



MODERN OPERATIONAL EFFICIENCY THROUGH DECEPTION AND DETERRENCE: A STRATEGIC APPRAISAL FOR THE BANGLADESH ARMY

Major Akib Ahsan Teas, psc

National Defence College, Mirpur, Dhaka, Bangladesh

(Received: 10th April 2025; Accepted: 08th November 2025; Published: 30th November 2025)

Abstract. The research evaluates how modern decoy systems would work as a defence strategy for the Bangladesh Army to improve its deterrence capabilities against advanced enemies. The research investigates how Bangladesh lacks both decoy stockpiles and operational guidelines for its military forces even though other nations use decoy systems to defend against advanced surveillance and precision-strike technology. The research combines literature reviews with conflict case studies of Ukraine, Armenia-Azerbaijan Wars and expert military professional interviews to evaluate both practicality and operational value. The research shows that present-day inflatable and heat-emitting decoys create substantial protection for military forces through their ability to confuse enemy surveillance systems and redirect precision-guided missiles while hiding actual military assets. The systems create psychological effects on enemies while providing affordable force multiplication benefits during operations in challenging terrain such as the Chittagong Hill Tracts (CHT) and southeastern frontier zones. The research also displays that deploying advanced decoy systems with electronic countermeasures and adaptive camouflage technology provide Bangladesh with an affordable method to boost its defensive capabilities during hybrid warfare conflicts. The research indicated that multiple barriers exist which prevent the military from adopting decoy systems at scale. The main constraint to decoy system adoption stems from insufficient funding which hinders continuous procurement, research and development activities, the military's lack of trained experts in deception operations and decoy technology and finally, insufficient facilities for testing and training. The operational need for decoys has not led to faster institutional change because of these organizational barriers. The implementation of decoy systems as a national defence strategy depends on strategic partnerships, capacity development and doctrinal updates to overcome current structural constraints. The implementation of decoy systems as a fundamental defence element would boost Bangladesh military's operational efficiencies and defensive capabilities.

Keywords: *Military Deception; Inflatable Decoys; Technological Advancement; Strategic Deployment, Operational Efficiency.*

© 2025 NDC E-JOURNAL, all rights reserved.

INTRODUCTION

Deception has long been a defining element in military strategy, serving as a critical tool to mislead and disorient adversaries. From antiquity to the modern era, military thinkers have emphasized its role in achieving tactical and operational superiority. It is rather than relying solely on brute force, commanders have used deception to generate uncertainty and disrupt enemy decision-making. What began as simple battlefield ruses has evolved into advanced operations using sophisticated decoy technologies to misdirect surveillance and intelligence systems. Historical examples, particularly from the world wars, show the deliberate use of deception to shape enemy perceptions. Allied and Axis forces used inflatable tanks, dummy aircraft, and simulated troop deployments to mislead opponents, with Operation Fortitude standing out for its role in obscuring the true D-Day landing site. These tactics laid the foundation for today's deception strategies, which now integrate visual, thermal, electromagnetic, and cyber-based elements in conflicts such as Syria and Ukraine to manipulate enemy targeting and evade precision strikes.

The growing military dependence on sensors, drones and electronic surveillance systems has made decoys more valuable for military operations. Modern systems generate artificial radar signals, heat emissions and electromagnetic radiation to confuse sophisticated targeting systems. The system provides dual protection to forces while enabling multi-domain operations (MDO) through electronic warfare and perception management. The Bangladesh Army needs to understand how these systems can be integrated into its operations because they represent essential tools for enhancing operational readiness against current regional security challenges.

The research investigates practical and budget-friendly military strategies that use modern deception-based decoy systems for the Bangladesh Army. The research explores whether this system provides enhanced force protection, risk reduction and improved deterrence capabilities through affordable means. The research also endeavours to investigate operational efficiency effects through its primary question while examining additional factors which include technological implementation, doctrinal changes and military tactics comparison. The research uses qualitative data collection methods combined with historical examples from WWII, recent modern conflicts, technical documentation and available online educational resources. The paper starts with a historical section before moving to present-day applications and then presents Bangladesh-specific integration methods to prove decoys boost operational performance in modern security environments

LITERATURE REVIEW

The research paper includes multiple articles which study decoy technology deployment in modern warfare followed by their historical and present-day applications. The research contains unexplored areas which need investigation because they relate to Bangladesh Army operations and strategic deployment of decoys.

The fundamental principle of deceptive warfare through decoy tactics has existed since Charles Cruickshank (1980) documented Deception in World War II which analyzed Allied deception operations through Operation Fortitude by creating fake military units and fake equipment and fake communications to deceive German High Command. The research confirms decoys play a crucial role in achieving strategic success; yet it focuses on conventional military operations from past times. The research fails to demonstrate how these principles function in modern multi-domain military operations and it neglects to explain their application to Bangladesh military doctrine which faces electronic warfare and drone threats.

The United States Department of Defence (2000) examines decoy deployment during the Kosovo war through Kosovo/Operation Allied Force After Action Report which shows how NATO forces used fake targets to confuse Serbian air defence systems. The research demonstrates better institutional adoption of decoys yet it fails to evaluate their affordability and their ability to scale up for forces of all sizes. The research offers limited evidence about doctrinal changes which form a central point of investigation for studying force structure integration.

Colonel P.M.S. Kohli (2024) explains in his paper Inflatable Decoys: Enhancing Battlefield Survival and Deception how inflatable decoys help military units survive on the battlefield. The author explains that decoys create strategic value because they successfully deceive enemy targeting systems. The research fails to address geographical constraints which affect the Bangladesh Army because it operates in riverine and jungle environments. The research lacks any evaluation of cost-effectiveness which creates a knowledge gap for the second research question about budget-constrained solutions.

The paper by Flight Lieutenant Chris Whelan (2023) examines how unmanned systems with decoys function in intense military battles during the 2020 Nagorno-Karabakh War. The research by Whelan shows how Azerbaijan used UCAVs

alongside decoys to break through Armenian defences during the conflict. The research fails to evaluate how decoy systems become vulnerable to counter-deception technologies which represents a critical weakness for Bangladesh Army operations against technologically superior opponents. The research fails to evaluate decoy system vulnerability to counter-deception technology which makes the study less relevant to the main research question about operational success in asymmetric warfare.

Stijn Mitzer and Joost Oliemans (2021) present a detailed analysis of Armenia's SAM Decoys in their paper *Strike Me Please* which demonstrates how decoys redirect enemy fire toward fake targets. The research confirms that electronic warfare decoys create significant strategic value for military operations. However, the research fails to demonstrate how these systems become part of military organizations and their long-term operational plans.

The strategic deployment of decoys in Ukraine remains a topic of discussion according to Nicola Bonsegna (2024) in his paper about *Decoy Strategies in the Ukrainian conflict*. The author examines how decoys helped Ukraine protect its resources by misleading Russian military attacks. The research successfully demonstrates deception tactics in battle but it does not explore how repeated deception affects both enemy and friendly force morale and situational understanding. The research findings about leadership problems in the Bangladesh Army and command challenges during extended low-intensity operations remain unaddressed.

Lastly, Master Sergeant Jorge L. Rivero (2024) provides a comprehensive explanation about decoys' ability to shape battlefield dynamics and control operational speed in his paper *Decoy Warfare: Lessons and Implications of the War in Ukraine*. The paper by Rivero contains extensive analysis yet fails to demonstrate how training reforms and doctrinal changes enable forces to adopt decoy tactics which represents a critical limitation for this study's hypothesis about doctrinal preparedness as the key factor for successful decoy training integration.

Scope for Research. In response to the topic of concern from various literature reviews, this paper aims particularly to discuss how incorporating advanced decoy systems will enhance the operational effectiveness of the Bangladesh Army in terms of survivability, deception capabilities, and cost-effective deterrence.

HYPOTHESIS

The implementation of contemporary inflatable and electronic decoy systems within Bangladesh Army operations will boost operational performance through enhanced force protection, deception methods ,and improved deterrence capabilities.

RESEARCH METHODOLOGY

The research design adopts a mixed method analysis. The research scope is appropriate because the integration of decoys within Bangladesh Army remains poorly studied but requires basic assessment of existing conditions and potential barriers. The research will create new insights to design better investigation questions and hypotheses which will guide future research.

Limitations and Assumptions. Following limitations and assumptions are considered while conducting the research:

- The data required for the research are mostly collected from online platforms and reviewed literatures.
- The data for this study have primarily been collected from reviewed academic literature and reputable online defence platforms. While field-level surveys were limited due to time and resource constraints, the research integrates expert interviews and open-source intelligence for a comprehensive assessment.
- This research focuses specifically on their potential application for enhancing operational efficiency, since the integration of advanced decoys remains largely unexplored in the Bangladesh Army. This narrowed scope allows for a deeper exploration of the practical and strategic aspects of decoy deployment within existing military structures.
- Although modern decoys have seen significant advancement post-2000, the research draws upon both historical and recent conflict case studies- including World War II, Operation Desert Storm, and the Ukraine-Russia war- to illustrate the evolutionary trajectory and ongoing relevance of decoy strategies. This historical context enhances the analytical foundation necessary for projecting future applicability.

- While the advancement of drone technology and decoy systems are conceptually interlinked, this paper limits its scope to analyzing the progression and strategic potential of decoys alone. The interaction with modern drone surveillance and targeting is discussed only to the extent necessary to contextualize decoy effectiveness and design imperatives in contemporary warfare
- Due to time and resource constraints as well as limited subject matter experts, it was not possible to conduct a comprehensive ground survey. Therefore, the research is mostly based on limited online content analysis.
- It is presumed that the samples used in the research represent the ground commanders who have given opinions based on their experiences. The respondents provided rational responses to the survey questions.

Research Questions

Primary Question. How can the integration of modern decoy systems enhance the Bangladesh Army's operational efficiency by improving survivability, deception capability, and cost-effective deterrence within its distinct geographical and resource constraints?

Secondary Questions. The secondary questions are as follows:

- What has been the historical role of decoys in military strategy globally, and how have these practices influenced modern military tactics?
- What are the strategic roles played by decoys in modern era conflicts?
- How do these technologies meet the specific operational needs of the Modern Army?
- How can successful decoy integration strengthen Bangladesh's strategic deterrence, border security, and operational readiness against technologically superior threats?

Study Design. The research used multiple data collection techniques which combined qualitative and quantitative methods with extensive document review. The survey assessed 101 military personnel at different ranks to evaluate their knowledge about decoy systems and their effectiveness and concerns regarding system deployment. The research used Milan Vego's Operational Design

Framework and the Cost-Imposition Strategy Framework to validate the research hypothesis through rigorous analysis. The research evaluated decoy system feasibility through multiple online journals and literature reviews to determine their historical and present-day performance. The Chi-square (χ^2) test of independence verified statistical results by analyzing how operational experience affects decoy effectiveness perceptions among officers. The test applied the formula $\chi^2 = \sum((O - E)^2 / E)$ to verify that observed frequencies differed from expected frequencies at a statistically significant level. Senior military leaders participated in personal interviews to explore the operational limitations and potential applications of contemporary decoy systems within Bangladesh's military context. The research team conducted purposeful analysis to create logical arguments based on Bangladesh-specific evidence which supported the study's main hypothesis.

Table 1: Demographic Breakdown of Respondents

Rank Category	% of Respondents	Arm/Service	Avg. Years of Service
Major–Lt Col	76%	Infantry/ Artillery	14
Col–Brig	22%	Artillery/Engineers	20
Maj Gen+	2%	All Arms	29

Source: Author's Self Construct (sample size: 101 officers)

Methodological Framework. This research investigates the possibility of adding decoy systems to inventory to boost operational efficiency within Bangladesh Army. The systematic process of validating research objectives will be displayed through an organized methodology as shown in the table below:

Table 2: Framework Connecting Objectives with Methodology

Research Objectives	Corresponding Research Questions	Methodology
To explore the historical evolution and strategic importance of decoys in military operations globally.	How have decoys evolved in their role and technology in military history globally?	Literature review of historical military strategies.

Table 2: Framework Connecting Objectives with Methodology		
Research Objectives	Corresponding Research Questions	Methodology
To analyze the effectiveness of different types of decoys in modern warfare, focusing on the technological aspects.	What technological advancements have been incorporated into modern decoys, and how effective are they in deceiving enemy surveillance and weaponry?	Comparative analysis of different decoy technologies through case studies of recent conflicts where decoys were reported to be used. Collaboration with defence technology experts for technical insights and Milan Vego's framework.
To identify the conceptual understanding and assess the scope of integration of advanced decoys within the Bangladesh Army's inventory.	What is the current status, understanding and likely areas to integrate the advanced decoy deployment in the Bangladesh Army?	Qualitative (including Chi-square Test) and Quantitative analysis through server and interviews with senior military officers, followed by conceptual framework to identify conceptual understanding and integration issues.
<i>Source: Author's Self Construct</i>		

Outline of the Paper. In addition to the introductory chapter, the paper will be unfolded into following chapters:

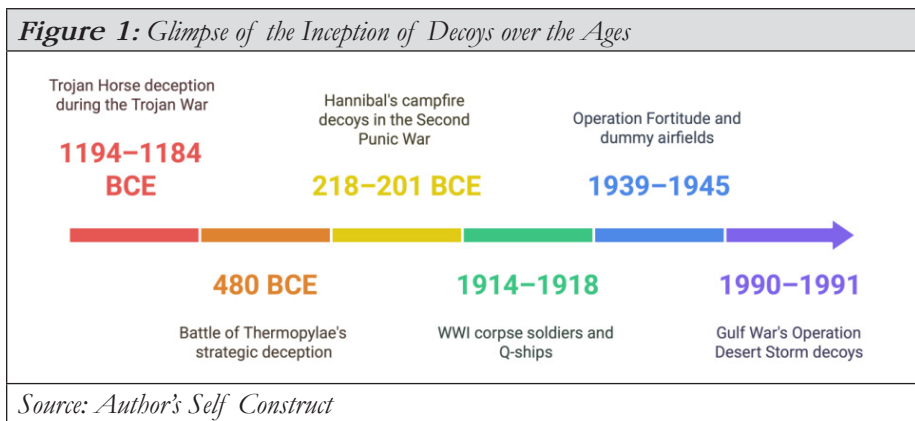
- The focus will be on historical roots of decoys in warfare through the ages and provide analysis on the use of decoys in various conflicts ranging from WWI to modern conflicts.
- A critical analysis will be carried out to trace the effective use of decoys in modern conflicts and its technological transform from simple dummy units to sophisticated electronic and thermal imaging decoys.
- An in-depth study on how the Bangladesh Army could integrate the modern decoy system to enhance the operational capabilities through deception, deterrence and force projection.

Future Scope for Research. Future study can focus on following area:

- Future research should emphasize the design, prototyping, and testing of indigenous decoys tailored to Bangladesh’s terrain, weather, and operational environment.
- There is a requirement for additional research in the incorporation of decoy operations into the Bangladesh Army’s tactical doctrine, training exercises, and operational planning paradigms. This would render the decoy concept an integral part of force protection and deterrence strategy.

Ethical Disclosure. In the current study, participation was a voluntary effort, and all the 101 officers in this survey responded voluntarily after finding out about what academic value lies behind it. All responses were anonymous, and no personal identifiers could be traced back to officers or units/commands. No classified or operationally sensitive information was requested or provided at any point. The approval of institutional ethical clearance was obtained by the Research and Ethics Committee of the National Defence College (NDC), ensuring that both professional and academic ethical standards were adhered to. In addition to the survey data, the researcher consulted data available in public journals, news articles and editorials for academic purposes, ensuring that all secondary data were taken from non-classified sources.

INCEPTION OF DECOYS THROUGH THE AGES



Effectiveness of Employing Decoys in Ancient Era

The ancient military forces used basic decoy tactics which formed part of their deception plans to alter enemy perceptions. The fundamental concept of using deceptive representations to deceive enemies existed since ancient times even though modern inflatable systems represent a contemporary advancement. During Hellenistic and Roman military operations, soldiers deployed fake fortifications along with dummy troops and concealed military equipment to create illusions about their numbers and redirect enemy forces. The Battle of Thermopylae (480 BCE) gained fame for its tactical deception but other periods used disguised equipment and fake encampments to create illusions about force size. The early decoy methods which included mannequins at watchpoints, and deceptive visual arrangements established the fundamental principles for organized physical decoy operations in contemporary warfare.

The Trojan Horse deception took place from 1194–1184 BC. During a ten-year Troy siege, the Greeks under Odysseus created a plan to sneak into the city by building a massive wooden horse to give as a supposed peace treaty offering to the Trojan people. Through their false sense of victory, the Trojans accepted the gigantic horse statue as a victory prize which concealed Greek warriors who emerged to attack during the night. That night, once the Trojans were asleep, the Greek soldiers emerged from the horse, opened the gates to the Greek army, and destroyed the city of Troy, ending the war (Blanks, 1994). The deception shown in these tactics demonstrated that deception combined with perceived advantages could redirect enemy attention allowing smaller forces to gain strategic decision-making power.

Decoys in World War I

The strategy of deception took a giant step forward in WWI with dummy installations, camouflage and inflatable decoys. Fake artillery, mannequins, and false trenches were used by both the Allies and Central powers to deceive enemy reconnaissance. The British Army placed dummy corpses in no man's land to attract sniper fire and gauge enemy positions (Grant, 2017). Additionally, mock battalions were created to mislead enemy intelligence, often moving in patterns that mimicked actual troop movements to create the illusion of larger armies.

The British Royal Navy created Q-ships which were merchant ships that concealed their weapons systems inside their deck structures. German U-boats would

surface to attack before Q-ships exposed their hidden artillery for counterattacks (Halpern, 1994). Enemy forces lost resources through these deceptive tactics which also neutralized their technological advantages. The first extensive use of deceptive naval warfare occurred during this period and later conflicts adopted similar tactics by using disguised warships and electronic masking technology to deceive enemy targeting systems.

Employment of Decoys in World War II

World War II demonstrated that deception, when institutionalized and multi-dimensional, can decisively influence the outcome of large-scale military campaigns by distorting enemy perception and delaying their response. Operation Fortitude (1944), the centerpiece of Allied deception, employed a fictitious First U.S. Army Group (FUSAG) under General Patton, using inflatable tanks, fake landing crafts, and scripted radio traffic to convince German forces that the D-Day landings would occur at Pas-de-Calais rather than Normandy. This strategic misdirection, supported by Operation Bodyguard, led to delayed German troop movements and contributed significantly to the success of the actual Normandy invasion, preserving thousands of Allied lives (Holt, 2004).

Figure 2: Ghost Army Decoy Tanks Used in Operation Fortitude



Source: War History Online-The Ghost Army of WWII

Simultaneously, the Soviet Union institutionalized deception under its doctrine of maskirovka. During the Battle of Moscow (1941–42), Soviet forces deployed hundreds of dummy tanks and aircraft, simulated artillery barrages, and artificial sound effects to confuse German intelligence about their real force posture

(Cruikshank, 1980). In the air domain, the British Royal Air Force (RAF) developed “K” sites-dummy airfields with decoy aircraft and simulated fuel explosions-to mislead the Luftwaffe. These sites diverted German bombing raids from actual airbases and oil depots, preserving critical infrastructure (Cruikshank, 1980).

These examples show that deception, when coordinated across domains (land, air, electromagnetic), can shift operational momentum even against capable adversaries. For the Bangladesh Army, integrating similar multi-domain deception into doctrinal planning-particularly during mobilization, force projection, or coastal defence-could achieve strategic surprise at low cost. In areas like Feni, CHT or the Padma basin, simulated force buildup using dummy artillery, false helipads, or radio decoys could deter adversary action or delay enemy responses during crisis escalation. The WWII model suggests that deception is not merely a tactical ploy, but an institutional capability with enduring strategic value.

Decoys in Post-World War II Conflicts

During the Kosovo War (1999), Serbian forces effectively employed decoys to mislead NATO airstrikes. The analysis of NATO bombing results revealed that many of the targets they claimed to have destroyed were actually wooden or inflatable decoys (After Action Report, 2000). Serbian commanders used radar-reflecting materials and thermal generators to mimic the signatures of real military vehicles, forcing NATO to waste high-value precision-guided munitions on false targets. Operation Desert Storm (1991) saw coalition forces deploy inflatable tanks together with fake artillery and dummy helicopters to create deception for Iraqi intelligence. The simulated southwestern attack deceived Iraqi commanders while the real coalition forces advanced from the southeast (Gordon & Trainor, 1995). U.S. forces used deceptive radio traffic combined with false convoy movements and infrared heat sources to create fake attack illusions in areas that were not the actual strike zones.

<p>Figure 3: Decoy Aircrafts used by Serbian Force to Deceive NATO Force</p>	<p>Figure 4: Challenger Decoys Used to Deceive Iraqi Force</p>
	
<p>Source: Reddit.com</p>	<p>Source: Reddit.com</p>

Summary. Post–World War II conflicts from Kosovo to the Gulf War, showed how decoys can neutralize technological gaps and force costly enemy errors. Whether through Serbia’s radar-reflective mock-ups or U.S. inflatable armor and false convoys, these tactics disrupted enemy targeting and preserved real assets. For Bangladesh, facing potential adversaries with advanced ISR but limited resources of its own, such cost-effective deception could play a vital role in border defence. Building on these lessons, the following sections examine how decoys continue to evolve and operate effectively in modern conflicts.

Use of Decoys in Modern Conflicts

General. The recent military conflicts showed that decoys in general and inflatable decoys in particular were crucial tools which helped militaries to deceive advanced adversaries’ surveillance and targeting systems. The decoy tactic proved successful in Armenia-Azerbaijan, Syria and Russia-Ukraine Conflicts as well as Israel-Palestine although the latter conflict relies less on decoys. The subsequent sub paragraphs show minimum references and techniques used for decoy applications in these military conflicts.

The Armenia-Azerbaijan Conflict. The 2020 war in Nagorno-Karabakh brought out the power of deception to level superior threats, even for inferior forces. When Armenia was being pounded by Azerbaijani drones, 9K33 decoy SAM systems were placed near their actual counterparts, enemy drones attacking phony targets. It saved precious air defence like the S-300 and caused the enemy to expend expensive ammo. It was not only tactical-but also this was strategic deception that tried to induce miscalculation. For the Bangladesh Army, the message is stark: in environments of scarce resources, decoys are not

an extravagance—they are an operational approach to protecting key systems, degrading enemy ISR, and expanding operational reach. In regions like the CHT or southeastern borders, where threat surveillance is mounting, inexpensive decoys can serve simultaneously as both defence and deterrent without overburdening manpower or logistics.

Figure 5: Armenia's SAM Decoys



Source: *Orynx.com*

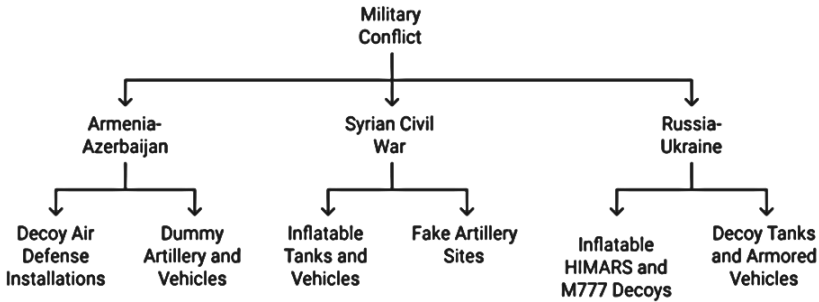
Russia-Ukraine Conflicts. The Russia–Ukraine conflict demonstrates how decoy operations have become central to modern battlefield survival and information warfare. Ukraine, facing a technologically superior enemy, deployed inflatable replicas of high-value western assets such as HIMARS and M777 howitzers. These decoys mimicked both the thermal and visual signatures of real systems, effectively confusing Russian drones and artillery targeting. The result was not symbolic—it was operational: Russian forces wasted munitions on false targets, mistakenly claiming the destruction of 44 HIMARS systems when only 16 had actually been delivered by mid-2022 (Bonsegna, 2024). Similarly, decoy T-72 tanks were used to simulate armored build-ups, diverting Russian firepower and misleading ISR efforts. These measures enabled Ukraine to preserve real assets while sustaining offensive operations. For Bangladesh, this underscores a critical lesson: in a surveillance-heavy battlespace, success often depends not just on firepower, but on managing what the enemy believes. Strategic use of decoys can protect limited high-value platforms, absorb enemy ISR attention, and create false targeting dilemmas—especially relevant in terrain like CHT or Feni, where operational deception could compensate for gaps in fire support or air defence.

Figure 6: Inflatable HIMARS Decoy Used in the War in Ukraine



Source: *Inflatech.com*

Figure 7: Glimpse on the Use of Decoys in Modern Conflicts



Source: *Author's Self Construct*

Summary of Historical Perspectives. Historical records show that deception through decoytactics has been a constant factor in determining military conflict results. Decoys have proven essential throughout history as military tools which direct enemy movements while safeguarding vital resources and improving combat unit survival rates. The development of inflatable decoys during recent decades has elevated deception into a modern technological system which offers strategic flexibility. The development of decoy technology has established essential knowledge about their advanced strategic functions in contemporary warfare.

OPERATIONAL FEATURES OF ADVANCED DECOYS IN MODERN CONFLICTS

General. Modern warfare has experienced a transformative shift using inflatable military decoys. These lightweight, deployable systems are designed to replicate the appearance and thermal signatures of real military equipment. Their strategic value lies in their ability to create convincing illusions that protect high-value assets and force adversaries to waste precision munitions. This chapter will examine the key features that make inflatable decoys effective—such as cost-efficiency, mobility, and adaptability—and demonstrate how these characteristics contribute to their growing role in modern military operations.

Cost-Effective Protection. Inflatable military decoys offer a budget-friendly means of safeguarding expensive defence assets such as tanks, artillery, and radar installations, which are prime targets for precision strikes. Their low cost—often under USD 1,000, as in the case of Ukrainian company Inflatech, which produces plywood-and-drainpipe decoys replicating Russian and Ukrainian systems (Rivero, 2024)—makes them a cost-imposition tool against technologically superior adversaries. These decoys emit realistic heat and radar signatures, drawing enemy fire away from actual platforms. During the 1999 Kosovo War, Serbian forces used wooden and inflatable mock-ups equipped with heat sources and radar reflectors, causing NATO to expend costly munitions on false targets while preserving real assets (NATO After-Action Report, 2000). For Bangladesh, deploying similar low-cost decoys in areas like the CHT or South Eastern border, along coast-line and many other strategic areas could compel adversaries to waste high-value ammunition, preserving critical systems during prolonged operations.

Figure 8: *A Decoy Tank Mimicking the Real Asset*



Source: China Inflatables.com

Mobility and Deployment. The tactical mobility of inflatable decoys stems from their lightweight, portable design and flexible materials, allowing compact storage, easy transport in standard military vehicles, and rapid deployment by small teams without heavy equipment. The deployment of inflatable tanks and radars and rocket launchers requires only ten minutes of work from a single person. Moreover, some modern variants integrate remote-control and basic robotic features for autonomous movement (Kohli, 2024). In Operation Desert Storm (1991), such mobility enabled coalition forces to simulate large-scale armor and helicopter concentrations, diverting Iraqi forces from the real attack axis (Gordon & Trainor, 1995). For the Bangladesh Army, rapidly deployable decoys could be repositioned across riverine belts or hilly terrain to create shifting target patterns and disrupt enemy ISR during critical operations. The deployment of inflatable tanks and radars and rocket launchers requires only ten minutes of work from a single person. The following table demonstrates the unique benefits of inflatable decoys through a comparison with conventional equipment and hard-structured alternatives by evaluating their mobility and setup time and operational flexibility and cost:

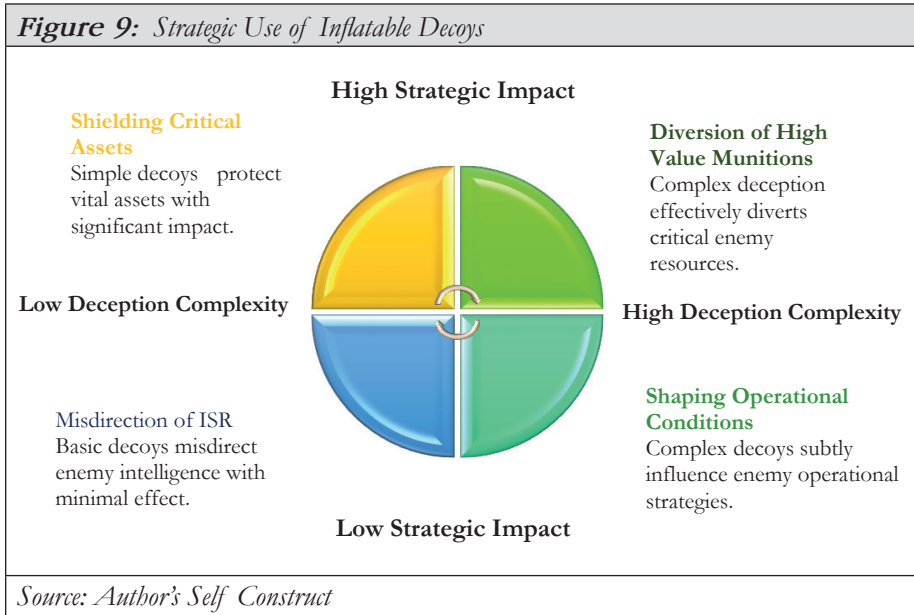
Table 3: Comparison between Decoys and Real Assets

Parameter	Original	Inflatable Decoys	Hard Structure Decoys
Optical Visibility	Yes	Yes	Yes
IR and RADAR Visibility	Yes	Yes	Limited Possibilities
Rapid Mobility and Transportation	Low	high	Medium
Cost	High	Low	Low
Environmental Impact	High	Low	Low

Source: Inflatech-Military Decoys Industries

Versatile Deception. The effectiveness of inflatable military decoys lies in their ability to replicate the visual, thermal, and radar signatures of real equipment, thereby deceiving modern multi-sensor surveillance systems that combine optical imaging, radar, infrared, and radio frequency detection. According to Milan Vego’s operational deception framework, such measures support key objectives like misdirecting enemy intelligence, protecting critical assets, and creating operational opportunities by shaping adversary perceptions before and during combat. In the Russia–Ukraine conflict, Russian forces used inflatable tank decoys to convince

Ukrainian intelligence that an area was lightly defended, prompting premature strikes on false targets before repositioned real tanks executed a counterattack (Hodunova, 2024).



Operational Flexibility. The operational flexibility of military forces increases through inflatable decoys because these tools enable commanders to modify enemy perception while controlling the battlespace and maintaining operational freedom. The quick deployment features and modular structure of these decoys enable their immediate use across different operational environments which span from intense conventional battles to counter-insurgency and peace support missions. Commanders gain increased flexibility to modify their force positions and create deceptive reinforcement or withdrawal simulations and protect valuable assets through decoys instead of deploying actual military assets. The decoys function effectively to support deception in offensive operations while creating force-multiplying illusions during defensive deployments and supplementing limited troop presence in sensitive areas. The training environments benefit from these decoys because they offer affordable and authentic ways to simulate battlefield threats. During the Syrian conflict, inflatable fighter jet replicas served as decoys to deceive enemy reconnaissance while protecting operational infrastructure from precision strikes (Cruikshank, 1980). The deployment of inflatable decoys in tactical operations

demonstrates their ability to support deception strategies which provide commanders with flexible options while minimizing resource exposure and maintaining strategic unpredictability.

Figure 10: Strategic Aspects of Effective Employment of Decoys



Diverting Enemy Surveillance Assets. The strategic importance of deception in modern warfare continues to grow and advanced decoys serve as essential tools to mislead enemy surveillance and reconnaissance operations. The deployment of decoys forces opponents to waste their intelligence resources on target verification which extends their surveillance capabilities and delays their decision-making processes. Decoys that mimic real military assets across visual thermal and electronic domains enable friendly forces to execute maneuvers while hiding their actual intentions. The development of drone-based reconnaissance and targeting systems has created significant challenges for traditional decoy methods.

Figure 11: Drone view of Real and Fake Equipment



Source: Business Insider (Russia Decoy Tanks being misused)

Adaptability to Terrain and Threat Environment. Modern inflatable decoys are increasingly designed to blend seamlessly with specific terrain and counter diverse threat profiles. Adaptability such as 'anamorphic camouflage allows decoys to alter color, texture, and reflectivity to match their surroundings, while integrated heat and radar emitters replicate the visual and thermal signatures of real military equipment. Some designs now incorporate sensors that detect environmental changes or nearby surveillance, enabling manual or automated adjustment of emitted signatures to improve deception. A notable example occurred during the 2020 Nagorno-Karabakh conflict, where Armenian forces used heat- and radar-emitting surface-to-air missile (SAM) decoys to mislead Azerbaijani drones, preserving actual air defense systems (Mitzer & Oliemans, 2021). For Bangladesh, similar terrain-adapted and sensor-enabled decoys could enhance survivability of high-value assets in complex operational zones such as the Chittagong Hill Tracts or coastal Cox's Bazar, where natural concealment can be combined with signature manipulation to confuse enemy ISR systems.

Integration with Electronic Countermeasures. The combination of electronic countermeasures (ECM) with inflatable decoys creates a more powerful system to counter modern drone threats. The visual deception capability of inflatable decoys works in conjunction with built-in ECM components which actively disrupt drone communications and navigation and sensor operations. The decoys achieve dual functionality through signal

¹Anamorphic camouflage refers to techniques where the appearance of the object is altered in such a way that from the observer's vantage point the object's shape, size or outline is distorted so it blends into background or appears as something else.

jamming and spoofing which both redirects enemy attention and reduces drone strike accuracy and reliability. Research continues to develop lightweight jamming modules and signal-mimicking technologies for decoy platforms which create a dual defense system that deceives and disrupts. The integrated defense system provides optimal protection for valuable assets located in surveillance-prone areas that use loitering munitions.

Figure 12: *Electromagnetic Emitter Installed in A Modern Decoy*



Source: Inflattech Industry

Use of Decoys by Neighbouring Countries in Contemporary Warfare.

The research focuses on Bangladesh Army operations within its operational environment but studying neighboring states India and Pakistan through comparative analysis provides essential background information. The modern conflict environment benefits from deception and decoy strategies which India and Pakistan have learned to use for misleading enemy intelligence surveillance and reconnaissance (ISR) systems as well as protecting their combat resources. The Indian Air Force deployed mobile inflatable fighter aircraft together with surface-to-air missile (SAM) systems and radars across its western and southern commands. The test decoys function as duplicates of actual combat resources to create enemy confusion about target locations and US ISR platform detection (Anantam IAS, 2025). The Indian military operated X-Guard² AI-controlled towed decoy system during Operation Sindoor in May 2025 to successfully deceive Pakistani radar and missile systems (The Economic Times, 2025). The

²The Israeli company Rafael developed X-Guard as a fibre-optic towed electronic-warfare decoy (FOTD) which uses a fibre cable to trail behind fighter aircraft while actively duplicating their radar and Doppler signals and transmitting jamming and deception signals. Multiple news sources indicate that India used the AI-powered X-Guard system on Rafale aircraft during Operation Sindoor (May 2025) to successfully confuse Pakistani radar systems and missile defenses.

Pakistani military appears to have restricted its deployment of decoy technologies when compared to Indian military operations. Reports suggest Pakistan employed decoy radars and fake drone tactics for psychological warfare but at a limited scale compared to India (Reuters, 2025). The different approaches between India and Pakistan demonstrate valuable lessons for Bangladesh to apply in its military operations. The combination of riverine terrain and border areas and limited resources in Bangladesh makes it challenging to deploy advanced decoy systems like those used by India. The Bangladesh military should use inexpensive inflatable and electronic decoys to enhance local deterrence capabilities and extend operational endurance according to its specific strategic requirements.

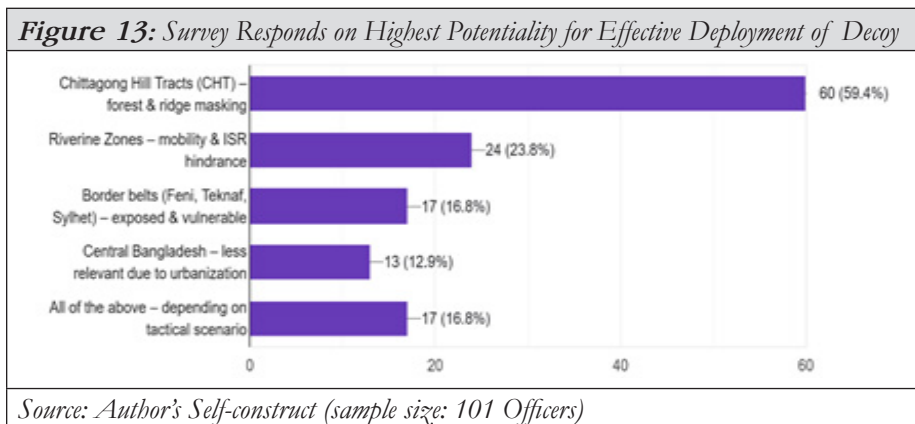
Summary. The operational effectiveness of inflatable military decoys is anchored in three critical domains: technological integration, electronic countermeasures, and material advancements. Modern decoys have evolved into multi-domain defense tools through recent advancements which include AI-supported deception algorithms and radar and thermal signature replication and lightweight jamming or spoofing modules. These advancements provide Bangladesh and other countries with limited resources and high strategic vulnerabilities an opportunity to boost their deterrence capabilities without requiring significant force structure or defense spending to be increased.

MODERN DECOY TECHNOLOGIES AND STRATEGIES: APPLICATION IN THE BANGLADESH ARMY

General. The security environment of Bangladesh requires new affordable methods to enhance deterrence capabilities and force projection because of changing regional security dynamics and technological threats. The Bangladesh armed forces can enhance their operational capacity through inflatable military decoys which work together with signature-recreation technologies, electronic countermeasures and mobility solutions at a fraction of the cost of traditional manpower and hardware expansion. The systems achieve their operational goals through three main capabilities which include fake forward deployments and enemy surveillance disruption and protection of vital assets in Feni and Chittagong Hill Tracts (CHT) and southeastern border regions of Bangladesh. The survey results show that decoys provide high value to military operations because 58.4% of respondents considered them essential for protecting forces and creating

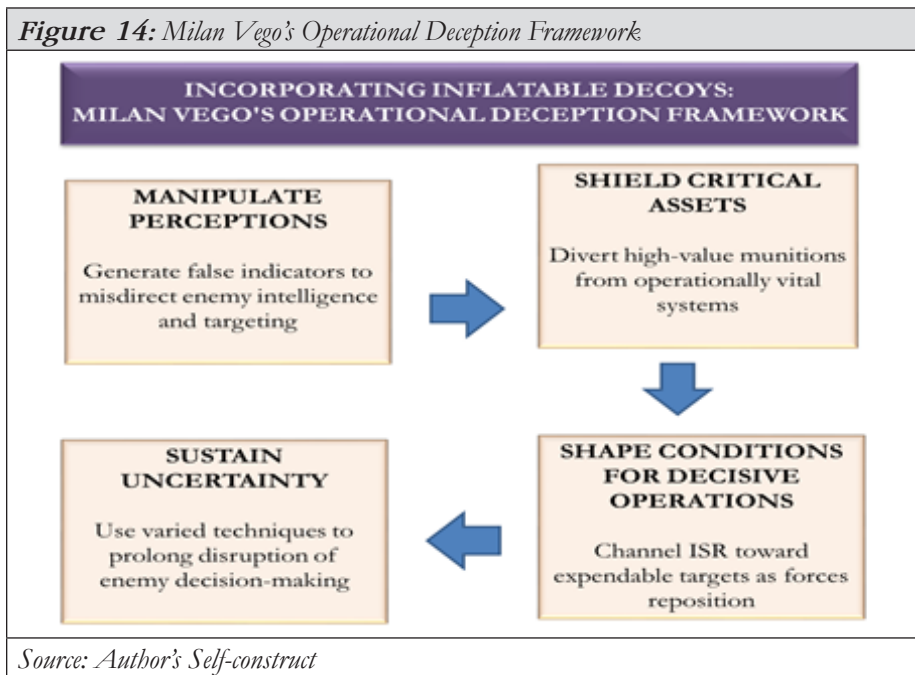
deception and deterrence effects. The Chi-square test of independence showed a statistically significant result of $\chi^2(3, N = 101) = 64.7$ ($p < 0.001$) which proved that officers' strong agreement about decoys did not happen randomly. The survey results demonstrate that decoys function as effective force enhancement tools which provide flexible defense capabilities to Bangladesh at affordable costs despite limited defense funding, lack of expertise and doctrinal integration.

Strategic Posture and Terrain-Adaptive Force Projection. Bangladesh requires continuous protection of its essential frontiers which include the CHT and the southeastern border with its neighbour. The regions experience ongoing threats because of challenging geography, past conflicts, and present-day regional instability, which includes the Rohingya crisis. The protection of territorial integrity requires a continuous yet adaptable military presence in this situation. Inflationary military decoys can function as an economical solution to create a defensive appearance in areas that require extensive resources for permanent military deployments. The Army can improve its apparent military power through decoy tanks and artillery, and missile system deployments, which will deter hostile actions without requiring excessive logistical or manpower resources. This view is also reflected in survey results indicating that more than 59% of officers recommend deploying such decoys specifically in the CHT and southeastern border areas.



Operational Deception and Asset Protection. Following Milan Vego's Operational deception frameworks enable the strategic use of inflatable decoys to create false enemy perceptions while protecting essential assets and creating conditions for successful military operations. The deceptive indicators produced by decoys create believable false signals which interfere with enemy intelligence operations and targeting systems. The strategic placement of decoys during the

ongoing Ukraine conflict has successfully redirected enemy precision attacks away from essential operational systems which protects military capabilities and reduces enemy operational effectiveness. The implementation of deception measures in operational planning by Bangladesh would redirect enemy ISR operations toward expendable targets in Bandarban, Rangamati, Feni and Teknaf while actual military forces execute repositioning and countermeasure preparation. The combination of decoy deployment with radio deception through radio signals and terrain concealment and delayed troop deployments creates decision cycle uncertainty for enemies while commanders gain better operational freedom. The results from the officer survey support the argument that decoys would effectively deceive enemy ISR systems. The survey results show that 56.4% of respondents strongly believed decoys would effectively deceive enemy ISR systems and 27.7% believed they would succeed in at least one deception area. The survey results show a significant non-uniform distribution and the Chi-square test of independence produces $\chi^2(3, N = 101) = 74.1$ with $p < 0.001$, indicating a significant deviation from the null hypothesis. The survey results demonstrate that decoy systems combined with electronic and tactical deception methods will effectively disrupt enemy ISR operations and protect military assets despite limited resources.



Psychological Warfare and Perception Management. Modern deterrence depends equally on how things appear to others as it does on actual military power. The visible presence of decoys-particularly those mimicking armored vehicles or electronic installations-can instill caution in potential adversaries. The illusions deployed in the CHT and along the south-eastern border as well as some other strategically important areas can delay enemy planning, redirect surveillance resources, or prevent enemy incursions. Military exercises and patrol rotations that include decoys as a regular practice create a believable impression of military preparedness. The perception management strategy helps achieve national defense goals without requiring permanent large-scale deployments.

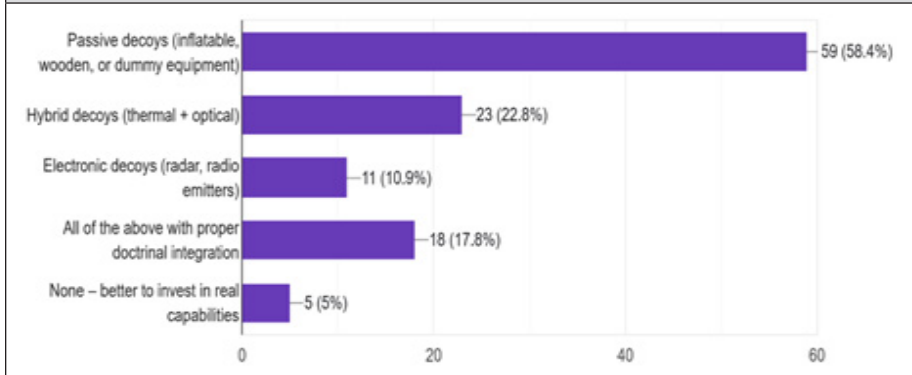
Layered Defense in Challenging Terrain. The southeastern border of Bangladesh remains difficult to traverse because it contains dense forests, hills, and riverine areas, which restrict standard movement and observation capabilities. The strategic paths between Teknaf, Buthidaung, Bandarban and Rakhine State remain highly susceptible to enemy infiltration. The defense system can be strengthened through the combination of inflatable decoys with surveillance drones and light infantry patrols in this area. The quick deployment capabilities and low logistical requirements of these systems make them suitable for areas with restricted access. Electronic decoys that duplicate radar signals will make it harder for enemies to gather signal intelligence, thus producing early warnings which can steer adversaries into predetermined engagement areas.

Effective Tools for Conducting Training. The Bangladesh Army uses decoys as an economical training solution which creates authentic combat environments through equipment substitution without affecting operational effectiveness. The army can create battlefield environments through inflatable tanks and aircraft and artillery which protect valuable assets from harm while ensuring trainee safety. The decoy systems reduce training operational costs because they have minimal weight and simple management requirements. The infantry uses decoys to create enemy and friendly force simulations during winter collective training which helps soldiers develop better tactics for handling complex battlefields. The decoy systems function as protected targets during summer training which enables units to execute strategies and test weapon systems without endangering actual platforms. The School of Infantry and Tactics (SI&T) and Bangladesh Military Academy (BMA) should integrate decoys as essential training equipment to teach officers and cadets about tactical operations and weapon performance. The current lack of operational deception experts together with insufficient advanced training facilities and research centers prevents the integration of

decoy technology into military doctrine. The current restrictions prevent the widespread adoption of decoy-based training methods in standard educational programs. The implementation of decoy-based training as a learning tool will become possible after institutional adoption because it provides affordable and secure training that prepares soldiers for contemporary warfare while improving operational readiness.

Cost-Imposition via Decoys in BD Army. Considering the small defense budget of Bangladesh approximately USD 4.6 billion in 2023 against USD 73 billion of India (SIPRI, 2024), it is impractical to reach the level of parity in the spheres of advanced strike and surveillance systems. The RAND (2020) cost-imposition strategies offer a feasible countermeasure, as they compel an adversary to burn costly munitions in the assets that are cheap. Inflatable decoys less than USD 1000 including those made by the Inflattech, have the capability of provoking the deployment of USD 70,000-115,000-worth munitions, used rapidly to destroy the precision-striking inventory of an adversary. In the case of the Bangladesh Army, application of this model would entail incorporation of decoy usage into operations plans such as setting them up close to strategic logistic points, staging areas and around air-defence sectors, in conjunction with electronic and visual deception actions. This would compel an adversary to divert ISR resources and precision munitions away from actual combat power, extending Bangladesh's operational endurance without proportionate expenditure. To substantiate this proposition empirically, a survey conducted among 101 Bangladesh Army officers revealed a strong preference for sustainable decoy deployment strategies. The majority (58.4%) identified passive decoys-such as inflatable, wooden, or dummy systems-as the most realistic and cost-effective option for Bangladesh's context, followed by hybrid and doctrinally integrated approaches. These findings reinforce the practical feasibility of the cost-imposition model in the Bangladesh Army's operational doctrine. Furthermore, to gain a more comprehensive understanding, a detailed variable-based survey was conducted across multiple operational, perceptual, and doctrinal criteria; the results of these variables are presented in the following table to illustrate inter-linked patterns of awareness, feasibility, and strategic perception among officers.

Figure 15: Survey Responds on Sustainability of Forms of Decoy Deployment from Bangladesh Army Perspective



Source: Author's Self-construct (sample size: 101 Officers)

Table 4: Officers' Perception on Decoy Utility

Survey Variable	Strongly Agree	Agree	Disagree	Strongly Disagree
Decoys enhance survivability of critical assets	58.4%	24.5%	13.1%	4%
Decoys are suitable for operational use in CHT and border areas	59%	26%	11%	4%
Decoys can effectively mislead enemy ISR systems	56.4%	27.7%	12.9%	3%
Decoys can impose cost on technologically superior adversaries	56.4%	27.7%	12.9%	3%
Decoys can reduce the requirement for deploying real assets	55%	25%	13%	7%
Bangladesh Army should invest in inflatable & electronic decoys	57.4%	23.8%	13%	5%

Source: Author's Self-construct through Survey (sample size: 101 Officers)

CONCLUSION

This research began with a foundational principle of military strategy-that warfare, at its core, is built on deception. Through a comprehensive review of historical and modern practices, the study has explored how decoy systems have evolved from simple battlefield tricks into sophisticated strategic tools. Rooted in the theoretical insights of military thinkers like Sun Tzu and Clausewitz, the paper sought to evaluate whether such deception-based technologies could meaningfully enhance the operational efficiency of the Bangladesh Army. This question has guided the entire inquiry-from the literature to the analytical chapters-and it forms the basis of the conclusions drawn here.

The exploration of past and present conflicts revealed how decoys have been transformed into multi-functional assets that blur the lines between physical, electronic, and psychological warfare. From World War II's inflatable divisions to Ukraine's low-cost decoy drones, the pattern is clear: deception has grown in parallel with surveillance and targeting technologies. Yet, despite this evolution, critical gaps remain in the literature-particularly regarding how such systems can be tailored to resource-sensitive, terrain-diverse, and institutionally conservative forces like the Bangladesh Army. Identifying these gaps not only validated the relevance of this study but also underscored the need for customized approaches to modern decoy integration.

Bridging this gap requires reimagining the role of decoys-not as expendable tools for battlefield confusion, but as deliberate instruments of deterrence, resource conservation, and force multiplication. The Bangladesh Army, operating in a challenging security environment with constrained budgets and complex terrain like the Chittagong Hill Tracts and maritime southeast, stands to gain substantially from adopting advanced decoy systems. By manipulating enemy perception and inflating the appearance of force presence, these systems can reinforce deterrence, confuse adversaries, and protect high-value assets from first-strike vulnerabilities. This application also aligns with the broader strategic objective of enhancing survivability without proportionate escalation in military spending.

The use of decoys is, however, not restricted to war situations. Occupation of their role in training settings, simulations and war games provide a low-risk, high-yield way to develop operational preparedness. Decoys facilitate a culture of preparedness and realism by enabling troops to be exposed to the dynamics of complex battlefields, without compromising the well-being of actual equipment

and personnel. In addition, there would be the option of integrating electronic countermeasures with adaptive camouflage, as suggested in the present paper, and that would allow the use of decoys in the range of contemporary reconnaissance and firearms systems. Therefore, decoys are not only a tactical tool but also a strategic competence in line with the future needs of war.

The Bangladesh Army needs to create a long-term strategy which incorporates decoy systems throughout its doctrine development process and procurement planning and training institutions. The transition requires more than technological spending because it demands an institutional framework which treats deception as a core defense strategy component. The acquisition of technology must accompany training programs at war colleges and field experiments with integrated testing of doctrine manuals. The decoy systems will transform into operational planning elements for force projection through this approach.

Concisely, the research establishes that modified and integrated decoy systems can function as an effective force multiplier for the Bangladesh Army. The research journey began with a proven military principle which evolved into a strategic policy that treats technological deception as a defensive tool and operational efficiency enhancer. The ability to confuse and delay and mislead will become equally important as the ability to attack and protect because security challenges in the region and globally will become more technologically complex. The strategic future depends on mastering the ability to appear powerful rather than achieving actual strength.

ACKNOWLEDGEMENTS

The National Defence College faculty members and research mentors at Mirpur Dhaka provided me with their continuous academic support during my research. The research needed vital information from the Commandant and operational knowledge from the College Secretary and Director Research and Academics at National Defence College. The college library and digital research platforms provided vital assistance for both literature review research and data collection tasks. The research project operated without receiving financial support from external organizations. The support from my classmates and people who supported me maintained my dedication to complete this academic work.

REFERENCES

Adamsky, D. (2021). *The Culture of Military Innovation: The Impact of Cultural Factors on the Revolution in Military Affairs in Russia, the US, and Israel*. Stanford University Press.

Anantam IAS. (2025, June 10). India's use of decoys in contemporary warfare. Retrieved from <https://iasananantam.com/current-affairs/indias-use-of-decoys-in-contemporary-warfare/>

Bendett, S. (2021). *Russian Military Autonomy in Ukraine: Deception, Electronic Warfare, and Unmanned Systems*. Center for Naval Analyses.

Blanks, D. R. (1994). *The Trojan War: A New History*. Oxford University Press.

Cartledge, P. (2006). *Thermopylae: The Battle That Changed the World*. Knopf.

Chakraborty, A. (2022). Regional Defense Strategies and Military Innovations in South Asia: The Role of Bangladesh. *South Asian Defense Journal*, 37(4), 85-102.

Charles Cruickshank, "Deception in World War II" by Charles Cruickshank, Oxford University Press, 1980.

Colonel PMS Kohli, *Inflatable Decoys: Enhancing Battlefield Survival and deception*, Centre from Air power studies, 08 July 2024.

Flight Lieutenant Chris Whelan, *The 2020 Nagorno Karabakh War: Unmanned Combat Aerial Vehicles in Modern Warfare*, *Air and Space Power Review* Vol 25, 2023.

Giles, K. (2016). *Handbook of Russian Information Warfare*. NATO Defense College.

Glantz, D. M. (2012). *The Battle of Moscow 1941-1942*. Casemate Publishers.

Gordon, M. R., & Trainor, B. E. (1995). *The General's War: The Inside Story of the Conflict in the Gulf*. Little, Brown.

Grant, R. G. (2017). *Battle Tactics of the Western Front: The British Army's Art of Attack 1916-18*. Yale University Press.

Grau, L. W., & Bartles, C. K. (2018). *The Russian Way of War: Force Structure, Tactics, and Modernization in the 21st Century*. Army University Press.

Griffith, S. B. (1963). *The Art of War by Sun Tzu*. Oxford University Press.

Holt, T. (2004). *The Deceivers: Allied Military Deception in the Second World War*. Scribner.

Howard, M., & Paret, P. (1984). *On War* by Carl von Clausewitz. Princeton University Press.

Inflatech Tactical Military Decoys.

Islam, S., & Rahman, A. (2020). *Military Modernization in Bangladesh: Challenges and Strategic Imperatives*. Bangladesh Institute of Strategic Studies.

Kania, E. B. (2020). The PLA's Strategic Use of Military Deception and AI-Enabled Warfare. *Journal of Strategic Studies*, 43(5), 721-745.

Kateryn Hodunova, Russia Use Cheap decoy drones to overload Ukraine's air defence, *The Kyiv international*, 18 November 2024.

Kosovo/ Operation Allied Force (After Action Report), Report to Congress, 31 January, 2000.

Master Sergeant Jorge L. Rivero, *Decoy Warfare: Lessons and Implications from the war in Ukraine*, US Naval Institute, 01 April 2024, Vol 150/4.

Nicola Bonsegna, *The strategic Role of Decoys in the Conflict in Ukraine*, *The defence horizon journal*, oct 31, 2024.

Reuters. (2025, May 27). India-Pakistan's drone battles mark new arms race in Asia. Retrieved from <https://www.reuters.com/business/aerospace-defense/india-pakistans-drone-battles-mark-new-arms-race-asia-2025-05-27/>

Stinj Mitzer and Joost Oliemans, *Stike Me Please: Armenia's SAM Decoys*, *Oryx journal*, April 28, 2021.

The Economic Times. (2025, May 28). Best deception ever seen: US F-16 pilot reveals how a 30 kg device fooled Pakistan into thinking it downed a Rafale. Retrieved from <https://m.economictimes.com/news/defence/best-deception-ever-seen-us-f-16-pilot-reveals-how-a-30-kg-device-fooled-pakistan-into-thinking-it-downed-a-rafale/articleshow/122313728.cms>

Whaley, B. (2007). *Stratagem: Deception and Surprise in War*. Artech House.

AUTHOR

Major Akib Ahsan Teas, psc was born on 20 January, 1991 at Bagerhat. He passed Secondary School Certificate from Savar Cantonment Public School and Higher Secondary Certificate Examinations from St Joseph College. He was commissioned from Bangladesh Military Academy (BMA) with 65 BMA Long Course in the Corps of Infantry on 21 December 2011. He has a diverse experience of serving in unit, as staff, and as instructor. He served in 4 Bangladesh Infantry Regiment in different regimental appointments. As instructor, he served as Instructor Class 'B' of Tactics Wing in School of Infantry and Tactics. He is a graduate from Defence Services Command and Staff College (DSCSC). He has participated in United Nations Peacekeeping Mission in MONUSCA (Central Africa) as a Contingent Member. Presently, he is serving as General Staff Officer -2 (Coord) at National Defence College (NDC). He is happily married to Afreen Sultana and blessed with one daughter – Azmina Ahsan. His hobbies include reading books and travelling.

Email: akibahsan8372@gmail.com