Considering the level of integrity of the personnel involved in ensuring security in our airports, it can easily be assumed that, miscreants or terrorists would be able to manage access to sensitive areas without much difficulty and cause damage or destruction.

Suboptimal C2 Structure. AVSEC Force needs to operate under strict and unified C2 arrangements to counter the security challenges at the airports. The present CAAB setup suffers from the effectiveness of C2. It is feared that, in the event of a bomb threat or hijacking, there could be massive chaos and disorder in our airports due to the suboptimal C2 structure. More so, the quality control body of CAAB is not independent of the implementation of the NCASP. It also does not have the appropriate authority to enforce severe consequences against any deviation from aviation security standards by airports/airlines. Unfortunately, CAAB, airports and airline operators are intrinsically linked and all are under MoCAT which denies the right drivers for the right behaviors concerning aviation security.

Shortage of Training Facilities. Modern aircraft with cutting-edge technology needs skilled and pertinent trained personnel. Presently, CAAB lacks a state-of-the-art academy for pertinent training on cutting-edge technology, maintenance and security aspects of modern aircraft. Professional approach to better training and appropriate training equipment for aviation security is also a major challenge for CAAB. CAAB receives

only 1 or 2 vacancies for ICAO certification training every year. But it needs bulk people to be certified which is also not possible through the arrangement at other countries' security training centres.

Shortage of Security Facilities. At HSIA, CCTV coverage is limited with no Infra-Red facilities. HSIA Security Division has limited capabilities to detect CBW and appropriate counter measures. The communication network for vulnerable posts is meagre. HSIA Security Division does not have QRF, BDU or Dog Squad. However, BAF provides all the necessary support to overcome such limitations and challenges during requirements.

Cyber Security Threats. HSIA Security Division has limited capabilities to protect its network system from cyber-attack in the present-day context.

Absence of Data-Driven Coordination Platform. Unfortunately, CAAB does not maintain any data-driven coordination platform. It does not have any intra-airport or inter-airport data server for data preservation and data analysis for prevention and improvement. Presently HSIA lacks data collection related to access control, business management and operational management. It is almost functioning unregulated way and the stakeholders provide services as per their ways and regulations.

Absence of Research-Driven Database. CAAB does not have any research-driven database in any of the airports. Hardly any initiative has been visible to carry out empirical study related to the problem statements of the airports, security-related issues, business management, operation management etc. The lack of empirical data regarding flight information, passengers, and cargo challenges the security environment of HSIA.

Case Study on Other Countries and International Airport Abroad

An endeavor has been made to have a closer look at the other countries (India, Pakistan, Malaysia, Thailand, USA and Kenya) and international airport (Jomo Kenyatta International Airport, Kenya) for realizing their

security environment to evaluate HSIA perspectives and subsequent improvement.

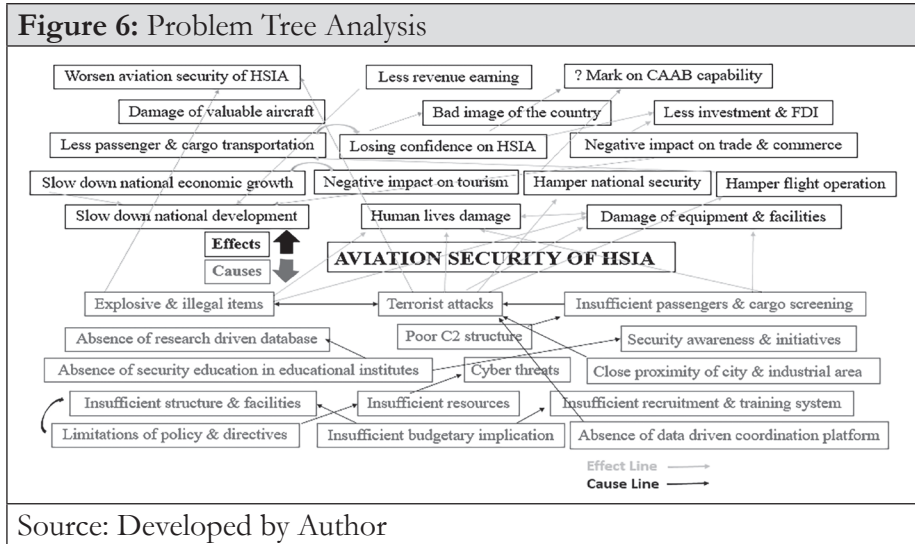
Analysis of Case Study

- Airport security has assumed paramount importance worldwide. The system underwent a significant overhaul including the creation of an independent body to address the issue in many countries.
- Different countries are addressing the aviation security issue in different ways, tailored to meet their requirement based on several other factors.
- A dedicated security force has significantly improved the standard of aviation security as a whole.
- The Air Force of a country can be a force multiplier to civil aviation security measures.
- Aviation security issues have to be dealt comprehensively. Growing multifarious traditional and non-traditional threats against aviation demand close coordination and cooperation of all concerned operators under a single C2 arrangement.
- Airport security models followed by advanced countries like the USA, Canada and UK would not be suitable for Bangladesh.
- However, Airport Security Models used by regional countries (India, Pakistan, Thailand, and Malaysia) having similar socio-economic situations and threat scenarios would be the most appropriate models for Bangladesh to pursue with necessary modifications.

Suggested Measures

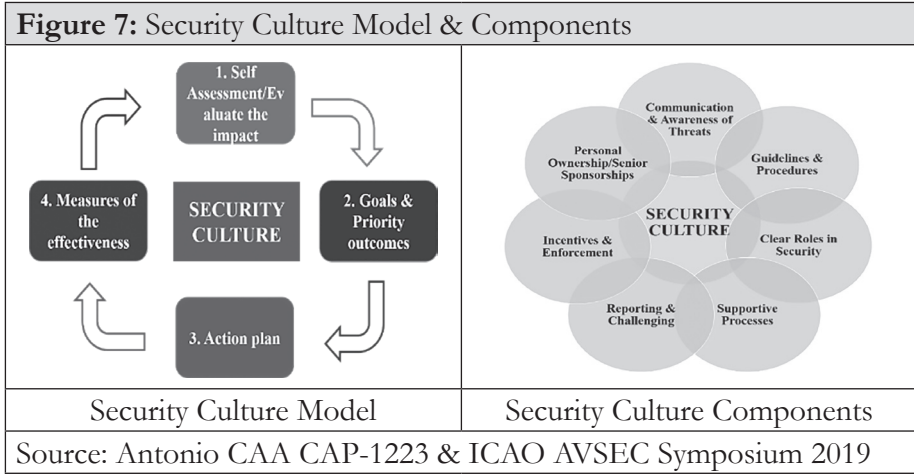
A causal relationship has been established between the causes and effects related to aviation security challenges of HSIA through Problem Tree Analysis to find out the possible measures and mechanisms to minimize

the weakness and eliminate the threats. The pictorial view of the Problem Tree Analysis is given in Figure 6.



The suggested measures have been ascertained after reviewing the issues and intricacies of the existing environment, practices, analysis of case studies and contemporary strategic security environment. Following suggested measures for the improvement of the aviation security environment at HSIA are:

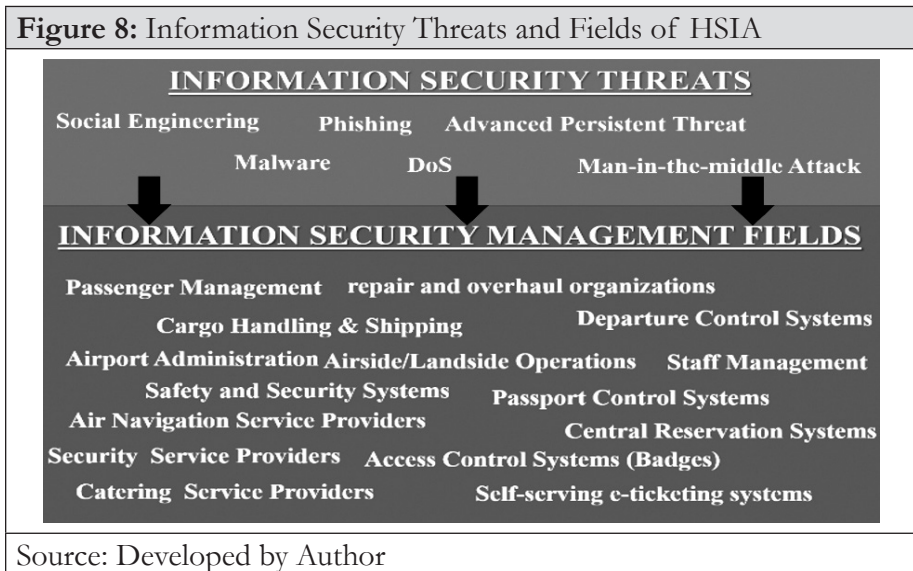
- **Developing Security Awareness and Mindset.** HSIA should develop security awareness training for both security and non-security staff to share a common understanding that “Security is everyone’s responsibility” for future improvement. It is also advisable that HSIA must implement the “Security Culture” advocated by ICAO. A security culture model and the essential components of security culture are presented in Figure 7.



- Optimal C2 Structure.** The entire aviation security of HSIA must be regulated and controlled under a unified C2 arrangement. Therefore, one of the priorities of the aviation security department right now is to establish a well-coordinated platform. This will allow the department to improve further in the areas that require it. The aviation security department is currently in an effort to define and delineate a C2 structure and coordination platform with a database and information management system to ensure the flow of information from end to end while continuously monitoring it. It will also help for the gap analysis, corrective actions and reports.
- Enhancing Manpower and Facilities.** HSIA needs to enhance manpower (as of organogram) and facilities to maintain an effective aviation security environment. The manpower gap can be reduced through recruitment and increase deputation. As one of the significant and experienced aviation stakeholders, BAF may also be approached for additional manpower and facilities. As experienced, disciplined and well-trained aviation security stakeholders, BAF personnel can provide quick benefits to maintain security at HSIA. The procurement process should also be reviewed to ensure quick availability and quality of the equipment and facilities. HSIA should follow proposed maintenance plans as scheduled for better and prolonged service of the security equipment and facilities.

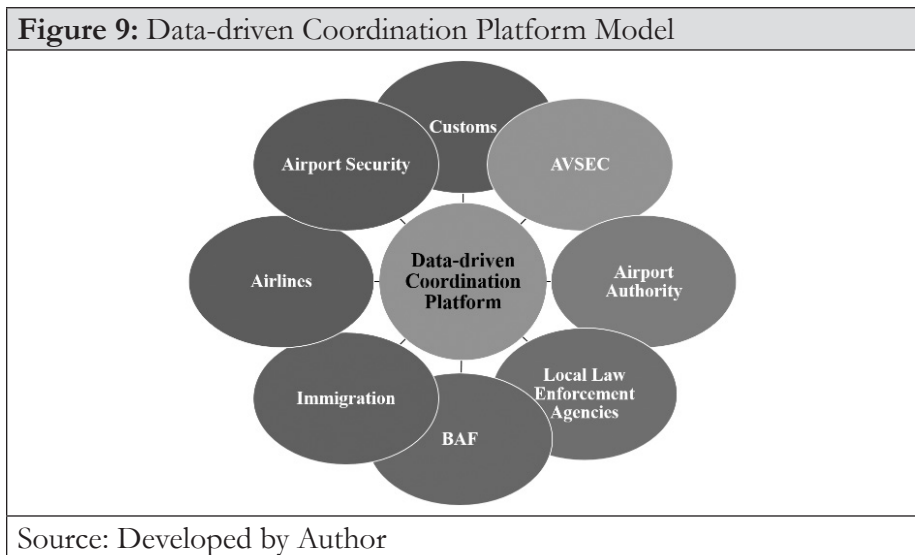
- **Enhancing Training Effectiveness.** An ICAO standard state-of-the-art security training center for Bangladesh is urgently required to be established which will facilitate ICAO Certification for security professionals and surely improve the work quality/standard. All security-related personnel including deputation from other organizations must have adequate and detailed aviation training instead of short training session. The training syllabus must address all the contemporary security issues around the world even to some extent predicting the future complex and hybrid security dilemma.
- **Effective Cyber Security Management.** HSIA should have cyber security management built-in at all levels, continuously, to manage current and future cyber threats and vulnerabilities. As both cyber security and electronic security are in the domain of information security thus, HSIA should also endeavor to develop effective information security management which should include all levels and fields of HSIA. A case study on other international airports and cooperation from BAF under MOU Article-4 can be an exploratory option to develop information security management. The threats and fields of information security management for HSIA are given in Figure 8.

Figure 8: Information Security Threats and Fields of HSIA



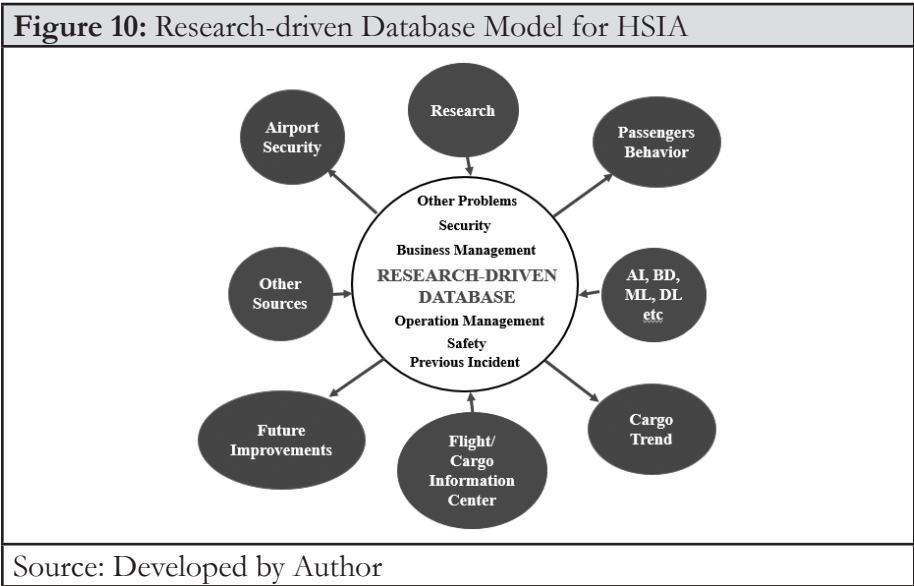
Source: Developed by Author

- Establishing Data-Driven Coordination Platform.** HSIA needs to establish a data-driven coordination platform for the uniform, effective and synergistic work output from all the stockholders working for aviation security. An inter-airports and intra-airport data platform can be effective for future investigation and improvement. An information management system can solve the cargo village intricacies. As the issue is due to slower information flow than the flow of material hence quantitative expression is essential to solve the issues. HSIA may consult with the subject matter expert to make a quantitative expression of the problem. A data-driven coordination model is presented in Figure 9 for understanding and execution.



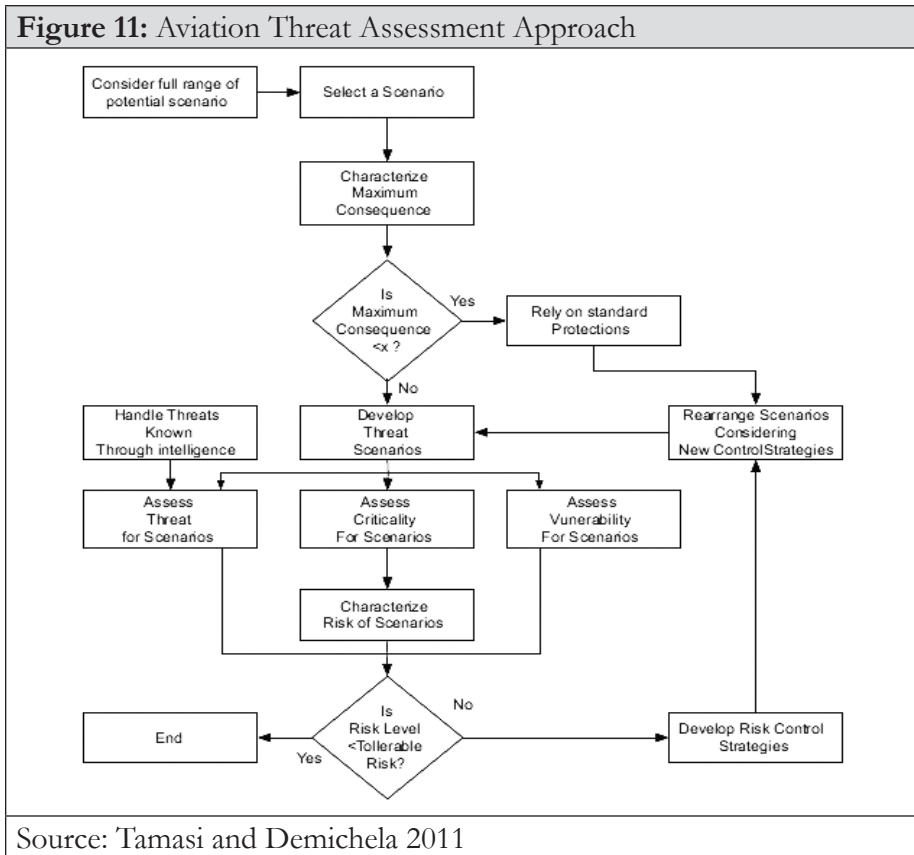
- Establishing Research-Driven Database.** HSIA must set up a research-driven database to address the problem of the airports, security-related issues, business management, operation management etc. Besides, due importance should be given to the data sources to develop data regarding flight information and passengers/cargo information etc. Data can also be fed through Big Data, Deep Learning, Machine Learning, Artificial Intelligence etc. These empirical data will help HSIA to understand the trend, culture and behavior of the passengers,

cargo and other elements to improve the security environment of HSIA. This research-based empirical study would suggest a solution regarding the sudden pop up issues. This also requires a research grant implication and application for implementation. A research-driven database model for HSIA is proposed in Figure 10 for implementation and application.



- **Threat Management Mechanism.** HSIA should critically assess the threats and consider detailed emergency response measures for security incidents and prepare a fast response action plan in case of high-risk incidents such as the IED found at both Special Categories of Passengers (SCPs) and cargo areas. To ensure the safety of the staff and passengers, HSIA should consider proper action before police/ other appropriate agency arrives on site. Placing a Bomb Disposal Container/Box can be expected to be considered. HSIA should also consider about SCPs and update security screening procedures for the screeners. Formation of own aviation security force and civil-military cooperation are the fundamentals for effective threat management mechanisms. BAF can play a leading role in this regard due to its

vast experience and availability of resources. An Aviation Threats Assessment Approach is given in Figure 11.



Conclusion

HSIA is the prime international airport as well as the aviation hub of Bangladesh. It plays a significant role in national security and development. Aviation security involves multi-dimensional & multi-faceted threats. After the 9/11 incident, aviation security has got due importance to national security and development. The aviation security environment of HSIA has been adverted by all levels of policymakers in Bangladesh. A safe and secure airport environment not only builds confidence among travellers, businessmen and investors but also enhances the national image to the

international community. The major security challenges of HSIA include limited security awareness and mindset, shortage of manpower, sub-optimal C2 structure, shortage of training facilities, shortage of security facilities, cyber security threats, absence of data-driven coordination platform, absence of research-driven database etc. A safe and secure airport environment edifies confidence among travellers, businessmen and investors.

From the case studies on different countries and international airport related to aviation security, it was evident that aviation security issues need to be dealt comprehensively under a unified C2 structure with effective resources. The national air force can also be explored for expert opinion, resource development, crisis management and improvement. BAF (BAF BBD) is already playing a praising role for the aviation security of HSIA including crisis management under a signed MOU. The suggested measures that HSIA may adopt for improvement include developing security awareness and mindset, optimal C2 structure, enhancing manpower and facilities, enhancing training effectiveness, effective cyber security management, establishing a data-driven coordination platform, establishing research-driven database, threat management mechanisms etc. BAF may also be explored in this regard due to its vast experience and availability of resources. The impacts are likely to improve the comprehensive aviation security of Bangladesh, build confidence among the users, build HSIA and national image, improving national security and finally more contributions to national development.

References

1. Abeyratne, R., 2010. Aviation security law. Springer Science & Business Media.
2. Adler, N. and Gellman, A., 2012. Strategies for managing risk in a changing aviation environment. *Journal of air transport management*, 21, pp.24-35.

3. Air HQ correspondence, Reference 06.03.2600.003.30.005.12.001/56 A, dated 04 August 2013.
4. Air HQ correspondence, Reference 00.03.2600.015.66.021.15.418/38 A, dated 07 January 2016.
5. Airport Security, Encyclopaedia Britannica, <https://www.britannica.com/technology/airport/Airport-security>
6. Airport Security, Wikipedia, https://en.wikipedia.org/wiki/Airport_security
7. Airport Security Definition, ENCYCLO.CO.UK, https://www.encyclo.co.uk/meaning-of-Airport_security
8. Antonio, D., 'Security Culture in Aviation Sector' <https://www.icao.int/Security/Security-Culture/Articles/Policia%20Portugal.pdf>
9. CAA CAP-1223, Framework for an aviation security Management system, <https://caainternational.com/developing-positive-security-culture/>
10. Chris Bala, MD, CJ Security Consulting Group, Singapore, <https://sg.linkedin.com/in/chris-bala-cst>
11. Cooper, C.S., 2012. Aviation security: biometric technology and risk based security aviation passenger screening program. Naval postgraduate school Monterey CA.
12. Cyber Security, Wikipedia, https://en.wikipedia.org/wiki/Computer_security
13. Edna, N.O., 2020. Multi-agency cooperation in combating terrorism in the aviation industry in Kenya (Doctoral dissertation, Strathmore University).
14. Enerstvedt, O.M., 2017. Aviation security, privacy, data protection and other human rights: Technologies and legal principles. Springer International Publishing.

15. Fainberg, A., 1992. Explosives detection for aviation security. *Science*, 255(5051), pp.1531-1537.
16. Forrest, J. and Price, J., 2016. *Practical aviation security: predicting and preventing future threats*. Butterworth-Heinemann.
17. Gillen, D. and Morrison, W.G., 2015. Aviation security: Costing, pricing, finance and performance. *Journal of Air Transport Management*, 48, pp.1-12.
18. Hadjimichael, M., 2009. A fuzzy expert system for aviation risk assessment. *Expert Systems with Applications*, 36(3), pp.6512-6519.
19. Hossain, Air Commodore. Md. Khalid, 2017. *Challenges of Aviation Security in the Context of National Security of Bangladesh*, Dhaka. NDC.
20. ICAO Annex 17, accessed on 23 March 2022 <https://www.icao.int/security/sfp/pages/annex17.aspx>
21. Janic, M., 2000. An assessment of risk and safety in civil aviation. *Journal of Air Transport Management*, 6(1), pp.43-50.
22. Ng, M., 2003. Fire risk analysis of the airport terminals. *International Journal on Engineering Performance-Based Fire Codes*, 5(4), pp.103-07.
23. PVM Security, 2021, <https://pmvsecurity.com/service/airport-security/>
24. Rashid. M 2021, 'Bangladesh can be an aviation hub: CAAB Chairman', *New Age*, 26 June 2021, accessed on 23 March 2022, <<https://www.newagebd.net/article/142017/bangladesh-can-be-an-aviation-hub-caab-chairman>>
25. Salter, M.B., 2008. Imagining numbers: Risk, quantification, and aviation security. *Security Dialogue*, 39(2-3), pp.243-266.

26. Spender, D., 2018, A new approach to aviation Security, <https://www.controlrisks.com/our-thinking/insights/a-new-approach-to-aviation-security>
27. Sweet, K., 2008. Aviation and airport security: Terrorism and safety concerns. CRC Press.
28. Tamasi, G. and Demichela, M., 2011. Risk assessment techniques for civil aviation security. *Reliability Engineering & System Safety*, 96(8), pp.892-899.
29. Uddin, M. H. and Limura, M. Y., 2021. Project for Security Improvement of International Airports in Bangladesh, Dhaka: Civil Aviation Authority Bangladesh
30. Wambugu, F., Mburu, C. and Gatebe, E., 2016. Assessment of Fire Safety Preparedness at Jomo Kenyatta International Airport. *Journal of Agriculture, Science and Technology*, 17(2), pp.78-96.
31. An Interview with Mr John Muchugu, Manager Airport Security Services, JKIA, Kenya on 21 July 2022.

Author

Air Commodore Md Asif Iqbal, BUP, ndc, afwc, psc, GD(P) was commissioned on 31st May 1994 in GD(P) branch of Bangladesh Air Force. He held various command, staff and instructional appointments at various units, squadrons and Headquarters. Besides, he was also a flying and academic instructor in different flying and training institutions of Bangladesh Air Force. He is a graduate of the Defence Services Command and Staff College (DSCSC), Bangladesh and the Malaysian Armed Forces Staff College, Malaysia. He is also an alumnus of the National Defence College (NDC) for the Armed Forces War Course (afwc) and National Defence Course (ndc). He completed his BSc (Aero) from Bangladesh Air Force Academy under Rajshahi University in 1994, Executive Diploma

in Strategic and Defence Studies in 2014 from University Pertahanan National Malaysia, Master of Science in Military Studies in 2011 and Master of Philosophy (MPhil) in Security and Development in 2022 from Bangladesh University of Professionals (BUP). Presently he is pursuing PhD in Aviation Security in Bangladesh under BUP. He participated in United Nations Peace Keeping Operations as a Staff Officer in the Division Headquarters in the United Nations Mission in the Democratic Republic of Congo, Detachment Commander in the United Nations Mission in Mali and Contingent Commander in the Democratic Republic of Congo. The author has a publication on “Towards capacity development for a research and development organization in Bangladesh Air Force” in NDC Journal, Vol 18, December 2019. Presently the air officer is serving as the Commander, Current Operation Division in Air Command Operation Center (ACOC).

MALAYSIA-BANGLADESH: REBOOTING THE STRATEGIC PARTNERSHIP

Major General Noorru Azril bin Ariffin, ndc

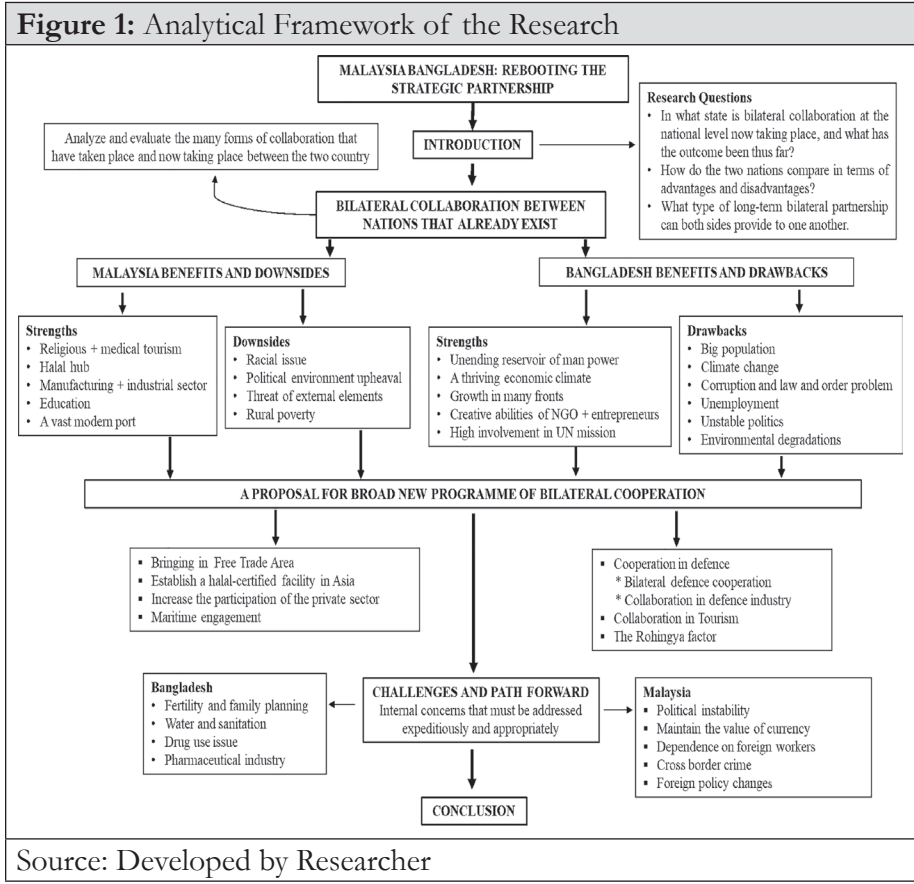
Introduction

On 24 February 1972, Malaysia formally recognized Bangladesh's independence. The bilateral partnership has existed for twenty-two years. Without a doubt, considerable bilateral cooperation has been signed until date. However, it looks as though the precise collaboration has not been refined enough and is growing increasingly tedious with each passing day. On a lesser scale, bilateral cooperation is not viewed as a collaborative endeavour between two nations (www.isis.org.my, 4 Apr 21), but rather as collaboration between specific individuals or organizations to address specific challenges.

This research is being produced with the objective of determining the extent to which bilateral cooperation between Malaysia and Bangladesh has been implemented thus far. Additionally, a review of the two countries' general strengths and weaknesses is included, as is an analysis of the prospects for new types of collaboration between the two countries over the long run.

Methodology

The inquiry began with a review of the literature, followed by interviews with individuals who are both relevant and knowledgeable about the topic area. An analytical framework on how this paper is conducted as given in figure 1:



Current Bilateral Cooperation

Bangladesh-Malaysia Bilateral Relations

Almost 40 years have passed since Malaysia and Bangladesh established diplomatic relations in response to Malaysia’s recognition of Bangladesh. Both countries have made significant advances toward deepening bilateral ties. As a result of this evolution, Bangladesh and Malaysia, both of which are located in South and Southeast Asia, have been geographically pushed closer together. Mutual respect, fraternity, and teamwork have grown in popularity over time, particularly in the economy’s fastest-growing industries.

Economic Relations

The increase of bilateral links has aided the two countries' economic prosperity in recent years. Additionally, it has been recommended that the two nations negotiate a Free Trade Agreement (FTA) to boost Bangladesh's pharmaceutical, textile, and tourism industries, as well as Malaysia's infrastructure. Malaysia's top five exports to Bangladesh are refined petroleum products, palm oil, chemical goods, ferrous metals, and electronics, whereas Bangladesh's top exports are textiles, clothing, and refined petroleum products.

Foreign Workers

When 500 migrant workers from modern-day Bangladesh arrived in Malaysia in 1986 to work on plantations, they were heralded as a success. The two countries inked a bilateral agreement on human exports in 1992, precipitating an increase in worldwide migration. Bangladesh is one of the five nations that have signed similar agreements with Malaysia for the export of persons, along with Indonesia, Pakistan, the Philippines, and Thailand.

Malaysia's Benefits and Downsides

Strengths of Malaysia

Religious and Medical Tourism. Malaysia's government is promoting tourism as a way to diversify the economy and reduce its reliance on exports. As a result, tourism has grown to become Malaysia's third largest foreign currency earner.

Halal Hub. Malaysia has been recognised as a global model agency for Halal business. Malaysia has set the goal of being a global leader in the production and commerce of halal products and services. Malaysia has unmatched potential as a contemporary Islamic nation at the forefront of regional economic progress.

Manufacturing and the Industrial Sector. From pre-independence to the present day, the industrial sector has made a substantial contribution to the country's economic prosperity. The country's leadership has made credible initiatives to foster growth and change in this sector as part of the country's development process. As a result, Malaysia's industrial sector is critical to the country's economy ([https://www.worldbank.org.en. – country malaysia overview](https://www.worldbank.org/en/country/malaysia/overview), 21 April 2022).

Education. With its superior educational standards, Malaysia is quickly gaining popularity among overseas students. The best aspect of Malaysia is its international students from Bangladesh and the rest of the world. There are currently around 170,000 international students from over 162 countries studying in Malaysia.

A Vast and Modern Port. Malaysia's ports are among the most efficient in the world, capable of meeting the demands of shipping corporations at far lower costs than other nations (<https://www.malaymail.com> – Malaysian ports ranked among world's most efficient during pandemic, 07 October 2021). Regional distribution facilities being constructed in the port area are intended to increase the number of commodities handled.

The Downsides of Malaysia

Racial Issue

Malaysian culture is comprised of a diverse range of ethnic groups, all of whom have strong roots in Asian civilisation, including Malays, Chinese, and Indians, among others. Each race possesses an own set of cultural characteristics. Each has its own set of distinguishing qualities and distinctions. There is a possibility of cultural collisions between societies ([https://en.wikipedia.org/wiki - Culture of Malaysia](https://en.wikipedia.org/wiki/Culture_of_Malaysia)). When this consumerism culture is managed poorly, the contradictions can cause frustration and, in some cases, conflict.

The Political Environment is in Upheaval

Race plays a significant influence in contemporary politics. Due to affirmative action measures such as the New Economic Policy and its successor, the Bumiputera, which comprises of Malays and indigenous tribes deemed to be Malaysia's original occupants, have gained momentum over Non-Bumiputera groups such as Malaysian Chinese and Malaysian Indians. These efforts prioritize employment, education, scholarships, entrepreneurship, lower-cost housing, and subsidized savings for Bumiputras (people of colour). Nonetheless, interethnic hostility has escalated as a result.

Threat of External Elements

Additionally, several political parties use the country's economic and social political issues in order to garner support, particularly from rival political parties and non-governmental groups. Regardless of whether they are legal or illegal, the presence of immigrants can have an effect on the country's image and cohesion (epo.unand.ac.id – Foreign Labour in Malaysia Selected Works, 2017). This is because some of them relish the opportunity to create havoc and jeopardize national security. Apart from that, forgery of vital government-issued papers, such as foreign passports, identity cards, and birth certificates, might constitute a concern. External risks include espionage attempts and efforts to ruin Malaysia's reputation in the eyes of powerful countries, in addition to internal difficulties (<https://www.hrw.org> – creating culture fear criminalization peaceful expression Malaysia, 2015).

Rural Poverty

Poverty is a nationwide issue that affects both rural and urban regions in Malaysia. According to the Malaysian government's definition of absolute poverty in policy planning and administration, it is a state in which an individual's income is insufficient to cover the costs of basic necessities such as food, clothing, and protection, as well as the costs of other essential expenses.

Bangladesh's Benefits and Drawbacks

Bangladesh Strength

Unending Reservoir of Manpower. Bangladesh is one of the world's most populous nations. The country has an abundance of skilled, semi-skilled and unskilled human resources. The nation's workforce consists of around fifty million people out of a population of approximately one hundred fifty million. Bangladesh is an inexhaustible source of labour force. The country has an abundance of skilled, semi-skilled, and unskilled people resources. Moreover, Bangladeshi workers have established a prominent position on the global labour map, particularly in the Far East, South East, Middle East, Gulf, and Africa.

A Thriving Economic Climate. A growing population has the potential to stimulate economic growth (<https://blogs.worldbank.org> – can rapid population growth be good for economic development, 15 April 2010). With more births, there will be an increase in the number of parents eager to invest in their children's futures. Food, clothes, educational expenses, sporting items, and toys all contribute to the growth and development of the economy.

Growth on Many Fronts. Bangladesh has been able to attract significant international investment and build new markets as a consequence of a mix of progressive social policies and economic reforms, resulting in a thriving economy despite global economic slowdown. Bangladesh has been able to compete on a global scale and attract foreign investors as a result of effective economic liberalization initiatives. Bangladesh has proven the significant growth in the garment industry, pharmaceutical industry, empowering women and creative abilities of its NGO and entrepreneurs.

High Involvement in UN Mission. Since Bangladesh gained independence 17 years ago, it has participated in United Nations peacekeeping missions. The United Nations had completed 40 years of peacekeeping operations and created 14 new missions at that point. Since

1988, the Armed Forces and Police of Bangladesh have engaged in a number of United Nations Peace Support Operations (UNPSOs), most notably the Bosnia and Herzegovina operation (<https://en.wikipedia.org> – Bangladesh UN Peacekeeping Force). Bangladesh is now the greatest contributor to United Nations peacekeeping deployments.

Bangladesh's Disadvantages

Big Population

Bangladesh now has a population of around 169 million people and is likely to add another 100 million in the coming years, unless fertility can be reduced to below replacement levels, which is implausible (<https://en.wikipedia.org> -Demographics of Bangladesh). Despite recent improvements in female education, this level of fertility reduction will need a significant adjustment in marital patterns, which have remained quite stable thus far. Due to the high population density, agricultural land is almost depleted, and there is only a limited potential to increase food production.

Climate Change

Flood and droughts caused by meteorological changes, as well as geopolitical consequences on transborder rivers, are all potential effects of climate change on agriculture. Climate change, in the form of rising sea levels driven by global warming, is increasingly recognized as a serious negative phenomenon posing a threat to low-lying nations such as Bangladesh (<https://www.climaterealityproject.org> – how climate crisis impacting Bangladesh).

Corruption and Law and Order Problem

Bangladesh has consistently listed among the world's most corrupt countries by all major rating organizations (<https://en.wikipedia.org> - Corruption in Bangladesh). Corruption is endemic in Bangladesh, as it is in a large number of other poor nations. Ordinary citizens pay bribes to

obtain essential services and bypass long lines, while authorities use bribes to supplement their income.

Unemployment

The majority of individuals in Bangladesh prefer to work for a living. Unemployment and poverty are indissoluble related and interdependent. Unemployment in Bangladesh is described as a situation in which an individual is eager to accept a job at market rate but is unable to do so due to a lack of available jobs.

Environmental Degradation

Bangladesh is battling air pollution, a water scarcity and contamination crisis, a loss of biological variety, as well as deforestation and soil degradation (<https://www.researchgate.net> - Environmental Security and National Security of Bangladesh, January 20). Soil erosion is a severe problem as a result of deforestation and forest loss, and the loss of fertile top soil has a negative effect on agricultural production.

A Proposal for A Broad New Program of Bilateral Cooperation

A Bright Star in the Horizon

Mutual respect, fraternity, and collaboration have grown in prominence over time, especially, in the sector of growth. Numerous high-level visits between the two nations at the political, ministerial, and official levels have considerably aided in the promotion of friendship, mutual understanding, and collaboration between them. Malaysia has emerged as an important bilateral partner for Bangladesh's development as a result of its rapid economic growth, strategic location in our immediate neighbourhood, and long-standing ties with Bangladesh in a variety of industries. The bilateral relationship is multifaceted, with active and cooperative ties encompassing a broad spectrum of industries.

Bringing in Free Trade Area

As both nations strive to achieve middle-income status by 2030 (Malaysia) and 2041 (Bangladesh) respectively, the stars appear to be aligning for further economic collaboration between Bangladesh and Malaysia in the coming years. Both governments may choose to pursue a more aggressive economic approach toward one another. Malaysia must work to strengthen economic ties with Bangladesh, since this will assist the country's internal economy. There is no better moment than now to implement the FTA. Bangladesh's signing of a free trade agreement (FTA) with Malaysia should not be just for the duty-free benefits on export but also for securing massive investments, according to economists (<https://www.thefinancialexpress.com.bd> – Bangladesh urged to sign FTA with Malaysia, 20 August 2022).

Establish a Halal-certified Facility in Asia

Collaborating to develop a halal ecosystem and laying the groundwork for the establishment of a halal market centre in the region is another method for Bangladesh and Malaysia to capitalize on their Muslim majority populations. Bangladesh and Malaysia are both interested in investing in Islamic finance to make it more accessible and to serve as an example for others. This is another area where bilateral collaboration is viable, since both countries embrace the notion enthusiastically.

Increase Remittances' Frequency

Bangladesh owes Malaysia a debt of gratitude for giving employment opportunities to a large number of Bangladeshi trained and semi-skilled employees over a period of decades. Dhaka and Putrajaya must maintain contact and increase employment opportunities collaboration in order for Malaysia to open its labour market to Bangladeshi migrants, recognizing the need for blue-collar employees in the plantation, construction, and manufacturing industries.

Increase the Participation of the Private Sector

Increased private sector participation in Malaysia and Bangladesh economic collaboration will contribute to the strengthening of commercial links between the two nations, benefiting both. It is vital to intensify efforts to strengthen bilateral economic cooperation via the effective use of all available resources. Malaysia's improved economy will result in more Malaysian businesses expanding globally, including investments in Bangladesh.

Prospects for Maritime Engagement

Despite the fact that Malaysia and Bangladesh are both maritime states located in close proximity to one another geographically, their marine cooperation has been restricted up to this point. With a new Malaysian administration and a rapidly rising economy in Bangladesh, now is an ideal time for Dhaka and Putrajaya to prioritize marine cooperation in bilateral ties.

Bilateral Defence Collaboration

Given the paucity of bilateral defence collaboration between Bangladesh and Malaysia, this is an excellent opportunity for defence planners in both countries to find methods to enhance bilateral defence collaboration. Bangladesh's economy is growing fast, increasing the likelihood that Dhaka will soon be able to provide Bangladesh with the financial resources necessary to participate in joint security and military exercises with Malaysia.

Collaboration in Defence Industry

Malaysia and Bangladesh's defence industries are expanding slowly, despite the fact that they were established following independence as a consequence of their reliance on other nations for military equipment and weapon manufacture. However, both nations' governments are devoted to creating this business, and it is one of the initiatives expected to have a favourable influence on both economies and national security.

Collaboration in Tourism

The tourist sector's success dictates a country's progress and advancement, which is especially true for Malaysia and Bangladesh. It is probable that the extensive diffusion of information and more data about tourism will be made possible via the use of information technology, such as the internet, which will assist in the global marketing of Malaysia and Bangladesh. Malaysia and Bangladesh have the potential to climb to the top of the list of popular international tourist destinations. As a result, it will be able to shine brilliantly around the world and compete on an equal footing with other developed nations, boosting the tourist sector in general.

The Rohingya Factor

Thousands of Rohingya Muslims have fled Myanmar as refugees, primarily to Bangladesh, resulting in a humanitarian catastrophe. Bangladesh urges Malaysia to maintain political pressure on Myanmar, urging the latter to establish a favourable atmosphere in Northern Rakhine state that would allow Rohingyas to return home as soon as possible. Malaysia will encourage Myanmar to handle the Rohingya refugee situation. Malaysia's government is acting as an impartial mediator between Myanmar and Bangladesh in order to resolve the Rohingya crisis, developing positive relations with both nations in the process.

Challenges and the Path Forward

Looking Ahead in Bangladesh-Malaysia Relations

In terms of reprioritizing bilateral relations, the bilateral needle is moving in the correct direction. The better capable both countries are of realizing the full potential of their bilateral connections, the more likely it is that both countries' citizens will benefit from continued collaboration. However, both Malaysia and Bangladesh are seen to have internal concerns that must be addressed expeditiously and appropriately in order to avoid the two nations' bilateral relations being harmed as a result of their inability to settle their respective internal issues.

Challenges and Ways Forward for Bangladesh

Fertility and Family Planning

Bangladesh continues to practice inefficient short-term family planning, with the majority of women marrying young and ceasing childbirth in their mid-twenties. Fertility and family planning will confront long-term difficulties in any country where they impede economic progress and social welfare initiatives. To ensure that Bangladesh's human resource growth is balanced with other sectors' development, the government must adopt a new special policy to address this issue in the future. This would enable the relevant ministries to adequately carry out their responsibilities and obtain funds and objectives that are always in the hands of the government.

Water and Sanitation

Waterborne illnesses continue to be a problem in this country (<https://www.ncbi.nlm.nih.gov> - Water pollution in Bangladesh and its impact on public health, 02 August 2019), which must be addressed alongside the need to strengthen rural and developing areas' water and sanitation infrastructure. To attract foreign investment into Bangladesh economy, the country's basic infrastructure must be in good condition. In the long run, the influx of foreign investors and economic development initiatives will necessitate an upgrade in the quality of basic utilities.

Drug Use Issue

The presence of open borders with India and Myanmar facilitates the trafficking of drugs and other illegal commodities. Bangladesh has definitely transitioned from a transit country to a destination for the consumption of so-called "hard" narcotics. The number of drug users is increasing in both urban and rural areas, and this trend is expected to continue (<https://www.eurasiareview.com>-Bangladesh must address alarming drug problem before it's too late, 23 January 2022). Law enforcement authorities should invest heavily in detecting illegal trafficking at the point of entry, in

addition to undertaking huge preventive and awareness-raising programs and increasing funding for treatment and rehabilitation facilities.

Pharmaceutical Industry in Bangladesh

Bangladesh, as a developing country, would be eligible for patent exemption on pharmaceutical items until 2033 under the TRIPS agreement with the World Trade Organization (<https://www.wto.org> - WTO members agree to extend drug patent exemption for poorest members, November 2015). Bangladesh, on the other hand, is expected to lose the patent exemption facility seven years before it expires, as part of its goal of achieving LDC status by 2026. If Bangladesh loses its TRIPS advantages, it might have a significant impact on the development of the Bangladeshi pharmaceutical industry, as pharmaceutical companies would be required to adopt new patent laws. As a result, numerous generic medicine kinds are projected to be phased out of production.

Challenges and Ways Forward for Malaysia

Political Instability

As the political dust settles in Malaysia following an unusual series of events that concluded in the change of government in Putrajaya, the new government administration will almost certainly prioritize strengthening itself while also maintaining stability in the country. Even if foreign policy is temporarily suspended, Hasina's leadership among South Asian leaders in congratulating the current Prime Minister, as well as her willingness to work with the current Malaysian government to strengthen Bangladesh-Malaysia relations, will be taken into account by the new Malaysian government. As a result, the incoming Malaysian government should make a quick visit to Bangladesh, preferably around 2022/2023. This will not only honour Hasina's warm greetings, but will also pave the path for future improvements in Malaysia-Bangladesh relations.

Maintain the Value of the Currency

Malaysia is likewise struggling to maintain economic growth as a result of the depreciation of the local currency. Malaysia, as a result, is unable to compete on the international stage. Weak financial conditions, especially, a reduction in global oil prices, are believed to have contributed to the decline, as does an unstable political situation.

Dependence on Foreign Workers

Malaysia is a developing country, which means that many aspects of its development must be addressed in order for it to progress toward development. Recruitment of workers from other nations is one of the strategies utilized to make the country's economy and growth function smoothly. Malaysia's industrial sector has grown at a breakneck pace, creating a wealth of job prospects. As a result, Malaysia requires a large amount of labour in a variety of industries, both professional and non-professional. Malaysia, too, is short of labour, pushing the country to recruit workers from neighbouring countries such as Indonesia and the Philippines, as well as Bangladesh, Thailand, and Myanmar, to assist in its development.

Cross-Border Crime

Despite its favourable geographic location, Malaysia has border security concerns on land, sea, and air. Cross-border criminal operations, foreign fishermen incursions into Malaysia's waterways, and foreign military aircraft incursions into the country's airspace are just a few of Malaysia's border security challenges (<https://www.researchgate.net> – Managing Malaysian Border: The challenges and prospects in maintaining security, December 2019). Securing border security is not a simple task. Human life must be sacrificed in order to overcome a range of challenging obstacles.

Foreign Policy Changes from Time to Time

Malaysia has its own foreign policy, one that places a premium on friendly relations with all states. Malaysia's foreign policy objectives are to protect the people and the country's security, to safeguard national interests and sovereignty, to promote economic development and advancement, and to promote world peace through international cooperation (<https://en.wikipedia.org> - Malaysia's foreign policy). On the other hand, Malaysia's foreign policy is always evolving to reflect the changing circumstances of the current political scenario. Additionally, foreign policy is always shifting as a result of economic concerns.

Conclusion

Everyone desires the freedom to go about their daily lives without being hindered or intimidated by particular individuals or groups. The same can be said for a nation's capacity to maintain its sovereignty while defending itself against outside threats. This option is recommended for small countries such as Malaysia and Bangladesh. Occasionally, these little nations were forced to seek asylum from larger powers or to collaborate with other nations to safeguard shared interests.

The 'bilateral needle' is going in the right direction in terms of reprioritizing the significance of the two countries' connections with one another. Continued collaboration is anticipated to benefit the citizens of both the nations to the extent that the two nations are better equipped to maximize the benefits derived from their interdependence. On the other hand, it appears that both Malaysia and Bangladesh are dealing with internal issues that must be resolved as quickly and effectively as possible to prevent the bilateral relationship between the two countries from deteriorating due to the inability of either country to resolve domestic issues.

References

1. Abdul Rahman Hj Ismail & Azmi Ariffin (2015). *Sejarah Malaysia: Wacana Kedaulatan Bangsa, Kenegaraan Dan Kemerdekaan*. Universiti Sains Malaysia.
2. Abdul-Rashid Abdul-Aziz (2001). *Bangladeshi Migrant Workers in Malaysia's Construction Sector*. *Asia-Pacific Population Journal*.
3. Akmal Hakim (2021). 10 + 1 Important Things That Happened in Malaysia in 2021. *The Rakyat Post (TRP)*.
4. Atiur Rahman (2022). Benefits and challenges of Bangladesh's graduation from LDC status. *The Financial Express (FE)*.
5. Azizur Rahman Khan (2015). *The Economy of Bangladesh: A Quarter Century of Development*. Palgrave Macmillan; 1st ed. 2015 edition.
6. Bernama (2022). Malaysia, Bangladesh strengthening cooperation in celebrating 50th year of diplomatic relations. *The Edge Markets*.
7. Bernama (2021). Malaysia-Bangladesh could embrace new partnerships to revitalise garment industry. *Malaysia Investment Development Authority (MIDA)*.
8. Cassey Lee (2022). 2022/53 "Uncertainties in Malaysia's Economic Recovery". *Yusof Ishak Institute (ISEAS)*.
9. Daily Industry (2021). Malaysia keen to invest in incredible growth story of Bangladesh. *Daily Industry*.
10. Dannecker, P. (2003). *The construction of the myth of migration: labor migration from Bangladesh to Malaysia*. Working Paper / Universität Bielefeld.
11. Diplomatic Correspondent (2022). Malaysia for elevating ties with Bangladesh to strategic level. *Daily Sun*.

12. Ferdous Arfina Osman (2010). *Bangladesh Politics: Confrontation, Monopoly and Crisis in Governance*. University of Dhaka.
13. *Foreign Policy of Bangladesh*. Ministry of Foreign Affair. Dhaka.
14. Hal Hill, Tham Siew Yean, Ragayah Haji Mat Zin (2012). *Malaysia's Development Challenges. Graduating from the Middle*. Routledge.
15. Ivanpal Singh Crewal (2022). Are Malaysians the problem with Malaysia? *The Star*.
16. Kenneth Roth (2021). *Malaysia, events of 2021*. Human Rights Watch.
17. *Malaysia's Foreign Policy*. Ministry of Foreign Affair, Wisma Putra, Kuala Lumpur.
18. Md Mohiuddin (2017). *Major Social Problems and their Remedies in Bangladesh*. SWEducareBD.
19. Michael Yeoh (2002). *21st Century Malaysia: Challenges & Strategies in Attaining Vision 2020*. Asean Academic Pvt. Ltd.
20. Quamrul Alam, Atiur Rahman, Shibli Rubayat Ui Islam (2021). *The Economic Development of Bangladesh in the Asian Century: Prospects and Perspectives*. Routledge.
21. Rachel Hullett (2019). *We, the Survivors. Bangladeshi Migrant Workers in Malaysia*.
22. Salil Tripathi (2021). *Bangladesh's Long Journey From 'Basket Case' to Rising Star*. FP News.
23. Touhidur Rahman (2021). *My ultimate aim is Free Trade Agreement*. Bangla News.
24. UNB news (2022). *Malaysia, Bangladesh reaffirm commitment for further strengthening ties*. United news of Bangladesh (UNB).
25. Willem van Schendel (2020). *A History of Bangladesh*. Cambridge University Press, 2nd ed., 2020.

26. Yanitha Meena (2021). Expanding Malaysia-Bangladesh ties. Institute of Strategic & International Studies (ISIS) Malaysia.

Author

Born in Kedah, Malaysia on September 29, 1970, Major General Noorru Azril bin Ariffin earned his formal education at the Boy's Wing of the Royal Military College. Major General Noorru joined in the Cadet Wing of the Royal Military College after completing his secondary education and completed his cadet training at Officer Cadet School Waiouru, New Zealand. On 14 December 1989, he was commissioned into the Royal Malay Regiment. Major General Noorru's extra-Regimental assignments in the fields of administration, operations, and logistics have provided him with a wide range of experience. In addition, he served as Aide-de-Camp to the Chief of Defence Force in 1994, as Chief Instructor at his alma mater the Royal Military College in 2003, as Military Assistant to the Chief of Army in 2010, as Principal Staff Officer to the Chief of Defence Force in 2013, and as Commander of the 11th Infantry Brigade from January 2021 to January 2022.

General Noorru has completed all of the essential career courses for his seniority and rank. In 2003, he graduated from the Malaysian Armed Forces Staff College, and in 2012, he graduated from the Malaysian Armed Forces Defence College. In 2007, Brigadier General Noorru earned a master's degree in Management from the Asian Institute of Management in Manila, Philippines, in order to improve his professional skills. In 2012, the Malaysian National University also awarded Major General Noorru a Master of Social Science with a concentration in Strategic Studies.

General Noorru is married to Puan Noriza bt Mohd Rashid and has a son and a daughter. In his spare time, he devours books and is an ardent golfer with an exceptional handicap.

READINESS OF BANGLADESH ARMED FORCES TO RESPOND DURING CHEMICAL DISASTER IN BANGLADESH – CURRENT STATE AND WAYS FORWARD

**Lieutenant Colonel Abu Tareq Mohammad Rashed, SPP,
afwc, psc, Infantry**

Introduction

One of the prominent peace time responsibilities of Bangladesh Armed Forces (BDAF) is disaster response. BDAF takes active part in the events of disaster risk reduction, its preparedness and management. Whenever Bangladesh (BD) faces a disaster, be it natural or manmade, it becomes imperative for the BDAF to respond quickly with its own management, communications and administrative machinery to assist the civil authorities. BDAF works very closely with the lead ministry i.e. ‘Ministry of Disaster Management and Relief (MoDMR)’ and remain standby to render any kind of assistance to the nation. BDAF generally takes part in different types of disaster management i.e. flood, cyclones, tsunami, earthquake, building collapse etc. For last couple of years, BD saw a rapid rise in chemical disasters. Fast growing economy of BD is heavily reliant on the manufacturing sectors and manufacturing sectors mostly depend on the chemicals as raw materials (Khan, 2022). Every year, a large amount of chemicals are imported into BD and the demand is growing. It is likely that, in future BD will experience more number of chemical disasters due to increasing demand of chemicals and poor safety/security protocol in the factories and stores (Islam, 2022).

Realizing the importance of chemical disaster management, Ministry of Disaster Management and Relief (MoDMR), in its amended ‘Standing Orders on Disaster (SOD) 2019’ included chemical disaster response as one of the responsibilities of BDAF (SOD, 2019). Generally, Fire Service

and Civil Defence (FSCD) is the first responder for any kind of disaster in BD. However, BDAF will have to deploy during any chemical disaster in the country along with other responders if the situation demands. Responding to a chemical disaster is not same as other disasters. Managing chemical disasters requires specially trained personnel with sophisticated equipment and gears to carry out rescue operations. However, BDAF is yet to make any significant progress in this sector. Three services of BDAF have made little progress to attain readiness for responding during chemical disaster in BD. There are no standardized organogram, equipment/gears and effective training programme to perform such activities.

This paper will examine the present and future likelihood of chemical disasters in BD and the possibility of employment of BDAF. The paper will also examine the present capability of BDAF to respond in the event of a chemical disaster. At the end, the paper will suggest several steps as to how BDAF can prepare itself to become credible responders in future. It is expected that, findings and suggestions of the paper will help the Service Headquarters formulating their own short and long term plan to raise the response teams for chemical disaster in BD.

Methodology

It was an 'Exploratory Research' and followed a 'Mixed Method Approach' where analysis of both qualitative and quantitative data were made. Primary and secondary data were collected through surveys, interviews, content analysis and Focus Group Discussion (FGD). Survey was the primary source of data for both qualitative and quantitative analysis. Closed ended and open ended questions were used to collect data. Target population was mid-level officers of BA, BN and BAF. FGD was also conducted with the officers of 'Bangladesh National Authority for Chemical Weapons Convention (BNACWC)' section of AFD. In order to acquire expert opinion and higher perspective on the issue, interview of senior officers of three services was conducted eg, PSO AFD, Director Generals of AFD, several Directors of Service Headquarters. Interview of professor

of Chemical Engineering Department of BUET was also conducted. Secondary data was collected from previous researches, various books, journals, periodicals, newspaper articles and information available in online open sources.

Likelihood of Severe Chemical Disaster in BD and Roles/Responsibilities of BDAF

Chemical Disasters-Bangladesh Perspective

There were several chemical disasters in BD which were devastating in nature. Data of severe chemical disaster in BD are appended below:

Table 1: Severe Chemical Disasters in BD			
When	Where	Deaths	Injured
03 June 2010	Nimitali Fire Incident	126	150+
10 September 2016	Fire at Tampaco foils packaging factory, Tongi	36	
20 Feb 2019	Churihatta Fire Incident	80	
10 Dec 2019	Gazipur Factory Fire	10	
09 July 2021	Narayanganj Food Factory Fire (Hashem Food)	52	
04 June 2022	Chemical explosion at BM Container Depot at Sitakunda, Chattogram	49	Around 450
16 Aug 2023	Keraniganj Chemical Factory Fire	05	15
Source: The Diplomat (2021) and Dhaka Tribune (August 2023)			

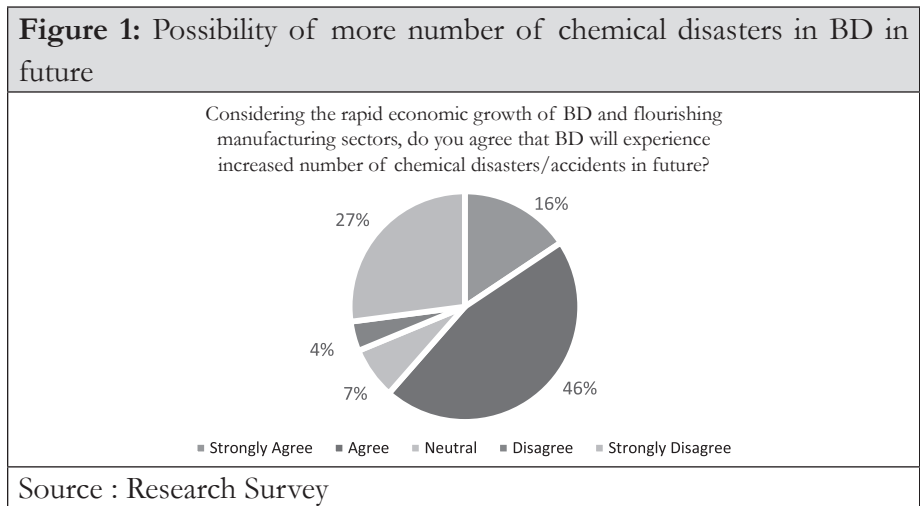
In the table 2, recorded chemical disasters of 2021, 2022 and 2023 are appended.

Table 2. Chemical Accidents of 2021, 2022 and 2023			
Ser	Date	Incident	Remarks
1.	11 February 2021	Gazipur Chemical Storage Fire Incident	Death: 03
2.	23 April 2021	Armanitola Fire Incident	Death: 06
3.	09 July 2021	Narayanganj Food Factory Incident	Death: 52
4.	30 March 2022	Fire at Lily chemical Company, Narayanganj	-
5.	15 April 2022	Fire incident at Benapole land port in the trucks carrying chemicals	-
6.	15 April 2022	Chemical disaster at Plastic factory of old Dhaka	-
7.	15 April 2022	A total of six trucks, loaded with bleaching powder, were gutted in a fire at Benapole Land Port	-
8.	23 May 2022	Fire at Square Pharmaceuticals	-
9.	04 June 2022	Chemical explosion at BM Container Depot, Sitakunda	Death: 47
10.	22 Feb 2023	Anderkilla Cooperative Market, Chattogram	
11.	16 Aug 2023	Keraniganj Chemical Factory Fire	Death : 05
Source: Electronic and Print Media			

Trend Analysis

From the aforementioned incidents, it is evident that, BD is prone to chemical disaster. Poor safety protocol is one of the main causes for chemical disaster which is very much applicable for BD. It is also seen that,

explosion resulted from chemical can turn violent instantly or gradually. Other than above mentioned severe incidents, several other small chemical disasters occur in our country which remain unnoticed. Growing trend of chemical import will definitely increase the risk of more number of chemical disasters in BD in future (Hossain, 2022). Old Dhaka is the most threatened place for chemical disaster (Arafat, 2022). Bulk of the chemicals is stored at old Dhaka without any safety and security protocol. The Government initiative of relocating the chemical stores at Narayanganj is also at limbo. It is learnt that, most of the stores are not shifted to the designated location (Arafat, 2022). Apart from old Dhaka, other disaster prone areas are Ashulia, Savar, Gazipur etc. where several factories and chemical godowns are available (Khan, 2022). Most of the responders also opined that, BD will face increased number of chemical disasters in future.

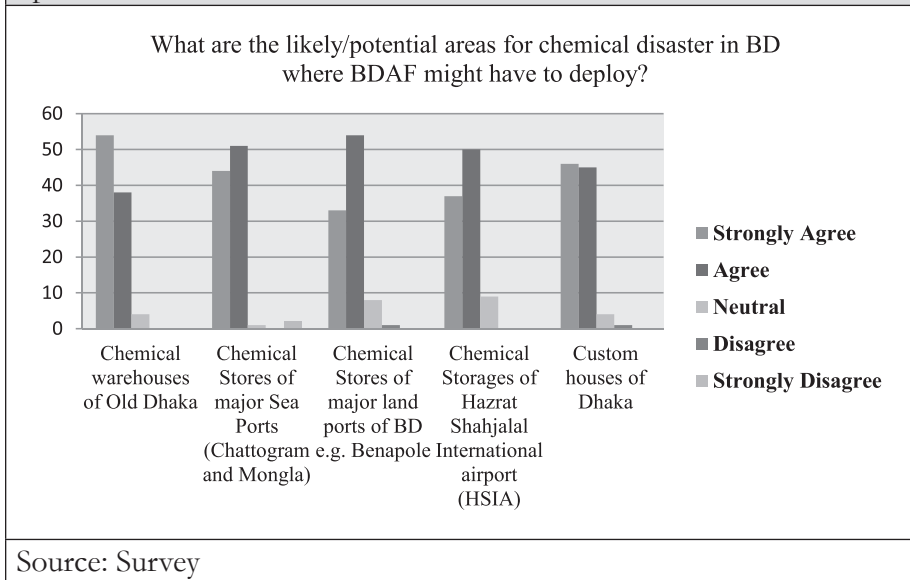


Possibility of BDAF to Deploy during Chemical Disaster

Though FSCD is the first responder for any kind of disaster including chemical disaster in BD, the limitation of FSCD in terms of resource and manpower invariably necessitates BDAF to be deployed. Owing to the hierarchical structure, secure and speedy communication lines, discipline and training of BDAF, units and sub-units of BDAF carry out the tasks

with promptness and efficiency. Over the period, BDAF achieved the confidence of the people of BD in various disaster management activities. It is on account of their dedication and sincerity that the people have great faith in BDAF. Dependence on BDAF in assisting the civil administration and coming to the succour of the populace is likely to continue. The recent example of Sitakunda BM Container Explosion is the glaring one where army personnel had to be deployed. BDAF would undertake the disaster management by the makeshift arrangements of sparing troops from their classical role. Makeshift arrangement hinders smooth conduct of disaster management operation. Hence introducing a dedicated Chemical Disaster Response Team (CDRT) is essential. As regards to the point of employment, old Dhaka is the most likely place where severe chemical disaster can occur (Rahman B. G., 2022). The factories nearby Dhaka i.e. Narayanganj, Savar, Gazipur, Ashulia are the other locations which are disaster prone. The two sea ports of BD – Chattogram Sea Port and Mongla Sea Port are the two other places where chemicals are stored (Khan, 2022). Chattogram Sea Port Customs authority had longstanding chemicals stored which were identified after the Beirut explosion. More so, HSIA has a poor record of maintaining safety and security protocol in the Dangerous Cargo store. Outside Dhaka, Benapole land port is another disaster prone area (Manzur, 2022). Every year, good number of chemical disaster takes place in Benapole Land Port from chemical. Apart from aforementioned places, some other areas of potential risks are Internal Container Depot (ICD), Kamalapur, Dhaka, private chemical stores/container yards, chemical stores of tanneries, various warehouses of medicine producing companies and so on.

Figure 2: Potential areas for chemical disaster in BD-Respondents' opinion



Roles and Responsibilities of BDAF

It is evident from the aforementioned discussion that, there is raising trend of chemical disaster in BD. Most of the responders agreed that BDAF will have to deploy in future in case of chemical disaster. Standing Order on Disaster 2019 (SOD-2019), which is a revised version, includes several responsibilities of BDAF during chemical disasters. The SOD mentions about functions of BDAF in four stages which are :

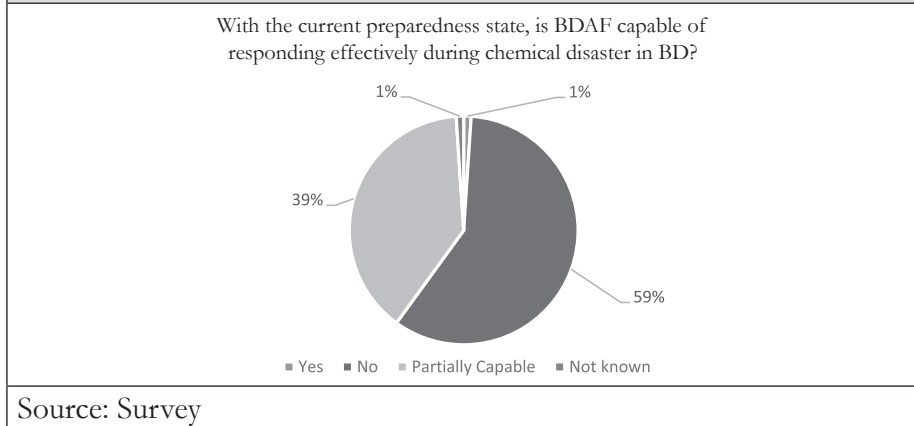
- Risk Reduction Functions.
- Response Preparedness Stage.
- Alert/Warning Stage.
- Disaster Stage.

Current State of Readiness of BDAF to Respond During Chemical Disasters

Readiness of Armed Forces

BDAF at this moment is not adequately prepared to respond during chemical disaster in BD. Most of the responders also opined the same.

Figure 3: Is BDAF capable of responding effectively during chemical disaster?



Readiness of the three services of BDAF are given below.

- **Readiness of Bangladesh Army.** BA formed a platoon size CDRT on December 2021 which was placed under 14 Independent Engineer Brigade at Dhaka. The team is yet to have the required training and equipment for performing in a chemical incident scenario. Some of the members of Army CDRT were trained by AFD. Since the equipment is not yet purchased, the training could not be done effectively. CDRT should undergo not only basic training, rather advance training at home and abroad for better efficiency.
- **Readiness of Bangladesh Navy.** BN will have two CDRTs initially, one for Chattogram area and one for Khulna area since the major sea ports are located there and ports do store several types of hazardous

chemicals in the port premises. Currently some trained members formed an ad hoc CDRT at Chattogram. But the personnel often get changed since the arrangement is ad hoc. Some of the members of BN are trained by AFD. Basing on the approval of the TO&E, other activities will start. More so, since all the equipment are not yet purchased, the training could not be conducted.

- **Readiness of Bangladesh Air Force.** Initially BAF will have one CDRT for HSIA. The TO&E for the CDRT is yet to be approved. Currently ad hoc arrangement is made for the CDRT. But for effective functioning of CDRT, approval of TO&E is essential which will ensure permanent members for CDRT. BAF Base BANGABANDHU will organize the raising of CDRT for BAF. Some of the members of BAF are trained by AFD. Since the team is not formed fully, the training activities also have not started yet.

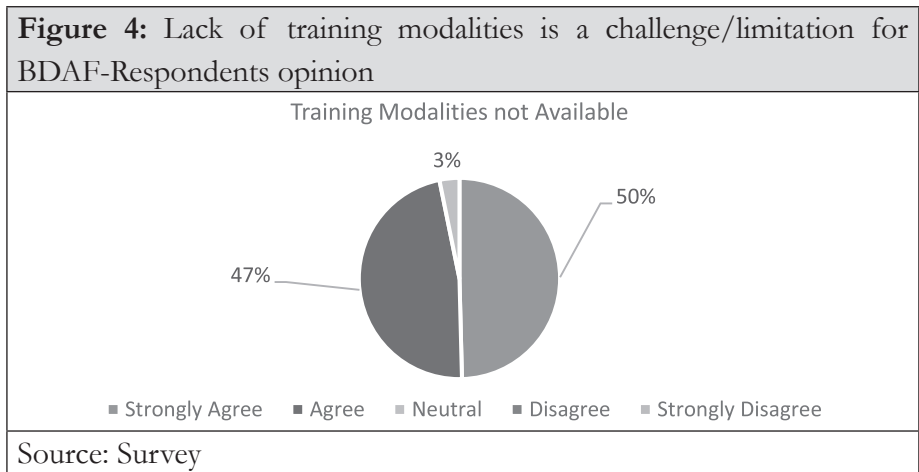
Identification of Limitations

Organizational Aspect. There is no team completely ready in three services which can respond during chemical disaster. But in case of severe chemical disasters, BDAF will be called upon. Employment of BA during the Sitakunda Chemical Disaster is the latest example where BA was called to support the FSCD. There is no standard TO&E for the CDRT in BD. At present, services are planning at their own regarding the organogram of CDRT. Some guidelines were provided by AFD. But a common organogram will ensure interoperability and one service can complement other in case of requirement.

Lack of Equipment. BDAF does not have any equipment to conduct rescue operations in the event of a chemical disaster. Chemical disasters are different from other disasters. It can contaminate a larger area within a short span of time. Sophisticated gears and equipment are needed to work in a chemical environment. Gears and equipment for CDRT are very costly. Therefore, a deliberate study is needed to ascertain the list of equipment and gears for CDRT. Again, standard equipment needs to be planned for three services which will ensure interoperability during crisis.

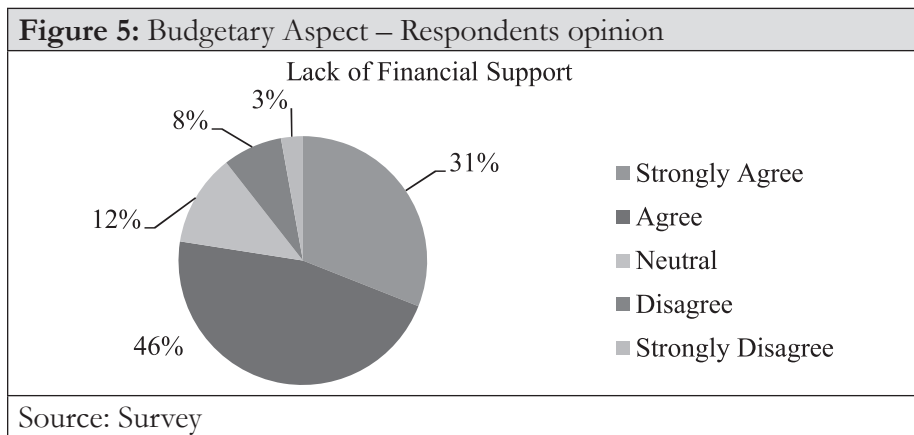
Policy/SOP/TTP. At present there is no policy/SOP/TTP for employment of BDAF in chemical disasters. Only the ‘SOD 2019’ is the reference document for such employment. Without a well-crafted SOP/Policy, the services may not come to a common platform.

Lack of Training. Training is of utmost important for CDRT. Rescue operation in a chemical disaster requires a responder to know the operating procedure of detectors, sample collection kit, details of wearing PPE, etc. Without effective training, such kind of operation is difficult to perform. At present no standard training module is available. AFD periodically conducts elementary training for the personnel of the BDAF which is based on the concept of Training of the Trainers (TOT).



Medical Management. Medical management of the victims of chemical disaster is not like the conventional medical management. In case of BDAF being involved in chemical disaster, CMHs are likely to treat patients affected by the incidents. But CMHs do not have any facilities to treat the patients affected by chemicals. In case of BDAF being involved in rescue operations, the members of BDAF also might be affected. Treatment for personnel affected by chemical disaster needs several facilities like decontamination shower, decontamination kit etc. But the Dhaka CMH or any other medical facilities of BD are not trained and equipped to handle the victims of chemical disaster.

Budgetary Aspect. Raising CDRT entails a huge amount of budget. The sophisticated equipment and personal gears need to be procured from abroad which require adequate budget. For buying only the equipment of one CDRT, it takes approximately BDT 11,00,00,000. The affiliated training at home and abroad will add more on to it. There is no dedicated budget for raising the CDRTs.



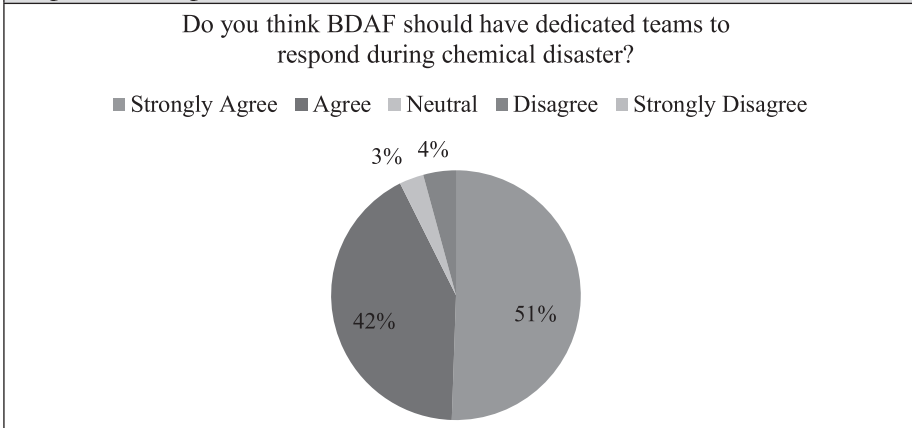
Lack of Knowledge/Awareness. One of the limitations of raising CDRT in BDAF is the lack of awareness at different levels. The subject being technical in nature, many do not have adequate knowledge on it. Chemical disaster is unlike the other types of disasters. But many tend to put it in the same platforms of other disasters. Many are also not aware of the responsibilities of BDAF during chemical disaster.

Modalities to Attain Readiness to Respond During Chemical Disasters

Organizational Structure

The first job of the service HQs is to ensure an effective organizational structure for CDRT. Different countries follow different models. BDAF needs to form the CDRT basing on the threat of chemical disaster and also the likelihood of employment of military units. Most of the responders feel that, BDAF should have dedicated response teams.

Figure 6: BDAF should have dedicated teams for chemical disaster-respondents opinion



Source: Survey

The CDRT should be smaller units with adequate sophisticated gears and equipment. About the size of the response team, varied responses were received from the responders. Many of the responders were in favour of having a company or equivalent size force for CDRT. Many opined for a platoon size force for each infantry division/naval/air bases. There were also suggestions for having CDRT outside Dhaka i.e. Savar, Rajendrapur etc. Varied responses were received regarding the command structure. Some opined for a central team under AFD whereas some others opined for teams under service HQs. Considering the financial aspects involved and lesser possibility of frequent employment, each division, naval or air bases may not have CDRT at this point of time. More so, FSCD is the first responder. Platoon size CDRT will be able to perform the task. In case of requirement, three services will combinedly operate. Presently, most of the chemical disasters are occurring at Dhaka and in proximity due to the availability of the factories and industries. Basing on the threat, the CDRTs may be stationed centrally instead of all places of BD which would be uneconomical.

Table 3: Delineation of Responsibilities for CDRT				
Option	BA	BN	BAF	Remarks
Option 1	2 x CDRT at Dhaka for responding to the threats of Dhaka and nearby areas	1 x CDRT at Chattogram (For Chattogram port primarily) 1 x CDRT at Khulna (For Mongla port primarily)	1 x CDRT at Dhaka (For HSIA primarily)	These teams can also be deployed in other parts of the country if deems necessary
Option 2	1 x coy size Joint CDRT of three services placed centrally at Dhaka under BA or BAF for the Dhaka and nearby areas 1 x coy size Joint CDRT of three services placed centrally at Chattogram under BN for Chattogram port and nearby areas. This team will also remain responsible for Mongla and Benapole port			
Source: FGD				

Training of the Members of Response Teams

Along with the raising of CDRTs, BDAF also need to cater for a well-articulated training module. The very nature of chemical disaster entails that the responders need to have a very clear idea about the rescue operation and the handling of the sophisticated gears/equipment (Monira, 2022). Initially lead role has to be played by AFD. Later on, service HQs will have to carry out the detailed training curricula for the CDRT members. Most of the responders agreed that, training is of utmost importance for such kind of operation. Arafat (2022) opined that, along with the national training, foreign training also to be availed to have the best practices. Within country, there should be integrated training incorporating all stakeholders i.e. FSCD, MoDMR, MoH etc. Following can be done in respect of training.

- **Training to be organized by AFD.** Presently AFD organizes a basic training for the responders for one week duration once in a year. But this is insufficient considering the complexities of the activities

involved in such disaster operations. A detailed training module should be formulated by AFD in consultation with three services and related stakeholders. The topics which should be covered in a basic training for CDRT are given below in the table 4 (FGD 1, 2022). This training programme may be followed by both AFD and service HQ. AFD should conduct the training for the officers only as ToT concept. Later on, service HQ should conduct training for the team as a whole.

Table 4: Topics for basic and advance training of CDRT	
Serial	Topic
1.	History of chemical weapons, the OPCW, Chemical Weapons Convention
2.	Introduction to Chemical Agents, their Classification, and Toxic Effects
3.	Detection of Chemical Weapons Agents (Methods and Equipment)
4.	Practical Exercise: Detection of Chemical using Detection Equipment
5.	Physical Protection Against Chemical Warfare Agents (individual and collective)
6.	Individual Protective Equipment (IPE)
7.	Response to Emergencies involving Chemical Disasters and Corresponding Operating Procedures
8.	Reconnaissance and Sampling Operation Procedures
9.	Practical Training on Use of IPE (donning and doffing)
10.	Medical Management of Chemical Disasters Casualties – General Considerations and Agent Specific Treatment
11.	Decontamination after an Incident involving Chemical Warfare Agents or Toxic Industrial Chemicals
12.	Decontamination Equipment and Materials
13.	Emergency Response Planning
14.	Setting up a Decontamination Station (theory and practical)
15.	Chemical Casualty Management (first aid in the field)
16.	Table Top Exercises and Scenario Based Exercises
Source: FGD 1	

It is very important to have a central database for Chemical Disaster Management qualified personnel of BDAF, AFD and service HQs should maintain the database of expert personnel so that they can be employed during any requirement such as running local training program, for sending in foreign training/exercise or for responding to any chemical disaster.

- **Service wise Training.** Training Directorate of three services will have to play a vital role in conducting training for the CDRTs (Emran, 2022). AFD will generally organize ToT for the officers. On the other hand, service HQs will organize training for the whole team. As such, a detailed training curriculum will have to be crafted. A good number of officers have undergone training at home and abroad related to chemical disaster. Maintaining database for such cases is of utmost importance. BDAF should focus on developing SME who will train the CDRTs (FGD 1). Training facilities will also have to be catered. A central training area need to be built to organize practical training for the response teams.
- **Foreign Training.** Foreign exposure will certainly give an additional insight to the members of CDRT to perform their job effectively. OPCW provides training round the year in this respect. BDAF needs to have close cooperation with OPCW and ensure sufficient training for the members of the CDRTs (Rahman B. G., 2022). Foreign instructors may also be invited during the national level training. Masihur (2022) mentions that, joint training with the response teams of other countries may also be considered. Foreign Training can be mediated through Organization for the Prohibition of Chemical Weapons (OPCW) or can be done as Government to Government (G2G) basis. For that matter, AFD needs to play an important role along with Ministry of Foreign Affairs.
- **Joint Training with FSCD.** FSCD being the first responder in BD to respond during chemical disaster or any other disaster have made some progress in this sector. Zillur (2022) mentioned that, personnel of FSCD are trained on handling of chemical disasters. A good number

of members of FSCD are trained in abroad. BDAF should utilize the expertise of them to train officers and men of BDAF. After raising the CDRTs and acquiring the required gears and equipment, members can also participate along with FSCD during any chemical disaster to have practical training (Zillur, 2022).

- **Inclusion of Chemical Disaster Scenario in Disaster Response Exercise and Exchange (DREE).** Every year AFD conducts DREE in collaboration with US. DREE is an earthquake disaster related exercise. According to the SOD, the AFD is responsible to organize annual earthquake safety drills. As a part of their global initiative, the US Army PACIFIC (USARPAC) had been conducting this exercise with AFD since 2010. Joining of MoDMR as one of the co-organizers has taken it to a different height. Besides, a large number of participants from different ministries as well as national and international organizations take part in DREE. Over the years, DREE has become the largest exercise on earthquake management in this region and beyond (AFD, 2021). Response to chemical disaster resulted from earth quake can also be incorporated in the DREE (Khair, 2022). It will give the participants a huge scope to understand the basics and intricacies involved in a response operation specially in a city like Dhaka.

Medical Management. Currently Dhaka CMH does not have any arrangement for treating patients of chemical disasters. Few doctors and medical assistants may be earmarked and trained on the subject. Facilities like equipment, space etc. need to be mustered to treat patients at CMH in case of a severe chemical disaster. The only training CMH was involved is the ‘Chemical Incident Preparedness for Hospitals’ organized by AFD that took place in 2019 where Dhaka Medical College and Dhaka CMH jointly participated (FGD). Amin (2022) mentioned that, four medical facilities i.e. Dhaka Medical College Hospital, Chattogram Medical College Hospital, Dhaka CMH and Chattogram CMH are primarily earmarked for developing treatment facilities for patients of chemical disaster. He

mentioned that, decontamination facilities will be required in our medical facilities which are missing at this moment. OPCW conducts training on medical management once or twice in a year. AFD and service HQs should take the opportunity and get some of the earmarked doctors to participate in such training (FGD 1, 2022). Dhaka CMH should maintain an inventory of available equipment that might be needed while dealing with the patients of chemical disaster. It should also maintain a database of doctors and medical assistants trained on chemical disaster response (OECD, 2003).

Budgetary Aspects. As expressed by several stakeholders, budgetary issue is a concern for raising a CDRT. It takes a good amount of money, particularly for the equipment. The equipment also has a shelf life; meaning that, after a considerable amount of time (5-10 years) these equipments will be required to be replaced. According to AFD, a little more than BDT 11 crore is required for the equipment of a single CDRT. Many opined that, MoDMR should manage budget for raising such CDRTs because these CDRTs are for national purpose. MoDMR generally receives fund from different international communities like WB, ADB etc. for different projects in order to enhance effectiveness to fight disasters. AFD should continuously pursue MoDMR for the budgetary aspects.

Policy/SOP for Chemical Disaster Response. Necessary policy/SOP needs to be formulated for the effective employment of BDAF in a chemical disaster scenario. Without policy/SOP, it will be difficult for the service HQs to understand their roles and responsibilities. AFD needs to take appropriate measures to formulate policy/SOP in regards to formation and employment concept of CDRT during chemical disaster.

Roadmap/Action Plan. To implement the modalities mentioned in the aforementioned paragraphs, a pragmatic action plan with timeframe is crucial. Coordinated and integrated approach is needed to attain readiness to respond during chemical disaster, Following Roadmap/Action Plan is suggested to have a better readiness by the BDAF in near future.

Table 5: Roadmap/Action Plan				
Step	Task/Action	Responsibility	Timeline	Remarks
Step 1	Policy/SOP finalized for employment of CDRT during chemical disaster	AFD (Operations and Plans Directorate / BNACWC Sec)	By June 2024	A Board of Officers may be formed including AFD and three services
Step 2	TO&E of the CDRT finalized	AFD in consultation with Service HQs	By December 2024	
Step 3	Approval of the TO&E taken	AFD	By March 2025	AFD (Operations and Plan Directorate) will initiate the necessary process
Step 4	Raising of the 1 x CDRT completed for each services	Service HQs	By September 2025	
Step 5	Training Needs Assessment Completed	AFD, Service HQs (Concern directorates – AFD Training Directorate/ BNACWC sec, Training Directorates of service HQs)*	By September 2025	*AFD Operations and Plan Directorate and Operations Directorate of three services will assist
Step 6	Coordination for foreign training completed	AFD, MOFA, Embassy of BD in Netherlands, Permanent Mission of BD to OPCW	By December 2025	AFD to coordinate with Embassy of BD in Netherlands and Permanent Mission of BD to OPCW for necessary coordination with OPCW. AFD to coordinate with MOFA for G2G aspects of foreign training

Table 5: Roadmap/Action Plan				
Step	Task/Action	Responsibility	Timeline	Remarks
Step 7	Medical facilities at Dhaka CMH established to treat patients of chemical disaster	DGMS	By December 2025	Medical colleges eg. Dhaka and Chattogram medical colleges should also have similar facilities
Step 8	Training activities started including foreign training	AFD, Service HQs	From January 2026 onward	FSCD and representatives from different ministries to be incorporated in the training e.g. MoDMR, MoHFW, MoD, MoH
Step 9	Essential equipment bought (PPE, detectors and decontamination equipment)	MoDMR, AFD and Service HQs	By December 2026	Process may start concurrently with Step 4
Step 10	Raising of 2nd CDRT for three services completed	AFD, Service HQs	By December 2027	
Step 11	CBRN Centre of Excellence	Necessary feasibility study needs to be carried out with the participation of AFD, Ministry of Science and Technology, BD Atomic Energy Commission, BD Atomic Energy Regulatory Authority (BAERA), Ministry of Explosive and other necessary stakeholders		

Recommendations

In light of the outcome of the research, following are recommended for BDAF:

- AFD in consultation with service HQs may formulate a comprehensive organogram for a CDRT which will be followed by all three services.

- AFD may bring out a detailed training curriculum for CDRTs. Training Directorates of three services should also bring out their respective training module with special emphasis on practical training.
- A comprehensive equipment list for CDRT may be formulated by AFD in coordination with service HQs focusing interoperability.
- Response to chemical disaster resulted from earthquake may be included in the DREE which will allow the participants to have an effective practical exercise.
- Service Headquarters should plan and procure the equipment/gears required for chemical disaster response. AFD should make necessary coordination with MoDMR to manage funds for raising the CDRTs. In doing so, MoDMR may manage fund from international organizations eg. WB, ADB, IMF etc.

Conclusion

Disaster Management will continue to remain as one of the prime peacetime undertakings of BDAF in days to come. Due to the professionalism, discipline, effective C2, quality training etc, BDAF will remain as the last resort to respond during any kind of crisis situation. BDAF appropriately put emphasis on the capacity building to respond effectively during various natural and manmade disasters. For last couple of years, BD saw a rapid rise in chemical disasters. Realizing the importance of chemical disaster management, MoDMR, in its amended 'Standing Orders on Disaster (SOD) 2019', included chemical disaster response as one of the responsibilities of BDAF (SOD, 2019). BDAF will have to deploy during chemical disaster in the country along with other responders. Responding to a chemical disaster is not the same as other disasters. Managing chemical disasters requires specially trained personnel with sophisticated equipment and gears to carry out rescue operations. However, BDAF is yet to make herself ready to respond during chemical disaster in BD.

It was found during research that, little progress has been made by the three services in regards to the readiness for participating in a chemical disaster scenario. Several limitations and challenges were identified in the research. Organizational structure including equipment for CDRT need to be ascertained first. CDRTs should be of same structure in three services so as to ensure interoperability. There are no policies or SOP or TTP for deployment of BDAF during chemical disaster. As regards to training, only AFD organized few basic training in the concept of ToT for few officers of three services. But the services need a comprehensive training module incorporating training of the entire team including the practical training. There is also lacking in regards to medical management. Raising CDRT entails a huge amount of budget as well. The sophisticated equipment and personal gears need to be procured from abroad which require adequate budget. There is no dedicated budget for raising the CDRTs. Last but not the least, lack of awareness is a concern for BDAF.

It is no denying that, BDAF need to have CDRTs for participating in rescue operations in the event of a chemical disaster in BD. As such, a common organizational structure for three services is required for interoperability. BDAF needs to decide the size of the team. The teams should be placed or raised basing on the threat perception of chemical disaster. Dhaka is the most chemical disaster prone area. All the major chemical disasters took place at Dhaka. Two major seaports of Bangladesh are also potential danger zones. HSIA also has a Dangerous Cargo store which poses risk of disaster. CDRTs can be placed according to the areas. Training for CDRT is another key factor. In addition to increasing the number of CDRTs, BDAF must also provide a well-articulated training programme. The very nature of a chemical disaster necessitates that rescuers have a thorough understanding of the rescue operation and the handling of complex gear/equipment. AFD will generally organize ToT for the officers. On the other hand, service HQs will organize training for the whole team. As such, a detailed training curricula will have to be crafted. Every year AFD conducts DREE in collaboration with US Army. Response to chemical disaster resulted from earth quake can also be incorporated in the DREE.

It will give the participants a huge scope to understand the basics and intricacies involved in a response operation especially in a city like Dhaka. Since its inception, BDAF always performed pivotal role in the event of any national disaster. BDAF earned accolades in home and abroad for showing utmost professionalism and dedication while performing as disaster response force. BDAF needs a road map to attain readiness to respond during chemical disasters. This research examined the present and future likelihood of chemical disasters in BD and employment of BDAF. The paper also examined the present capability of BDAF to respond in case of a chemical disaster. At the end, the paper suggested several steps as to how BDAF can prepare itself to become credible responders in future. It is expected that, findings and suggestions of the research will help the Service Headquarters formulating their own short and long term plan to raise response teams for chemical disaster in BD.

References

1. AFD. (2021, May). Disaster Response Exercise and Exchange (DREE) 2021. Retrieved July 03, 2022, from <https://dreebd.com/>
2. Amin, M. E. (2022, May 12). Readiness of Bangladesh Armed Forces to Respond During Chemical Disaster in Bangladesh – Current State and Ways Forward. (L. C. Tareq, Interviewer)
3. American Red Cross, Chemical Emergency Preparedness', Retrieved August 2022,
4. Anil k Gupta, Sreeja S nair. (2012). Training Modeule - Chemical Industrial Disaster Management. New Delhi: National Institute of Disaster Management (Ministry of Home Affairs).
5. Animesh, R. (2019, July). Chemical Concerns: Raising Suspicion about Myanmar's Covert CW Capability. CBW Magazine, Manohar Parrikar Institute for Defence Studies and Analyses.
6. BIDA. (2020, April). FDI: Foreign companies discuss continuation, recovery. Retrieved May 13, 2022, from <https://bida.gov.bd/details/fdi-foreign-companies-discuss-continuation-recovery>

7. BBC. (2016, November 09). Tianjin chemical blast: China jails 49 for disaster. Retrieved June 25, 2022, from BBC News: <https://www.bbc.com/news/world-asia-china-37927158>
8. BBC. (2020, August 11). Beirut explosion: What we know so far. Retrieved July 06, 2022, from <https://www.bbc.com/news/world-middle-east-53668493>
9. BBC. (2022, February 22). Burkina Faso gold mine blast kills 60. Retrieved June 25, 2022, from BBC News: <https://www.bbc.com/news/world-africa-60477920>
10. B K Sinha (2016), 'Threats from Chemical and Biological Warfare', Surendra Publications, New Delhi.
11. Disaster Management Act of Bangladesh, 2012.
12. Emergency and Disaster Response to Chemical Releases.
13. Imam, H. (2010, June 12). Nimtoli tragedy: The worst nightmare. Retrieved June 25, 2022, from The Daily Star Newspaper: <https://www.thedailystar.net/news-detail-142316>
14. IOMC, 'Chemical accident prevention, preparedness and response' Retrieved August 2022, from <https://iomctoolbox.org/node/50036/steps>
15. JP 3-11, Operations in Chemical, Biological, Radiological, and Nuclear Environments.
16. JP 3-41, Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives.
17. Ministry of Disaster Management and Relief (2019), Standing Orders on Disaster, Dhaka.
18. Ministry of Environment and Forest, India (2008), 'Proceeding of National Workshop on Chemical Disaster Management', India.

19. MoDMR, National Plan for Disaster Management (2021-2025), Action for Disaster Management Towards Resilient Nation, November 2020.
20. Observer, T. D. (2022, April 15). 6 trucks gutted in fire at Benapole port. Retrieved July 14, 2022, from The Daily Observer: <https://www.observerbd.com/news.php?id=361773>
21. OECD. (2003). OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response. Paris: OECD Publications Service.
22. Parvez, S. (2019, March 05). Chemical imports treble in 10yrs. Retrieved July 11, 2022, from The Daily Star: <https://www.thedailystar.net/business/news/chemical-imports-treble-10yrs-1710706>
23. Ruma Paul, Zeba Siddique. (2021, July 10). Fire at Bangladesh factory kills 52 workers, police open probe. Retrieved June 27, 2022, from Reuters: <https://www.reuters.com/world/asia-pacific/fire-bangladesh-juice-factory-kills-three-many-feared-trapped-2021-07-09/>
24. The Future of CBRN, The Hague Centre for Strategic Studies, Issue No 12/03/10
25. Tiwari, D. (2020, May 07). NDRF's special team to fly to Vizag after PM holds meeting over gas tragedy. Retrieved June 10, 2022, from The Indian Express: <https://indianexpress.com/article/india/vishakhapatnam-vizag-gas-leak-ndrf-pm-modi-lg-polymers-6398413/>
26. Waker-Uz-Zaman (2022, August 04), PSO AFD. (Lt. Col. Tareq, Interviewer).
27. WHO. (n.d.). Chemical Incidents. Retrieved August 12, 2022, from https://www.who.int/health-topics/chemical-incidents#tab=tab_1
28. Zillur. L C (2022, August 12). Dir Ops and Maint, FSCD (Lt. Col. Tareq, Interviewer)

Author

Lieutenant Colonel Abu Tareq Mohammad Rashed, SPP, afwc, psc was commissioned in the Corps of Infantry in 2001. He held various appointments in several Infantry Units. He commanded 23 Bangladesh Infantry Regiment and 57 East Bengal Regiment. He served as General Staff Officer Grade-I (BNACWC) at AFD. His instructional appointment includes Instructor Class B and C/Platoon Commander at BMA. He also served as Aide-de-Camp to General Officer Commanding of an Infantry Division. Under the Blue Helmet, he participated in MONUC and MONUSCO as Platoon Commander and Military Observer respectively. He is a graduate of Defence Services Command and Staff College, Mirpur, National Defence College, Mirpur and Nepal Army Command and Staff College. He obtained Masters in Strategic Studies from Tribhuvan University, Kathmandu, Masters of Social Science (Security and Development) and Masters of Science in Military Studies from BUP. Presently he is serving as General Staff Officer Grade-I at Headquarters 66 Infantry Division.

ANALYZING PERFORMANCE EVALUATION SYSTEM FOR SENIOR OFFICERS OF BANGLADESH ARMY: A QUEST FOR PROMOTING MILITARY PROFESSIONALISM

**Lieutenant Colonel Syed Md Abdullah Zunaid, afwc, psc,
Infantry**

Introduction

Officers are the mainstay who anchor the success of any army. Bangladesh Army (BA) ultimately banks on officers for leadership, planning, direction and execution of its mission. Hence, to achieve the organizational goal, there cannot be any alternative to finding suitable officers for appropriate employment (Islam Rashed, 2019). Among the officers, the senior officers play a vital role in leading the juniors in decision making and accomplishing organizational goals. At the same time, the professionalism of the officers is the driving force for the organization to move forward. Military professionalism is commonly grounded in several overriding principles: the subordination of the military to democratic civilian authority, allegiance to the state and a commitment to political neutrality, and an ethical institutional culture (Ouedragogo, 2014). These principles are enshrined in values that distinguish the actions of a professional soldier, such as discipline, integrity, honour, commitment, service, sacrifice, and duty. Such values thrive in an organization with a purposeful mission, clear lines of authority, accountability, and protocol. In addition to democratic civilian control of the military and the allegiance of the military to the nation, an ethical culture is a prerequisite for building a professional army. This professionalism, in turn, entails values, i.e. merit-based promotion, accountability of military leaders and soldiers for their actions, and demonstrating competent, impartial, and humane security enforcement (ibid, p.14).

The officers are evaluated by the Officers' Performance Report (OPR) which is a formal and dynamic procedure that measures an officer's

performance in different employments. Reliance is placed on the Performance Evaluation System (PES) in BA, mainly accomplished through Tabulated Records and Comparative Evaluation (TRACE). TRACE (converted into 100 marks) owes to OPR mostly other than the course results and physical efficiency. OPR bears the most significant role as it reflects the performance of an officer in a given period and is an assessment of their professional ability, personality traits, and value to the service in present rank and potential for future responsibilities (Reaz, 2018). The Military Secretary's Branch (MS Br) in Army Headquarters (AHQ) is responsible for maintaining these records to ensure accurate analysis and career progression/promotion opportunities and employment. Military professionalism necessitates individual responsibility and accountability for moral action, dedication to duty, and commitment to the greater good of the society the military serves.

In BA, officers' professionalism is reflected through the OPR which ultimately links to TRACE. PES is an age-old system followed in BA. Earlier the Annual Confidential Report (ACR) was in vogue; later on, the Officers Performance Report (OPR) was introduced in 2007 with some modifications, though there is a similarity between these two systems (Waker 2022). The varying roles and career patterns of senior and junior officers demand different approaches of PES. BA faces difficulties in identifying the right man for the right job sometimes due to the common assessment approach for all officers.

OPR form with the same attributes is used to judge/grade all officers of BA, be it a Second Lieutenant or a senior officer (MS Br Circular Memorandum number 72/2007). A Lieutenant Colonel (Lt Col) with a minimum of 15 years plus service or a Colonel (Col) with a minimum of 23 years plus service are the first two selective ranks in BA and is the source channeling up the hierarchy (Brigadier General and above). Considering Lt Col and Col as senior officers with a greater degree of maturity, understanding, and broader responsibility- it appears to be keeping them in the same boundary while writing their OPR (Compared to a young Lieutenant/Captain or a Major. The reward for serving in challenging appointments

due to the professional qualifications of an individual could give them a better dividend in OPR to increase job satisfaction. At this juncture, the researcher feels that there is room for changing the state of affairs to keep the PES effective and to promote the Army's professional outlook. The change may include a different and more effective OPR format with adaptive evaluation criteria for senior officers.

Research Objective: To critically examine the effectiveness of existing PES for senior officers of BA.

Research Questions: Does the existing PES effectively address the organizational requirement of promoting officers' professionalism?

Desired Qualities/Attributes of Senior Officers of BA and Relevancy of Present Attributes

Brig Gen Bakir agrees with the refinement of the attributes of OPR for seniors. Moral courage, bold and forward-looking, direct, decisive thinking, good analytical ability and intellectual, scholarly stance are the essential qualities expected from senior officers (Bakir 2022). Gen Mubeen (retired) opined that 'Bravery' as a personality trait might not be applicable at the level of the seniors mentioned for this research. The most important qualities expected from a senior officer are moral courage, wisdom, social intelligence, and speaking the truth to power (Ferdous 2022).

However, some other senior officers opined that the present system of OPR and its attributes to judge the senior officers is good enough, but the problem lies in its implementation.

Desired Qualities of Senior Officers of BA

From the study of the perspectives of senior officers coupled with findings of the FGDs conducted, a set of human qualities and professional measurements-related indicators were identified and confirmed by a survey to find out their relevance for senior officers in BA. While some of these

are there in the existing format, some are completely newly generated ideas taken from interviews/FGD.

Creativity. Ever-changing battlefield demands one to adapt with updated scenario. “Innovation” needs to be considered as a significant desired aspect from senior officers. In BA, gathering knowledge on potential adversary is somewhat ignored. A senior officer needs to have ingenuity in his works and thoughts. What everyone does, they may not be doing the same if they are not purposeful and mission-oriented.

Curiosity. The formal degree, if any, is just a basic foundation. Real learning occurs over years of voracious reading and concerted, sometimes heated, interaction with other minds (Kohlmann 2013). An inspiring leader is a continuous learner who experiments with the ideas they have absorbed. The intellectually curious officer will find innovative ways to solve problems. He will be more attuned to the military and non-military goals of his subordinates. Most importantly, when an adversary arrives in a form that was unanticipated, he will be able to draw upon years of education tested not in the classroom but in the real world (ibid).

Professional Knowledge and Wisdom. Knowledge and wisdom separate us from soldiers (Hasan 2022). For BA, putting theory into practice is more important than that knowledge in general. One must be able to use this knowledge based on the situation. In the present OPR form, ‘Professional Knowledge and Application’ fits more for younger officers, and ‘Professional Knowledge and Wisdom’ seems appropriate for seniors.

Critical Thinking Ability. Critical thinking ability should be considered the most required attribute in the OPR after ‘Integrity’ and ‘Loyalty’ (Humayun 2022). War is complex, and the human mind inherently struggles to deal with complex problems. Critical thinking is especially needed to deal with complex and novel situations that military leaders face daily (Sani n.d.). It is a means to achieve a higher probability of operational success in battle (ibid).

Perspective. A senior officer must have a vision. Without visionary leadership, an army will lose sight of what is needed now (Rahman 2022). An organization like BA needs visionary leadership to face the challenges of future battlefield (Belal 2022). Senior officers with right the perspective can provide much-needed leadership to the men and women in uniform.

Moral Courage. Moral Courage means doing the right thing even at the risk of inconvenience, ridicule, punishment, loss of job security or social status, etc. Moral courage requires that we rise above apathy, complacency, hatred, cynicism, and fear-mongering in our systems and cultural/religious differences (Anon, 2021). Moral courage (Not Shrinking from Fear) is also the “ability to speak the truth when one feels that a decision made was not justifiable” (Mubeen 2022).

Physical Courage. For senior officers, moral courage is more important than physical courage (Ahsan 2022). But one cannot rule out the need for physical courage in a senior officer (Hasan 2022).

Speaking the Truth to the Power. Speaking the truth to the power is a very crucial factors for senior officers. Disagreements on professional discourses should be taken for better partaking, and once the command decides, all own it in true spirit (Ahsan 2022).

Organizational Loyalty. Institutional loyalty is more important and in some cases, our senior officers falter due to decision dilemmas (Ahsan 2022). There is a tendency in BA that we, in most cases, tend to become more loyal to an individual than to be loyal to the organization to get good OPR grading from faltering superior officers (FGD-3).

Social Intelligence. Indicators of professionalism should be revisited, and officers to be promoted as per quality (meritocracy). To maintain psychological balance (mental health and EQ), there has to be an evaluation by the psychologist during every tier of officers’ promotion (Bakir 2022).

Fairness (Just, Treat People the Same, No Biased Decision). Being fair means being appropriate. Fairness is based on someone’s cultural

background, religious affiliation, cognitive biases/dissonance and prejudice, promotes healthy workplace culture (Journey to Leadership Blog 2018).

Forgiveness and Mercy. It is the last level where the Army can sort out and, if necessary, correct “Toxic Leaders”. The most dangerous element in any leadership is “Toxicity”. If a leader gets the opportunity to please his superiors at the cost of their under command, they remain at a chance to become a danger later.

Relevancy of Attributes of Senior Officers of BA in Present OPR Form

According to the survey, with a few limitations, OPR is still a feasible evaluation system for officers of all ranks. The present attributes in the OPR format used for all ranks of BD Army were used for the survey (yes/no questions) to find their relevance for a senior officer. From the survey it was revealed that the format stands suitable for all ranks, even for senior officers.

Analysis of Findings from the Survey on OPR. Though the survey shows mostly agreement on the present attributes of OPR, it was revealed during interviews and FGDs that there are different opinions. Many believe that the existing attributes serve the purpose, while others advocate new sets to be added with the existing format while deleting a few. Table 1 shows the summary of FGDs and interviews conducted among KIIs/IDIs.

Table 1: Suggested Modifications in Attributes of OPR for Senior Officers

Serial	Discard	Interview Ref	Add	Interview Ref
(a)	(b)	(c)	(d)	(e)
1.	Sense of Duty	Mubeen	Self-Regulation/ Honesty & Integrity	Hasan, FGD-2, Humayun, Rashed, Belal
2.	Cheerfulness	Mubeen, FGD-1 & 2, Rahman	Humility/Modesty	Rahman, FGD-2
3.	Bravery	Mubeen, FGD-1 & 2, Rahman	Speaking Truth to Power	Bakir, FGD-2 Ferdous
4.	Innovativeness	Mubeen	Creativity and Curiosity	Shafiq, FGD-2
5.	Socialization	Mubeen, FGD-2	Social Intelligence (EQ)	Bakir, Ferdous, Hasan, FGD-2, Rashed
6.	Ability to Train Under Commands	Mubeen	Vision/Perspective	Bakir, FGD-2, Rahman
7.	Robustness	FGD-1 & 2, Rahman	Fairness/Justness	Shafiq, Hasan, FGD-2

Table 1: Suggested Modifications in Attributes of OPR for Senior Officers				
Serial	Discard	Interview Ref	Add	Interview Ref
(a)	(b)	(c)	(d)	(e)
8.	Professional Knowledge and Application	Bakir	Knowledge & Wisdom (covers analytical ability, intellectual Stance)	Bakir, Hasan, FGD-2, Humayun, Rashed
9.	Loyalty	Hasan, Humayun	Organizational Loyalty	Hasan, FGD-2 & 3, Humayun, Rashed
10.	Courage	Mubeen	Courage (Moral & Physical)	Mubeen, FGD-2, Rashed, Ahsan
11.	-	-	Ethics and Values	Shafiq, Rashed, Belal
12.	-	-	Decisive Thinking/Boldness	Bakir
13.	-	-	Teamwork	Shafiq, FGD-2
14.	-	-	Leadership/Lead by eg.	Mubeen, FGD-2, Belal
15.	-	-	Language Skill to Carry Messages to Under commands	Mubeen
16.	-	-	Spirited Mind	Mubeen
17.	-	-	Spirituality	Bakir, FGD-2
Source: Researcher's Construct Based on Interviews/FGDs				

From the above table it is evident that at the least there are 10 attributes that need to be discarded/modified from the present OPR form for senior officers. Maj Gen Mamun (Ex MS) suggested that following the same format, a separate set of attributes for senior officers may be devised (Mamun 2022). On the other hand, Lt Gen Waker believes that the “Traits” mentioned in the OPR form are rather appropriate for evaluating any officer of BA (Waker 2022). IOs judge officers based on their seniority. A major is judged based on his command and control over a company, whereas a Lt Col is judged based on his performance in commanding a battalion. Similarly, honesty and integrity, intelligence, loyalty, etc., are also applicable to all ranks of officers. So, all the attributes are relevant for senior officers of BA as well as for junior officers (ibid).

According to Gen Belal, the USA Army follows “Below the zone promotion” policy where they do promote a few officers who are not supposed to be discussed (immediate junior course of a particular course being considered in a board) but have very high degree of professionalism. This is the lot that gets opportunity to command unit/sub-unit. This inspires an officer to pursue his career on the right path (Belal 2022).

US army still follows an apprenticeship model in that one person dictates both the standard and the grade (Cho 2015). They also suffer from “Over Grading” tendency, and they have identical difficulties as well. However, there is a better way to determine where they gather multiple data points from numerous neutral observers. For example, after each exercise, whether that be a convoy or an airborne operation, the officer or non commissioned officer are evaluated in those positions by subject matter experts. This is how lanes are assessed at the Joint Readiness Training Center and the National Training Center. It enables their leadership to see not only what activities leaders were conducting but also how well they executed. This would, in turn, provide promotion and selection boards with the opportunity to see whether appropriate tasks in key developmental positions were being performed and how well someone did in them (ibid).

Analysis of the Challenges of the Present PES for Senior Officers of BA and Its Effects

Sipping facts from fiction, collective decision-making, rapid technological changes, and simultaneity in the role, man-machine interface and fiscal constraints are the challenges of 21st-century leadership in the operational dimension (Haque 2022). To address the challenges, leadership techniques also need to evolve with time. So there should be an evaluation system addressing the need for time (Taef 2022). The main challenge of OPR is to maintain equality in writing. IOs assess and mark differently, which may affect the individual officers. Officers from the same course and the same quality may get diverse marks due to their posting in various units/ organizations, which may affect their TRACE marks, as OPR marking is directly related to TRACE. It may affect the individual officer as well as the organization (Waker 2022).

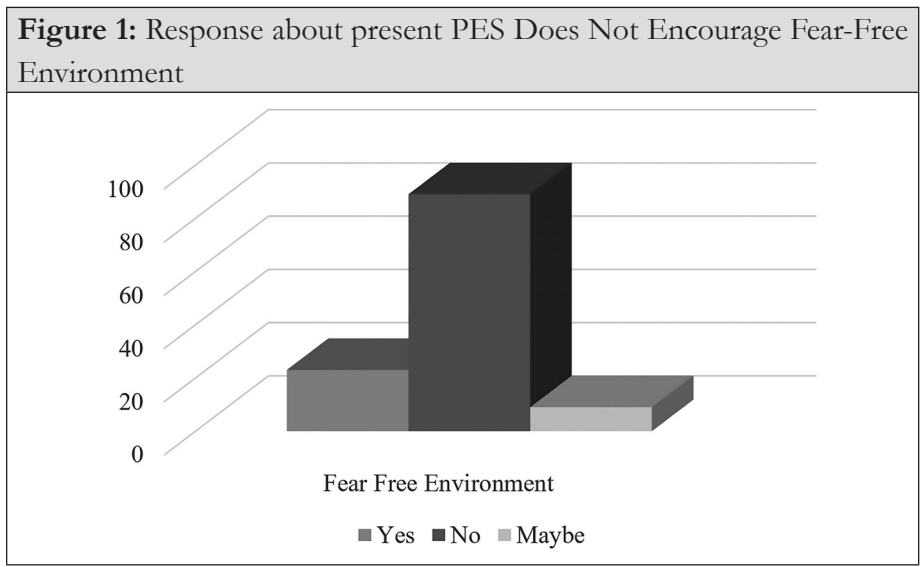
Identifying the weaknesses, noting them and notifying for improvements, giving the right kind of motivation, and applauding the strengths- are all equally important (Sarwar Hasan 2022). The reporting officers are not forthcoming and honest in putting the correct picture, and that is the biggest weakness in the PES of BA (Mubeen 2022). This results in not getting the actual state of performance of officers, and the right kind of material are not found for the relevant posts. The results are inflated and do not benefit the organization (ibid). Seniors nowadays hesitate to write the truth about one's weaknesses and just somehow manage to keep everyone happy. It is not only harming the individual but also the organization (Ferdous 2022). When this kind of feedback is missing in an organization, it is bound to have numerous other challenges.

Challenges of Present PES

Does Not Address All the Required Attributes of Senior Officers: Identification of toxic leadership is essential to rectify future generations of operational leadership. Our assessors also need to depict an individual

correctly. Every officer’s capabilities are different, and so is output. An officer should be judged based on the output he delivered in the period under review, not necessarily for the wisdom not used (Rashed 2022).

Does Not Encourage Fear-Free Environment. In the survey, most of the officers opined that there is no fear-free environment at the workplace in BA (Figure 1). In the current working environment, it is not fear-free as a collective practice of BA (Bakir 2022). “Fear-Free” environment depends on the senior officer of the institute. The military environment is better than before although there is still influence from the outside (Sajjad 2022). There is no fear-free environment at BA. BA is mainly run by a command-driven environment (Mushfiq 2022). According to survey respondents, the present PES also does not promote a fear-free environment.



Does Not Give Time for Applying Corrective Measures. An assessing officer should be able to say to the one assessed about his strengths and weaknesses together with guidance on how to improve. One must get a chance to eradicate their weaknesses.

Yearly OPR Marking Influenced by Immediate Performance. All IOs must realize the importance of writing OPR judiciously. Assessment

should be done neutrally, and it should have an impact on a whole year, not merely the last few months' performances (Sharif 2022).

Lack of Formal Training of Initiating Officers. Assessment is a subject for study and needs deliberate training (Maksud 2022). An assessor should be well-trained in the assessment procedure. If required, the writing technique of OPR should be taught at various institutes as part of the course curriculum.

Disregard for Peer and Subordinates' Valuation. In the present system of OPR, only the assessor, who is superior, judge an individual officer. There is no scope for taking account of one's peers' and subordinates' inputs. 360 degree assessment also did not come as a suitable option for BA. Maj Gen Maksud thinks that there should be a system to incorporate input from peers and subordinates as everyone is believed to be at their best behaviour with the superior officers (Maksud 2022).

Biased Approach. The present system's inherent problem lies in many factors where 'cheap popularity' is a prominent factor. The initiating officers seldom tend to express or guide shortcomings of under commands through the system. Attributes that are rectifiable should be pacified and corrected, and those that are not should be projected through OPR (Ahsan 2022). To get the best output from an officer of the rank of Col and Lt Col, they must be assessed unbiasedly, and an accurate picture of them needs to be portrayed every year through the OPR (FGD-3).

Effects of Weaknesses of PES

Effects of Weaknesses of PES on Individual Officers

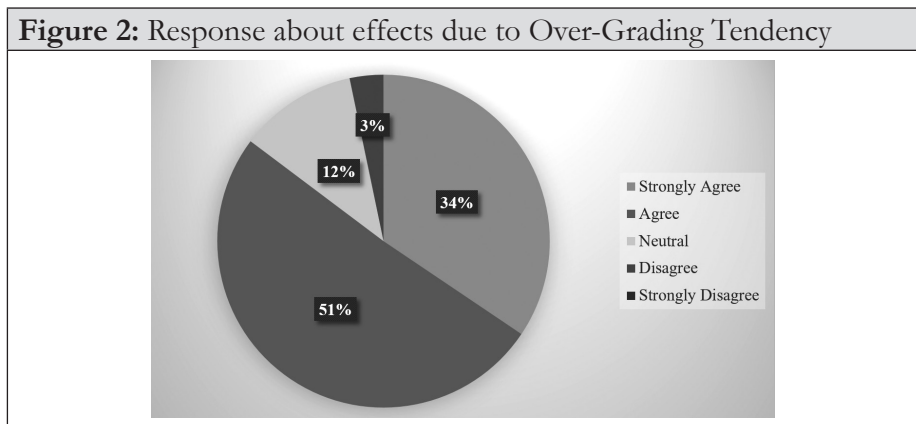
Fewer Scopes of Gradual Self-Development. In the BA, an institutional approach is missing to develop its officers. In the USA Army, a prize posting is considered to be a company commander, which is not the same in our case (Hasan 2022). Due to a lack of motivation to become a commander of men, some officers tend to get posted in their comfort zones and avoid the tedious tasks of leading men.

Encourage Careerism Rather Than Altruistic Service. The effects on individual officers' is that the professionals also tend to follow the majority and may adopt unfair means (Bakir 2022). Devoted leaders are hard to find, and most have a career in mind before others (Asadul 2022).

Hinders Career Progression. Career progression or development of officers of BA is responsibility of individual officers as well as the institution (MS Br Presentation 2022). Due to a lack of focused approach, over-grading in OPR and difficulty in determining the right person for the right job the present PES hinders career progression.

Effects of Weaknesses of PES on BA

Over-Grading Tendency. Nowadays, there is a tendency to over-grade officers. "Over grading" tendency is the main issue with our present evaluation where the assessors are mostly found weak in giving correct feedback on their Under Command Officers and thereby making a huge difference on an individual officer's TRACE. It is negatively affecting the morale of other officers who are working hard in their respective fields (Sajedur 2022). There prevails peer pressure as everyone's expectations are nowadays high due to over grading tendency. The cultural shifts due to present days are adversely affecting the marking and grading system (Mushfiq 2022).



Not Identifying Right Man for Right Job. In the military, it is essential to sift and select the right persons to go up the ladder. Unfortunately, it is felt that BA culturally tends to over-grade the officers to keep everyone satisfied, thus impeding the selection process of the right person (Hasan 2022). Due to over grading and other weaknesses of PES, BA has difficulty identifying the right man for the right job.

Reduction of Overall Quality. Nowadays, officers are marked based on other capabilities rather than professionalism (Sajjad 2022). One is supposed to be graded as per the key tasks assigned to them as per Standard Operating Procedure (SOP) which is a must-do. There are other priorities as “should do” and “nice to do”. “Nice to do” at times overtakes “should do”, and an individual officer has scope to give a false front by doing all “nice to do” activities (ibid).

Hindrance to Achieving Organizational Goal. At times, the impact of society greatly affects the military. As officers will find that what they were taught during training and what the ground reality is in two opposite directions, they will tend to choose the easy path. A good officer will also tend to perform less in such a scenario (Sajjad 2022).

Giving False Idea of Quality. The organization gets a blurred vision of actually qualified officers as professional officers having trivial differences from the others who are the majority in the military society (Bakir 2022). It also does not give a true picture of professionals as the writings/markings are generic (ibid). Fallacy and misconception of identifying true quality becomes a challenge for the BA.

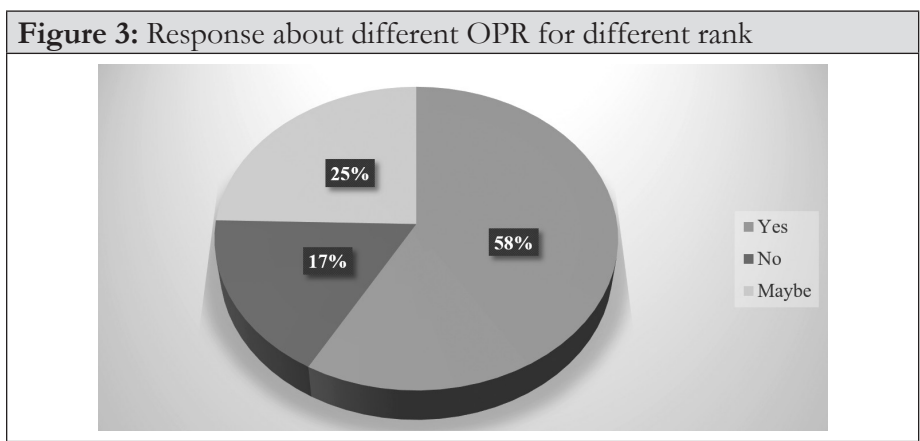
Proposed Modifications to PES

The system of MS Br should be allowed to work to develop officers' professionalism (Moeen 2022). In any professional army, there should not be any influence from the outside. Whatever changes are made will be useless if the influence cannot be stopped (ibid). Comradeship, fellow feelings, team spirit, bonding, love and sacrifice for others are intangible

factors and cannot be measured with any tools. Similarly, how a Lt Col handles and manages a unit cannot be accurately measured (Sajjad 2022). New ideas should be welcomed as a result of free-flowing thinking, which is the difference between the Eastern and Western military cultures. Officers should be encouraged to question the phenomenon with logic and reasoning without taking it for granted (Bakir 2022).

Suggestive Measures for Enhancing Effectiveness of PES

Different OPR Attributes for Different Rank Groups. According to some respondents, Lt Col is the rank where an officer enjoys the last direct command of troops and as such, their assessment matters most at this level. Brig Gen Taef opined that the attributes of judging the senior officers could vary from the others. Especially for the officers of the rank of Lt Col and Col, he thinks that the same OPR format with modified attributes may be used (Taef 2022). His opinion is to reduce the number from 26 to specific 10-12 that can express all qualities required at that level (ibid). There could be separate attributes in OPR for senior officers using the same form. Survey results suggest the use of separate form (83% of the survey respondents agrees to have separate form).



Rewarding Professionally Challenging Appointments. Gen Mubeen opined that it is not yet a time to reward professionally challenging appointments before others as the system needs an overhaul first (Mubeen 2022). Maj Gen Fakhru is in favour of rewarding professionally competent appointments, but for promotion, he thinks all should get equal opportunity based on performance in respective sectors (Ahsan 2022). It is always difficult to identify professionally challenging appointments for senior officers.

Rewarding Professionally Competent Officers. Brig Gen Bakir opined to benefit officers with better professional attributes and service records and has served as commanding officers of regular units (excluding paramilitary). He thinks that service privilege, honour, dignity etc., should come hand in glove with professional attributes (Bakir 2022). Brig Gen Taef strongly suggested that overall professionalism should be the only measurement tool for someone to be promoted to the next higher rank, and this should be the lighthouse for all officers of BA. Only then will every officer strive to become professional.

No Promotion without Command. There has been a difference of opinion regarding “no promotion without command”. A school of thought opines that an officer should be given a chance to climb up the ladder even if they have not commanded a battalion/regiment. In the Israeli Army, if one is not promoted in due time, he’ll never make it to a battalion commander (Bakir 2022). BA should head in that direction where these appointments will be better rewarded than others. The officers must compete with each other to get such coveted appointments, and their career paths could be different from those of others.

Formalized Training of Initiating Officers (IOs). The IOs suffer seriously from portraying the true picture while writing an OPR. It also came up during the FGDs and interviews of senior officers. An assessor should be well-trained in the assessment procedure. If needed, the writing technique of OPR should be taught at various institutes as part of the course curriculum (Senior Command Course or equivalent courses). IOs

may also be trained and given a clear guideline on writing the OPR of individual officers (Waker 2022). As such, formalized training is much needed to emphasize the importance of writing OPR. At present, there is training for the commanding officers (CO) (including potential COs) in Unit Leadership Training. The same may be applied periodically to all assessors in different forms as applicable.

Automation. Automation of MS Br was done much before. Every system needs a review periodically and, therefore, may be revisited. MS Br should be developing software to systematically assess the over-grading and suggest modified numbers taking one's career pattern into account.

Empowering MS Branch. Dedicated officers should be employed in MS Br to look after the OPR of all officers of BA. They should be able to compare the marks of different IOs by software-developed program and inform about their under/over grading (Waker 2022). Assessors should be accountable to MS Br if they over grade an officer, and as practice, MS Br should serve letters to individual officers who are responsible for over grading (FGD-1). MS Br could develop a system to incorporate a corrective measure to scrutinize over-grading and do take necessary action to do justice as per need (Monzur 2022). About making a separate system within MS Br to change the grading, there could be debate about it how it should get going. A general agreement may be sought through the Generals' conference to initiate the process (Sharif 2022).

Continuous Research and Development. There is no alternative to validate any existing system. The assessment system currently followed came up due to some research and development plan. So, MS Br and Army Training and Doctrine Command (ARTDOC) may take the initiative to find out what suits BA best periodically (Islam 2022).

STANINE System for OPR Grading. OPR grading may follow the STANINE system to avoid too many high grades (Shafiq 2022). Lt Col/Col's professionalism indicators should be tangible to make easy decision making and place them according to their merit. STANINE system

may bring the best result for balancing the OPR to avoid over-grading (Bakir 2022). A modified STANINE system may be worked out for MS Brance, and the effect may be seen for a year and two to validate the same (Sharif 2022). On the question of adopting the STANINE system in MS Br for OPR grading, officers in FGD-1 opined that the system could be implemented with a little heavy on 9, meaning to say a little more than what is as per STANINE standings. MS Br can take a lead role in testing the feasibility of the system.

Percentile System for OPR Grading. Some school of thought opines that the percentile system of OPR would benefit BA for OPR management. Brig Gen Taef sees it as an alternative to the STANINE system. On the issue of introducing STANINE or Percentile system for OPR management in BA, he opined that the negative side of it must be worked out first. According to the system, the officers can be put in a position according to his/her deserved merit and that would reduce the chances of friction that STANINE offers.

Conclusion

Like any other skilled army, BA aspires to become more professional. The officers are the mainstay of BA and senior officers are the prime mover or force that links the effort. The pyramid-structured promotion prospect of officers makes it essentially important to select the right man to go up the ladder who can aptly take on the challenges of the organization. The selection process currently in place is well tested and has come through an evolution process. In the present system, TRACE is the determinant factor for most of the decision making processes. The OPR mark is the key factor that impacts TRACE heavily. However, OPR writing is identified to be an area that is making it difficult for the MS Br and the selection boards to make the right decision. The influence from outside is also having a significant impact on the professionalism of BA. Due to this, there are numerous other challenges faced by both the organization and the individual officers. There are chances that the professional senior

officers (Lt Col and Col) of BA are likely to get distracted and adopt unfair means to go up the ladder. All in all, the qualities and attributes that need to be tested for officers with different service lengths should vary from each other.

Senior Officers (Lt Col and Col) are tested, and their differences vary less in OPR. Even though the attributes equally apply to the senior officers in question, some of the criteria more specifically apply to the young officers. Apart from honesty and integrity, senior officers must possess wisdom, critical thinking ability, creativity, curiosity, perspective, moral and physical courage, speaking the truth to power, organizational loyalty, social intelligence, care, teamwork, justness, forgiveness, modesty, prudence, self-regulation, gratitude, optimism and spirituality are very important ones and could replace some of the redundant attributes like socialization, cheerfulness, bravery, and robustness. This change can be made without using a different format.

When the system is faulty, it is bound to have rippling effects on everything. The tendency of “Over Grading”, as highlighted by the most, causes a serious impact on the individual officer and the organization as a whole. This is also affected by the lack of formal training by the IOs. At the organizational level, not identifying the “Right man for the right job” gets challenged. To make the PES more effective and professionally rewarding, there could be different OPR forms for different ranks, especially for the senior officers. If the competent officers are not rewarded, the term “professionalism” may become imprecise.

Different OPR Attributes for Senior Officers. A board of officers may be formed consisting of officers from MS Br and ARTDOC to identify essential and desirable traits for the officers of different ranks. The product of such identification may form the basis of different OPR Forms- if needed. MS Br may play the lead role in this aspect.

Training for the Initiating Officers (IO). It has been elaborately discussed in the chapters and frequently came up during an interview with

the senior officers; the IOs are ill-trained and lack awareness of the impact they create by superficial facts. As a remedy, training at various levels may be arranged to bridge the knowledge gap. Knowing the policy is also very important. “Over Grading” tendency can be corrected by properly training the initiating officers periodically instead of constantly referring to MS Circular related to OPR. There could be periodical letters circulated to the Initiating Officers so that they remain cautioned to deliver justice (Sharif and Shafiq 2022).

Capacity Building of MS Branch. MS Br needs to be empowered to evaluate and assess over-grading. Software may be developed to record the grading, and assessors may be notified if required (Sajedur Rahman 2022). As some of the senior officers also proposed to introduce the STANINE/ Percentile system for managing the over-grading, they may also be tested for feasibility in BA.

References

1. Al Mamun, Maj Gen Khaled, interview by Lt Col Zunaid. (24 April 2022).
2. Asadul Haque, Brig Gen S M, interview by Lt Col Zunaid. (13 June 2022).
3. Bakir, Brig Gen Abu Sayeed Md, interview by Lt Col Zunaid. (28 April 2022).
4. Belal, Gen (Retd) Muhammad Shafiul Huq, interview by Lt Col Zunaid. (01 August 2022).
5. Cho, Ryan. 2015. Task and Purpose. December 10. Accessed July 15, 2022. <https://taskandpurpose.com/news/why-the-armys-officer-evaluation-system-needs-a-complete-overhaul/>
6. Fakhru Ahsan, Maj Gen, interview by Lt Col Zunaid. (27 April 2022).
7. Faisal Baten, Brig Gen A B M, interview by Lt Col Zunaid. (17 May 2022).

8. Ferdous, Brig Gen Hasan Salim, interview by Lt Col Zunaid. (30 April 2022).
9. Humayun Kabir, Col Md, interview by Lt Col Zunaid. (02 June 2022).
10. Islam Rashed, Lt Col Md Mafizul (2019). Individual Research Paper, 360 Degree Assessments (DA) of Officers of Bangladesh Army- A Quest for Organizational Effectiveness. Mirpur, Dhaka.
11. Maksud, Maj Gen Md Rahman, interview by Lt Col Zunaid. (21 May 2022).
12. Monzur Hossain, Col Dewan Md, interview by Lt Col Zunaid. (31 May 2022).
13. Mubeen, Gen (Retd) Md Abdul, interview by Lt Col Zunaid. (16 June 2022).
14. Mushfiqur Rahman, Brig Gen Mir, interview by Lt Col Zunaid. (15 May 2022).
15. Osman, Brig Gen, Md Shawkat, interview by Lt Col Zunaid. (05 August 2022).
16. Ouedragogo, Emile (2014). A research paper from The Africa Center for Strategic Studies on Advancing Military Professionalism in Africa.
17. Rashed Hasan, Lt Col Md, interview by Lt Col Zunaid. (16 April 2022).
18. Reazul Islam, Major Md, (2016). Individual Research Paper, Revisiting Performance Evaluation System of Officers in Bangladesh Army- A Quest for Enhanced Effectiveness, Dhaka.
19. Sajedur Rahman, Brig Gen Md, interview by Lt Col Zunaid. (30 June 2022).
20. Sajjad Hossain, Brig Gen, interview by Lt Col Zunaid. (20 May 2022).
21. Sani, Cert. n.d. Critical Thinking and Military Leadership. Accessed 05 August 2022.

22. Sarwar Hasan, Lt Gen Ataul Hakim, interview by Lt Col Zunaid. (15 June 2022).
23. Shafiqur Rahman, Col Md, interview by Lt Colonel Zunaid. (31 May 2022).
24. Sharif Ul Islam, Lt Col Md, interview by Lt Col Zunaid. (15 June 2022).
25. Taef Ul Haq, Brig Gen Md, interview by Lt Col Zunaid. (06 April 2022).
26. Wahid-Uz-Zaman, Major. (2002). Individual Research Paper, Annual Confidential Report- The Key Elements of Performance Appraisal of Officers in BA. Mirpur, Dhaka.
27. Waker-Uz-Zaman, Lt Gen, interview by Lt Col Zunaid. (30 June 2022).
28. 2021. "Defining Military Professionalism." A presentation by Commandant, Defence Services Command and Staff College.

Author

Lieutenant Colonel Syed Md Abdullah Zunaid, afwc, psc was commissioned in the Corps of Infantry on 27 December 2001 with 45th BMA Long Course. In his 21 years of military career, he served in four Infantry Battalions, including commanding the 9th East Bengal Regiment. His other mentionable service experience includes Aide-de-Camp of Chief of Army Staff, Platoon Commander at Bangladesh Military Academy, and Assistant Military Secretary at Army Headquarters etc. Under blue helmet, he took part in peacekeeping operations in Ivory Coast (UNOCI) and UNMISS, South Sudan. Lieutenant Colonel Zunaid is a graduate of Defence Services Command and Staff College, Mirpur and Turkey. He also completed Armed Forces War Course-2022 at National Defence College. Presently he is serving as General Staff Officer-1, Military Operations Directorate in Army Headquarters, Dhaka.

AN ANALYSIS OF FORCIBLY DISPLACED MYANMAR NATIONALS' REPATRIATION INITIATIVE OF BANGLADESH: CHALLENGES AND WAYS FORWARD

**Lieutenant Colonel A N M Sohel Arman, SUP, afwc, psc,
Artillery**

Introduction

Rohingya migration from Myanmar to Bangladesh is not a novel occurrence. In the late 1780s, the 1940s, 1978, 1991-92, 2012, and most recently in 2016 and 2017, the Rohingya population fled their homes and sought refuge in the Bangladesh after being compelled to do so. In 1784, the Burmese Konbaung Dynasty's King Bodawpaya invaded and conquered the Arakan Kingdom, effectively causing the first recorded Rohingya exodus (Harvey, 2000). The Rohingya exodus also occurred during the Burma Campaign of World War II (Yegar, 1972). Rohingya population fled during Operation Monsoon in 1954, Operation Nagamin (Dragon King) in 1977-78 (Smith, 1991), Operation Pyi Thaya (Clean and Beautiful Nation) in 1991-92, and communal riots in Rakhine State in 2012. In October and November 2016, due to the 'Clearance Operation', approximately 65,000 Rohingya fled across the border into Bangladesh (Sattar, 2017). The mass exodus of Rohingya during the 'Clearance Operation' of Myanmar Armed Forces (known as Tatmadaw) in August 2017 shattered all previous estimates. With an uncertain future, nearly a million Rohingya crossed the border and took refuge in Cox's Bazar (Singh, 2018).

The intensity of the international community's efforts to support these displaced populations in their current refuge does not necessarily translate into a coordinated effort for their sustainable and dignified return to Myanmar. Bangladesh, for her part, has already expended a sufficient amount of her resources to house this population of over a

million, frequently expelling her natives to make room for them on her territory. Bangladesh has also suffered enormously if one takes account of environmental disaster, deterioration of law and order situation, economic strain and so on. The only solution to the crisis is the permanent and dignified return of all Forcibly Displaced Myanmar Nationals (FDMN) to their country of origin.

Due to the continuous effort of Bangladesh, an 'Arrangement on Return of Displaced Persons from Rakhine State' was signed between Bangladesh and Myanmar on 23 November 2017 for the repatriation of FDMN at a rate of 300 per day in 5 days of a week (Dhaka Tribune, 2017). A Joint Working Group (JWG) was formed for working on all aspects of return of FDMN from Bangladesh. The Government of Bangladesh (GoB) signed several Memorandums of Understanding (MoU) with the United Nations High Commissioner for Refugees (UNHCR), the Government of Myanmar (GoM), and the United Nations Development Programme (UNDP). Dates for repatriation of FDMNs were also worked out and necessary preparations were completed. Due to FDMN's unwillingness to return to the IDP camps, attempts to repatriate FDMN failed twice on 15 November 2018 and 22 August 2019 despite numerous arrangements. They desired a dignified return to their homeland which has not yet been accepted by the GoM.

The GoB transferred FDMNs to Bhasan Char to lower population density and improve their quality of life. However, that is not the permanent solution to the problem. The UN adopted a resolution by consensus urging Myanmar to address the root causes of the Rohingya issue and fulfil its bilateral commitments with Bangladesh. These remarks/resolutions do not guarantee FDMN's safe and dignified return to their homes. Now the question arises: how can Bangladesh successfully repatriate FDMN to Myanmar? To address the question, the repatriation initiatives undertaken by Bangladesh so far and Myanmar's response to those initiatives should be analysed first. Thereafter, all the challenges impeding the execution of FDMN repatriation to be considered. An elaborate, well-thought-out set

of steps addressing the challenges for repatriation is likely to impact the repatriation process significantly which is the focus of this paper.

Research Methodology

The study is non-experimental exploratory research. Both qualitative and quantitative methods are utilised for data collection; as such, it is a mixed-method study design. For the purpose of the research, qualitative and quantitative data were collected from both primary and secondary sources. Primary data was collected through interviews and Focused Group Discussion (FGD). Secondary Data was collected through internal and external methods. Non-probability purposive sampling technique was used in this research since the number of experts on this subject is less.

Key Informant Interviews (KII) were conducted on semi-structured questionnaire. Senior military officers, Refugee Relief and Repatriation Commissioner (RRRC), Camp in Charge of FDMN Camp, renowned academicians and editor in chief of a renowned TV news channel were interviewed to obtain qualitative data. FDMNs of different camps were interviewed to understand FDMN's perspectives. Two FGDs were conducted for the purpose of obtaining qualitative data for the research. Different works of literature and documents available in the libraries and the open source were used to maintain a diverse range of perspectives. A survey containing six specific questions was conducted among the officers who served in the Cox's Bazar Area to get quantitative data on the problem.

Statistical Package for Social Science (SPSS) was used for quantitative data (survey data) analysis. NVivo software was used to analyse the qualitative data (interview and FGD). Interviews and FGDs were coded under ten headings and analysed using NVivo software.

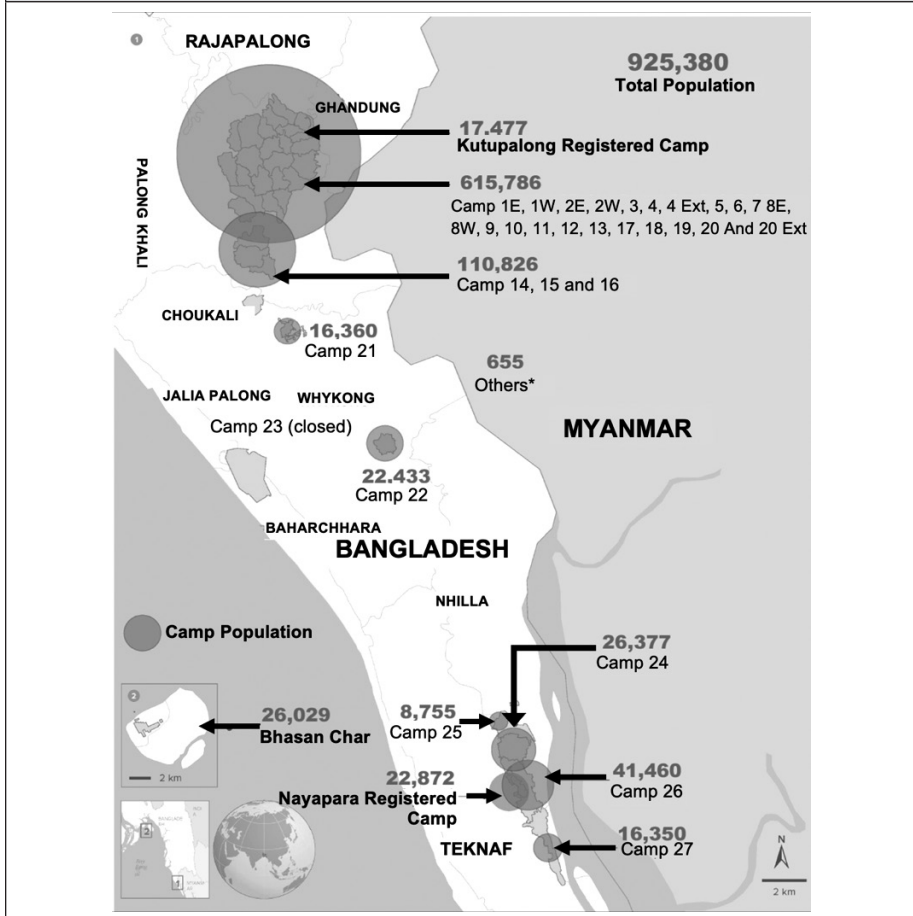
Repatriation Initiatives of Bangladesh Vis-a-Vis Response of Myanmar

Bangladesh's Approach for Peaceful Solution

Bangladesh's foreign policy bases its conduct with other nations on the following tenets: justness, respect for national sovereignty, non-interference in the internal affairs of other nations, peaceful resolution of international disputes, observance of international law and adherence to the principles outlined in the United Nations Charter (MOFA, 2018). Bangladesh cannot be an enemy of any nation because it values peace. According to the Father of the Nation Bangabandhu Sheikh Mujibur Rahman, friendship with every nation in the globe is Bangladesh's onus since maintaining peace is essential to a nation's economic well-being (Rahman S. M., 2019). Therefore, the dictum of Bangabandhu 'friendship to all and malice towards none' became the basic principles of Bangladesh's foreign policy.

After Tatmadaw's 2017 crackdown, both the people and the GoB expressed sympathy and support for the FDMN. The GoB provided temporary shelter, food, medical care, and sanitation. Later, UNHCR, WFP, and local and international non-governmental organisations (NGOs) joined the relief effort. FDMNs are housed in 34 overcrowded camps in Ukhiya and Teknaf Upazilas, including the Kutupalong-Balukhali Expansion Site, which houses 626,500 Rohingya refugees (OCHA, 2022). Bangladesh built a camp for 100,000 FDMNs in Bhasan Char to reduce density and improve management in Cox's Bazar. Total 26,029 FDMNs are housed in Bhasan Char (Figure 1) as of 30 April 2022 (UNHCR, 2022). Bangladesh balances serving humanity and protecting its citizens from Non-Traditional Security (NTS) threats posed by the Rohingya crisis.

Figure 1: FDMN Camps in Bangladesh (UNHCR, 2022)



As per the ‘Arrangement on Return of Displaced Persons from Rakhine State’, the repatriation process of FDMNs was scheduled to start on 23 January 2018 and was supposed to be completed within two years (MoU, 2017). However, those attempts were not successful due to FDMN’s refusal. Myanmar chastised the GoB for failing to adhere to the physical arrangements on return. Bangladesh, on the other hand, claimed that Myanmar was unable to provide a safe and dignified environment for voluntary return (Daily Bangladesh, 2019). Before repatriation, FDMNs raised their voices in support of their citizenship, which the GoM refused to recognise. The repatriation process came to a standstill as a result.

Present State of Repatriation

The Gambia sued Myanmar in November 2019 in the International Court of Justice (ICJ) for failing to prevent or punish genocide against Rohingya Muslims. The Tatmadaw seized complete authority after a coup on 01 February 2021, deposed the ruling party, and imprisoned Aung San Suu Kyi. Anti-coup protests erupted, but security forces continued to kill hundreds of civilians and attack nonviolent protestors. Min Aung Hlaing, Myanmar's military chief, is being investigated for war crimes and alleged genocide against Rohingya Muslims (Ahmed, Sammonds, Islam, & Alam, 2022). The Junta is uninterested in FDMN repatriation. This unexpected political shift in Myanmar created doubt on the Rohingya repatriation process.

On 01 March 2022, the USA accused the Myanmar military of genocide against the Rohingya pressuring the Military Junta (TBS Report, 2022). Myanmar submitted a verified list of 700 FDMNs who were eligible for repatriation. However, Myanmar did not consider family and village integrity when compiling the list, indicating its unwillingness to reclaim FDMNs (UNB, 2022).

Analysis of Bangladesh's Approach for the Repatriation Process

Since the independence of Bangladesh, Bangabandhu Sheikh Mujibur Rahman, the Father of the Nation, had placed humanity first, and his affection for the people was boundless. Due to his philosophy, Bangladesh has provided emergency relief to Rohingya fleeing Myanmar since 2016. The GoB has provided water, sanitation, affordable housing, capacity building, education, disaster response, and mitigation. Bangladesh acted humanely in the crises.

To strengthen bilateral relations, the GoB tried to solve the FDMN repatriation issue bilaterally and multilaterally. The FDMN issue threatens economy and security. Bangladesh has requested help on international platforms. Bangladesh did not use force to escalate the situation. Thereby,

Bangladesh negated the chance of conflict by incorporating international community for the peaceful settlement of the issue.

Bangladesh is a developing nation with many difficulties. Despite unemployment, poverty, natural disasters and corruption, Bangladesh's economy thrives. Bangladesh has not met all the well-being standards for its population. The GoB constructed better housing at Bhasan Char for FDMN. It has shown Myanmar and the world that if intentions are good, any country can improve the lives of the distressed. Bangladesh hoped to pacify Myanmar through example.

Myanmar's Response to the Repatriation Initiatives of Bangladesh

Myanmar has maintained its version of the claimed Arakan Rohingya Salvation Army (ARSA) attack on 30 police stations. Tatmadaw killed Rohingyas indiscriminately under the guise of anti-terrorist operations (BBC, 2020). In August of 2017, there was a mass exodus. The GoM blamed the Rohingyas for the attack on Law Enforcement Agency (LEA) but denied that they were involved in any violence. Even when Aung San Suu Kyi went before the ICJ in December 2019, she denied claimants of genocide (BBC, 2020).

The world has seen Rohingyas flee Myanmar empty-handed. The GoM agreed to a peaceful repatriation of FDMN to calm the world. After signing the MoU, Myanmar is hesitant to create repatriation-friendly conditions. Myanmar received information on 106,000 Rohingya from Bangladesh in 2018 and 2019. The GoB gave details on another 492,000 Rohingya in March 2020, noting that Myanmar had only 'confirmed a very small amount' so far (Taylor, 2020). Myanmar does not seem to want the Rohingyas return.

After the military coup on 01 February 2021, Tatmadaw Chief General Min Aung Hlaing said Rohingya refugees would continue to be repatriated to Rakhine state (Tribune, 2021). However, on 23 May 2021, Myanmar's junta leader Min Aung Hlaing cast doubt on the repatriation. According to him,

his country's refugee laws prevent him from considering the Rohingya case (Tostevin, 2021). Since then, repatriation has been significantly impacted. Myanmar expressed interest for repatriation after the US recognized the Rohingya Genocide. It gave Bangladesh a list of 700 FDMNs. The situation dictates that FDMN repatriation is far off (Ahmed C. H., 2022).

Analysis of Myanmar's Response

UN human rights chief Zeid Ra'ad al-Hussein has described Tatmadaw's 2017 cleansing campaign as 'a textbook example of ethnic cleansing' (UN News, 2017). Myanmar never granted Rohingyas' citizenship. They were always referred to as 'Bengalis' who had moved as labourers. Myanmar's MOFA stated in 1992 that there had never been a Rohingya race in Myanmar. Since the 1st Anglo-Burmese War in 1824, Muslims have illegally entered Myanmar (Galache, 2020). Therefore, Myanmar is not ready to accept citizenship claim of Rohingyas.

Tatmadaw wants Chinese investment in Rakhine. China has a plan of investing USD 7.3 billion in Rakhine (Dasgupta, 2017). The concept includes the Kyaukpyu SEZ which has a deep seaport, industrial park, and housing. China backed Myanmar and vetoed UN Security Council resolutions against Myanmar to ensure the project's success (Htew, 2019). Tatmadaw needs Chinese support for the continuation of its regime. The GoM prioritized Chinese investment in Rakhine.

Myanmar retained sole responsibility for creating a conducive environment and verifying the list of FDMNs without a time limit. Myanmar does not promote voluntary repatriation and apparently not interested in taking back Rohingyas. To the world's amazement, Aung San Suu Kyi also defended the Tatmadaw, claiming no atrocities were committed in 2019. Myanmar's egocentrism endangers the Rohingya.

Myanmar has consistently denied the international community's demand for the repatriation of the Rohingya. Myanmar is found to be only sensitive to Chinese decisions. Apart from that, the state does not pay sufficient attention to other requests. Even western sanctions were insufficient to

exert sufficient pressure on Myanmar. The country is hesitant to follow international standards and to agree to requests from the rest of the world that do not help its system.

Challenges for Repatriation of FDMN

Grey Areas of Repatriation Initiative

The MoU signed by both the governments for the repatriation of FDMN has some grey areas alongside its strengths. By signing the MoU, Myanmar accepted that FDMNs are the residents of Myanmar, and they have the rights for the safe and dignified repatriation to their homes in Rakhine (Khan, 2022). Contrarily, the GoB is facing tremendous challenges to repatriate FDMNs due to the inherent grey areas of the MoU. 80% of responders opined that the GoB will not be able to repatriate FDMN following present repatriation initiative which substantiate the argument.

There is no ‘guarantee clause’ in the MoU. It is not mentioned in the instrument what can be done if Myanmar does not take back the FDMNs within the timeline (Khan, 2022). Moreover, Myanmar is responsible for creating a situation favourable for voluntary repatriation. However, no deadline is mentioned for creating the environment. 85% of respondents also opined that not fixing a timeline for Myanmar to create a conducive environment is a major challenge for the repatriation of FDMN.

Myanmar is solely in charge of verifying FDMNs for repatriation. As per MoU, Myanmar agreed to verify the list of FDMN preferably within six months. Furthermore, Myanmar is not duty-bound to provide any evidence or supporting information while rejecting a request for verification which is one of the significant grey areas of repatriation initiative.

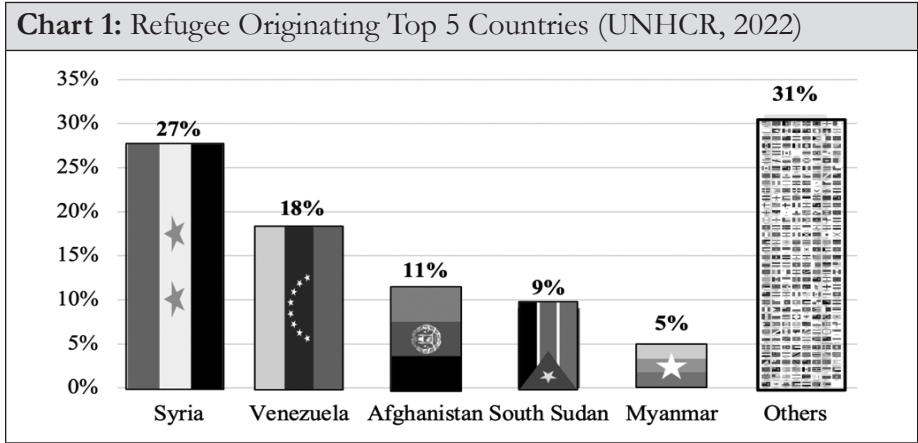
A major challenge resulted from the failure to include the world community in the endeavour (Khan, 2022). Different international organizations, such as the UNHCR, IOM, and others are currently worried about the welfare of FDMNs in Bangladesh mostly.

Challenges Originating from Myanmar's Response

Myanmar's military junta is not legally bound to uphold the MoU (Khan, 2022). Tatmadaw's membership in parliament and government implies that military interests will always transcend humanitarian calls for the persecuted Rohingya during democratic regimes as well (Abbasi, 2022). 80% of responders opined that Myanmar will not take back FDMNs willingly according to the MoU. Repatriation of FDMNs will be difficult if Tatmadaw leadership is not convinced or compelled by influential international actors.

Lessons from Global Experience of Refugee Repatriation

Total 89.3 million people worldwide were forcibly displaced owing to persecution, conflict, violence, human rights violations, or events substantially affecting public order at the end of 2021 (UNHCR, 2022). The Ukraine war has increased the global number of displaced people above 100 million (UNHCR, 2022). According to UNHCR (2022), 69% refugees came from five countries only Chart-1. Formal peace accords or other political arrangements generally ended wars in countries of origin, allowing refugees to return. After the early assisted voluntary return schemes, spontaneous refugee returns gained momentum. Afghanistan, Angola, Bosnia-Herzegovina, Cambodia, and South Sudan saw early spontaneous returns before assisted voluntary return initiatives.



Afghan Refugee Crisis 1979, Angolan Refugee Crisis 1975-2002, Bosnia-Herzegovina Refugee Crisis 1991, Cambodian Refugee Crisis 1979-1991 and Rohingya Refugee Crisis 1978 and 1991-92 are analysed as case studies. From the case studies it is identified that people who have been uprooted are most likely to be able to go back to their country of origin if there are no more wars. Repatriation requires an agreement between the host and home country. The agreement covers return modalities, timing, and other issues. Successful repatriation includes returning assets and land they owned before being evicted. It also requires restoring citizenship rights and access to fundamental constitutional rights. The USA and former Soviet Union played a key role in enforcing the Afghan refugee repatriation agreement. The Bosnian refugee crisis was resolved by the Dayton Agreement, signed in the US by Bosnians, Croats and Serbs in the presence of the US, French, German, Spanish and Russian presidents. The agreement was backed by major powers' witnessing. International organizations were tasked with monitoring, overseeing and implementing the agreement. Furthermore, criminal prosecution of offenders is crucial for sustainable repatriation. In Bosnia's refugee crisis, criminal justice was commissioned for those involved in crimes against humanity. The International Criminal Tribunal for the former Yugoslavia (ICTY), a body of the UN, was created to try war criminals from the Yugoslav Wars. Slobodan Milošević was the first sitting President charged with war crimes. This was a great way to set an example

for future conflict resolutions and help prevent crimes against humanity. Finally, moral pressure and motivation are important for refugees. Host countries morally and psychologically pressured Angolan and Cambodian refugees. The refugees were persuaded to return to their home country, motivating them to shed their stigmatized identities as 'displaced people' in a foreign land.

Challenges identified for Bangladesh from the case studies are:

- Creation of a safe and secured environment in Rakhine.
- Setting a completion time for repatriation and guarantee clause in the MoU.
- Ensuring return of the properties of FDMNs on repatriation along with citizenship rights.
- Convincing major powers i.e., USA, Russia, EU, China to act as guarantor.
- Trial of perpetrators for the genocide of Rohingya.
- Motivating FDMNs for their return.

Roles Played by China, India and Non-Involvement of Internal Community

China supports Myanmar despite Rohingya atrocities which is a significant challenge for Bangladesh (Abbasi, 2022). China vetoes UN Security Council resolutions supporting Myanmar. China wants its influence over Myanmar to be a long-lasting one (Khan, 2022). Again, Bangladesh was surprised for not receiving any support from India which has intensified its relationship with Myanmar. India is implementing a USD 484 million project, 'Kaladan Multi Modal Transit Transport (KMTT)' project, to connect its NE Indian states with Kolkata port (Seli, 2022). The GoB needs China and India's support to repatriate FDMN. Bangladesh could not attract international attention which hampered the repatriation process. 80% of respondents

expressed that Bangladesh could not draw enough attention of international community which is a challenge for Repatriation.

Myanmar's Getting Away with Genocide

Tatmadaw's crime against humanity went unpunished in Myanmar. Gambia was the first country to sue Myanmar in 2019 for atrocities. Geopolitical, geoeconomics, cultural, religious, and external distractions help Myanmar get away with genocide (Abbasi, 2022). China and India want to maintain geopolitical and economic influence over Myanmar. Myanmar has cultural ties to China and ASEAN. Regional countries favour Myanmar's Buddhism. Again, the Russia-Ukraine war has diverted international attention from the Rohingya issue (Ahmed B. G., 2022). All these aspects created significant challenge for the repatriation.

Not Exploring Diversified Solution by the GoB

Bangladesh used diplomacy to repatriate FDMNs. Bangladesh initially engaged Myanmar and China. Myanmar has been uncooperative, citing the Covid-19 pandemic (Hayat, 2022). Military coup has almost stalled the repatriation process. Besides, the GoB raised the issue of FDMN in all the international forums, e.g., UN and OIC. However, it is observed that the GoB did not explore other tracks of diplomacy (Khan, 2022). Bangladesh did not involve businessman, general citizens, religious leaders, international celebrities, etc. for the repatriation of FDMN (Abbasi, 2022).

Challenges Due to the Historical Communal Disharmony among Buddhists, Rakhine and Muslim Rohingyas

Myanmar's main actors are Bamar, Tatmadaw and Buddhist monks (Abbasi, 2022). Rohingyas fought for the British during World War II, while Aung San's Burmese National Army fought for the Japanese. During and after the war, pro-British Muslim Rohingyas and pro-Japanese Buddhist Rakhine clashed. When Burma gained independence, Rohingya

wanted to join Pakistan (Sarkar, 2019). Due to their history, Bamar and Rakhine Buddhists do not like Rohingyas. Buddhist monk Ashin Wirathu led violence against Rohingyas. He formed Ma Ba Tha (The Committee to Protect Race and Religion) to limit Rohingya rights and agitate Burmese against them (Gunasingham, 2021). As such, Buddhist Burmese pose a significant repatriation challenge.

Challenges Emanating from the FDMNs

The GoB is trying for a safe and dignified return of FDMNs. However, FDMNs want the assurance of their citizenship, return of their properties, trial of the perpetrators of genocide, release of detained Rohingyas from jail who were taken into custody for 2017 incident and so on (Mahmud, 2022). None of these demands can be fulfilled by the GoB alone. Moreover, there are some Rohingyas inside FDMN camps who propagate negative idea regarding repatriation and demotivate general FDMNs (Sayedullah, 2022). FDMNs are not yet fully motivated to be repatriated. Therefore, repatriation of FDMNs is becoming challenging.

Ways Forward for Bangladesh for the Repatriation of FDMN

Approach to Big Powers and International Institutions

Bangladesh should place diplomacy first for the repatriation of FMDNs. International community should be engaged and involved in the process. Bangladesh should maintain a balance while approaching to the big powers. UN, ASEAN, and OIC can help repatriate FDMNs. Bangladesh must use international platforms to pursue repatriation process.

Employing Defence Diplomacy

Defence diplomacy will be a successful strategy for Bangladesh since military personnel are better at understanding one another's languages. By exchanging military delegations, Bangladesh and Myanmar can address

bilateral concerns. Military exchanges improve both sides' capabilities. Partnership sectors include combined military exercises, UNPKO training, disaster management, exchange programs, senior-level visits, and medical cooperation (Chowdhury, 2022). Myanmar's then-Air Force Commander, Lieutenant General Myat Hein, spent six days in Bangladesh in 2011 (Chowdhury, 2022). General Aziz Ahmed's visit in 2019 was the Bangladesh's first high-profile military visit to Myanmar in almost five years. Bangladesh was one of the eight nations to send a defence attaché to the Myanmar Armed Forces Day ceremony in March 2021, causing Min Aung Hlaing to consider Dhaka an ally (Bhuiyan, 2022). Therefore, Bangladesh must enhance relations between both military forces to help resolve the FDMN issue.

Multitrack Diplomacy

Bangladesh has been utilising track-1 diplomacy, i.e., the official government diplomacy till today (Abbasi, 2022). The GoB has the scope to employ other tracks of diplomacy, i.e., people to people contact, trade and investment, research, training and education and religion. Improving relations with Buddhist monks and Rakhine is the only way to secure a safe, dignified and sustained repatriation of FDMNs. Concurrently, Myanmar's business community should be attracted by the GoB beside encouraging local business leaders to invest in Myanmar. There should be cultural exchange program to promote bi-lateral relationship. Bangladesh should promote student exchange program with Myanmar. All major universities in Bangladesh should teach Burmese language and culture to know Myanmar better.

Formulation of a New MoU

As discussed, the MoU inked by both the governments has some grey areas. Since a long time has passed and no FDMN has been returned, the GoB may prepare and sign a new MoU with the GoM. Previous MoU's minimal progress allows for new one. Bangladesh must involve

the international community and major powers, such as the USA, EU, etc., for the new MoU. Repatriation must be guaranteed and time limited. International community to evaluate and create safe and dignified repatriation environment in Myanmar.

Keep the Issue Alive

New international issues shift the world's focus. The world is watching the Russia-Ukraine war at present. If a problem is not kept alive internationally, its resolution becomes uncertain. Bangladesh must keep the FDMN issue alive. News, documentaries and movies about the plight of the Rohingya must be transmitted on international media outlets such as Al Jazeera, CNN, and the BBC. Bangladesh should devise a strategy to bring in celebrities and important individuals so that their news is covered all year.

Capacity Building of FDMN

The GoB must focus on the capacity building of FDMNs. FDMNs must demand justice and the right to return to Rakhine by themselves. FDMNs must be motivated to return home quickly. FDMN children chant their national anthem and learn Burmese as part of a motivating program in FDMN camps. Memory centres are established in FDMN camps so that they do not forget the genocide (Alam S. A., 2022). Hundreds of Rohingyas now reside in 19 other states. There are numerous organizations that fight for the rights of the Rohingya people. Through their program, they may be able to change how the public feels about the Rohingyas in those states. FDMNs ought to act as their own envoy.

Conclusion

The FDMN issue is the most critical issue Bangladesh has encountered since achieving independence. The repatriation initiative was unsuccessful twice on 15 November 2018 and 22 August 2019. Myanmar violated its commitment to provide a secure environment for a dignified and long-lasting return. Instead, it has consistently demonstrated a lack of interest

in meeting the standards. Furthermore, FDMNs do not want to return if their demands-citizenship rights, property rights, the prosecution of genocide offenders, etc. are not met. As a result, managing the FDMNs in Bangladesh and creating an environment favourable for their repatriation are onerous tasks facing the GoB at the moment.

Bangladesh was compassionate during 2017's Rohingya exodus. Bangladesh has relied on peaceful dialogue since independence to resolve bilateral issues. After giving FDMNs a safe refuge, the GoB negotiated with the GoM to send them home. Myanmar's lax approach hindered Bangladesh's repatriation efforts. Rohingyas' requests for citizenship have consistently been denied by Myanmar. In addition, Myanmar is hesitant to fulfil its commitment to create a long-lasting and dignified environment for repatriation. When Military Junta Chief Hlaing raised doubts regarding repatriation in May 2021, there were not many chances for it to happen.

Challenges to FDMN repatriation are many. Successful repatriation around the world shows that a safe and dignified environment, integration of major powers during the signing of MoUs, a fixed schedule for repatriation and motivation of refugees are also crucial. Bangladesh has difficulties fulfilling these requirements. Bangladesh should use defence diplomacy and multitrack diplomacy with Myanmar. Bangladesh must use all of its national powers to ensure the repatriation. Bangladesh must keep the subject alive. Bangladesh should boost economic relations with Myanmar and accommodate China. Bangladesh needs to achieve military deterrence capability. As a whole, FDMN's repatriation initiative must be a comprehensive one.

References

1. Abbasi, P. K. (2022, April 28). An Analysis of Forcibly Displaced Myanmar Nationals' Repatriation Initiative of Bangladesh: Challenges and Ways Forward. (S. p. Lt Col A N M Sohel Arman, Interviewer)

2. Ahmed, B., Sammonds, P., Islam, M. T., & Alam, S. M. (2022). Sustainable Rohingya Repatriation in Myanmar: Some Criteria to Follow. In N. Uddin, *The Rohingya Crisis: Human Rights Issues, Policy Concerns and Burden Sharing*. New Delhi: Sage Publications India Pvt Ltd.
3. Ahmed, B. G. (2022, April 26). An Analysis of Forcibly Displaced Myanmar Naitonals' Repatriation Initiative of Bangladesh: Challenges and Ways Forward. (S. p. Lt Col A N M Sohel Arman, Interviewer)
4. Alam, S. A. (2022, June 14). 'An Analysis of Forcibly Displaced Myanmar Nationals' Repatriation Initiative of Bangladesh: Challenges and Ways Forward'. (S. p. Lt Col A N M Sohel Arman, Interviewer)
5. BBC. (2020, January 23). Myanmar Rohingya: What You Need to Know about the Crisis. Retrieved May 2022, from BBC News: <https://www.bbc.com/news/world-asia-41566561>
6. Bhuiyan, P. S. (2022, June 19). Can Bangladesh-Myanmar military ties stabilise the region? Retrieved Jul 2022, from *The Daily Star*: <https://www.thedailystar.net/views/opinion/news/can-bangladesh-myanmar-military-ties-stabilise-the-region-3050611>
7. Chowdhury, J. (2022, April 29). Why Do Myanmar, Bangladesh Need Defense Diplomacy? Retrieved July 2022, from *Euresia Review*: <https://www.eurasiareview.com/29042022-why-do-myanmar-bangladesh-need-defense-diplomacy-oped/>
8. Daily Bangladesh. (2019, August 26). Repatriation Halted due to Rohingya's Distrust to Myanmar. Retrieved April 2022, from *Daily Bangladesh*: <https://m.daily-bangladesh.com/english/Repatriation-halted-due-to-Rohingyas-distrust-to-Myanmar/27577>
9. Dhaka Tribune. (2017, 11 26). Rohingya Repatriation Deal: What We Know. Retrieved from *Dhaka Tribune*: <https://www.dhakatribune.com/bangladesh/2017/11/26/rohingya-repatriation-deal-know>

10. Gunasingham, A. L. (2021, September 21). Myanmar's Extreme Buddhist Nationalists. Retrieved July 2022, from The Interpreter: <https://www.lowyinstitute.org/the-interpreter/myanmar-extreme-buddhist-nationalists>
11. Harvey, G. E. (2000). History of Burma: From the Earliest Times to 10 March, 1824: the Beginning of the English Conquest. New Delhi: Asian Educational Services.
12. Hayat, S. R. (2022, Jun 18). An Analysis of Forcibly Displaced Myanmar Nationals' Repatriation Initiative of Bangladesh: Challenges and Ways Forward. (S. p. Lt Col A N M Sohel Arman, Interviewer)
13. Khan, S. E. (2022, June 18). An Analysis of Forcibly Displaced Myanmar Nationals' Repatriation Initiative of Bangladesh: Challenges and Ways Forward'. (S. p. Lt Col A N M Sohel Arman, Interviewer)
14. Mahmud, M. (2022, June 14). An Analysis of Forcibly Displaced Myanmar Nationals' Repatriation Initiative of Bangladesh: Challenges and Ways Forward. (L. C. Arman, Interviewer)
15. MOFA. (2018, August 19). Foreign Policy of Bangladesh. Retrieved April 2022, from Ministry of Foreign Affairs: <https://mofa.gov.bd/site/page/0498e3d1-9bb7-45f0-988c-cb360e9949e2/Foreign-Policy-of-Bangladesh>
16. MoU. (2017, November 23). Arrangement on Return of Displaced Persons from Rakhine State. Nay Pyi Taw.
17. OCHA. (2022, April 30). Rohingya Refugee Crisis. Retrieved April 2022, from United Nations Office for the Coordination of Humanitarian Affairs: <https://www.unocha.org/rohingya-refugee-crisis>
18. Rahman, S. M. (2019). The Unfinished Memoirs. Dhaka: UPL.
19. Sarkar, J. (2019, March 10). How WWII Shaped the Crisis in Myanmar. Retrieved July 2022, from The Washington Post: <https://www.washingtonpost.com/outlook/2019/03/10/how-wwii-shaped-crisis-myanmar/>

20. Sattar, M. (2017, January 31). Rohingya Refugees in Bangladesh to Be Relocated to Remote Island. Retrieved February 2022, from The New York Times: <https://www.nytimes.com/2017/01/31/world/asia/rohingya-refugees-bangladesh.html>
21. Sayedullah, M. (2022, June 14). An Analysis of Forcibly Displaced Myanmar Nationals' Repatriation Initiative of Bangladesh: Challenges and Ways Forward. (S. p. Lt Col A N M Sohel Arman, Interviewer)
22. Singh, M. K. (2018). Rohingya Refugees: Bangladesh's Burden to Bear. New Delhi: Aarti Prakashan.
23. Smith, M. (1991). Burma: Insurgency and the Politics of Ethnicity. London: Zed Books.
24. Taylor, S. (2020, September 04). A closer look at Repatriating the Rohingya. Retrieved May 2022, from UNSW Sydney: <https://www.kaldorcentre.unsw.edu.au/publication/closer-look-repatriating-rohingya>
25. TBS Report. (2022, March 22). US Announcement on Rohingya Genocide: Dhaka Hopes it Helps Repatriation. Retrieved April 2022, from The Business Standard: <https://www.tbsnews.net/bangladesh/us-announcement-rohingya-genocide-dhaka-hopes-it-helps-repatriation-389286>
26. Tribune. (2021, February 09). Myanmar Coup Leader: Rohingyas to be Repatriated to Rakhine State. Retrieved May 2022, from Dhaka Tribune: <https://archive.dhakatribune.com/world/2021/02/09/myanmar-coup-leader-rohingyas-to-be-repatriated-to-rakhine-state>
27. UNB. (2022, March 22). Rohingya Repatriation: Dhaka Detects 'Lack of Goodwill' in Myanmar's List. Retrieved April 2022, from The Business Standard: <https://www.tbsnews.net/bangladesh/rohingya-repatriation-dhaka-detects-lack-goodwill-myanmars-list-389442>

28. UNHCR. (2022, May 11). Joint Government of Bangladesh - UNHCR Population Map as of 30 April 2022. Retrieved August 2022, from Operations Data Portal: <https://data.unhcr.org/en/documents/details/92632>
29. Yegar, M. (1972). *The Muslims of Burma: A Study of a Minority Group*. Wiesbaden: Harrassowitz Verlag.

Author

Lieutenant Colonel A N M Sohel Arman, SUP, afwc, psc was commissioned in the Regiment of Artillery in 2002. He held various appointments in a number of Artillery Regiments. He served as an Assistant Director in Special Security Force (SSF) and General Staff Officer Grade-I in Directorate General of Forces Intelligence (DGFI). He also served as a Platoon and Term Commander in Bangladesh Military Academy. He participated in UNMIL as a Platoon Commander in BANBAT-18. He has commanded an Artillery Regiment. He was a pioneer member in raising 7 Infantry Division and Sheikh Hasina Cantonment Barishal. He completed Junior Staff Course and Mid-Career Course from Nowshera, Pakistan. He is a graduate of Defence Services Command and Staff College, Mirpur, Command and Staff College, Quetta, Pakistan and National Defence College, Mirpur. He obtained Master of Science in Military Studies and Master of Social Science in Security and Development from Bangladesh University of Professionals, and Master of Science in Art and Science of Warfare from National Defence University, Islamabad. Currently, he is serving under blue helmet in Democratic Republic of Congo.

PROBLEMS AND PROSPECTS OF DEVELOPING MILITARY INDUSTRY FOR COMMUNICATION HARDWARE IN BANGLADESH

Colonel Sufi Mohammad Moinuddin, SUP, afwc, psc

Introduction

Attainment of self-sufficiency in regard to military communication hardware has evolved as a need of the day. As a matter of fact, communication is regarded as an essential ingredient for the smooth functionality of the forces during peace and war. Hence, developing integral communication hardware industry may eliminate dependence on foreign countries for procurement, and maintenance of communication hardware. This will further increase the operational capability and capacity of the forces to a greater magnitude. Besides, communication devices are also being used by the Law Enforcing Agencies (LEAs), Paramilitary forces and other governmental and private organizations. Indiscriminate use and importation of such devices, localized and illegal assembly of low-quality communication devices may pose serious threat to national security. Besides, production of communication hardware at home-grown military industries may save a great deal of foreign exchange and contribute to national economy. Marketing of such hardware at limited scale, duly manufactured in the military communication hardware industry, may also stand as a source of revenue for the country. Over the period of years, several industries are being administered by the defense services of which worth mentionable are the Bangladesh Ordnance Factory (BOF), Bangladesh Machine Tools Factory (BMTF), Bangladesh Diesel Plant (BDP), Chittagong Dry Dock Limited (CDDL) etc. Hence, Bangladesh Armed Forces have already accrued the workable experience to function industries related to different commodities and have made substantially encouraging progress. However,

aforementioned concept of communication hardware industry is new and unique for its large-scale implementation in Bangladesh. Therefore, an endeavour was made through conducting an elaborate and threadbare analysis for justifying the concept before recommending its promulgation.

Research Methodology

The research was sociological exploratory research. In terms of methodology, it adopted both qualitative and quantitative approach. Primary data were collected through questionnaire and survey. During the process of research, surveys were carried out with open and close ended questions using the Likert scale among 204 respondents. Besides, 30 interviews of representatives from various important policy level platforms (senior and mid-level), resource persons and subject matter experts were taken. Two Focused Group Discussions (FGDs) were carried out where mid and senior level signals officers gave their valuable input on the subject matter. Secondary literature review was conducted as much as possible. Besides, data from various official documents as part of content analysis along with authentic and open source information were consulted for general analysis as part of secondary data collection method.

Scope and Limitations

The research entails a vast area. Hence, to justify the rationale and identify the feasibility of the subject matter, including defining specific avenues for implementation, primarily, the focus of the research was applied on radio communication gadgets. The scope of the research entails both military and civilian domain of the use of radio communication hardware for commercial viability. Efforts were taken to narrow down the scope of the research as much as possible to identify the core issues and render scope for future research with wider potentials. Available timeline and access to information remained as key challenges to roll out the research with appropriate magnitude.

Military Industry for Communication Hardware: Rationale and Justification

Budgetary involvement, foreign dependence, retention of operational efficiency at ground level, training and maintenance capability, fluctuation of price and vendor dependence, operational security and self-reliance are considered to be the key rationales for the subjected proposal. The possibilities of having integral and secured means of mobile communication, need of walkie-talkie radio sets including their security vulnerability likely to emerge out of their uncontrolled manufacturing and trade of these small radio equipment were also identified as potential causes for exploring the opportunities to establish own military communication hardware industries in Bangladesh. Besides, the existing lengthy policy for procurement of radio equipment by the services was also considered as a lacuna for timeworthy inventory management.

Budgetary Involvement and Related Intricacies

In current days, communication has evolved as a multifaceted platform with which globally the level of involvements of various military and civil stakeholders have become significantly important and complex. Due to fast evolving communication technology, maintaining pace with current trend of evolution remains as a potential challenge for users at all levels. This wave of evolution certainly encounters the military, where communication is regarded with high priority and importance. However, communication ever remains as a costly affair as it evolves with faster pace of development. Bangladesh Armed Forces is procuring different pattern and categories of communication gadgets basing on their field and static requirements. Basing on the frequency of procurement, affordability, technology adoptability and viability, not all the gadgets can be considered for manufacturing at this moment. Radio equipment are the primary communication gadgets being used in Bangladesh Armed Forces. To limit the scope of research, the findings and analyses were kept confined within radio-based communications only. An anonymous case study is shown in

Table 1, as an outcome of content analysis, where one of the budgetary intricacies is shown to illustrate the pattern of expenditure made by the services for procurement of radio communication gadgets:

Table: 1: Percentage of Miscellaneous (Misc) Cost over Total Cost of Procurement of Radio Set for a Fiscal Year (Case Study)

Quantity (a)	Unit FOB price including All Cost Value (Taka) (b)	Price including All Cost Value (Taka) (c)	Misc Cost (Taka) (d) = (c)-(b)	Total Price including all Cost Values (Taka) (e) = (c)*(a)	Total Misc Cost (Taka) (f) = (d) * (a)	% of Misc Cost on Total Cost (g) = (f)/(e)*100
200	770,469.44	811,703.70	41,234.26	162,340,740.00	8,246,852.00	5.07

Source: Collated by the Author

Besides, through research, it was identified that due to global fluctuation in currency market, availability of equipment, make and type, monopolistic approach by vendors etc; same model of radio equipment from the same Original Equipment Manufacturer (OEM) is purchased with varying prices in adjacent fiscal years. Islam (2018) mentioned in an interview that, the Cost and Freight (CFR) charge of any ordnance item includes the Freight on Board (FOB) and other charges like shipment, and shipment related expenditure up to Bangladesh. Through research, it was identified that, the amount of misc expenditure varies between 5% to 20% in some cases. He further mentioned that any local manufacturer has to pay the Value Added Tax (VAT) and Income Tax (IT) for his product to the Government. However, the Government gives incentive to the local manufacturers by exempting them from VAT and IT as part of the total bidding price of the product for tender, since, the foreign importers are also exempted from custom duties for the products being imported as part of defence purchase. Besides, the Government also gives 15% waver on tender price of locally manufactured items than that of the same products, which are imported from abroad. To make micro level need analysis, case studies

were conducted on a communication gadget of three services which is less classified, having higher consumption in market and possess few critical dimensions as communication hardware. Here, walkie-talkie radio sets were considered as these could provide fundamental rationale for why, where and how subjected communication hardware industry can be developed. It was evident during research that, every year all the three services procure such radio equipment in a good number with wide varieties mostly for their administrative and operational support purposes (data collated by the author).

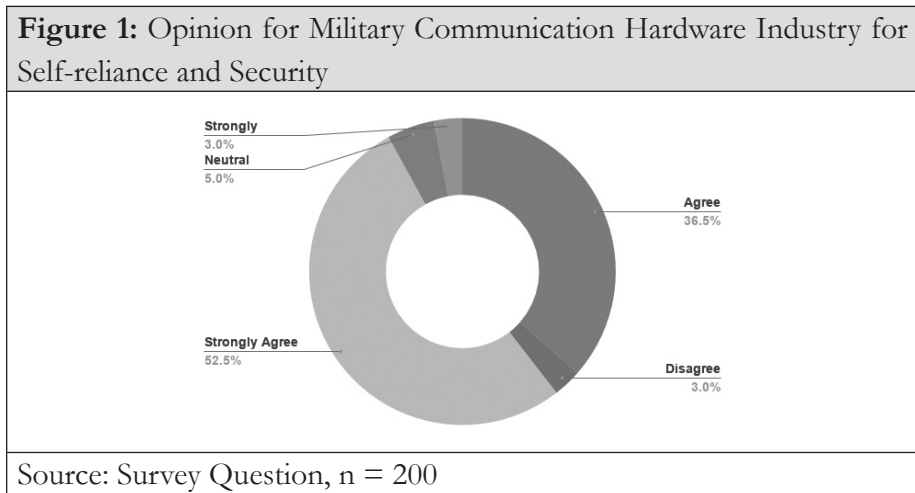
Policy Guidelines

According to BTRC, any radio equipment needs an enlisted vendor of Bangladesh Telecommunication Regulatory Commission (BTRC) for importation following the procedure as laid down in the BTRC website. Aminul (2018) in an interview mentioned that walkie-talkie is a restricted means of communication, hence, the open market selling of such product is prohibited. One has to be an enlisted vendor of BTRC to import this kind of communication hardware, even if these are brought for the Armed Forces. Without the No Objection Certificate (NOC) of BTRC, Customs Authority of Bangladesh will not permit the entrance of such transmitting devices inside Bangladesh. He further mentioned that, the completion of the whole process needs minimum one and a half to two months.

Self-Reliance

The preceding discussion on communication hardware enumerates the dependence of the Armed Forces on foreign countries and its residual involvement with budgetary expenditure for procuring radio equipment, even to the extent of procuring walkie-talkie radio sets. This certainly generates the urgency to develop the production capability of own military hardware specially in the present context, where we experience the Russia-Ukraine or Israel-Gaza conflicts. Bari (2018), opined that attaining self-reliance in terms of production of communication hardware, especially

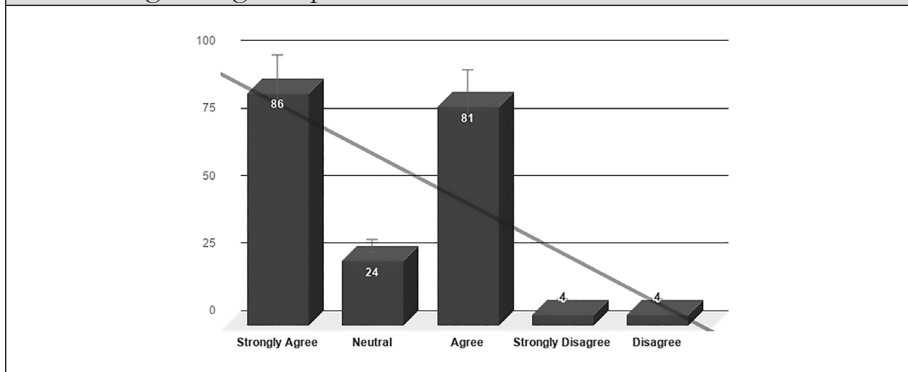
radio equipment is a need of the time. Saleh (2018) mentioned that to attain self-sufficiency and reduce vulnerability, having hardware industry for military communication gadgets is extremely important and BMTF is seriously viewing this issue. A survey was carried out among 200 mid and senior level officers to assess their opinion on having military industry for communication hardware. The result is shown in figure 1:



Security

At the advent of information age, the concept of Command and Control Warfare (C2W), which is basically the military application of Information Warfare (IW), is primarily dependent on the security of communication gadgets as mentioned in Vego (2007). The technology hired from a foreign nation reveals own security, which may seriously be a cause of vulnerability in times of crisis. At present, through research it was found that, the Armed Forces are importing communication gadgets from more than ten (10) countries around the globe. Too much of dependence on the foreign manufacturers may make the military communication system susceptible to breach of security and complexities in terms of repair and maintenance, regular and uninterrupted supply of spare parts, and development of skilled hands for maintenance etc.

Figure 2: Opinion on Military Communication Hardware Industry for Eliminating Foreign Dependence

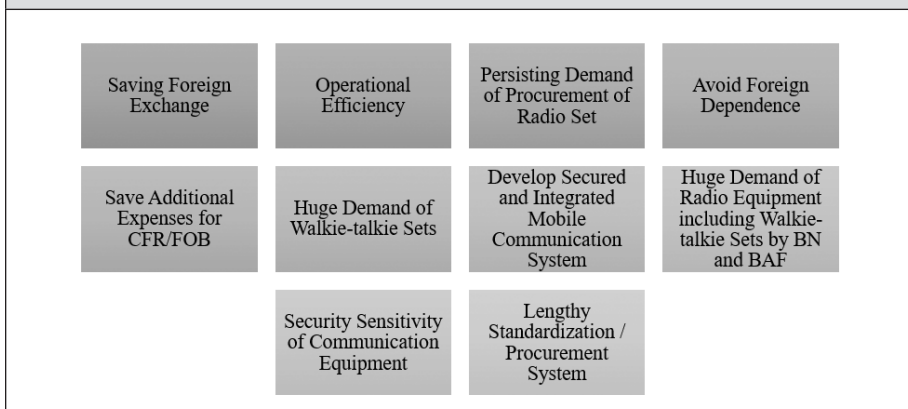


Source: Survey Question, n = 199

Summary of Rationales for Military industry for Communication Hardware

Figure 3 describes the summary of the rationales and justifications for establishing military industry for communication hardware in Bangladesh.

Figure 3: Summary of Rationales for Military Industry for Communication Hardware



Source: Conceptualized by the Author

Scope and Prospect Analysis

Apropos, for self-sufficiency, we need military industry for communication hardware in Bangladesh. However, commercial viability, prospect for large scale production and proliferation are some of the challenges amidst the route to its implementation. Hence, the scope or potential for such industry was discussed with appropriate candidates apart from the military, where potential product lines, venue selection, processing of production, and the limitations that need to be addressed like deficiency of skilled manpower, research and development (R&D) facilities etc. were included.

Rapid Action Battalion (RAB)

RAB procures large amount of radio communication equipment from different countries, as statistics of 12 years were analyzed as part of content analysis. Specially for RAB, the trend of procurement is biased more towards VHF radio sets. However, owing to the nature of operations, RAB needs more walkie-talkie sets as has been assimilated from the procurement trend of last few years.

Boarder Guard Bangladesh (BGB)

BGB invests a huge amount of foreign exchange for procuring communication gadgets specially radio equipment as the trend of ten fiscal years' procurement was analyzed. It was evident that the trend is biased more towards VHF/UHF base stations than HF. However, due to the nature of job, each year BGB is purchasing a large number of walkie-talkie sets for monitoring the border through mobile patrols.

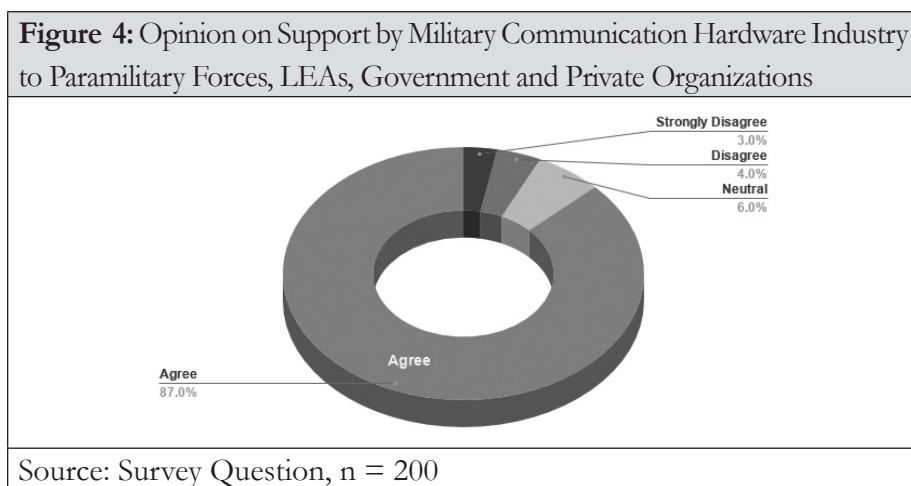
Analysis

It is apparent that apart from the Armed Forces, there is a huge requirement of radio sets from other LEAs and security organizations. Hence, if such industry is established in the context of Bangladesh Armed Forces, it can also support other paramilitary organizations as well. This will ensure the

regular turnover of production and hence the industry will be facilitated to roll out.

Rahman (2018), from the RAB forces, during an interview mentioned that, having a military industry for production of radio equipment not only increases the self-reliance but also reduces the security risk factors and saves huge amount of foreign exchange. He further mentioned that, RAB needs to depend on vendors and foreign suppliers solely for procurement of radio sets. This is a lengthy process and reduces the operational flexibility. Noor (2018), opined that having such industry will obviously increase the operational efficiency reducing the time of procurement to a great deal. However, he emphasized on maintenance of quality so that BGB does not have to fall back to its earlier state.

It is apparent that other than HF/VHF radio sets, the walkie-talkies which are built through very low ended technology, are hugely demanded by the LEAs and other security organizations. Hence, this condition gives a deeper insight about having a military industry for communication hardware where walkie-talkies can provide implementable launching platforms as startup projects. In an answer to a question whether such industry should meet the requirements of organizations outside the Armed Forces like paramilitary forces, LEAs etc. or not, the following result was obtained:



Public and Private Sectors

According to the existing policy of BTRC, different public and private organizations can be subscribers of Private Mobile Radio (PMR) as licensed operator or Short Business Radio (SBR) as unlicensed operator. Due to the viable cost, reliability in communication; the popularity of SBR walkie-talkie set is increasing exponentially. As PMR service provides licensed frequency, so it needs security clearance of an individual subscriber who can even have long-range radio communication with such equipment.

However, analyzing the data collected from BTRC and from author's personal experience of serving the organization, it is certain that BTRC earns revenue from the SBR subscribers which is reasonably a good amount indeed. Apart from this, a large number of PMR subscribers are also using walkie-talkie sets. The author from personal experience found that these walkie-talkie sets do not have reasonable period of longevity. As a result, there is always a need for procuring new radio sets by the users.

Though BTRC has placed various security filters to curbe the use of such radio sets by unauthorized persons, yet these kind of walkie-talkie sets are available in the open market. Such availability of radio sets is posing huge security threat as these can be readily used for coordinating any crime or terrorist activity. In this regard, Alom (2018), during an interview mentioned that, it will be always good if Bangladesh Armed Forces can have projects to manufacture walkie-talkie sets. Due to the current procedural difficulties, many tend to buy these sets from local market without the permission of BTRC. Central production and distribution can have a check and balance. This will curbe the flexibility of criminals to a great extent. The author was personally involved in conducting mobile court and confiscating illegal radio sets. As an example, in a single operation conducted against illegal radio sets in 2017, 1646 radio sets were confiscated amounting a fine of Taka 12 Lacs for the defaulters, where the author was leading the operation.

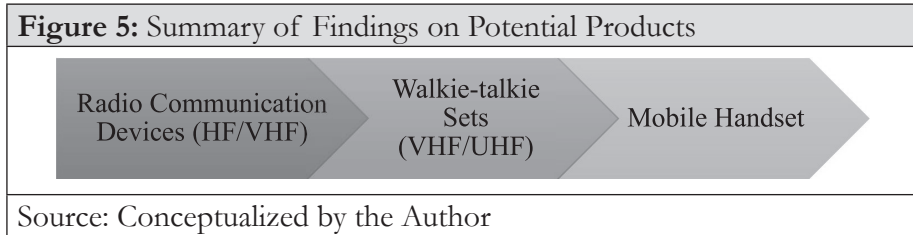
Haque (2018), Chairman of BTRC opined that a military industry for communication hardware will be able to curb the unauthorized manufacturing and use of walkie-talkie sets as it can have governmental control over production. He further mentioned that, BTRC would provide all kinds of support to implement such project in future. The same theme was echoed by Khan (2018), former Vice-chairman of BTRC, who further emphasized on controlled production of restricted communication means, and also saving foreign exchange. During the Focused Group Discussion - 1, officers opined that once the production of walkie-talkie sets will start in such kind of industry, then the vendors may not be allowed to import any further set from abroad. This will ensure strict control over the market.

Opportunities Emanating from Mobile Industry

The Government has given a lot of incentive packages to the business community to manufacture mobile handset either from Complete Knockdown (CKD) or Semi Knockdown (SKD) parts. BTRC has published “Locally Mobile Phone Handset Assembly and Manufacturing Factory Establishment Instruction - August 2017”. This instruction has made the whole process of establishing a manufacturing plant very easy. Besides, the Government, had published Special Representation Order (SRO) 1/2017, where it has mentioned that for the local manufacturers of mobile phone handsets, the import tax has been reduced to 10% for SKD and 1% for CKD materials.

Accordingly, Walton Digitech Industries have already started manufacturing mobiles in the form of CKD. However, for startup projects, SKD form is better so long Bangladesh is not matured in this aspect. Walton has the production line and capacity to go for joint venture production with Bangladesh Armed Forces if they know the design of the equipment, while R & D and skilled manpower for software upgradation are few major challenges in this field. Following the incentives given by the Government, many other industries have now staged forward to assemble mobile handset in Bangladesh as informed by BTRC.

Summary of Findings for Potential Products



Potential Production Methodologies

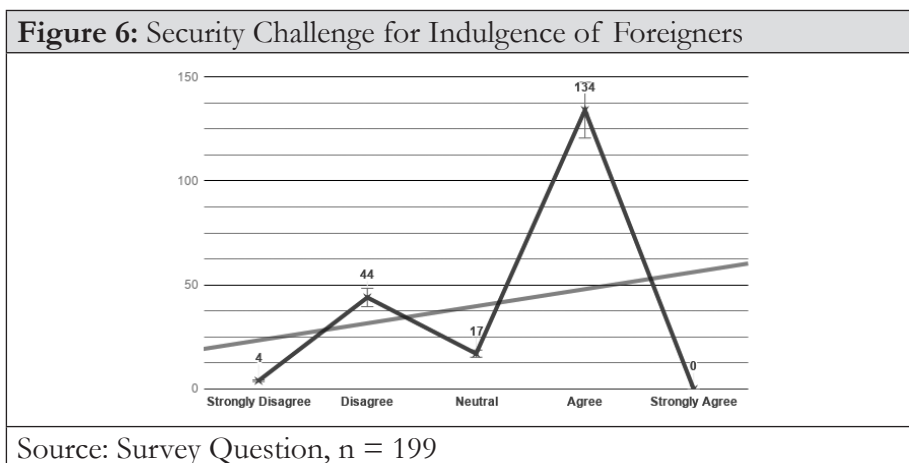
Transfer of Technology (TOT)

The concept of TOT for any communication equipment is aimed to develop gadgets, which is proven to be suitable for any military service or the country as a whole. The country of origin helps to develop skill and production capability of the host country based on certain conditions. The selection of equipment and understanding the conditions of the host country is very important. Selection criteria of suitable communication equipment for TOT are: technology, operational reliability, military standard, worldwide recognition of the host organization and the equipment, user friendliness of equipment, modular structure, cost effective repair and maintenance, performance and present number of usage (Source: Official Presentation on TOT by Directorate of Signals, Army Headquarters). For TOT, the financial implication is little higher than normal procurement. However, the following benefits are obtained through TOT:

- Economically Beneficial
- Self-sustenance Capability
- Reduction in Cost
- Develop a Sustainable Structure
- Mitigate the Deficiency of Skilled Manpower and R & D
- Readiness to Handle Future Technology and Modify Existing One
- Employment Opportunity

Joint Collaboration

The joint collaboration for such industry can be with foreign companies or with national manufacturing industries. Saleh (2018), mentioned that foreign involvement might be a concern for security. Hence, local experts should do software level modification at our end. He further mentioned that TOT is preferable for joint venture as through TOT this industry can become independent after few years and develop individual skill. In this regard, Ovee (2018), mentioned that software level modification by local experts is yet very difficult.



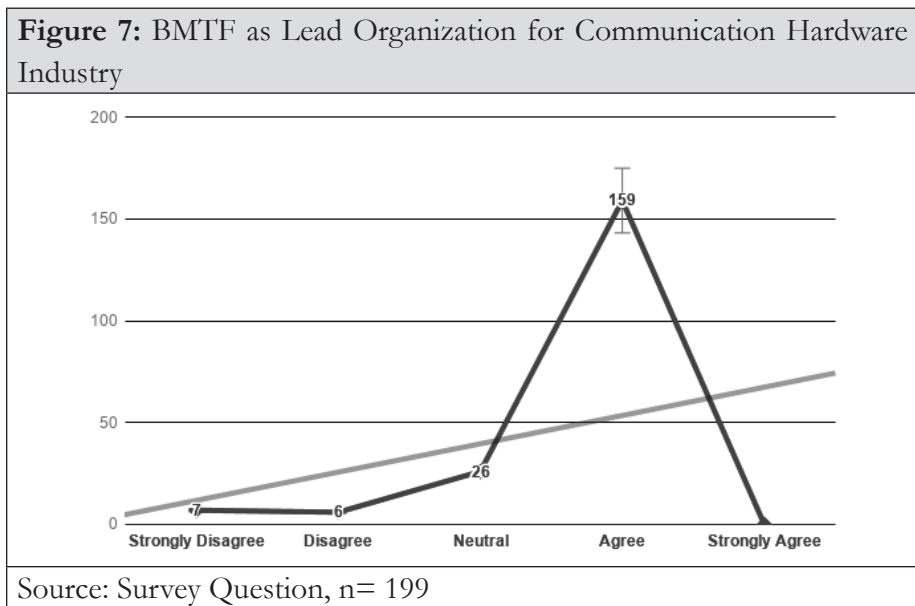
Integral Approach

Such military industry may also be established through integral assets, manpower and skill. However, there will be difficulties in terms of fund, skilled manpower, development of infrastructure and sustenance. Besides, from reliability and security point of view, individualistic approach is also welcome.

Profile and Potential Venues

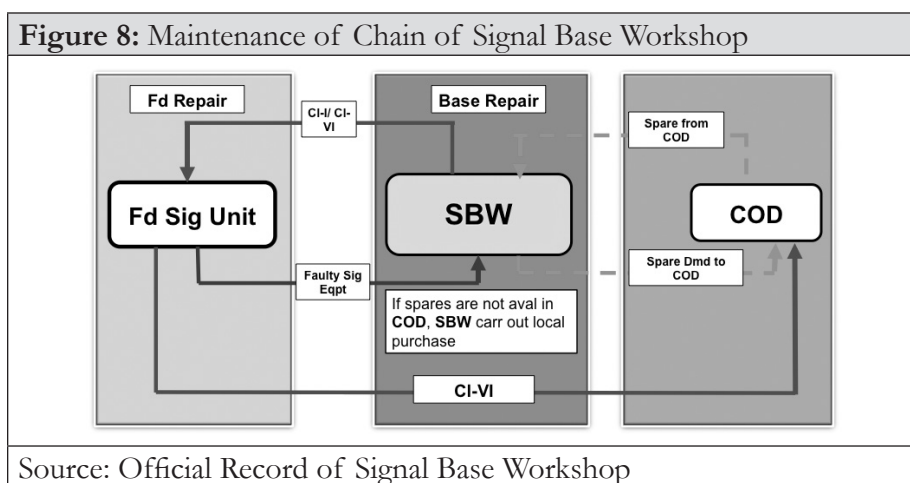
BMTF

A highly placed BMTF official opined that BMTF has the special production facilities/capabilities by which it can manufacture machines and spare parts for wide range of hardware. BMTF is already providing different supplies to Bangladesh Armed forces, BGB, Coast Guard, Ansar and Village Defence Party (VDP), Schools, Training Centers and Hospitals. Saleh (2018), during the interview mentioned that BMTF is seriously thinking about the TOT of radio equipment. He mentioned that hardware support could be taken initially from outside countries but the software needs to be modified by us for security reasons. Rahman (2018) mentioned that TOT may be an option for such industry but it should be done under the banner of BMTF or Sena Kalyan Sangstha (SKS). The same concept was illustrated by Amin (2018) during his interview. In a survey about the role of BMTF to form such industry, the result was obtained as such:



Signal Base Workshop

Signal Base Workshop carries out base level repair and maintenance of walkie-talkies of important security forces including units of Bangladesh Army and deployed in UN Mission area. Signal Base Workshop is small in dimension. Through research it was identified that, with its existing manpower and maintenance load, it will become very difficult to carry out large scale TOT and production of radio equipment as also concurred by Baker (2018). Similar opinion was also surfaced during the Focused Group Discussion - 1, FGD:1.



Telephone Shilpa Shangstha (TSS)

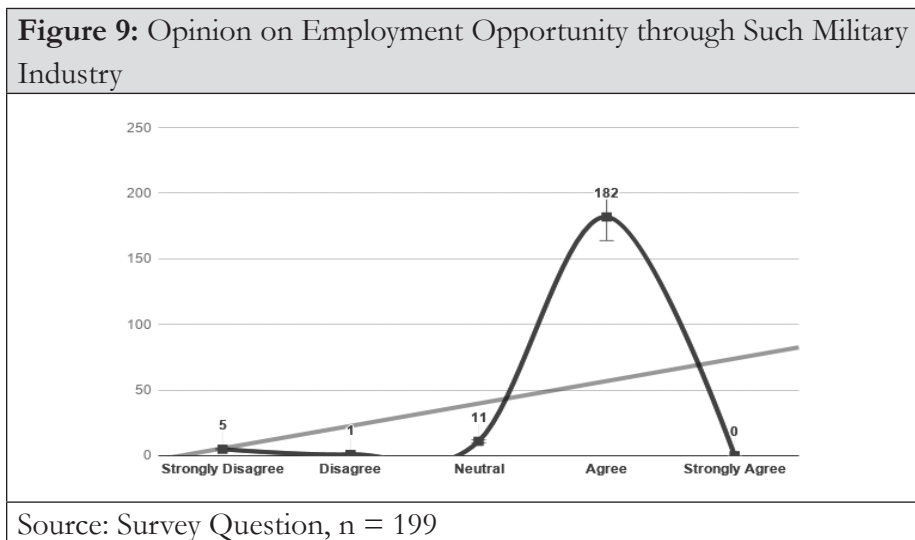
In an endeavour to identify the potential of TSS in the field of TOT, Islam (2018), Managing Director of TSS, mentioned that major problem of TOT is marketing and R & D. Currently, TSS does not have the capacity to do TOT of any communication gadgets, as they do not have any market analysis, nor they have technically expert manpower.

Challenges Vis-À-Vis Avenues for Optimization

Skilled Manpower vs Mitigation

Skilled manpower will remain as an initial challenge for the development of such industry. This may even last for long, provided appropriate environment for the technical persons are created. Ovee (2018), shared his experience during the interview mentioning that for modifying the software end of the Walton mobile handsets, they had to change three sets of R & D personnel.

Outsourcing of technical persons (for technical support and R & D) from various reputed public and private universities (like Bangladesh University of Engineering and Technology, Military Institute of Science and Technology etc.) may help to continue the flow of skilled manpower. Bari (2018), mentioned that such industry will generate huge employment opportunity for Bangladesh. Hence, good remuneration and patronization of the young technicians and engineers may take the industry much forward. He further illustrated that initially TOT may overcome the shortfall of technical expertise and R & D. However, the existing expertise of the people may be capitalized to establish the initial foundation. Such industry will generate employment opportunity, but retaining the personnel will be the challenge of the management. Initially, the industry may start with radio equipment like walkie-talkie, so that the basic platform is obtained which would gradually become firm over time as opined by Ali (2018).



R & D vs Mitigation

One of the major challenges identified for such industry during the process of research is R & D, which is acknowledged by almost all respondents. If R & D facilities are not religiously developed, then perhaps the industry will not be able to operate independently in future and bring diversity in production as mentioned by Ahmed (2018).

However, qualified engineers from the Corps of Signals and Corps of EME may be integrated to such industry and deputed for long time. Saleh (2018) opined that BMTF may be financing universities for Ph.D. or post graduate level research programs to innovate the required dimension of product for BMTF. Such exchange program will also enrich the research scopes for meritorious post graduate students at different universities. In reality, this will work as capacity builder for the organization itself. Amin (2018), opined that the R & D may be of two tiers. One belongs to military hardware, and the other for the civil communication gadgets. Rahman (2018) mentioned that the R & D facilities of reputed universities may be hired, the way at present BUET provides many research related support to commercial organizations.

Marketing vs Mitigation

Marketing will be a major challenge for attaining financial viability of such industry. In whatever capacity the industry is operating, if it does not have an extensive marketing chain, then it will be eventually non-productive like TSS.

During Focused Group Discussion-2, FGD: 2, the group of officers opined that commercial viability will come through diversity of product. Initially the industry may start with manufacturing walkie-talkie sets as that will give the launching platform. Chowdhury (2018), opined that for commercial viability and successful marketing, initially walkie-talkie hand set production can be a viable option. Saleh (2018) mentioned that walkie-talkie sets can have a good market as a startup. However, BMTF may give special focus on marketing issue and as such, traditional non-committed military marketing chain may be replaced by a body of committed and professional marketing team. Even there can be Government to Government contract for exporting non-military products to other countries following the policy of Export Processing Bureau. Bari (2018), mentioned that such industry can also produce small spare parts for its yearly functional turnover. This will make other relevant sectors dependent on this industry and as a result, the industry can have multi-dimensional product chain to run effectively.

Command Structure and Organization vs Mitigation

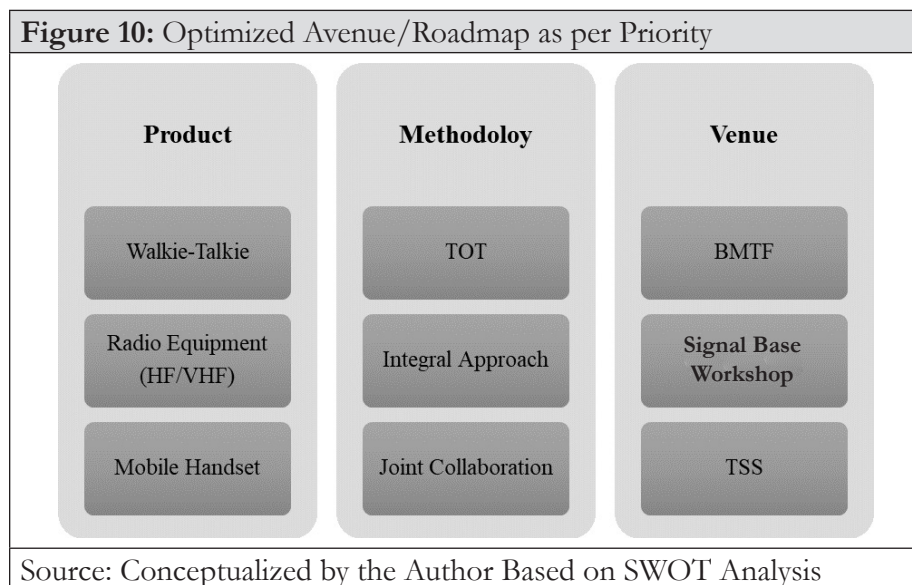
To start the project from the scratch, command structure is a vital issue to be addressed. This could be completely civilian led and managed structure or military led or military managed organizational structure. As the organogram will be hybrid combining civil and military personnel, hence the prudent and functional command and organizational structure remain as a challenge.

Rahman (2018) along with few others opined that the industry should not be run organizationally by the military, rather the basic structure can be in

line with BMTF or BDP. On the contrary, Hossain (2018) mentioned that military officers may be at the forefront to run the organization and ensure proper management, which was supported by Ali (2018).

Avenues for Optimization

Considering the preceding SWOT analysis, the following optimized and specific avenue for implementation is derived as per priority, which can also be considered as a road map:



Recommendations

Future Study

Further research and study may be conducted on the following for the effective functionality of military industry for communication hardware in Bangladesh:

- Organization and structure
- Recruitment of skilled manpower and their remuneration packages

- Budgeting
- Dimension of factory
- Marketing strategy
- Failure options and ways to mitigate
- Exploration of further opportunities
- Effective R & D

Foreign Export

Opportunities should be explored for exporting products of such industry to foreign countries. Export Processing Bureau of the Government of Bangladesh may be consulted in this regard.

Strict Observance of Secrecy and Security

Such industry will be involved in production of military and non-military hardware; hence secrecy and security must be maintained by all in all respect.

Conclusion

Communication plays a vital role in the modern world. It bears significant importance for both military and non-military domains. Developing self-sustenance in terms of communication is now a need of the time. From that perspective, the concept of military industry for communication hardware has evolved. Over the period of years, Bangladesh Armed Forces have developed its expertise and professional excellence. Judicious and effective use of communication, therefore, remains as one of the primary requirements and force multiplier for its operational efficiency. Communication ever remains as a costly and complex affair. Hence, Bangladesh Armed Forces need to depend on foreign countries for importing communication gadgets. This, not only reduces our operational efficiency and hampers self-sustenance; rather it is also posing threat to the national security. All these are working as ideal rationale and justifying

parameters for establishing communication hardware industry for Bangladesh.

As a developing nation, how far it will be prudent and possible to attain self-sustenance and reliance through establishment of communication hardware industry, remains as a matter of study. At the very outset, effort was made to identify the feasibility of such industry basing on the trend of procurement of communication gadgets over the last decade. Mentionable that, since, communication is a vast arena, hence, for the ease of research, the domain was kept limited to radio equipment only. It was evident that Bangladesh has been spending a huge amount of foreign exchange every year for the procurement of radio communication equipment and remaining reliant on different foreign countries. As a result, besides, budgetary involvement, self-reliance, security and time for procurement are considered as few of the major reasons which tell upon the operational efficiency of the Armed Forces as far as communication gadgets are concerned.

Economic viability is a concern for proliferation of indigenous industries. 'Military-only' concept will not make business case and therefore, the industry will face difficulty for appropriate turnover and make effective roll out. Military, paramilitary forces, LEAs, and non-military public/private sectors are using different categories of radio sets. These are restricted means of communication and have legal restrictions on their indiscriminate usage. Through the research, it was identified that for developing such industry, the potential product lines are radio communication devices (HF/VHF), walkie-talkie sets and mobile handsets. Besides the production methodologies need to be synergistically planned, which were identified as TOT, joint collaboration and integral approach. The likely venues for production were BMTF, Signal Base Workshop and TSS.

In fine, the limitations or challenges for establishing such industry in Bangladesh were identified. Skilled manpower, marketing, R & D and command structure are few of the major challenges which were mitigated through dynamic propositions. During research, thorough SWOT analysis

was done for generating a comprehensive avenue or road map leading to establishment of communication hardware industry, where the most prioritized item for manufacturing is found to be walkie-talkie through TOT at the premises of BMTF. However, few scopes were hinted during the process of research and left open for next researcher which owe due attention to make the development of such industry a complete success.

References

1. Ahmed, B. G. (2018, July 12). Prospect of Military Industry for Communication Hardware. (L. C. Moinuddin, Interviewer)
2. Ahmed, L. C. (2013, October 21). Prospect of Indigenous Defence Industry in Bangladesh. Dhaka, Bangladesh.
3. Ali, A. C. (2018, July 31). Prospects of Military industry for Communication Hardware in Bangladesh. (L. C. Moinuddin, Interviewer)
4. Ali, B. G. (2018, July 12). Prospect of Military Communication Hardware Industry . (L. C. Moinuddin, Interviewer)
5. Alom, M. S. (2018, July 04). Security Concern for Availability of walkie-talkie Sets in Open Market . (L. c. Moinuddin, Interviewer)
6. Amin, M. G. (2018, July 29). Prospect of Military Industry for Communication Hardware . (L. C. Moinuddin, Interviewer)
7. Aminul, L. C. (2018, July 10). Walkie-talkie Importation Procedure of BTRC. (L. C. Moinuddin, Interviewer)
8. Baker, L. C. (2018, June 15). Prospect of Military Industry for Communication Hardware. (L. C. Moinuddin, Interviewer)
9. Bari, M. G. (2018, June 14). Prospect of Military Communication Hardware Industry in Bangladesh. (L. C. Moinuddin, Interviewer)
10. Bayiz, M. Y. (2018, July 10). Prospect of TOT. (L. c. Moinuddin, Interviewer)

11. Bhuyan, L. C. (2018, April 05). Prospect of Communication Hardware Industry in Bangladesh . (L. C. Moinuddin, Interviewer)
12. BTRC. (2018, Aug 15). Bangladesh Telecommunication Regulatory Commission. Retrieved from <http://btrc.gov.bd/vendor>
13. Chowdhury, B. G. (2018, July 12). Prospect of Military Communication Hardware Industry. (L. C. Moinuddin, Interviewer)
14. Chowdhury, B. G. (2018, June 23). Prospect of Military Industry for Communication Hardware . (L. C. Moinuddin, Interviewer)
15. FGD:1. (2018, June 21). Prospects of Military Communication Hardware Industry In Bangladesh. (L. C. Moinuddin, Interviewer)
16. FGD:2. (2018, July 04). Prospect of Military Industry for Communication Hardware . (L. C. Moinuddin, Interviewer)
17. Haque, A. F. (2006, October). Prospect of Developing Indigenous Defence Industries in Bangladesh. Dhaka, Bangladesh.
18. Haque, M. J. (2018, July 04). Need for Establishing Military Industry for Comunication Hardware in bangladesh: Security Perspective. (L. C. Moinuddin, Interviewer)
19. Hossain, B. G. (2018, July 04). Prospect of Military Industry for Communication Hardware in Bangladesh . (L. C. Moinuddin, Interviewer)
20. Islam, E. A. (2018, June 14). Prospect of Military Communication Hardware Industry in Bangladesh. (L. C. Moinuddin, Interviewer)
21. Islam, L. C. (2018, Aug 05). Government Procurement Policy . (L. C. Moinuddin, Interviewer)
22. Khan, B. G. (2018, July 31). Establishment of Military Industry for communication Hardware: Security Perspective. (L. C. Moinuddin, Interviewer)

23. Khan, M. G. (2016, December). National Shipbuilding Industry and Prospect for Bangladesh Armed Forces in Meeting Own Requirement. Dhaka, Bangladesh.
24. Khondakar, S. (2007). Law on Telecommunication in Bangladesh . Dhaka: Manistream Printing and Publications.
25. Mahbubur, L. C. (2018, June 08). Prospect of Military Industry for Communication Hardware: RAB Perspective. (L. C. Moinuddin, Interviewer)
26. Mamun, M. A. (2018, July 31). Standardization Process of Radio Equipment. (L. c. moinuddin, Interviewer)
27. Noman, L. C. (2018, July 15). State of Walkie Talkie Set of Bangladesh Army . (L. C. Moinuddin, Interviewer)
28. Noor, C. M. (2018, July 04). Prospect of Military Industry for Communication Hardware: BGB Perspective. (L. C. Moinuddin, Interviewer)
29. Rahman, B. G. (2018, June 14). Prospect of Military Industry for Communication Hardware . (L. C. Moinuddin, Interviewer)
30. Rahman, L. C. (2003, September 30). Indigenous Military Production in Bangladesh: Realities and Prospects. Dhaka, Bangladesh.
31. Rahman, L. C. (2018, July 04). Prospect of Military Industry for Communication Hardware in Bangladesh . (L. C. Moinuddin, Interviewer)
32. Razzak, C. M. (2018, May 05). Prospect of TOT for Communication Hardware Industry. (L. C. Moinuddin, Interviewer)
33. Sadaat, B. G. (2018, July 22). Prospect of Military Industry for Communication Hardware in Bangladesh. (L. C. Moinuddin, Interviewer)

34. Shahnaj Khondakar. (2007). The Law on Telecommunication in Bangladesh. Dhaka: Mainstream Printing and Publications.
35. Vego, M. N. (2007). Joint Operational Warfare. Rhode Island: US Naval War College.

Author

Colonel Sufi Mohammad Moinuddin, SUP, afwc, psc, was commissioned with 34 BMA Long Course on 07 June 1996 in the Corps of Signals. He attended number of courses at home and abroad. He obtained his BSc (Hons) in Electrical, Electronics and Communication Engineering from Military Institute of Science and Technology (MIST), Mirpur. He attended Defence Services Command and Staff Course - 36 and obtained Masters in Defence Studies from Bangladesh University of Professionals. Besides serving in various regimental command and staff appointments, Colonel Moin served as Instructor in School of Signals, Jashore and Platoon Commander in Bangladesh Military Academy. He commanded 2 Signal Battalion at Cumilla, under 33 Infantry Division. He has served as Director of Spectrum Management Division, BTRC and also as a Grade - 1 Staff Officer (Procurement) at the Directorate of Signals, Army Headquarters. The officer served under the blue helmet in Sierra Leone, Syria, South Sudan and Democratic Republic of Congo. He is a widely travelled person and visited almost all the continents around the globe for various professional and personal interests. He attended numerous seminars, workshops and training programs both at home and abroad. Before joining National Defence College (NDC), Colonel Moin was serving as Chief Force Communication Officer (Chief U6) in DRC under MONUSCO. Currently, the officer is serving as Directing Staff of Armed Forces War Course Wing under NDC.

BANGLADESH-INDIA BILATERAL COOPERATION: PROGRESS AND PROSPECTS

Colonel Omar Bin Masud, afwc, psc, G+

Introduction

Bangladesh and India, owing to a shared history, exhibit a myriad of similarities in language, literature, culture, music, food and sports. This resemblance is mostly evident in the border regions, namely West Bengal, Meghalaya, Mizoram, Assam and Tripura. Considering this fact, a friendly and healthy relationship is important between the two countries. India first recognized Bangladesh as an independent state after the liberation war, and two nations forged diplomatic ties immediately after our independence in December 1971. The golden jubilee year of the bilateral cooperation between two countries was observed in 2021. A tri-services contingent from Bangladesh Armed Forces participated in the Republic Day Parade of India on 26 January 2021 that marked 50 years of Bangladesh's independence as well as diplomatic ties. The Bangladeshi contingent has received special honour by being the leading contingent of the serving military personnel in the parade. These ties represent a strong and extensive partnership characterized by sovereignty, equality, mutual trust, and understanding, going beyond a strategic partnership.

Relations between Bangladesh and India have gained significance across political, economic, strategic, and socio-cultural domains. Millions of people in both the countries are influenced by the Bangladesh-India partnership that is extended to South East Asia and beyond. Considering the geopolitical and geostrategic reality Bangladesh is important in India's Neighborhood Policy. Because of the connectivity with seven sister states' landlocked northeastern region of India, Bangladesh became an essential partner in India's Act East Policy.

Nonetheless, the relationship between Bangladesh and India has generally been amicable over the past fifty years. Despite the cordiality between the two nations, the trajectory of the partnership did not achieve the expected range in all dimensions. The discussion will primarily underscore the progress in bilateral cooperation, and in doing so, the major areas of Bangladesh-India bilateral cooperation, its related difficulties, and future prospects will be identified. The discussion will emphasise on the various components of Bangladesh-India cooperation, including land boundary agreement, water sharing, security and connectivity, socio-economic and cultural cooperation.

Major Areas of Cooperation

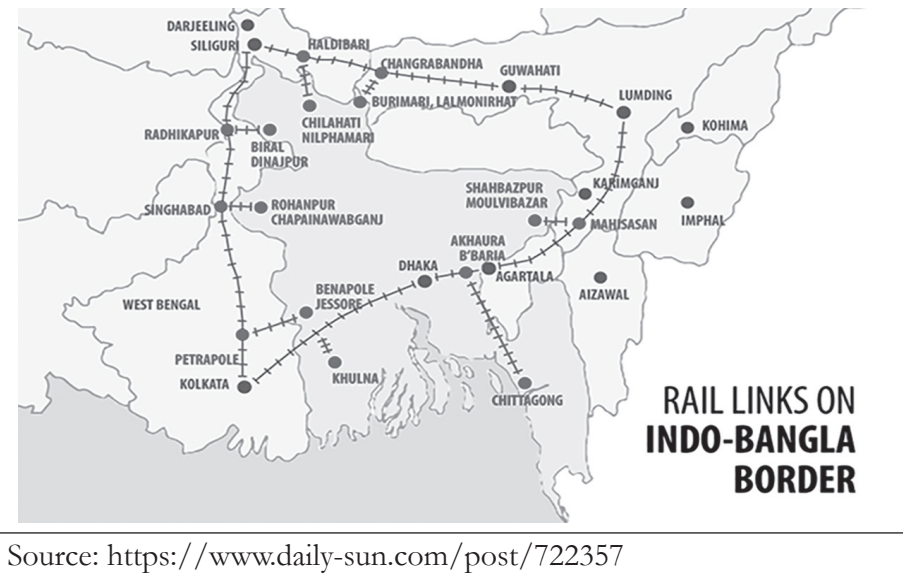
Border Management. The India-Bangladesh border is approximately 4156 km long. Within this extensive border, there exists a disputed area of approximately 6.1 km. The Land Boundary Agreement (LBA) was signed between Bangladesh and India in 2015, which has elevated the bilateral relationship to remarkable heights in recent years. It resolved the border dispute between the two countries and exchanged over 160 enclaves. It was a major breakthrough in Bangladesh-India relations. Besides, settlement of maritime boundary arbitration between Bangladesh and India on 07 July 2014 has opened opportunities for economic development in the Bay of Bengal region. This has created the possibility of cooperation in the blue economy including marine biotechnology, disaster response, deep-sea fishing, etc.

Security Cooperation. Regular strategic dialogues at the apex level have fostered cooperation in various areas, including intelligence sharing, counterterrorism efforts, maritime cooperation, and other strategic engagements, leading to increased collaboration. Several security agreements have been signed between the countries, covering areas such as criminal assistance, prison transfers, combating terrorism, organized crime, drug trafficking, prevention of human trafficking, prevention of counterfeit currency circulation, and extradition. Working groups have

been formed to address illegal activities in border regions. The joint effort by the BGB and BSF to designate a stretch of 8.3 km border as a “crime-free zone” is a positive step towards building confidence, which was initiated in 2018. This was aimed to ensure strict vigil on the border by both the forces to check smuggling and human trafficking. This measure is likely to contribute significantly to the mutual goal of establishing a border that is free from both crime and incidents.

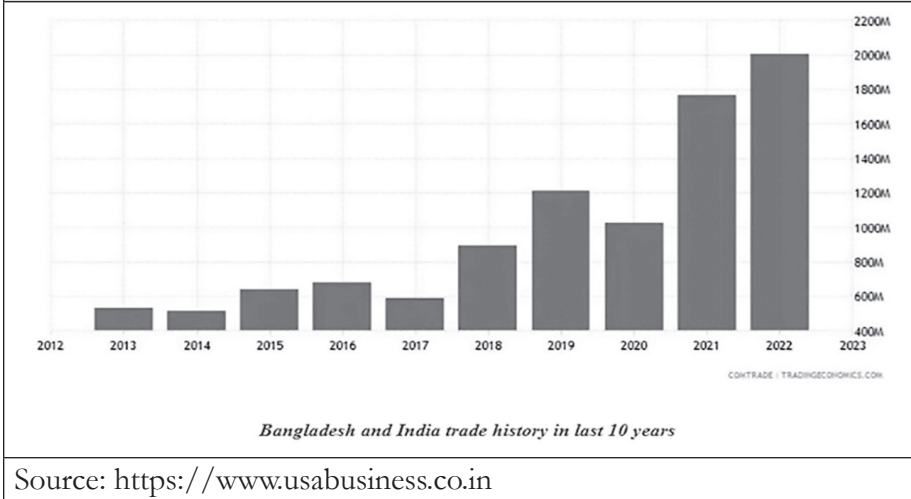
Cooperation in Connectivity. The increase in the connectivity has been the prime mover in deepening strategic relationship between Bangladesh and India. Three sea ports in Bangladesh and her inland waterways provide connectivity for India’s landlocked Northeastern Region through land, river, and sea routes passing through Bangladesh. There are four rail interchanges connecting two countries spread over the west of Bangladesh, leading to the Chicken’s Neck in the North. The fifth one was inaugurated on 1 November 2023, which will connect Agartala with Akhaura. A sixth interchange, from Sylhet to Karimganj, is planned, which will contribute to greater rail connectivity across Bangladesh. Implementation of planned interchanges will restore pre-partition railway connectivity. The inland water transit and trade protocol, renewed in 2015, has facilitated trade since 2016. The second addendum in May 2020 added new protocol routes, new ports of call, and extended existing ports of call. The protocol was utilized to transport 200 metric tons of foodgrains in February 2022. The bridge over the Feni River has created new opportunities for Tripura and other Northeastern states by connecting them with Bangladesh through the Sabroom land customs station, which is just 80 km away from Chittagong Port. Bus services have been started on the routes between Dhaka, Siliguri, Gangtok, and Darjeeling, in addition to the existing route between Dhaka and Kolkata. Effective discussions are taking place to implement the motor vehicle agreement among Bangladesh, India and Nepal. There are approximately 100 flights have been operating on a weekly basis for travel by air from Dhaka and Chattogram to New Delhi, Kolkata, Mumbai and Chennai.

Figure 1: Rail Connectivity Between Bangladesh-India



Trade and Economic Cooperation. Trade and economic relations play an important role in bilateral relationship of the two countries. Both countries have developed strong trade relationship, with Bangladesh being India's largest trade partner in South Asia and India being the second-largest trade partner for Bangladesh in Asia. The trade cooperation experienced remarkable growth despite the interruptions caused by the Covid-19 pandemic. Bangladesh's exports to India reached \$2 billion in the last year, which was recorded below \$600 million in 2013. India is Bangladesh's top Asian export destination. Besides, informal trade between Bangladesh and India is thriving among border communities. It is estimated that informal trade volume is twice that of formal trade. Border-hats promotes cross-border informal trade among border communities.

Figure 2: Bangladesh-India Trade History



Energy and Power Cooperation. Power sector cooperation is vital in the Bangladesh-India relations. Two countries established the Joint Working Group (JWG)/Joint Steering Committee (JSC) on power for cross-border electricity trade cooperation. This institutional framework aims to promote and enhance energy sector collaboration. As part of this cooperation, Bangladesh currently imports 1160 MW of power from India. The construction of the Bangladesh-India Friendship Pipeline in 2018 improved the supply of diesel to Bangladesh. Additionally, efforts are underway to explore options for clean and renewable energy sources. Both nations are exchanging their expertise in civil nuclear energy. Bangladesh is advancing steadily in constructing its inaugural nuclear power plant in Rooppur, while Indian companies have established power evacuation infrastructure valued at US\$ 1 billion in Bangladesh. This infrastructure aims to link the Rooppur Nuclear Power Plant to Bangladesh’s domestic grid.

Socio-Cultural Relations. Cultural cooperation between India and Bangladesh has reached its peak in recent years, as evidenced by the release of commemorative postage stamps by both countries to celebrate the 50th anniversary of their friendship in March 2021 during the visit of Indian

Prime Minister. India's decision to establish Bangabandhu Chair at Delhi University was welcomed by Bangladesh. Two cultural centers in Dhaka, namely the Indira Gandhi Cultural Centre and the Indian Cultural Centre, celebrate common cultural links. Scholarships are granted annually to Bangladeshi students for general and specialized courses in arts, sciences, engineering, culture, drama, music, fine arts, and sports.

Collaboration During COVID-19 Pandemic. COVID-19 pandemic impacted Bangladesh-India relations as Bangladeshi patients could not visit Indian doctors. Indian Foreign Secretary, during his visit in August 2020, assured priority access to COVID-19 vaccine for Bangladesh. MoU was signed between India's Serum Institute and Beximco Pharma of Bangladesh for 30 million vaccine doses. Bangladesh received its first supply on 21 January 2021. Nevertheless, Bangladesh and India have collaborated closely at the regional level to tackle the far-reaching effects of the global COVID-19 pandemic.

Visits and Residence. High profile visits by dignitaries of the respective countries have increased over a decade. Notably, since 2009, there have been a series of noteworthy visits exchanged between the two countries, marking important milestones in their diplomatic ties. These visits have played a pivotal role in enhancing the overall cooperation and collaboration between Bangladesh and India. Furthermore, high-level diplomacy between the two nations has been characterized by a renewed sense of energy and proactiveness, reflecting a strong commitment to further strengthen the bilateral relationship. Indian visas issued in Bangladesh constitute the largest visa operations carried out by India on a global scale, with high daily application volumes and a substantial number of visas issued. About residence, approximately 10,000 Indian citizens live in Bangladesh for work and business, mainly in the Garments (RMG) sector or as professionals in MNCs or companies from India or Bangladesh.

Major Challenges

Sharing of the Water of Common Rivers. Bangladesh and India share 54 common rivers, and their relationship relies heavily on sharing water from these rivers. The Joint River Commission (JRC) was established in 1972 by Bangladesh and India to resolve water-sharing issues peacefully. However, there was limited progress under the JRC, notably two water-sharing agreements were signed only: the Ganga Water Agreement in 1996 and the Feni Water Agreement Treaty in 2019. The Ganga Water Sharing Treaty was a significant milestone in resolving the water-sharing issues related to the river Ganga. The treaty, which has an initial validity period of 30 years, effectively addressed a significant source of conflict and tension. However, both countries are yet to sign the Teesta Water-sharing agreement, and multiple efforts are in progress for this purpose. The Teesta is a vital river in Bangladesh, supporting agricultural and irrigation needs of northern Bangladesh, with 21 million people depending on it. In future discussions on sharing river waters, various additional factors need to be considered, such as pollution, climate change, population growth and water-intensive agriculture, which collectively transformed the water sharing paradigm.

Challenges at the Border. Both Bangladesh and India closely monitor the issue of killing in the context of border management. The count has decreased, but it has not reached zero as has been promised by both countries. The implementation of the Coordinated Border Management Plan (CBMP) has effectively addressed smuggling activities, including human trafficking, narcotics, weapons, and fake currency, through collaboration between border guards on both sides. Additionally, efforts are being made to enhance security and intelligence cooperation between the two countries in order to address the ongoing threat of terrorism. Efforts are being made to enhance smooth movement of the people at land ports on the shared border by streamlining the facilitation process and gradually easing restrictions.

Illegal Migration. Illegal migration from Bangladesh remains a concern for both countries' relationship. Migration has led to significant demographic changes in bordering states and has resulted in ethnic and social tensions. Migration from Bangladesh to India can be attributed to multiple factors: economic opportunities, access to education, and better healthcare facilities etc. It is important to note that not all religious people from Bangladesh who migrate to India do so illegally. Many individuals choose to relocate legally through proper channels, while others may face challenges in obtaining legal documentation due to various reasons.

China Factor. China's increasing involvement in the South Asian region is relevant to the bilateral relationship between Bangladesh and India. Over time, China has established itself as Bangladesh's largest trading partner, providing significant investments and serving as a major supplier of military hardware. However, Bangladesh has been able to manage its relationship with both India and China with great caution, ensuring a good balance amid China's expanding influence in the South Asian region.

The FDMN Issue. The FDMN issue has strained Bangladesh's relationship with Myanmar, and Bangladesh has been expecting more from India's leadership in finding a solution. Bangladesh expects India to use its diplomatic influence to urge Myanmar to address the fundamental issues behind the crisis. This includes resolving citizenship problems and safeguarding the rights of minority groups. One crucial aspect is advocating for a secure and respectable repatriation process that allows the FDMN to return to their homeland. Furthermore, Bangladesh may seek India's support in providing humanitarian aid to the FDMN beside reaching out to other countries, international organizations, and NGOs for assistance in addressing the needs of the Myanmar refugees. This collaborative approach would help secure a wider range of resources and expertise to support the displaced population effectively. The humanitarian response should include coordinated efforts in food distribution, shelters, healthcare, sanitation, education, psychosocial support, and long-term solutions (repatriation or resettlement) to improve the lives of FDMN.

Domestic Conflicts. Domestic politics inevitably shapes Bangladesh-India ties. The notion that “foreign policy is the extension of domestic politics” suggests that the actions and decisions of both countries towards each other are influenced by their respective domestic political dynamics. The domestic influence on the signing of the Teesta Water Sharing Treaty, the National Register of Citizens (NRC), and the Citizenship Amendment Act (CAA) in India had transitory impact on the relationship between Bangladesh and India. However, leadership on both sides have demonstrated maturity by avoiding extreme positions and restricting negative responses to these issues.

Improving Bilateral Cooperations

Strategic Engagement. The diplomatic interaction between Bangladesh and India should concentrate on addressing unresolved issues and strengthening the ones that have been satisfactorily resolved. Relationships in bilateral diplomacy should include all aspects and involve consistent interactions among relevant government agencies beyond just the foreign ministries. By involving various agencies, a comprehensive approach can be adopted to foster understanding, cooperation, and collaboration between the two nations. This broader engagement allows for a more holistic assessment of the relationship and enables the identification of areas where joint initiatives and partnerships can be pursued. It also ensures that the dialogue and collaboration extend beyond traditional diplomatic channels, encompassing economic, cultural, scientific, and other domains. Such an expanded approach to bilateral diplomacy promotes deeper engagement, facilitates effective problem-solving, and enhances the overall bilateral relationship between the two countries.

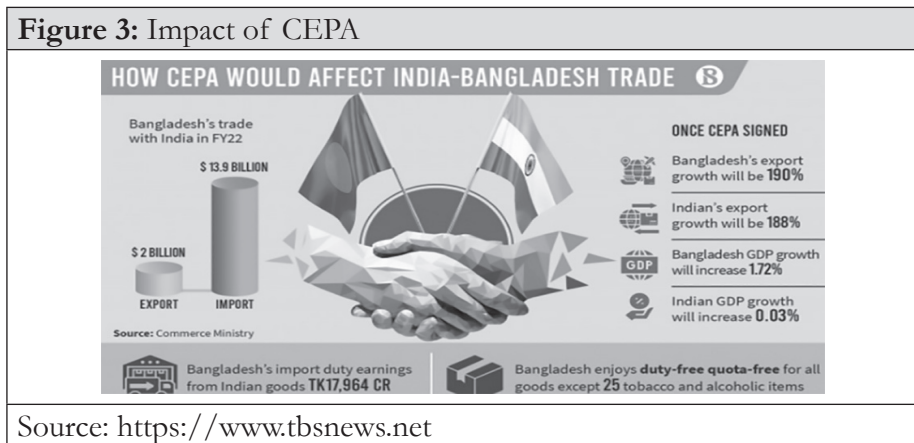
People to People Contact. The increase in people-to-people contact between the two countries is a positive development that should be maintained and encouraged over time. It is essential to ensure that this upward trend continues in order to promote cultural exchange, strengthen diplomatic ties, and foster mutual understanding between the citizens of

both nations. The annual report from India's home ministry provides evidence of the strength of neighboring connections. Between April and October 2022, over 3.83 million foreigners visited India, including largest number of Bangladeshi visitors, followed by the US and UK. Interactions between the civil societies of two countries act as a part of public diplomacy, which is useful to complement government-level efforts.

Seamless Connectivity. Connectivity plays a crucial role in facilitating socio-economic development and communication among people. It is especially important to extend multi-modal connectivity between Bangladesh and India to include South and Southeast Asia. By doing so, the benefits of connectivity can reach a larger population and contribute to the overall progress of the people in these areas.

Improving Trade Deficit. Bangladesh is worried about the trade deficit it has with India. To address this concern, a joint task force has been deemed necessary. The purpose of this task force is to analyze the situation and propose measures that can enhance trade between the two countries. It is worth noting that there are already several mechanisms established to facilitate bilateral trade and economic interconnection between Bangladesh and India. One of such efforts is the Comprehensive Economic Partnership Agreement (CEPA), which is being actively negotiated to enhance trade and investment between the two countries.

Figure 3: Impact of CEPA



Source: <https://www.tbsnews.net>

Enhanced Defence Cooperation. India has offered Bangladesh its Brahmos missiles and naval ships made by its strong shipbuilding industry. This will increase mutual trust and give the bilateral relations a strategic depth. The defence cooperation between India and Bangladesh is distinct from conventional cooperation. It was formed on the battlefield and is marked by the sacrifice of lives. As a result, the strength of this cooperation in the defence domain should be heightened and consistently profound. The demonstration of ongoing engagement is seen through the joint military exercise called “Sampriti,” which takes place annually. This exercise aims to enhance counter-terrorism cooperation and foster interoperability between the armed forces of the two countries. Both countries continue to hold Army-to-Army staff talks since 2009. The participation of Bangladesh’s contingent in the Indian Republic Day Parade in Delhi in 2021 marked the history of military cooperation between the two countries, which has prospects for further strengthening in the future.

Strengthening Regional Framework. The close proximity of Bangladesh and India makes their cooperation in the broader regional geo-political theater significant. Bangladesh, with its impressive economic growth, aspires to graduate to a middle-income country and has a secular society that emphasizes education for girls and women’s empowerment. Bangladesh prioritizes diplomacy in its foreign policy as the primary means of protecting its national interests and resolving disputes. The country strongly advocates for mutually beneficial relationships at the bilateral, regional, and trans-regional levels. In congruence to this spirit, both Bangladesh and India should effectively pursue two regional initiatives, that is, BBIN and BIMSTEC in its neighborhood. Both countries acknowledge the “positive impact” of regional connectivity, which should be extended further and well beyond the borders. Nepal and Bhutan should also gain access to Bangladesh’s ports to benefit from the facilitation of intramural sub-regional trade among Bangladesh, India, Nepal, and Bhutan.

Management of Environment Degradation and Climate Change. Both the countries are committed to the collaboration and joint efforts

in managing environmental degradation and climate change, which has potential opportunities for bilateral cooperation as well. Bangladesh, due to its higher population density, is more vulnerable to climate change, exposing more people to the risk of migration. According to scientific estimation, up to 20% of Bangladesh's land may be lost to flooding by 2030, resulting in the displacement of approximately 20 million people as "climate refugees." Although it is difficult to predict exact migration rates, a substantial number of this population is likely to migrate to India. India faces similar problems as Bangladesh. South Asian states, being predominantly agrarian and reliant on water, face significant challenges due to their shared water resources and similar water usage patterns. One critical concern is the receding Himalayan glaciers, with nearly 70 percent of them experiencing a decline. This alarming trend is expected to result in a severe water shortage throughout the region if left unchecked. Some river basins are drying up due to environmental changes, which is leading to a decrease in the supply of groundwater. In response, countries like Bangladesh, Bhutan, and India have developed national water policies. But no country alone can ensure optimum utilization of this policies. Therefore, the increasing interdependence of South Asian nations creates a compelling case for collaboration in delivering public goods regionally, tackling regional externalities, and coordinating policies within the area. Furthermore, it highlights the significance of collective efforts in preserving an open global economic environment. This collaborative approach marks the initial steps towards confronting various non-traditional threats that pose challenges to South Asia. By working together, South Asian nations can enhance their resilience and address shared concerns more effectively.

Conclusion

Bangladesh's progress since its birth in 1971 has been remarkable. Despite facing enormous challenges, the country is now focused on coming off its "Least Developed Country" status by 2026. Bangladesh, due to its resilient economy and geostrategic location, has attracted attention from both

regional and global powers. The partnership between India and Bangladesh, as neighboring countries with shared cultural connections, holds immense potential for development. However, to maximize the benefits of their strategic location, it is crucial for both nations to handle this partnership proactively and maturely. They should work towards strengthening their bilateral relationship over the next five decades, taking into account the inevitable shifts in government. The objective is to establish a momentum that ensures the gains achieved through cooperation become irreversible.

The current relationship between Bangladesh and India is characterized by positive intentions and actions, which are reflected in the resolution of contentious issues such as land and maritime boundaries, and the signing of a long-term water-sharing agreement on the Ganges and Feni River. Despite the remaining unresolved areas, there has been a notable increase in people-to-people contact and cultural exchanges. Additionally, defense cooperation appears to be growing, enhancing mutual trust and confidence. There is also a willingness to address the trade deficit, indicating a focus on improving economic cooperation. The relationship is at the right momentum to achieve sustained and healthy growth.

Bangladesh and India can mutually benefit each other in the Indo-Pacific region as allies as well as partners. By capitalizing on their shared historical ties and recognizing the economic potential of such a partnership, it is crucial for the two countries to establish a robust cooperation that can yield mutual advantages and contribute to the evolving dynamics of the region. This cooperation can foster increased trade, investment, and exchange of knowledge between the two nations, ultimately leading to enhanced regional stability and prosperity. The role of India in the Bangladesh Liberation War of 1971 is enormously significant, which is equally recognized in India's foreign policy. It showcased India's success in both diplomatic and military aspects. Building upon this successful partnership, it is justifiable to further strengthen and enhance bilateral cooperation between Bangladesh and India in the future.

References

1. Akbor, Md. Ali. (2023). 51 Years of India-Bangladesh Bilateral Relation: Opportunities and Challenges, *Journal of Asian Social Science Research*, 2023, Vol. 5. No. pp 1:79-98.
2. Bhardwaj, S. K. (2020). Tenets of India-Bangladesh Relations. *Indian Foreign Affairs Journals* Vol. 15, No. 3, July-September 2020, pp 259-267.
3. Bhattacharjee, Joyeeta. (2021). Celebrating 50 Years of India-Bangladesh Relations, March 3, 2021.
4. Chakravarty, Pinak. Ranjan. (2020). Bangladesh-India Ties: 50 Years and Beyond, *Indian Foreign Affairs Journals* Vol. 15, No. 3, July-September 2020, pp 199-210.
5. Datta, Sreeradha. (2010). Indo-Bangladesh Relations: An Enduring Partnership? IDSA Issue Brief.
6. Datta, Sreeradha. (2019). India-Bangladesh Relations in a Changing World. *UNISCI Journal*, No. 49 January 2019.
7. Deb, A. (2022). India and Bangladesh: A Multi Facet Relationship, *CLAWS Journal*, 15(1), pp 56-71. <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-80425-8>
8. Dutta, Piyali. (2010). India-Bangladesh Relations: Issues, Problems and Recent Developments. Special Report, Institute of Peace and Conflict Studies.
9. Kumar, Anand. (2020). India-Bangladesh Relations: Some Issues Need Deft Handling, *Indian Foreign Affairs Journals* Vol. 15, No. 3, July-September 2020, pp 237-244.
10. Shamsher, M. Chowdhury. (2020). Bangladesh-India Relations: History and the Way Forward. *Indian Foreign Affairs Journals*, Vol. 15, No. 3, July-September 2020, pp 191-198.

11. Singh, Nisha. (2014). *India and Development Partnership: Special Reference with Bangladesh in 21st Century*, Published by Elsevier Ltd.
12. Shukla, Ashish. (2020). *Strengthening Cooperation and Reducing Irritants: India-Bangladesh Relation Today*. *Indian Foreign Affairs Journals* Vol. 15, No. 3, July-September 2020, pp 254-253.

Author

Colonel Omar Bin Masud, afwc, psc, G+ was commissioned on December 11, 1997, in the Corps of Artillery of Bangladesh Army. He has served in various command, staff, and instructional capacities. He commanded an Air Defence Artillery Regiment. The officer was a Platoon Commander at Bangladesh Military Academy and an Instructor, Class A, at Bangladesh Institute of Peace Support Operation Training. He served as Brigade Major in the 6 Air Defence Artillery Brigade and as a Grade One Staff Officer at the Army Training and Doctrine Command. He also served as the Assistant Personal Secretary (APS) to the Director General of Directorate General of Forces Intelligence. Colonel Omar is a graduate of Defence Services Command and Staff College at Mirpur. He also completed the Armed Forces War Course at the prestigious National Defence College, Bangladesh. He holds three Master degrees, two from Bangladesh University of Professionals in 'Defence Studies' and 'Security and Development,' and one from Bangladesh National University in Technology. Besides attending a number of courses at home, the officer participated in Peace Support Operation Training in India and Mongolia as an instructor, attended national and multinational seminars, and carried out several individual and group research works. He has visited a number of countries in Asia, Oceania, Africa, and America. Currently, the officer is serving as a Directing Staff for the Armed Forces War Course Wing at National Defence College. He is married and blessed with two sons.

PADMA BRIDGE - THE NEW GATEWAY OF DEVELOPMENT FOR THE SOUTHWEST REGION OF BANGLADESH

Lieutenant Colonel G M Mamunur Rashid, psc, G+, Artillery

Introduction

The Padma Bridge is a symbol of a nation's pride, embodying the hopes and aspirations of the southwest region and, thus, a brighter future for the entire country. Spanning across the mighty Padma River, this engineering marvel connects parts and unites hearts and dreams. With its majestic arches and intricate design, the Padma Bridge stands as a testament to human ingenuity and determination, showcasing the remarkable ability of a nation to overcome challenges and transform them into opportunities.

For the southwest region (21 districts on the southwest of Padma and west of Meghna Bridge respectively), the Padma Bridge represents more than a mere infrastructure project; it encapsulates the dreams of generations yearning for improved accessibility, economic growth, and a higher quality of life. With its completion, communities long isolated are finally linked, fostering cultural exchange, and enabling the flow of commerce. This bridge, standing as a testament to the nation's determination and resilience, embodies the region's collective emotion, hope, excitement, and a shared vision for progress. With its completion, the bridge connects physical locations and bridges the gap between dreams and reality. Padma Bridge is the biggest self-financed project in Bangladesh so far. The 6.15 km bridge cost tk 30193.39 CR, including river management, link roads, land acquisition, rehabilitation, salaries, and allowances. The bridge is the longest on the Ganges by span and total length and is the deepest (127 meter) worldwide. (Islam 2023).

As per mega structural concern, Padma Bridge can be an example of national pride. Honorable Prime Minister Sheikh Hasina while inaugurating the Padma Bridge on 25 June 2022, boldly said in her speech, “The Bridge belongs to the people of Bangladesh. It showcases our passion, our creativity, our courage, our endurance, and our perseverance”. She declared that the Padma Bridge is not just a concrete structure of brick, cement, steel, and iron. Instead, this symbolizes the nation’s pride, honor, and ability.

In this paper, an endeavor is taken to highlight the background of constructing the Padma Bridge, its significance as a source of national pride, the emotional resonance it holds for the people of the southwest region, and the transformative prospects it heralds for this corner of the nation. All the results are discussed based on analytical discourse and survey conducted among the people of southwest region of the country.

Conceptual Framework

Economists and urban planners distinguish two types of infrastructure: Economic infrastructure and Social infrastructure. Bridge falls under Economic infrastructure which also has impacts on social infrastructures (Fourie 2006). Professor Hadiuzzaman, from Bangladesh University of Engineering and Technology (BUET), who is an expert on transport sector thinks that Padma Bridge is not just a communication infrastructure but also transformational structure (The Daily Star 2023). It is more than a year that the Padma Bridge is made open for public use. Therefore, an evaluation on its impact on southwest region is necessary. An operational diagram about the impact/outcome of Padma Bridge is shown below:

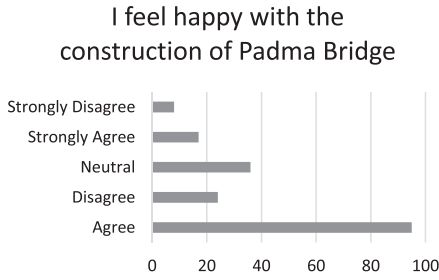
direct impact on people of the southwest region. 2nd level impact: which are directly linked to the nation and indirectly on the population. Finally 3rd level impact: which are the sequential impacts resultant from the 1st and 2nd level impacts. The details are discussed in subsequent paras.

1st Level Impacts

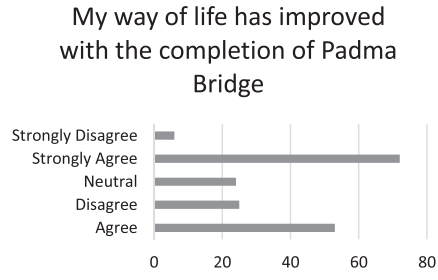
One hundred eighty respondents’ (from different walks of life) data have been collected and analyzed to determine the impacts of Padma Bridge among people, business owners, tourism, port authorities, the Chamber of Commerce, LGED, and Transport industries.

Table 1: (From the statistical analysis, all the t values are above the critical value, for which it can be deduced that the items are statistically significant)						
One-Sample t- Test						
	Test Value = 3					
	T	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
I save more time transporting goods	5.295	179	.000	.372	.25	.81
I can reach destinations faster	7.347	179	.000	.717	.56	.88
I feel happy with the construction of Padma Bridge	6.709	179	.000	.494	.37	.62
My way of life has improved with the completion of Padma Bridge	10.136	179	.000	.889	.74	1.03

From the graph bellow, we can see the first-level impression of public about Padma Bridge. The way of life has been improved significantly in different cases, felt by the public.

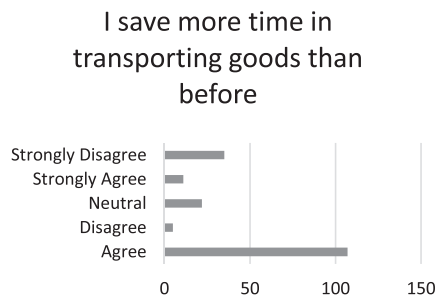


Graph-1

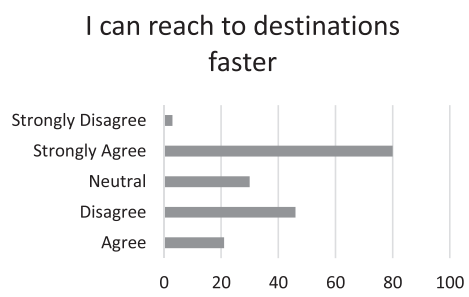


Graph-2

Enhanced Connectivity. The most substantial impact of the Padma Bridge on the southwest region is the enhanced connectivity it brings. The bridge connects the southwestern area of Bangladesh with Dhaka and other significant economic centers like Chittagong, reducing travel time. This improved connectivity has brought peace in the mind among the population of the region. Now, they can save time and effort, reach to their destination faster, and also transport their goods and items in a better way. It gives them mental peace.



Graph-3



Graph-4

However, local people of southwest region expects that the bridge will contribute more when the rail line will be connected up to Mongla and Payra Sea Port. Thus the result shown in the graph above will definitely

improve after the ongoing rail projects in the region are fully completed. Some positive impacts of enhanced connectivity through the Padma Bridge include:

- **Reduced Travel Time.** Before the bridge's construction, crossing the Padma River was time-consuming and often arduous, especially during the monsoon season when ferries were limited. Mr. Amit, a banker serving in Dhaka city, could care for his mother, who lives in Khulna. Earlier it took 10-12 hours. But now he can comfortably get a bus after office and return the next morning after taking care of his sick mother. The journey time has been reduced to 3-4 hours. Due to reduced and confirmed travel time, all the people living in the 21 districts of the country's southwestern region are getting this facility, giving them enough mental peace. The bridge significantly reduces travel time, enabling faster and more efficient movement of population and goods between the southwest region and the economic hub Dhaka and also Chattagram. On a different note, if someone wants to travel Dhaka by plane from Khulna, he needs minimum 3 to 4 hours which include 60-80 minutes journey time from Khulna to Jashore airport, 30-40 minutes for pre-flight formalities, 40 minutes journey by plane, around 30 minutes for post-flight formalities and another 30 minutes to one hour to the desired destination inside Dhaka city. However, with one-third travel cost, someone can reach Dhaka with almost similar travel time. Journey by road is more favorable for all other cities of this region other than Jashore and Barishal city as these two cities has got airport facilities.
- **Economic Boost.** The initial prediction was that the Padma Bridge would boost the country's annual GDP by 1.23 percent and reduce overall poverty by 0.84 percent per year (Farzana 2022). However, many experts working on these issues believe that the actual growth will be much higher if other aspects are taken into account, such as increased value of land in the southwestern region, reduced travel time etc. If we discuss about the direct impact through toll collection of the bridge,

from a data of Bridge Division, a total of 55.61 lakh vehicles have used the bridge till 18 June 2023 since its opening, and the bridge authority has collected Tk 781.82 CR as toll. On average, 15,000 vehicles use the bridge daily, and this number rises to 30,000 to 40,000 on special occasions. However, before the construction of Bridge in 2013, the daily traffic forecast for the first year was 6,451, while it was 7,898 for the second year and 11,841 for the third year. Therefore, in 10 years gap, 2.5 times more vehicles have been managed by the bridge authority than the forecast for the first year, which is more than the estimation. It clearly indicates the future trends in terms of vehicle movement through the bridge and toll collection thereby.

- **Access to Education and Healthcare.** The Bridge's accessibility enables better access to education and healthcare services for the local population. Educational institutions and medical facilities can be established or improved, enhancing human capital development and the overall quality of life in the region. Even, the patients can be brought to Dhaka for better medical care within short time due to better connectivity. Professor Dr. Md Sharfuddin Ahmed, Vice-Chancellor of Bangabandhu Sheikh Mujib Medical University (BSMMU), stated, "It is important to bring any stroke patient to an advanced hospital within three hours. After the construction of the Padma Bridge, such critical patients of southern region have been able to come to us easily" BSMMU is now serving 80,000 more patients annually, a testament to the bridge's impact on healthcare accessibility. (The Daily Sun 2023)

In conclusion, the Padma Bridge's positive impact on connectivity is multi-faceted and transformative. By bridging the geographical gap between the southwest region and the rest of Bangladesh, the bridge brings forth many benefits that drive socio-economic development, and improved living standards for the local population.

2nd Level Impacts

Table 2: (From the statistical analysis, all the t values are above the critical value, for which we can say they are statistically significant)						
One-Sample t- Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Padma Bridge opens easy market access for local farmers	7.545	179	.000	.689	.54	.84
Improved connectivity due to the Padma Bridge will attract more investments and industrial development in the area	2.906	179	.004	.306	.13	.48
Leveraging the synergy between Payra/Mongla Port and the Padma Bridge will enhance international trade opportunities for Bangladesh	3.061	179	.003	.289	.13	.44
Enhancing the connectivity between Payra/Mongla Port and the Padma Bridge will significantly improve transportation efficiency and reduce operational costs.	8.735	179	.000	.728	.59	.87

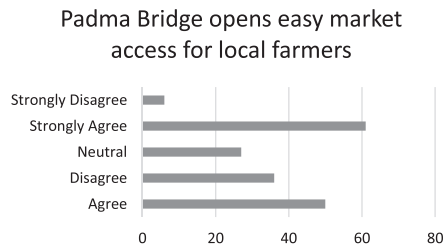
Table 2: (From the statistical analysis, all the t values are above the critical value, for which we can say they are statistically significant)

One-Sample t- Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Coordinating the development of road and rail links between the port and the bridge is essential for realising the full potential of both infrastructures	7.302	179	.000	.589	.46	.72
The Padma Bridge is creating more regional tourism opportunities	4.265	179	.000	.406	.25	.56
Improved transportation due to the Padma Bridge will attract more tourists to the region	5.282	179	.000	.522	.36	.69
The Padma Bridge is developing a positive image, affecting regional tourism like the Sunderbans/Kuakata]	4.125	179	.000	.406	.24	.57

Now, we can investigate the second-level impacts. Here agriculture, tourism, and industrialization are measured to see the impact of the Padma Bridge.

Agricultural Transformation. The southwest region of Bangladesh is predominantly rural, and the bridge’s accessibility is poised to revolutionize

the agriculture sector. It will enable farmers to transport their products to markets more efficiently, reducing post-harvest losses and improving income opportunities. Agriculture, the lifeline of Barishal, has seen revolutionary changes. Md Showkat Usman, Additional Director of the Department of Agriculture Extension in Barishal, highlighted how the bridge has motivated farmers. He mentioned in an interview “Farmers are now more motivated as they are getting deserved prices after selling their crops since the opening of the Padma Bridge,” (The Daily Sun 2023). Additionally, access to modern agricultural techniques and inputs is expected to enhance productivity and usher in agricultural transformation. Some of the positive impacts on agriculture due to the Padma Bridge are as follows:



Graph-5

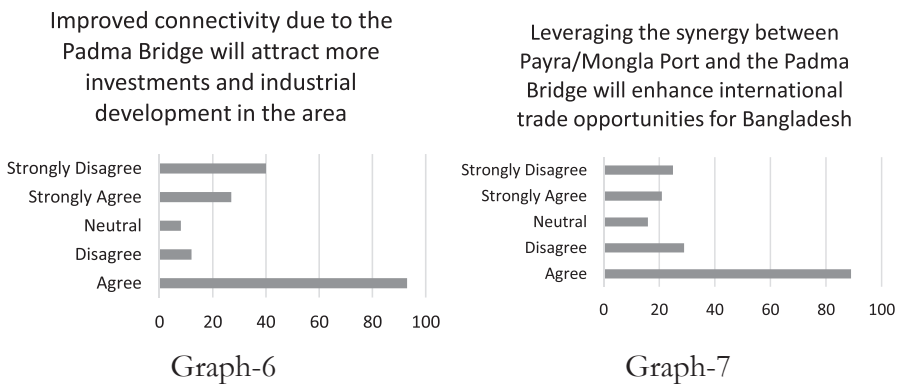
- **Enhanced Market Access.** The Padma Bridge connects the southwest region to major economic centers such as Dhaka and Chittagong. This improved connectivity enables farmers to transport their products to urban markets more efficiently and at lower transportation costs. As a result, farmers can access larger markets and secure better prices for their agricultural products. In a Focused Group Discussion held on 4 October 2023 at Paikgacha Upazilla of Khulna District, people opined that the cost of products are too high for the public when those are sold in the local markets. But the farmers are selling those to the businessmen in a cheaper rate. That means, the cost is increased by the middle men for transport and their profit. With direct and easy road communication, this situation might improve in future as they expect. Earlier, the transportation time was more and cost was high. Now, it is reduced.

- **Reduction of Post-Harvest Losses.** Before the bridge's construction, farmers in the southwest region faced challenges transporting their perishable goods to distant markets, leading to significant post-harvest losses. According to local farmers of Khulna, after the bridge in place, the time taken to transport different products is reduced, minimizing spoilage, helping to address food security, and ensuring better returns for the farmers.
- **Access to Agricultural Inputs.** Improved connectivity facilitates the transportation of agricultural inputs such as seeds, fertilizers, and pesticides to the southwest region. Farmers can now access modern farming technologies and practices, leading to increased productivity and improved crop yields.
- **Diversification of Crops.** With better access to markets and agricultural inputs, farmers are now able to explore and adopt new crop varieties. The bridge's accessibility opens opportunities for cultivating high-value crops, leading to diversification of agriculture and increased income for farmers.
- **Rural Development.** The positive impact of the Padma Bridge on agriculture has a cascading effect on rural development. As the agricultural sector thrives, it provides the impetus for infrastructure development, access to essential services, and overall improvement in the quality of life for rural residents.
- **Support for Agro-Industries.** The growth of the agricultural sector due to the bridge's connectivity has stimulated the development of agro-processing industries in the southwest region. Investors are showing interest to establish farms and industries in this area (The Daily Star 2023). These industries will add value to farm products, create employment opportunities, and contribute to the region's economic growth.

Padma Bridge's positive impacts on agriculture in the southwest region of Bangladesh are far-reaching and transformative. The bridge's improved connectivity opens new opportunities for farmers, enhances access to markets and agricultural inputs, and fosters the adoption of modern technologies. As

a result, the farm sector is expected to thrive, contributing to the region’s rural development, food security, and overall economic growth.

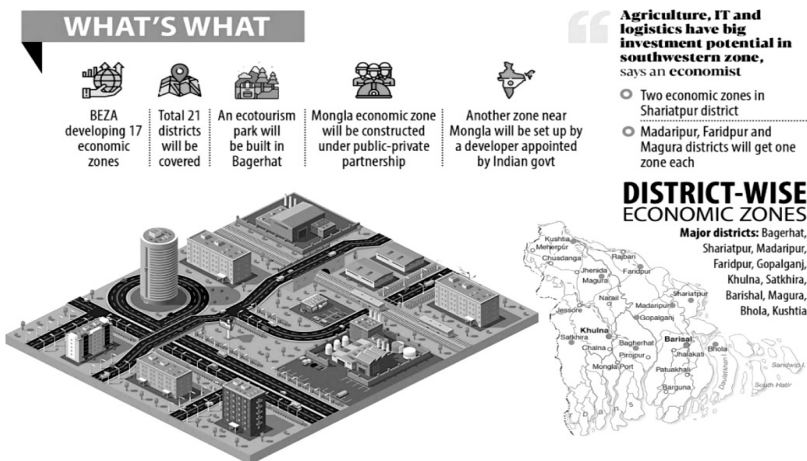
Industrial and Commercial Opportunities. The improved connectivity provided by the Padma Bridge has opened new trade routes and facilitated the movement of goods to and from the southwest region. This ease of transportation helps businesses access to larger markets, leading to increased trade and commercial activities in the area. With increased accessibility, businesses in the southwest region can expand their operations and attract investments. Mongla Port had an increase in Import and Export of 4.048 million tons of goods between July 1 and October 16 of the 2022–23 fiscal year despite import restrictions and economic inflation (Nath 2023). Thus the bridge has created an enabling environment for the growth of industries.



- **Improved Access to Markets.** The Padma Bridge connects the southwest region with significant economic hubs such as Dhaka and Chittagong. This improved accessibility allows industries in the area to access more extensive and more lucrative markets, expanding their customer base and increasing sales opportunities.
- **Industrial Growth and Investment.** The Bridge’s connectivity has attracted domestic and foreign investments to the southwest region. According to the Barisal Chamber of Commerce, investments of 10,000–20,000 CR taka are expected to be made in places around Barisal during the next 10 years. (Khan and Ali 2021). By discussing

with the local people of Khulna, Gopalganj and Faridpur district, it was found that the land price along the roads are increased after connectivity through Padma Bridge. Many industrialists are showing interest to buy land for commercial purposes along the Dhaka-Mongla and Dhaka-Payra Road. Industrialists assume that areas such as Faridpur, Madaripur, Shariatpur, Bagerhat, Gopalganj, and Khulna are excellent locations to invest. However, the unplanned development on both sides of the road puts it at disadvantage, resulting in retail oriented growth, rather than large scale economic development. If retail development dominate around Padma Bridge, it will undermine the productivity potential of the infrastructure. (The Daily Star 2023)

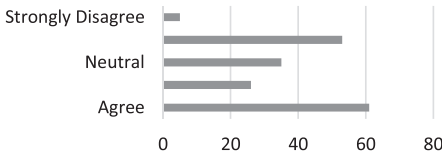
- Clustering Effect.** The improved connectivity facilitated by the Padma Bridge may lead to the clustering of industries and businesses in the region. The concentration of related industries creates economies of scale, fosters collaboration, and encourages innovation, driving overall industrial development. However, it demands Government level planning for Exclusive Economic Zone (EEZ) in the Region. According to Bangladesh Economic Zone Authority (BEZA), there will be 17 Exclusive Economic Zones (EEZ) in the southwest region (Humayun 2023). Those needs to be implemented as soon as possible.



Source: BEZA, 2022

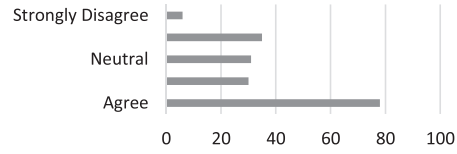
- **Employment Opportunities.** The growth of industries in the southwest region, spurred by the bridge’s connectivity, is expected to create employment opportunities for the local population. This, in turn, leads to improved living standards and socio-economic development in the area.
- **Trade Facilitation.** The Bridge acts as a vital trade corridor, facilitating the movement of goods between different regions of Bangladesh. It streamlines the logistics chain, reduces trade barriers, and promotes efficient trade practices, benefiting local and national trade activities.

Enhancing the connectivity between Payra/Mongla Port and the Padma Bridge will significantly improve transportation efficiency and reduce operational costs



Graph-8

Coordinating the development of road and rail links between the port and the bridge is essential for realizing the full potential of both infrastructures



Graph-9

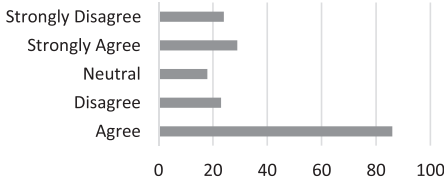
- **Strengthening Supply Chains.** The improved connectivity enables industries in the southwest region to strengthen their supply chains. Access to raw materials and intermediate goods becomes easier, improving production efficiency and reducing lead times.
- **Boost to Small and Medium Enterprises (SMEs).** The Bridge’s positive impact on industry and commerce extends to SMEs, which play a crucial role in economic development. SMEs in the southwest region can expand their operations, benefit from increased demand, and participate more actively in national and international markets.
- **Export Potential.** With improved access to transportation networks, industries in the southwest region can increase their export potential. This, in turn, can boost foreign exchange earnings and contribute to the country’s economic growth.

Padma Bridge's positive impacts on industry and commerce in the southwest region of Bangladesh are wide-ranging and transformative. The bridge's enhanced connectivity promotes industrial growth, trade facilitation, and investment opportunities. It fosters the development of SMEs and strengthens regional supply chains, contributing to overall economic development and prosperity. However, unplanned industrialization in the region may have detrimental effect in the long run. As such, quick implementation of planned EEZ by the government is felt necessary.

Tourism and Cultural Exchange. Tourism can impact positively on the economy of a nation independently. Maldives, Nepal, Thailand and many Asian countries are good example where tourism sector is very vibrant in national economy. However, it demands good connectivity and larger investment. The southwest region of Bangladesh is rich in cultural heritage and natural beauty, yet it remains relatively untapped in terms of tourism. However, after the completion of Padma Bridge, tourists have increased and showing light at the end of the tunnel for the Tourism sector. This influx of tourists will generate revenue and promote cultural exchange and understanding. Some of the critical impacts on tourism due to the Padma Bridge are as follows:

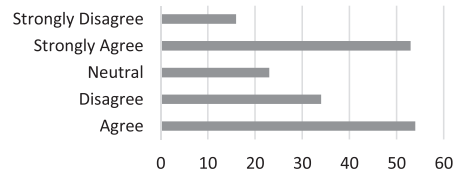
- **Increased Tourist Arrivals.** The Padma Bridge connects the southwest region to major cities and tourist destinations in Bangladesh. This improved accessibility has attracted more domestic and international tourists to explore the region's unique cultural and natural attractions. The number of tourists has doubled after the launch of the Padma Bridge, which is contributing to the local economy. According to Motaleb Sharif, the general secretary of the Kuakata Hotel-Motel Owners Association. "Not only on special occasions like Eid or New Year, but tourists also come to Kuakata even on weekends because the distance from Dhaka to Kuakata is less than the distance from Dhaka to Cox's Bazar," he told The Daily Star in an interview (Daily Star 2023). However, lack of facilities is felt by tourists in Khulna and nearby Sundarbans area.

The Padma Bridge is creating more tourism opportunities in the region



Graph-10

Improved transportation due to the Padma Bridge will attract more tourists to the region



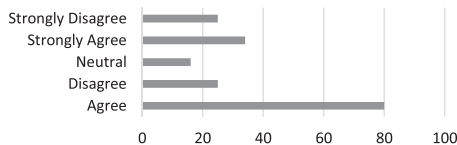
Graph-11

- Diversification of Tourism Offerings.** The southwest region of Bangladesh is known for its diverse landscapes, including riverine beauty, mangrove forests, and historical sites. With the bridge’s completion, previously untapped destinations become more accessible, leading to a diversification of tourism offerings in the region.
- Growth of the Hospitality Industry.** The influx of tourists to the southwest region is expected to boost the hospitality industry. Hotels, guesthouses, and other accommodation facilities will witness increased demand, leading to the growth of this sector.
- Job Creation.** As tourism in the region grows, it creates employment opportunities for local communities. Jobs may be generated in tourism-related sectors, such as hospitality, transportation, tour guiding, and handicrafts, contributing to economic empowerment.
- Cultural Exchange.** Increased tourism promotes cultural exchange between tourists and the local communities. Tourists can immerse themselves in the region’s unique cultural heritage, while local communities’ benefit from exposure to different cultures and perspectives.
- Infrastructure Development.** To accommodate the growing number of tourists, there may be a need for infrastructure development in the southwest region. However, according to BEZA, over 300 investors have expressed interest in funding projects connected to tourism in the

area, such as hotels, resorts, and amusement parks (Nath 2023). This will certainly improve roads, tourist facilities, and conservation efforts for natural and cultural sites.

- **Local Economic Development.** Tourism generates a significant multiplier effect on the local economy. As tourists spend on accommodation, food, souvenirs, and other services, it injects money into the local economy, benefiting businesses and communities.
- **Promoting Sustainable Tourism.** With the potential increase in tourist arrivals, there is an opportunity to promote sustainable tourism practices in the region. Conservation efforts and responsible tourism initiatives can help protect the environment and cultural heritage for future generations.
- **Government Revenue Generation.** Increased tourism activity contributes to increase government revenue through taxes and fees on tourism-related services, providing additional resources for development and infrastructure projects. Historically and culturally significant sites like Kuakata, Sundarbans, Badhyabhumi Smriti Shoudho, Floating Guava Market, Durga Sagar, Kobi Krishna Chandra Institute, Khan Jahan Ali Bridge, Khulna Divisional Museum, UN Park, Rupsha River, Khulna Shipyard, Gollamari Smriti Shoudho, Prem Kanon Bokultala, Mongla Port, Raruli, Mr. Charlie Kuthibari, and Sonadanga Solar Park have witnessed an increased number of tourists after the opening of the bridge (Nath 2023).

The Padma Bridge is developing a positive image which is affecting regional tourism like the Sunderbans/Kuakata



Graph-12

Padma Bridge has already significant positive impacts on tourism in the southwest region of Bangladesh. Improved connectivity and accessibility will attract more tourists, leading to the growth of the hospitality industry and the creation of job opportunities. Additionally, the region’s cultural and natural attractions will be more accessible to visitors, promoting cultural exchange and regional development. Responsible and sustainable practices will be essential to preserve the region’s unique heritage and ensure long-term benefits for tourists and local communities as tourism flourishes.

3rd Level Impacts

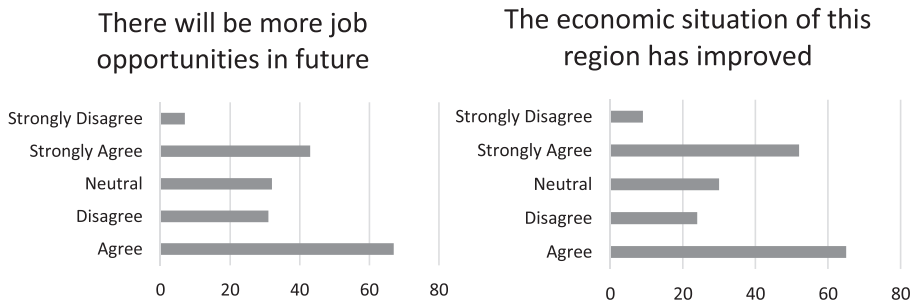
Table 3: (From the statistical analysis, all the t values are above the critical value, for which we can say they are statistically significant)

One-Sample t- Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
The economic situation of this region has improved	8.118	179	.000	.706	.56	.85
There will be more job opportunities in future	7.053	179	.000	.600	.46	.74
Enhanced medical services in this region	7.738	179	.000	.628	.49	.76
Faster treatment in the medical service industry	8.475	179	.000	.700	.56	.84
Reduced costs in distribution and logistics for businesses	6.318	179	.000	.528	.39	.67

Finally, the Padma Bridge has significant impact on the overall socio-economic factors in the region, and most of the respondents agreed with these statements.

Social Upliftment. The impact of the Padma Bridge extends to the social fabric of the southwest region. With the economic development in the region, communication infrastructures will develop. Respondants agreed that improved road communication will in turn improve the access to education, healthcare, and other essential services, benefiting the local communities. Some of the positive impacts on social upliftment concerning the Padma Bridge are as follows:

- **Employment Opportunities.** As industries, businesses, tourism etc. thrive due to the bridge’s improved connectivity, it creates employment opportunities for the local population. The availability of jobs contributes to poverty alleviation and enhances social upliftment.

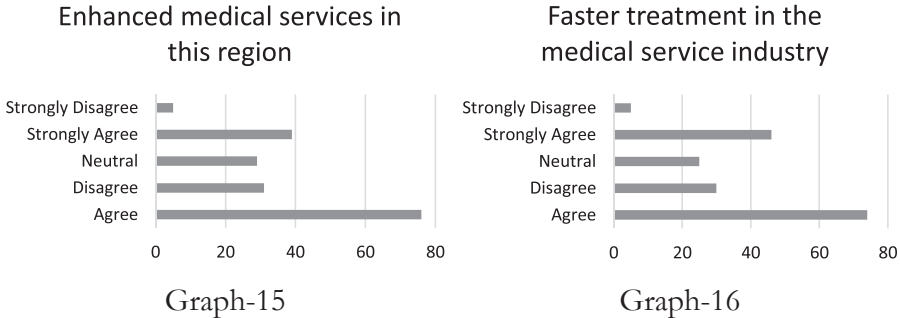


Graph-13

Graph-14

- **Access to Education.** The improved connectivity provided by the bridge, and alongside, the job opportunity and thus economic solvency among the poor is encouraging education among the dropped out children. Students can now commute more easily to schools and colleges, leading to increased enrollment rates and improved academic outcomes. It will increase literacy and contribute to the society. The bridge is likely to attract establishment of higher level educational institutions in this region in future.

- **Healthcare Accessibility.** The completion of the bridge allows better access to the region’s healthcare services and medical facilities. Patients can reach hospitals and clinics more quickly, resulting in timely medical attention and improved healthcare outcomes.



- **Women’s Empowerment.** Improved connectivity can lead to increased participation of women in the workforce. With better transportation options, women in the southwest region can access job opportunities and participate more actively in economic activities, contributing to their empowerment.
- **Cultural Exchange.** The Padma Bridge connects the southwest region to other parts of Bangladesh, fostering cultural exchange and understanding. This exchange can lead to preserving and celebrating local cultural heritage and traditions.
- **Social Integration.** The Bridge’s connectivity promotes social integration by facilitating the movement of people between different regions. This contributes to a sense of national identity and unity among diverse communities.
- **Poverty Alleviation.** As industries grow and employment opportunities increase, the bridge’s positive impacts contribute to poverty reduction in the southwest region. The rise in income levels improves the standard of living for many households.

- **Human Capital Development.** Access to educational and healthcare facilities enables human capital development in the region. A better-educated and healthier population contributes to long-term social and economic progress.
- **Skill Development.** The positive impacts of the bridge on industry and commerce create opportunities for skill development and vocational training programs. This equips the local workforce with relevant skills, enhancing their employability and social mobility.
- **Community Development.** The improved connectivity and economic growth resulting from completion of the bridge can lead to community development initiatives. Investments in infrastructure, social programs, and community facilities benefit the local population.
- **Disaster Resilience.** The improved connectivity of the bridge is a lifeline during natural disasters, allowing quick response and relief efforts. This region was in danger particularly from the climate change related natural disaster due to absence of sustainable road transportation options (Nath 2023). This enhances disaster resilience and ensures the safety and well-being of the local population during emergencies.

The enhanced connectivity of the bridge opens new opportunities for education, healthcare, employment, and community development. It contributes to poverty alleviation, women empowerment, and cultural exchange, fostering a more inclusive and prosperous society. As the bridge stands as a symbol of progress and development, it also signifies the potential for social upliftment and improved quality of life for the people of the southwest region of Bangladesh.

Environmental Considerations

While the Padma Bridge promises transformative benefits, it raises ecological concerns. The region's construction process and increased human

activities may affect the local ecology and river ecosystems. The increase in traffic due to the bridge can result in environmental consequences, including air pollution and habitat fragmentation. Integrating sustainable transportation solutions and promoting public transportation can help mitigate these impacts. Increased necessity for river dredging, piling, and other construction activities have impact on aquatic life and water quality. The Padma River region is home to various plants and animal species. Efforts must be made to identify and protect these species and their habitats through measures like protected zones, conservation programs, and wildlife corridors. Implementing proper mitigation measures and conducting regular monitoring and assessment will help minimize the project's ecological footprint and protect the surrounding environment.

Recommendations

The benefit of Padma Bridge is huge for the southwest region, and as a whole for the country. To reap up all the benefits, it demands right assessments and timely implementation. Basing on the above discussions, few recommendations can be made which are shown below:

- Establishment of planned EEZ in the region and related facilities needs to be implemented as soon as possible by the government in order to accelerate a planned industrialization for the overall development.
- Bangladesh Parjatan Corporation may conduct necessary study to find out the scopes and opportunities for promoting tourism in the region considering the Sundarbans and Kuakata Sea beach as the main tourist hub.
- Rail line from Dhaka up to Mongla and Payra Sea port and Divisional cities needs to be connected soon to make it as the primary means of transportation. It will make the roads and highways safer and more durable.

- Road from Dhaka up to Khulna and Barishal to be developed as 4 to 6 lane expressway/highway gradually, to get optimum benefit of the Padma Bridge. At the same time, uninterrupted entry and exit around Dhaka city is necessary.

Conclusion

The Padma Bridge is more than just a physical structure; it represents hope, progress, and transformation for the southwest region of Bangladesh. The bridge can be a game-changer for the region's development through improved transportation, increased trade, enhanced employment opportunities, and socio-economic upliftment. This monumental infrastructure project has ushered in a new era of economic growth, connectivity, and development for the region and the entire country. By bridging the geographical gap between the southwestern districts and the capital city, Dhaka, the Padma Bridge has facilitated smoother transportation of goods and people, reducing travel times and costs. This has led to increased trade, investment, and tourism in the region.

Furthermore, the improved connectivity has not only enhanced the socio-economic conditions of the local population but has also opened up new opportunities for industries and businesses to thrive. The southwestern region is now better positioned to harness its agricultural potential, contributing to food security and export earnings for Bangladesh. Additionally, the Padma Bridge has played a crucial role in disaster resilience, ensuring that during times of natural calamities like floods or cyclones, essential services and aid can reach the affected areas more swiftly. This has resulted in improved disaster preparedness and response mechanisms for the region.

While the impact of the Padma Bridge has been overwhelmingly positive, it is essential to continue monitoring and managing the industrialization, and environmental effects. Government needs to look for creating specific EEZ, more railway lines, flourishing tourism to ensure sustainable

development in the region. In summary, the Padma Bridge stands as a symbol of progress and development, significantly improving the quality of life for the people of the southwestern region of Bangladesh. It has not only enhanced connectivity but also spurred economic growth, increased resilience to natural disasters, and created a foundation for a brighter future for this historically underserved part of the country.

References

1. Anwar Hossain (Prothom Alo 25 June 2023) Retrieved on 25 July 2023 from <https://en.prothomalo.com/bangladesh/3f15hjdyvb>
2. Bangladesh Bridge Authority (2022). Padma Multipurpose Bridge Project. Retrieved on July 14, 2022, from <http://www.padmabridge.gov.bd>
3. Bangladesh Tourism Board Portal Link: https://tourismboard.portal.gov.bd/sites/default/files/files/tourismboard.portal.gov.bd/page/a3c70b40_263e_4d8c_9c9a_1cc0f551b041/2020-09-30-17-49-581fb3417aa0a4510515e740cabe9f83.pdf Retrieved on 19 September 2023).
4. Daily Sun (2022, June 26). Padma Bridge and our Socio-economic dynamics. Retrieved on July 14, 2022, from <https://www.daily-sun.com/post/628754/Padma-Bridge-and-our-Socioeconomic-dynamics>
5. Dhaka Tribune (2022, July 4). Minister: Padma Bridge to ensure faster internet. Dhakatribune.Com. Retrieved July 12, 2022, from <https://www.dhakatribune.com/bangladesh/2022/07/04/minister-padma-bridge-to-ensure-faster-internet>
6. Fahmida Khatun, (2020). Padma Bridge and the pursuit of inclusive growth. Retrieved from: Padma Bridge and the pursuit of inclusive growth | The Daily Star.
7. Farzana Mahmood, Padma Bridge and Our Socio-Economic Dynamics. Published in The Daily Sun, Date 26 June 2022, Retrieved

from <https://www.daily-sun.com/post/628754> date 29 September 2023.

8. Fourie, J. (2006). Economic infrastructure: A review of definitions, theory and empirics. South African
9. Hossain, S. (2022, June 24). 14,000 workers, and engineers built Padma Bridge in nearly 2,765 days. The Daily Star. Retrieved July 14, 2022, from <https://www.thedailystar.net/news/bangladesh/development/news/14000-workers-engineers-built-padma-bridge-nearly-2765-days-3055376>
10. Islam, M. M., Hossain, A. F., Abbas, S. M., Silvy, S., & Hasan, M. S. (2020). A Study on Impacts, Construction Challenges, and Overcomes of Padma Multipurpose Bridge, Bangladesh.
11. Jalil, M. A., Islam, M. Z., & Islam, M. A. (2020). Risks and Opportunities of Globalization: Bangladesh Perspective. *Journal of Asian and African Social Science and Humanities*, 13-22.
12. Khan, Samin Mahmud, and Sanjir Ali. 2021. Padma Bridge Gives Rise to Abundant Possibilities, Light Castle Analytics Wing. Available online: <https://www.lightcastlebd.com/insights/2021/04/padma-bridge-engenders-abundant-possibilities/> (accessed on 26 June 2022).
13. Mohammad Monirul Amin, (2019). Socio-economic impact of Padma Bridge: A new lease of life for many. Retrieved from: <https://archive.dhakatribune.com/business/2019/08/17/socio-economic-impact-of-padma-bridge-a-new-lease-of-life-for-many>
14. Neill, C. R., Oberhagemann, K., McLean, D., & Ferdous, Q. M. (2010, August). River training works for Padma multipurpose bridge, Bangladesh. In IABSE- JSCE joint conference on advances in bridge engineering-II (pp. 441-448).
15. Raihan, S., & Khondker, B. H. (2010). Estimating the economic impacts of the Padma bridge in Bangladesh.

16. Sabet, D. (2012). Understanding the Padma Bridge Controversy. Monthly Current Events Analysis Series, prepared for the Center for Enterprise and Society. University of Liberal Arts, Bangladesh.
17. Saume Saptaparna Nath (2023). Celebrating A Year of Padma Bridge: How a Mega Structure Ushered In A New Era, Retrieved on 25 July 2023 from <https://www.eurasiareview.com/26062023-celebrating-a-year-of-padma-bridge>
18. Shafiqul Islam (Dhaka Tribune 25 June 2023). <https://www.dhakatribune.com/bangladesh/314246/dream-turned-reality-one-year-of-padma-bridge> retrieved on 26 July 2023.
19. The Business Standard (2022, June 22). Gains from Padma Bridge to cross \$10b, hope experts. Retrieved on July 12, 2023, from <https://www.tbsnews.net/bangladesh/infrastructure/gains-padma-bridge-cross-10b-hope-experts-444474>
20. The Daily Star, 25 June 2023, Retrieved on 25 July 2023 from <https://www.thedailystar.net/supplements/celebrating-one-year-the-pad..>
21. The Daily Sun, 25 June 2023, <http://www.edailysun.com/arc/archive/2023-06-25#tab1> Retrieved on 25 July 2023.
22. The Financial Express. (2022, June 26). Padma Bridge will add Tk 423.62 billion to GDP in a year: BBS. Retrieved July 14, 2023, from <https://thefinancialexpress.com.bd/economy/padma-bridge-will-add-tk-42362-billion-to-gdp-in-a-year-bbs-1656172681>
23. The World Bank (2023). GDP (current US\$) – Bangladesh. Retrieved August, 2023, from <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2023&locations=BD&start=2000>

Author

Lieutenant Colonel G M Mamunur Rashid, psc, G+, Artillery was commissioned in the Corps of Artillery on 27 December 2001 with 45th BMA Long Course. In his 22 years of military career, he has served in five Artillery Regiments, including commanding 44 SHORAD Missile Regiment. His other mentionable service experience includes General Staff Officer, Grade 3 and Brigade Major at 6 Independent Air Defence Brigade, Deputy Assistant Adjutant and Quarter Master General at 77 Infantry Brigade, Senior Instructor Gunnery in the School of Artillery. Under Blue Helmet, he took part in the peacekeeping operations as Contingent Member in Ivory Coast (UNOCI) and as Military Analyst in the Joint Mission Analysis Center in Mali (MINUSMA). Apart from mandatory courses, the researcher has attended Missile Platoon Commander Course in China. Lieutenant Colonel Mamun is a graduate from Defence Services Command and Staff College, Mirpur and Artillery Center and School, Haliashahar under the Bangladesh University of Professionals (BUP). Presently, the officer is serving in National Defence College as a Senior Research Fellow.

NDC JOURNAL

Security Through Knowledge



NDC Journal
National Defence College
Mirpur Cantonment, Dhaka-1216
Bangladesh
(ISSN: 1683-8475)

NDC JOURNAL



NDC Journal is a professional journal of the National Defence College, Bangladesh. It is published twice a year by the College.

Its goal is to provide a platform for exchange of knowledge, experience, ideas, information and data on all aspects related to National Security and Development. The primary emphasis of the journal is the publication of empirically based, policy-oriented articles which can attract the attention of policy-makers both at government and private level, security and development experts, academicians, researchers and the members of public in general.

The Editorial Board welcomes original works analyzing, development and security issues. The articles, as desired, should have a strong emphasis on the policy implications flowing from the research.

Please visit our NDC E-JOURNAL at <https://ndcjournal.ndc.gov.bd/ndcj/>

National Defence College, Mirpur Cantonment, Dhaka-1216

Tel : 88 02 9003087, Fax : 88 02 8034715

e-mail: ndcbangladesh@ndc.gov.bd

Website : <http://www.ndc.gov.bd>