CHAPTER I

INTRODUCTION

*Victory smiles upon those who anticipate the changes in the character of war; not upon those who wait to adapt themselves after the changes occur.*

*Giulio Douhet*¹

Aerospace Power has come a long way since the Wright brothers first took to flight on the beaches of Kitty Hawk in 1904. From the halcyon days of World War I where aircraft were used mainly as reconnaissance platforms and light bombers, to the recent convergence of air and space power, the medium of air and space has been used with telling effect in various conflicts be it large wars, nuclear solution to conflict or even small wars and sub-conventional warfare. In World War II air power was effectively used in many roles ranging from Strategic Bombing, Close Air Support, Interdiction, Aerial Reconnaissance and Airlift, but it was only with the dropping of the two atomic bombs over Hiroshima and Nagasaki that the coercive capability of air power emerged.² Since then, airpower has been used with varying degrees of success by nations in coercing other nations without causing wide scale destruction that follows a full scale war. Whether it was the U-2 spy plane flights over the Bay of Pigs

¹ Giulio Douhet, an Italian aviator is considered to be the father of modern military aviation. He propounded various theories of aerial warfare in the early part of the twentieth century. This quotation was taken from an article titled ‘Irregular Warfare and Air Power’ in *Pathfinder*, Issue 107. Mar 2009. Published by the Air Power development Centre of the Royal Australian Air Force, Canberra.p.1

that coerced the USSR to withdraw its missiles from Cuba in 1962, or the clinical precision bombing of Serbian forces in Kosovo that dragged Slobodan Milosevic to the negotiating table and stopped the ethnic cleansing in the Balkans in 1999, air power has proved beyond doubt that it is a potent coercer.

Before going further, there is a preliminary need to establish a linkage between coercion and 4th Generation Warfare (4GW). It is only large and economically progressive nations with strong and well established militaries that have the capability to engage in coercive military diplomacy. During the Cold War, coercion became akin to a game with the US and the USSR testing their coercive capabilities across the globe using divergent tactics with different tools, but having similar objectives viz expansion of influence and interests. If one were to look closely at the capabilities of both blocs, all the main weapons of coercion used the medium of air whether it was the Strategic Bomber or the ICBM. Deterrence and Coercion worked side by side and were complementary to one another. The end of the Cold War saw the emergence of a deeply fragmented world that suddenly saw the proliferation of numerous localised conflicts that were based on fundamental differences of race, religion and ethnicity. Terrorists, insurgents and freedom fighters found remarkably new ways of fighting established states and combating the coercive capabilities of established nations or even coalitions. Thus, if one were to look across the spectrum of conflict - while powerful nations like the US, Russia, India and even smaller nations like Sri Lanka and Israel attempted to avoid 'full scale' war fighting methods to resolve conflicts and attempted to evolve coercive conflict resolution methods; their opponents excelled at 4GW by employing what has emerged in recent times as techniques of 'Sub Conventional and Irregular Warfare' that eat away gradually at the fabric of the state. Therefore, one can deduce that 4G or sub-conventional warfare has emerged as an effective

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asymmetric counter to a larger nation’s ability to coerce, and the tools used are in stark contrast to the tools of conventional coercion, be it diplomatic or military.

Some of the searching questions that need to be asked relate to the query that if air power has played a pivotal role in coercion of established states, can it assume an equally important role in tackling today’s biggest threat to established and civilized society; the non-state actor? The starting point would be to briefly examine the spectrum of conflict with specific reference to the dwindling possibility of conventional and limited wars, and predict the most probable scenarios for the future. The inability of smaller countries, entities and non-state actors to counter coercion with open force, and fight conventional wars have led to the emergence of war-fighting concepts with esoteric names like Sub-Conventional, Irregular, and asymmetric Warfare that can all be clubbed for convenience as tools of Fourth Generation Warfare (4GW). 4GW is a generic term encompassing all armed conflicts that are above the level of peaceful coexistence amongst states and below the threshold of war. While some nations prefer calling it Sub-Conventional operations, a few others prefer to call it Irregular warfare. The author opines that the term best suited to encompass the entire spectrum of warfare below conventional conflict is 4GW with all other terms including border skirmishes, armed militancy, insurgency, proxy war and terrorism, emerging as tools and tactics employed to prosecute 4GW. 4GW is characterized by asymmetry of force levels between the regular forces and irregulars wherein the force applied and the violence generated depends on the motivation and capabilities of the non-state actor and the laws of the land, which bind the actions of the Armed Forces. The modus operandi of the non-state actor is generally characterized by irrationality, indiscrimination, unpredictability and ruthlessly destructive behavior.
Was this logical or was it precipitated by history? In the post Cold War era, and at places even during the Cold War, failure of coercion invariably led to gradually escalated use of force. Classic examples were Vietnam, Op Pawan in Sri Lanka, Kargil Operation, and the Lebanon war of 2006. Air Power formed the primary tool for escalation and at places conflict resolution. The failure of coercion points at the emergence of new threats, and the need to look closely at 4GW, and further on to Air Power as a means of tackling it. Some important questions that need to be asked and answered are - How successful has the application of Air Power been so far in combating Sub Conventional Warfare? What have been the restraining factors and limitations of Air Power in small wars? Has technology offered new perspectives on the use of air power in small wars and sub conventional conflicts? Finally, can Air Power be exploited in a manner that the perpetrator of 4GW be dragged to the negotiating table? If so, has airpower not once again acted as an instrument of coercion, though this time not against established nations but against non state actors, terrorists, naxalites and insurgents. In the modern era of warfare, the Israelis have been the pioneers in the use of air and space assets to prosecute a campaign against the Hamas and Hezbollah without needlessly committing ground forces. Though the strategy has had limited success, it has opened new vistas for the employment of air power at the lower end of the spectrum of conflict. As a final but inescapably important pointer, India has had its share of tackling 4GW over the last few decades. It has also been slow at exploiting the competencies of air power at the low end of spectrum of conflict, relying instead on ground forces to fight the non-state actor. Is it not time to review this strategy and embark on an effective combined arms strategy that focuses on ‘terrorising the terrorist’?

Research Objectives

While there has been extensive research in the west on the nature of conflict at the lower end of the conflict spectrum, study of the use of air power in 4GW is still a fledgling research area. Notable contributions have been the USAF doctrine on Irregular Warfare\textsuperscript{5} and various Israeli papers on the employment of air power in Lebanon & Gaza.\textsuperscript{6} No research has yet emerged from the sub-continent on the employment of air power in 4GW. India has faced threats from non-state actors for the last six decades and has borne the brunt of both urban and non-urban terrorism and insurgencies for the last 20 years. In this war against the non-state actor, the Indian Army, para-military forces and the Central police forces have been at the forefront, with the IAF playing a relatively insignificant role despite having the capability to influence operations. This dichotomy has sparked my research objectives, which revolve around three core issues. Firstly, to sensitize the strategic community on the competencies and capabilities that air power has to influence 4G warfare. Secondly, embark on a critical analysis of three conflicts in recent times in order to establish that air power is a powerful tool of coercion and deterrence in the hands of the state that must be used to protect its sovereignty. Thirdly, to draw up a template for effective use of air power in the Indian context within the constraints that presently exist in the diverse socio-political landscape of the sub-continent. Summarising these, the research objectives are-:

- Sensitise the strategic community on the capabilities of air power to influence 4GW.
- Embark on a critical analysis of employment of air power in three modern conflicts at the lower end of the spectrum of conflict.

\textsuperscript{5} USAF Doctrine on Irregular Warfare, Maxwell Air University, USA, 2007
• Attempt to suggest a template for effective employment of aerospace power as a powerful tool of deterrence & coercion in 4GW for the Indian template.

Rationale and Relevance of Study

Almost invariably, research objectives are guided or even dictated by contemporary relevance. So is the case in this study too. While many schools of thought exist about the methods and success of our government and security forces in their fight against non-state actors, the very fact that India has been frequently labeled a soft state speaks volumes about our approach. The rationale and relevance of this study revolves around the inescapable need to find new ways to combat fourth generation warfare. Sceptics within any establishment may question the need to adopt new strategies to fight insurgents and terrorists. The answer to this question emerges from a few counter questions that lead on to the answer.-Some of these questions are- Why has the proxy war in J&K dragged on for so long? Why have we not yet found a solution to the various festering insurgencies in the North-East? Why has there been a spurt in terrorist attacks in India's heartland? Why have we not been able to check the spread of naxalism and fundamentalism? If our strategies to fight the proxy war against Pak in J&K have not paid enough dividends; if our efforts at combating terrorism have not succeeded, and if we have not been able to check the spread of Naxalism and fundamentalism, is it not time to re-think our national strategies to fight 4GW? In this dilemma, lies the rationale and relevance to this study. The other fundamental question that acted as a driver for the study is the grim reality that India’s emergence as a global power would be dictated not only by economic growth, but by the manner in which it tackles various security related issues.
Scope of Study

The research topic has been defined "To examine the role of air/aerospace power in 4G warfare and to identify the various capabilities it has to offer to the state in its fight against the non-state actor, with particular relevance to the Indian context". The first part of the research is aimed at understanding the various types of conflict that typically fall under the genre of Fourth Generation Warfare (4G). For this extensive assistance has been sought from doctrinal pronouncements emanating from the US and Israel as well as limited material from Indian Army's doctrine for sub-conventional warfare. Having achieved doctrinal clarity, the research moves on to examine three case studies. Of these, two case studies have visibly demonstrated the success of air power, while the third one demonstrates some classic mistakes made, which diluted the overall effectiveness of air power and leave some very important lessons for countries like India. Urban areas are being increasingly used by non-state actors to terrorise ordinary citizens and put pressure on the state. Any strategy of coping with urban 4GW would be incomplete without spelling out what aerospace power has to offer. Apart from successfully testing my hypothesis, the case studies allow for the building of the next stage of research that argues for greater involvement of air power in India's 4th Generation battles that it is fighting in J&K, NE and against Naxalism. Technology is going to play a pivotal role in all forms of modern warfare. A brief overview of the impact of technology at the lower end of the spectrum of warfare would add value to the study. The scope of the study restricts itself to conventional warfare and does not take into consideration nuclear warfare or the proliferation of weapons of Mass Destruction.
Statement of Problem

Air Power has traditionally been seen as the youngest form of military power. Its application and relevance has always taken time to sink in to the minds of traditional military theorists and practitioners of operational art. Any time a new genre of warfare has emerged, nation states have initially relied on land and maritime power to try and resolve conflict before asking air power to enter the fray. Over the years, despite the many successes of air power, it has mainly been seen as an adjunct of, and subordinate to both land and maritime power. So rapid has the changing face of warfare been over the last two decades that just as air power was seen as the 'ultimate' weapon in conventional warfare, conventional warfare is slowly giving way to 4G warfare where the state is pitted against the non-state actor. This scenario has given a lease of life to the sceptics of air power who say that air power is escalatory in nature, causes too much of collateral damage and cannot influence 4G warfare as much as conventional warfare. On the flip side, proponents of air power argue that the sheer flexibility and precision of air power make it eminently suited for employment across the spectrum of warfare. The proliferation of terrorism and myriad aspirations of non-state actors along with their capability to target the soft under belly of established democracies and nations has created an 'asymmetry' of alarming proportions. In such a scenario, it is important to realign the roles, missions and capabilities of Air Power to tackle Sub- Conventional threats from guerrillas, insurgents, terrorists and religious fundamentalists who threaten national security. This realignment has to be a function of flexibility as larger countries like India need also to retain a simultaneous capability to use Air Power for strategic coercion by building conventional capability. Therefore, the problem can thus be stated "In the light of the rapidly changing nature of warfare, dwindling possibility of conventional conflict and the increased proliferation of Fourth Generation
Warfare, this study attempts to analyse how and why air power is a powerful tool that the state in general and India in particular could employ to win the war against the non-state actor".

**Hypothesis**

The very fabric and sovereignty of established states in general, and democracies like India in particular are being threatened by non-state actors in what is commonly termed as Fourth Generation warfare. Existing strategies of fighting non-state actors have not yielded rich dividends and forced strategists to constantly evolve new strategies to stay ahead of the non-state actor. One such strategy is to 'terrorise the terrorist'. Air Power is a powerful tool to achieve this objective and must be employed in all its supporting roles while retaining the option to use offensive roles as and when required.

**Alternate Hypothesis**

Even if political compulsions and weak institutional decision making precludes the use of offensive air power against non-state actors, especially within the confines of India's geographical boundaries, air power has enough 'benign' or 'soft' capability to influence 4G warfare if it is employed cleverly and judiciously.

**Null Hypothesis**

There is very little use for air power in 4G warfare as it is highly escalatory in nature and would cause excessive collateral damage. Therefore, it cannot or must not be employed against non-state actors like insurgents, guerillas or
terrorists as it could cause widespread condemnation in the comity of nations and attract too much of media attention.

**Research Methodology**

The study adopts a historical-analytical method that is diagnostic and non-experimental in scope of analysis. Primary sources of data comprised mainly of unclassified Governmental publications, doctrines and interviews with eminent experts in the field of airpower and Fourth Generation Warfare. These interviews enabled the researcher gain insightful and varied perspectives on what is a controversial topic. The layout of research was broadly categorized into four major areas. The first part focuses on theoretical and doctrinal issues. The second part comprises case studies and emerging trends in employment of air power at the lower end of the spectrum of warfare. The third part discusses India-centric issues, while the last part highlights the researcher’s reflections in the form of Findings & Recommendations. After having spelt out the broad initial statement of the problem, a review of existing literature was carried out. Resultant fallout of this initial review was a refining of both the statement of the problem and the various hypotheses that have been spelt out. Apart from a brief statistical confirmation of the dwindling cases of conventional conflict vs the increasing proliferation of 4G warfare, most of the research has been exploratory and analytical. A fair amount of analysis has been based on the scholar's diverse operational experience. However, great emphasis was placed on the classical means of primary and secondary research.

The primary source of data is through govt data, official doctrines and interviews with a diverse set of experts ranging from academics to serving and retired officers from the Indian Armed Forces (sample Questionairre is placed as AppxA). Thus, data collected and reinforced through various sources have
been compiled, analysed and inferences drawn to arrive at a logical solution and roadmap to the problem stated. Data procession was non-statistical at almost all places except one where conflict classification was analysed. Hypotheses and Research Objectives matching formed an important element of the research methodology, and each case study was benchmarked against the various hypotheses and laid down objectives before proceeding further. Further impetus was given to the research in mid-2009 when various think tanks within the Indian government started contemplating the use of aerospace power against left wing extremism. The scholar had numerous opportunities to present papers at various seminars and share views on the subject with experts on 4GW like Mr JK Dutt from the elite NSG, Mr Shekhar Dutt, the deputy NSA, Mr Ajai Sahni, Exec Dir , Centre for Conflict Resolution and Dr Rajesh Rajagopalan of JNU. These interactions reinforced the belief that the research was on the right track.

**Literature Review**

The main sources of secondary data have been various libraries and the internet. The author has had the privilege of unrestricted access to some of the best libraries in the country in the area of defence and strategic matters. Amongst the many libraries frequented by the author, the libraries at the Defence Service Staff College and National Defence College offered the most in terms of range of books and periodicals that allowed the author to track the birth and proliferation of 4G warfare through the decades following WW II. Other libraries that offered value were the libraries at United Service Institute (USI), Institute for Defence Studies and Analysis (IDSA) and Institute of Peace and Conflict Studies. The author also had the opportunity to spend some time at the library at the Royal College of Defence Studies (RCDS) in London U.K. There are numerous books, many of which are listed in the Bibliography at the end of the paper, which have clarified many of the issues relating to some of the
controversial issues raised by the researcher. However, only limited number of them find mention in footnotes wherever they have lent strength to arguments presented in that chapter. The researcher may also be accused of subjectivity at places. The main mitigating factor here lies in the fact that the researcher is an experienced and frontline air force officer with adequate operational and academic experience, having shared these ideas extensively at various seminars over the period of research. However, the researcher has been alive to this and attempted to keep subjectivity to the minimum and preserve the rigid guidelines that go with good research methodology.

During the course of his study the author was closely associated with an analysis of the Sri Lanka conflict, and commanded a base that was involved in operations and support to the NSG. These experiences have re-affirmed the author's conviction on the subject. Finally, all information given in the thesis is based on various unclassified sources which have been organized and inferences drawn as a purely academic exercise. It is also clearly reiterated that the views expressed in the course of research are the views of the researcher and do not reflect the official standpoint of any organization, government or service.

PLAN OF THESIS

The thesis is presented as follows:-

Chapter I.

This chapter contains the introduction that contains the background, statement of the problem in its theoretical significance, the aim, scope, hypothesis and plan of thesis.
Chapter II.

This chapter presents and analyses doctrinal issues relating to 4GW and the various tools used by non-state actors to prosecute 4GW. It explores certain basic definitions and attempts to introduce the impact of air power as a powerful tool of coercion and deterrence against the non-state actor.

Chapter III.

This chapter attempts to provide a slightly different perspective on the Kargil conflict of 1999 in terms of the application of air power and its contribution to conflict termination and eviction of the intruders. It also attempts to draw a parallel with the ongoing conflict between the US led coalition and Taliban in the mountains of Afghanistan. This would be the first attempt at proving the hypothesis.

Chapter IV.

The use of air power has not always been successful when employed against non-state actors. This chapter attempts to explain the reasons why air power was not entirely successful against the Hezbollah in Lebanon during the conflict in 2006. By offering a contrarian perspective, it allowed the author to research whether air power only partially succeeded because of its inherent limitations, or whether it was a strategic mistake by inexperienced politicians that led to its incorrect employment.

Chapter V.

This chapter attempts to examine the impact of offensive air power on the conflict between the LTTE and the Sri Lankan armed forces. The success of the
Sri Lankan armed forces in recent times can be attributed to the strategy of 'terrorising the terrorist'. This chapter highlights the significant contribution of the Sri Lankan Air Force (SLAF) in this strategy especially when it came to targeting key LTTE leadership.

Chapter VI.

This chapter attempts to explain the challenges posed by the urban terrain in combating 4GW from the medium of air. Urban areas are being converted the world over into battle grounds; a fact reinforced by Israel's ongoing war in Gaza and Lebanon. India too has had its share of urban warfare in Punjab and Kashmir. This study would attempt to look at an enhanced role for aerospace power in urban warfare with an emphasis on the possibilities in an Indian scenario.

Chapter VII.

Chapter VII attempts to address various aspects of air power employment in 4GW in the Indian context and whether India needs to re-assess its strategy of fighting non-state actors with increased employment of air power. This chapter also includes a brief overview of how technology can be used effectively to prosecute an air war with success against the non-state actor.

Chapter VIII

Based on doctrinal imperatives and re-enforced by the case studies researched, this chapter attempts to narrow down the research and reiterate certain important findings that have emerged. From the findings would flow a set of
recommendations for effective employment of aerospace power in 4GW, both globally, and in the Indian context.