USE OF UNMANNED COMBAT AERIAL VEHICLES IN MILITARY OPERATIONS: A STUDY OF IMPLICATIONS AND CHALLENGES

Dissertation submitted to Jawaharlal Nehru University
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MASTER OF PHILOSOPHY

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DECLARATION

I declare that the dissertation entitled "**Use of Unmanned Combat Aerial Vehicles in Military Operations: A Study of Implications and Challenges**" submitted by me in partial fulfilment of the requirements for the award of the degree of **Master of Philosophy** of Jawaharlal Nehru University is my own work. The dissertation has not been submitted for any other degree of this University or any other university.

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CERTIFICATE

We recommend that this dissertation be placed before the examiners for evaluation.

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Dedicated to

Maa and Deota

For Your Unconditional Faith and Love...

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List of Abbreviations

AAA	Anti Aircraft Artillery
AAM	Air to Air Missile
ADIZ	Air Defence Identification Zone
AUMF	Authorisation to Use Military Force
AURA	Autonomous Unmanned Research Aircraft
CIA	Central Intelligence Agency
COIN	Counter Insurgency
CRS	Congressional Research Service
FATA	Federally Administered Tribal Area
GLONASS	Global Navigation Satellite System
GPS	Global Positioning System
GWoT	Global War on Terror
HTS	Human Terrain System
HVT	High Value Target
ICBM	Inter Continental Ballistic Missile
ICRC	International Committee of the Red Cross
IED	Improvised Explosive Device
IHL	International Humanitarian Law
IRBM	Intermediate Range Ballistic Missile
ISAF	International Security Assistance Force
ISIS	Islamic State of Iraq and Syria
ISR	Intelligence Surveillance and Reconnaissance
JSOC	Joint Special Operational Command
LTTE	Liberation Tigers of Tamil Eelam
LWE	Left Wing Extremism
MANPAD	Man Portable Air Defence System
MTCR	Missile Technology Control Regime
NATO	North Atlantic Treaty Organisation
NTRO	National Technical Research Organisation
PGM	Precision Guided Munitions
RADAR	Radio Detection and Ranging
RAW	Research and Analysis Wings

RMA	Revolution in Military Affairs
RMTA	Revolution in Military Technical Affairs
SAM	Surface to Air Missile
SLBM	Submarine Launched Ballistic Missile
TADS	Terrorism Attacks Disruption Strike
TNT	Trinitrotoluene
UAV	Unmanned Aerial Vehicle
UCAV	Unmanned Combat Aerial Vehicle
UN	United Nations
UNSC	United Nations Security Council
US	United States
USSR	Union of Soviet Socialist Republics
WMD	Weapon of Mass Destruction

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Chapter I

INTRODUCTION

This study attempts to explain the implications and consequences that arose from the proliferation and use of autonomous technologies in general and the Unmanned Combat Aerial Vehicles (UCAVs) in particular. Scepticism of intellectual community towards the roboticisation of warfare is immense. Hence the military use of UCAV is also not exception. Legality, ethicality and changing tactics of warfare have been questioned in the light of increasing military use of the UCAVs, but the question of larger implication and emerging challenges of using UCAV in military operation is not yet adequately addressed. Hence this study will seek to address these questions.

The wave of Revolution in Military Affairs (RMA) has boosted the use of technological sophistication in warfare. Warfare received a multifaceted form, from cyberspace to autonomous weapons. As the operational efficiency and versatile use of a weapon is a criterion for the proliferation of a weapon. So, apart from the other developments of RMA, the use and proliferation of UCAV is increasing day by day because of its effective and versatile military use demonstrated by the United States (US) in their worldwide 'Global War on Terror' (GWoT).

Several scholars such as Michael Boyle (2015), James Igoe Walsh (2013) argue that the UCAVs, also popularly known as the drone, are simply another kind of sophisticated technology. On the other hand, another group of scholars, Ian G.R. Shaw, Medea Benjamin believe that UCAVs are not simply another kind of technological innovation, but it is a unique technology, which contributed to a change in the nature, ethics and strategic thoughts related to warfare. These changes have larger implications for international relations, international humanitarian laws and conduct of warfare. Apart from generating changes, the advent of UCAVs has contributed to the emergence of new far-reaching international complexities and challenges. As science and technology are moving faster than our anticipation, so the doctrinal development to govern the use of technological outcome is lagging behind. Unless, doctrine properly guides the pace of scientific innovation, there is always an apprehension for formidable outcome. This study will try to understand and explain these emerging complexities, challenges and changes in the larger domain of international relations, in the context of the US-led strikes by using UCAVs in

Afghanistan and Federally Administered Tribal Area (FATA) of Pakistan followed by strikes in Yemen and Somalia. To understand the entire discourse of 'military use of UCAVs', the above-mentioned cases are importance because of two reasons: (1) in Afghanistan, UCAVs were used by the United States as a part of overt military operation (2) in Pakistan, Somalia and Yemen the UCAV operations were carried out as a part of the covert military operation despite having respective sovereign governments. The UCAVs have been used so far against the parties with no air defence or in other words in asymmetrical warfares, because till now UCAV lacks the capability to defend itself. So, there is a need to understand, the direction in which the modern warfare is moving, and whether there is any change in the response of the powerful parties in using force as a 'first resort' to deal with non-state actors and other perceived threats.

There is a vast array of literature available on different debates related to the use of UCAVs in military operations. Scholars like Medea Benjamin (2013), Gregoire Chamayou (2015), Dave Sloggett (2014), Steven J. Zaloga (2008) have raised some larger philosophical as well as pragmatic questions related to the use of UCAVs in military operations. These works remain as the limelight for pursuing current status of the debates on use of UACVs in military operation.

The UCAVs are criticised as inhuman and brutal killing machine, depending on its performance so far. But David Whetham (2015) has forwarded a different kind of argument, that UAVs can play a role of peacekeeper. He projected the UCAVs as a human rights protector. Providing the example of genocide in Rwanda and massive human right violation in the Syrian crisis, he is supporting his counterfactual argument that deployment of the UCAVs could have prevented such tragedies. In his view, it might be inhuman and unethical to deploy a ground peacekeeping force in a war zone, where rivalry parties may use WMDs like chemical weapon, biological weapon. Here, use of the UCAVs may make some sense. After all, the outcome of science and technology depends on its use. Hence Whetham (2015) has elucidated the potential positive and ethical aspect of the use of UCAVs. However, this is not the only ethical aspect related to the use of UCAVs.

Joshua Olson and Muhammad Rashid (2013) point out another kind of ethical changes in the warfare. The terminologies such as armchair warfare and

desensitisation of the pilots are issues that emerged out of 'drone warfare'. However, the authors have stressed on proper and rigorous training to minimise such transformation, because he conveys the argument of the military personnel that the UCAV strike is more useful than diplomacy.

Military personnel do consider diplomacy as excessive use of resources to accomplish a similar goal that could otherwise be achieved by using force (Olson et al. 2013). Warfare or use of force is considered as the last resort to resolve conflict, but now with the advent of UCAVs use of force is going to become a first action to accomplish a political objective. Peter M. Asaro (2013) also discusses about the lowering of ethical and democratic barriers of war due to the technological revolution. 'drone warfare' is a manifestation of such normalisation of warfare (Asaro 2013). As a consequence, the low-risk propositions of the UCAV strikes could attract the states to use UCAVs widely even on its own population. For instance, Russia in Georgia or Ukraine, Sudan within its borders, and China on its western periphery, used UCAVs for non lethal purpose (Zenko 2014). India can also be added to the list with a possibility to use UCAVs in its northeastern region, Kashmir and red corridor. Pakistan has already used UCAVs on its own population, indicating the fact that this apprehension is no longer a speculation. In the similar vein Kaveh Waddell (2014) argues that UCAVs are becoming ordinary weapons of war fighting. It means, the UCAVs are becoming a weapon for law enforcement, contributing to the normalisation of kinetic action in law enforcement purpose.

Regarding the normalisation of warfare, renown international human rights activist and scholars Medea Benjamin (2013) in her book *Drone Warfare: Killing by Remote Control* discusses the routine lifestyle of the UCAV pilots. Here most of them suffers post-traumatic stress disorder because they can see the brutal death of innocent people in their hand and even then have to live a normal lifestyle. Benjamin used the term 'Compartmentalised Lives' to describe this condition of the UCAV pilots (2013: 90). Lorraine Bayard de Volo (2016) aptly puts it. In her words, "A drone pilot tracks suspected terrorists for days, receives orders to fire, and then watches as human beings disappear in an explosion. A few hours later, the shift is over, the pilot drives down a Nevada highway toward home, perhaps stopping off to catch a daughter's soccer game before dinner" (Volo 2016: 52). This is one side of the coin. On the other hand, normalisation of warfare can also be seen in the statements of the UCAV

pilots. The remote-controlled 'drone warfare' made war as an arena of entertainment and 'play-station mentality' which is a serious ethical issue as pointed out by Benjamin (2013) and Chris Cole (2010). The so-called 'war porn'[1] is a worrisome example of the alienation of ethical principles from warfare.

'Drone Vision' is another concept introduced by Daniel Greene (2015) to imply the changing outlook from human to technological. Now, states are looking to win asymmetrical warfare from the vision of the 'Drones', both in terms of operational aspect as well as policy formulation. In his words, 'drone vision' is a "globally distributed apparatus for finding, researching, fixing and killing targets of the GWoT, and situates dramatizations of it within recent new materialist theoretical debates in surveillance and security studies" (Greene 2015: 233). That means there is a shift in our thinking process to the 'Dronified Vision' of 'Smart War', especially in the case of the US-led Global War on Terror. But, unfortunately, there is a large gap in the perceived 'Smart War' and its 'actual materialisation'.

The new terminologies like, 'Predator Empire' (Shaw 2013) and 'Maps for Empire' (Greece 2015) have come to mean the overwhelming presence of the UCAVs and expansion of the state power transcending territorial limitations. Explaining his definition of 'Predator Empire' Ian G. R. Shaw (2013) states, "I employ the provocative concept 'Predator Empire' as a way of bringing together the strategies, practices and technologies arranged around the deployment of drones for targeted killings" (Shaw 2013: 540). It adheres to the argument that there is a change in terms of our geopolitical and strategic thoughts. There is a need to investigate such changes.

Various scholars have questioned the legality of the use of UCAVs in the foreign territory, especially the use of UCAVs by the US in Pakistan. It indicates how UCAVs have paved the way to create legal complexities. Mahmood Ahmad (2014), Andrew C. Orr (2012) challenge the very legal base of the US to carry UCAV strikes in Pakistan on several grounds. First, he talks about the article 2(4) of the UN Charter, which prohibits the use of force or threat to use force against any member state. However, there are two exceptions: (1) a state can engage in military action in the consent of the host country and (2) a state can do it for self-defence. But, for him the

[1] War porn means video footages of warfare captured by UCAVs, which is used for training purpose. Many soldiers enjoy these video footages of brutal killing of the enemies. That means they started liking real brutality, which is ethically problematic.

US strike on Pakistan using UCAVs does not fulfil any of the criteria, because the US-led UCAV strike does not comply with the domestic armed conflict principles of Pakistan. So, mere covert consent by political leaders of Pakistan cannot allow the US legal basis to carry out UCAV strike. Second, the US is carrying out the operation in Afghanistan, where Pakistan-based militants are attacking the US forces. It cannot be used by the US to fulfil the criteria of self-defence rather Afghanistan has the right to carry out strike for self-defence, not the United States (Ahmad 2014). As far as the US domestic legislation is concerned, the Executive Order 12333 also prohibits the US government from engaging in assassination abroad (Etzioni 2010). Despite the legal descrepencies the US Presidential approval was given on the basis of self defence bringing a reference from the article 51 of the UN charter (Ahmad 2014). The question may come how the UCAVs enabled the US to frame its policies to take advantages of legal ambiguity.

Philip Alston (2011) and Ahmad Nazir Warraich (2013) on the other hand, criticises the secrecy and non-transparency maintained by the US which is not permitted under international law. Under both domestic and international humanitarian laws, any action aimed at killing requires transparency but in practice, this is lacking. It is completely absent in the Central Intelligence Agency (CIA) conducted covert UCAV strikes. The CIA ran covert UCAV strike in FATA of Pakistan was officially acknowledged only in 2010 six years after the actual UCAV strike begun (Warraich 2013: 65). It indicates the legal grey area of the UCAV strikes.

The covert use of the UCAV is creating a new dynamics that enabled extraterritorial targeted killing without direct military intervention. The US Authorisation to Use Military Force (AUMF) Act of 2001 allows the US government to use any means necessary to punish the 9/11 attackers and also to prevent any future attack (AUMF 2001). But, scholars express scepticism about the capacity of the US law in the global context. Murphy (2009) has categorised the UCAV attacks as one type of cross-border attack conducted by the United States inside Pakistani sovereign territory. It is a general allegation raised by different scholars, about the cross-border attack.

Here, the US response is that the strikes have been conducted with the consent of the Pakistani government, but Murphy (2009) also raises the issue of condemnation of the UCAV strikes by democratically elected leaders of the affected states. One can claim

that the democratically elected leadership may take a dual stand, which has a possibility in the absence of any openly accessible legal document. Legality can only be judged on the basis of information fully available to public scrutiny (Murphy 2009). Even the UN Security Council put forward many resolutions to deal with the crisis after 9/11 attack, but none of them authorised UCAV strike in Pakistan. So, there is a legal grey area of the US-led UCAV strikes across different countries. Even, it has been argued that the legitimacy and the usefulness of the international law have been challenged over the few years by the US-led UCAV strike policy (Warraich 2013).

Regarding the legal basis of the US-led covert UCAV strike Michael J. Boyle (2015) points out the paradox of legal principles used by the US. In his words, "Obama administration has continued to rely on the same legal and ethical frameworks used to restrain the behaviour of states during wars in the nineteenth and in twentieth century to defend its UCAV campaign" (Boyle 2015: 106). Michael J. Boyle tries to find out what is the new about the UCAV technology, which Obama administration pretends as nothing but another kind of the sophisticated technology of warfare like ICBM, IRBM and SLBM. He agrees that the UAV technology has nothing new, but their policy has been unprecedented. In his words, "drones have begun to challenge some of the assumptions that underlie the traditional legal and ethical frameworks for the use of force, but that it is American policy, rather than the technology itself, which is producing this challenge" (Boyle 2015:107). He points out five different characteristics of the US-led covert UCAV strike, which are in a real sense creating this challenge. In his words, this five problems are: (1) the legal authority for drone strikes both at domestic as well as international level (2) the nature of the targets (3) regular and constant deployment of the drones (4) the problem of transparency and (5) violation of national sovereignty to deal with general threat. (Boyle 2015). For him, it is the policy, not the technology, is responsible for the emerging complexities of international ethical and legal discourse. He is accepting that there is a legal and ethical concern but denies the role of the technology. There is a need to explain the link between the technology and its influence on policy prescription.

Ian G. R. Shaw (2013) on the other hand talks about the distinctiveness of the UCAV technology. There is a change in the US national security strategy from large-scale counterinsurgency to smaller, leaner military operation empowered by UCAV

technology. The creation of 'Disposition Matrix' database is the manifestation of such specification, which contains the list and details of the targets for assassination. The long durational hovering capacity gave the capability to continuous surveillance and monitoring. This capability led to the growth of the concepts like 'Signature Strike'. Unlike the 'Disposition Matrix' that has classified list to targets, 'Signature Strike' confirms the target based on their way of life. It has a dangerous and far-reaching consequence of the UCAV technology. In his words, "I do not want to suggest that US extrajudicial killings are in any way 'new'. Rather, I want to show how US national security strategy is transforming alongside the rise of the drone" (Shaw 2013: 551). He also talks about the creation of a 'geopolitical conditions' for sustaining a 'permanent war' that is also a major transformation in the discourse of warfare.

The importance of the UCAV technology is increasing for different countries, especially for the US that they contemplated to take military action against Iran, when the Iranian forces shot down a sophisticated US-made UCAV (Benjamin 2013). Again, the US also suspended strategic dialogue and technological agreement with Israel, when Americans learned that, Israel had sold UCAV technology to the Chinese in 2004. However, it was resumed one year later (Alley 2013). It implies the increasing importance of UCAV technology.

Gregoire Chamayou (2015) raises a nuanced critique on the idea of 'Zero Casualty Warfare'. He questions the right to kill indiscriminately in warfare. Bringing classical philosophy of warfare, he argues that one may have the right to kill only if the party is vulnerable to the same. Since, in the UCAV strike, one party is completely invulnerable, so it cannot be a weapon of warfare to kill indiscriminately. Chamayou also points out, whether UCAVs are weapons of warfare or weapons of policing. Even, if we look at the nature of deployment of the UCAVs so far, then we can see a paradox. The idea of targeted killing and Signature Strike conducted by the United States is the example of using UCAVs for policing purpose with the war-fighting mode. There is a need to engage in such larger debates.

Guilio Douhet (1942) in his book *Command of the Air* talks about the predominant role of airpower. He believes in the ability of the combat aircraft to manoeuvre and hence it's strength to inflict damage without much harm to oneself. He wanted airpower as an independent force, rather than an auxiliary force that only supports the

ground forces. For him, auxiliary forces are "worthless, superfluous, and harmful" (Sloan 2012: 35) because it does not contribute to gain command over the air. There is a connection between the strategic thinking of Giulio Douhet and the present military use of the UCAVs. Both appear for command over the air with bloodless warfare. Moreover, due to the advent of the UCAVs, warfare is moving from the arm forces to special force with enormous autonomy and independent objective.

Explaining about the future of UCAVs Michael Mayer (2015) sees some possibilities of air dominance by the second generation UCAVs. Mayer argues that the first generation UCAV were more about loitering but the second generation UCAVs are meant for penetration with stealth technology and greater manoeuvrability since most of the countries have developed sophisticated air defence systems. Hence he sees the possibility of using UCAVs in high voltage warfare, which has not been seen so far. Rod Thornton (2007) on the other hand sees air power as a recent trend to deal with and win asymmetrical warfare against guerrilla tactics. Thus the UCAV technology is not moving back rather it is leading nature of warfare towards an unprecedented one.

Roderic Alley (2013) considers the UCAVs as the insecurity multipliers because it harms the local community including innocent civilians. It helps in intensifying the recruitment of terrorist groups buttressed by social mobility to dissident forces. Abdul Rehman (2013) also concludes that the UCAV strike carried out by the US is becoming counterproductive. Aqil Shah (2016) on the other hand, has forwarded an alternative explanation of the blowback effect of the US-led drone strikes in FATA of Pakistan. His explanation is based on a semi-structured interview of 147 teenagers (18 years or old) of the affected areas. His findings contradict well established the earlier proposition that drone strikes have generated blowback effect and contributed towards radicalisation. As oppose to it Aqil Shah (2016) finds that more than 79 per cent respondents have endorsed drone strikes. Again, contradicting the claim that drone causes higher civilian fatalities, 64 percent respondents (including several from close areas of drone strike location) believe that drones strikes have accurately targeted militants, 56 percent have attributed the seldom civilian casualties to the pre-2012 'signature strike' policy of the US. Such contradictory finding makes the debate more exciting to have better ideas about the ground realities.

There is a gender dimension to the understanding of the rise of UCAVs and its increasing use. Lorraine Bayard de Volo (2016) argues that rise of the UCAVs have contributed to the gender recalibration. The author is arguing that the nexus between war and masculinity has been reducing due to the rise of remotely controlled systems because it does not require valour and courage, which is considered as elements of masculinity. The proposal of 'Distinguished Warfare Medal' by the US Secretary of Defense Leon Panetta in 2013, especially for UCAV pilots and cyber warriors stands testimony to it. The medal was planned to create, excluding 'valour' as a criterion, which is there in the existing 'Bronze Star Medal'.

Technology is moving faster than the doctrine. Hence, it becomes difficult to regulate the pace of technological innovation especially in the case of military technologies, so newer complexities and challenges are emerging. The development of UCAV or Drone is also another technological innovation, which is generating new complexities. After the successful use of the UCAVs by the US, it directed the future of warfare to an unprecedented robotic one. States, as well as the non-state actors, are keen to acquire this weapon, so the issues like- proliferation of the UCAVs, possible use of the UAVs by terrorist organisations or Drone Terrorism, received utmost attention under the larger domain of international relations. So, the research has been designed place the development of the UCAVs in the larger context to pursue the stated problems.

Definition, Rationale and Scope of the Study

Revolution in Military Affairs (RMA) has brought a change in the nature and tactic of war-fighting. The Unmanned Combat Aerial Vehicle or the drone is also considered as an outcome of the same military technological revolution popularly known as the 'Revolution in Military Affairs'. The study intends to see whether technological sophistication of RMA is responsible for the rise of UCAVs or there are some other elements that drove the strategic thoughts towards UCAVs. This study also seeks to this explain how UCAV has contributed to the changing nature and tactic of war-fighting. And if there is any fundamental change is occurring in the military structure due to the advent of the UCAVs. It also looks at whether UCAVs have something to do, in shaping policy direction of a state.

Regarding the nomenclature used here the 'drone'[2] and the 'Unmanned Combat Aerial Vehicle' (UAV) means the same thing, although some people argue that the UCAVs with stealth technology are considered as a 'drone'. The study considers 'drone' as a popularly accepted terminology to means UAVs or UCAVs. The term UCAV is used in the study to specify military vehicles which are engaged in war fighting and hence to exclude other UAVs used for non military purposes. However, while mentioning UCAVs, the study does not differentiate between ISR and lethal UCAVs.

The study does not consider a zone as 'war zone' unless both the parties declare war. The study is based on the use of UCAVs against asymmetrical forces or in an asymmetrical war. This is precisely because of the reason that UCAVs have been independently and extensively used both for the lethal and non-lethal purpose only against asymmetrical forces. Although there are enormous examples of the use of UCAVs in interstate war, yet such cases have been excluded from the study precisely to maintain coherence. The study considers 'asymmetrical warfare' depending on the capability of the actors that involved.

Hitherto use of the UCAV has primarily been concentrated mostly on the non-state actors. Such use of UCAV can be labelled as asymmetrical warfare, where the UCAVs assassinated targets relentlessly and indiscriminately. Here one can see the irony or puzzle. The responsibility of the state lies in maintaining law and order situation for the protection of individual and human rights. On the other hand, democracy or democratic values allow individual to carry out a protest against atrocities and also restrain the state from indiscriminate killing. There is a contradiction between the implementation of democratic values and the idea of UCAV strike on the insurgents or in asymmetrical warfare. The irony lies in the fact that, democratic states use UCAVs to suppress the anti-state activities causing indiscriminate killing, which disrespects the right to surrender of the involved parties. Again, the risk reduction in the use of UCAVs in military operation contributed to the use of force as a first resort to deal with other actor instead of taking peaceful means, which certainly collides with democratic principles and norms.

[2] The term 'Drone' has not been used throughout the research except in quotes and titles from any referred article or any other material.

Format of the Study

This study is an attempt to understand the emerging complexities and challenges in international relations due to the development and use of UCAVs. Since the UCAVs have been used only against the non-state actors. The study will also see, how it has contributed to the change in the nature of modern warfare, contributing to the emergence of new challenges in terms of counter action from the non-state actors. The study has not taken any specific case, but the theoretical base of the study will be based on the cases from different parts of the world, where UCAV strike has been conducted. The study has many limitations. Although this study covers the RMA, it does not study the RMA discourse at large rather it covers the development of the UCAVs as a part of larger RMA.

The study consists of five chapters. The introductory chapter introduces the study with a glimpse of the existing literature and the emerging arenas. This chapter deals with the research design, methodology, research questions and the proposed hypotheses to be tested throughout.

The second chapter deals with theoretical discourse and sees how the concept of air power evolved in the military discourse, what are the conceptual understandings evolved to manage air power and why UCAVs emerged as a 'weapon of choice'. This chapter tries to juxtapose the conceptual development on conventional air power theories with the pattern of use of UCAVs, and tries to understand whether there is a fundamental similarity between the classic writing and the emergence of UCAVs.

The third chapter deals with the changing nature, ethics and legality of warfare. It tries to see whether use of UCAVs have contributed towards a change in nature and ethics of warfare. This chapter also tries to explain if there is any legal discrepancies emerged because of the extraterritorial engagement of the UCAVs.

The fourth chapter is on the foreseeable emerging challenges and complexities for international relations as a consequence of proliferation of UCAVs/UAVs, possibility of use by non state actors. It also tries to understand the impact of use of UCAVs on social fabric and the possible blowback effect.

The concluding chapter summarises the arguments. This chapter elucidates the proposed hypotheses, analyses the findings and reframes the hypotheses to co-opt

with the research findings. Based on the research findings, this chapter put forwards suggestions to address some issues.

Research Questions

This study is a quest for addressing multiple questions, which were framed to understand the larger picture with specific aspects. These include:

1. Why do states continue military operations using UCAVs despite their apparent demilitarise move from the battlefield abroad?
2. Why are UCAVs considered as problematic while they perform an almost similar task as manned fighter aircraft?
3. How the use of UCAVs in military operation has brought about a change in nature and ethics of modern warfare?
4. What are the new problems and complexities that arise due to the deployment of UCAVs?

Hypotheses

The following two hypotheses have been put forwarded to be tested throughout the study, as a potential answer to the questions mentioned above.

1. Use of Unmanned Combat Aerial Vehicles helps states to continue their military activities abroad transcending domestic public pressure and international restrictions.
2. Development of the Unmanned Combat Aerial Vehicle has contributed towards the change in the nature and tactic of asymmetrical war against non-state actors.

Research Methods

This study is designed to critically evaluate the usage of Unmanned Combat Aerial Vehicle in military operations and its role in the changing discourse of modern warfare. The study would seek to comprehend the changes in nature, ethics and legal aspects of warfare and at the same time the long-term consequences and emerging complexities in International Relations. The very nature of the study is suited the mix method of social science research. So, this study adopts the mix method which means

the combination of qualitative and quantitative method. So that empirical evidence can buttress the epistemological arguments.

The research is primarily based on the secondary materials acquired from primary and secondary sources. Regarding the sources of information, diverse sources such as books, articles, reports, newspaper articles, blog, documentary and judicial verdict have been taken up. The study is also dependent on different statistical figures provided by Non-Governmental Organisation or investigative journalism since official data has not been released on these. The near authenticity of the taken information is grounded in wider acceptance and appreciation in available literatures that have been encountered throughout. The incorporation of primary and secondary materials is helpful in maintaining the authenticity of the research.

Chapter II

REVOLUTION IN MILITARY AFFAIRS AND THE EVOLUTION OF THE UNMANNED COMBAT AERIAL VEHICLES

Introduction

This chapter seeks to explain the evolution of the Unmanned Combat Aerial Vehicles (UCAVs) in the larger context of the Revolution in Military Affairs (RMA). This chapter also engages in the philosophical discourses to elucidate the theoretical debates on warfare, choice of weapon and the idea of distance killing. The nature, means and tactics of warfare have undergone many changes from the time immemorial to the present by taking advantages of new ideas and technologies. Beginning from the sticks, stones and bows, up to the aircraft, Unmanned Combat Aerial Vehicles (UCAVs) and Missiles, resonate the human endeavour to keep oneself invulnerable in warfare. The development of UCAVs and its speedy proliferation clearly correlates such human tendency. This chapter argues two things: first, the development of the UCAV is not necessarily a by-product of modern RMA rather its origin predates modern RMA. The driving force for 'unmanned' nature of the aerial vehicle can be attributed to the eternal human tendency to keep oneself invulnerable in warfare, rather than mere technological advancement. Second, the governing principles of the use of UCAV in military operation, which are considered as unprecedented, are not necessarily new rather it is rooted in the classic air power theories, especially the air power theory of Giulio Douhet.

The development of the Unmanned Combat Aerial Vehicle (UCAV) is attributed as an outcome of the larger discourse of modern Revolution in Military Affairs. Although, the technological sophistication, use of information and communication technology is the base for the development of the UCAVs, but the quest for an invulnerable way to fight warfare through third-dimensional aerial means was always there in human history, which predates the modern idea of Revolution in Military Affairs (RMA). In fact, Williamson Murray (1997) argued that inception is 'longbow' in the 14th century is a step towards RMA, which contains the same philosophical base of keeping oneself invulnerable in the battlefield.

Evolution of air warfare is also a part of the larger domain of RMA.[3] Use of manned kite in China and Japan, use of hot air balloons in American Civil War and Napoleonic War are a few examples of human endeavour to get a third-dimensional view in warfare and a safe presence in the battleground (Dugdale 2007). From that perspective, development of the UCAVs can be attributed to the both, RMA in a larger context and the modern RMA in precise. It is because UCAVs resonates the infusion of eternal human endeavour to keep oneself invulnerable and the use of advanced information and communication technology to execute that endeavour.

Revolution in Military Affairs and the Evolution of Air Warfare

The modern concept of Revolution in Military Affairs (RMA) is a very recent development in the military discourse. It was developed in the Union of Soviet Socialist Republics (USSR) as the Revolution in Military Technical Affairs (RMTA) in the early 1980s by Marshal Nikolai Orgarkov, a strategic thinker and military leader of former USSR. The idea was forwarded to understand the military organisational structure to make it compatible with the military technological revolution resulted from information and communication technology revolution in general. This idea of RMTA was imported to the United States (US) by Andrew W. Marshall, a strategic thinker, and it became famous as Revolution in Military Affairs or RMA is precise.

There is no universally accepted definition of Revolution in Military Affairs (RMA). Andrew Marshall defines RMA as a:

> Major change in the nature of warfare brought about by the innovative application of new technologies which, combined with dramatic changes in military doctrine and operational and organisational concept, fundamentally alters the character and conduct of military operations. (NATO parliamentary Assembly: Committee report: The Revolution in Military Affairs 1998)

Gary Chapman (2003: 2) considered RMA as "wide range of ideas and approaches in security policy". However, this definition lacks coherence and specific mentioning of what exactly RMA is? Andrew Krepinevich, president of the Center for Strategic and

[3] The larger domain of RMA is however may not be necessarily the modern RMA, which is based on the revolution in information and communication technology.

Budgetary Assessment, defined RMA as the "application of new technologies into a significant number of military systems" with "innovative operational concepts and organisational adaptation" which fundamentally helps in increasing the effectiveness of the armed forces (Frunzeti 2013: 7). However, there is no fundamental difference between this definition from that of the definition given by Andrew Marshall.

Depending on numerous definitions forwarded by different scholars, RMA can be understood as a technological, organisational as well as conceptual development in military discourse to restructure military strategy and doctrine to make it compatible with the military technological sophistication and changing nature of targeting to achieve stated military objective. Although the nomenclature 'RMA' is a novel one, its root is evolutionary, not revolutionary.

The actual beginning of the Revolution in Military Affairs is a debatable issue. It has been argued that by scholars like Williamson Murray (1997), Teodor Frunzeti (2013) that, the actual revolution in military affairs started in 14th century with the invention of 'longbow' followed by the invention of 'Gun Powder' in the 15th century. But, these were very basic progress in military affairs, so these are not romanticised in military discourses. The inception of fighter aircraft brought a revolutionary change to warfare, followed by the idea of air power and air dominance. The novel military concept of 'Blitzkrieg'[4] developed during the Second World War is considered as a significant development and even regarded as a real revolution in military affairs (Williamson, 1997). This is primarily because of its propensity of coordination between the air forces and the ground forces in the military operations. Williamson (1997) here argues that, 'Blitzkrieg' is revolutionary at the doctrinal level. 'Blitzkrieg' is famour not merely because of the inception of aircraft, which is perceived as 'revolutionary' at the technological level. Rather 'Blitzkrieg' is famous for the unprecedented strategy of coordinated and joint attack. Hence RMA is also a conceptual development not merely technological sophistication.

The revolutionary trend of military affairs is broadly categorised in three: (1) The mechanical revolution of the 1920s and 30s, (2) Nuclear Revolution of 1950s and 60s, and (3) Information technology revolution from 1970s onwards. The invention of

[4] Blitzkrieg is a military strategy of rapid aggression using both armour division and the air dominance. During the Second World War the German secured tremendous military success using this strategy.

UCAVs and its military use is primarily attributed to the third phase of the military revolution, popularly known as RMA. At a technical level, it is true because the information technology revolution enabled distant manipulation of the aircraft, along with greater precision and accuracy. At a philosophical level, the same logic of keeping oneself invulnerable in warfare works as the limelight for the development of UCAVs. The increasing development of robotics in the modern RMA manifests this threnḍ. The sophisticated and advanced weapons with greater precision and accuracy are considered as an outcome of the same RMA with proper coordinated command and control system. The UCAVs are also considered as one of them.

The various schools of RMA also consider UCAVs as its integral part. There are four major Schools of thought regarding the RMA forwarded by Michael O'Hanlon (2000) in his book *Technological Change and the Future of Warfare*.

The first is the 'System of Systems' school of thought. This school talks about the complex systems including command, control, communication, intelligence and surveillance. Admiral William Owens of the US popularised this school of thought during the 1990s. This school of thought endorses use of the UCAVs for intelligence and surveillance.

The second school of thought is the 'Dominant Battlespace' school of thought. They put due importance on the sensor capability and gaining more information about the battlefield. The dominant battlespace school of thought endorses the use of UCAVs for intelligence purpose and navigation systems like- GPS, GLONASS.[5]

The third school is 'Global Reach, Global Power'. The name itself suggests the global reachability of the military forces. The UCAVs are an example of this global reachability of the states transcending national boundaries.

The fourth school is the 'Vulnerability School of Thought' which is little sceptical about RMA and apprehensive about the rising threats out of RMA in terms of roboticisation and unmanned nature of the weapon systems like the UCAVs or UAVs (O'Hanlon 2000). In many ways, whether apprehensive or appreciative, the UCAVs

[5] Global Positioning System (GPS) is the American satellite navigation system and the Global Navigation Satellite System (GLONASS) is the Russian navigation system. India has also developed IRNSS or Indian Regional Navigation Satellite System for this purpose with regional reach.

are related to the RMA. Hence the discussion on different Schools of thought of the RMA elucidates recognition of the UCAVs as an essential feature of the larger RMA.

To understand the intrinsic relation between the RMA and UCAV, this is important to know about the 'Military Science (Art)'. This paradigm will help us to understand, how RMA or its prongs like UCAVs influence the policies of a state. In a very simple sense, 'Military Science (Art)' means the systematic study of military discourses. 'Military Science (Art)' broadly classifies military discourses in four categories. However, all of these belong to the larger domain of politics. Bellow the table specifies the hierarchy of 'Military Science (Art)'.

Origin	Neologism	Denotation
USSR/New Western	Doctrine/Grand Strategy	Political
USSR/Old/New Western	Strategy	Strategic at Military Level
USSR/Old/New Western	Operational Art	Operational Plan
USSR/Old/New Western	Tactic	Battlefield Oriented

Table 1: The Hierarchy of 'Military Science (Arts)'

There are at least two notions regarding the impact of RMA in the 'Military Science (Arts)'. The first notion argues that the development of RMA and henceforth the development of the UCAV affects only the operational dynamics of military forces that is the two lower rungs of the 'Military Science (Arts)' (Møller 2002). On the other hand, another version says, RMA and henceforth the UCAVs affects the grand strategy also (Gurcan 2013). Here we can answer this question by examining whether UCAVs play a role in influencing the grand strategy of a state or it has a limited role in the operational theatre only. This elucidation will crystallise the intrinsic relation between the RMA and the development of the UCAVs. The section devoted to the evolution of the UCAV will illustrate these issues.

Theoretical Discourses on Air Power

Several scholars perceive that the development of UCAV has brought a fundamental change in the nature of war-fighting. Hence this section argues that the nature of deployment of UCAV resembles with the war-fighting tactic of the early 20th century that reflects in the classic writings on air power theories. After the two world wars, the nature and tactic of air warfare have undergone severe changes as a lesson learnt from

the two World Wars. But, in the wake of new battlefield and new enemy, the nature of deployment of UCAVs resonate the resurgence of classic air power theories.

In the modern age, for the first military aircraft was used by Italy in 1911 during the Syrian war against Turkey (Douhet 1921: 3). But, that was of very limited use, only for intelligence and reconnaissance purpose. In the battlefield, Germany used combat aircraft for the first time in 1915 over London resulted in 7 death and 35 injuries (Dugdale-Pointon 2007). This was a revolutionary development in the sphere of modern warfare.

Although, the inception of combat aircraft was a revolutionary development, yet the idea of 'air power' or 'air warfare' did not receive any importance, primarily because of the preconceived apprehension that combat in the sky is not feasible. For the first time the ability and importance of 'air power' were realised by Italian strategic thinker and military planner Giulio Douhet. His classic *Command of the Air* published in 1921 is the path-breaking work on air power theories. Prior to that, Douhet was expelled from his service because of his vehement criticism of the superior leadership. But, after Italy's defeat in the battle of Caporetto in 1917, due to the weak air power, compelled the military leadership to accept Douhet's criticism. Later, during Mussolini regime, Douhet was brought back to military service as the head of the Central Aeronautic Bureau and later promoted to General Officer in 1921. Douhet's thesis of 'command of the air' is yet another important concept because it resembles the current UCAVs guiding principles or policies.

This section seeks to explain, how the UCAV's guiding principles are different or similar, if any, with that of the conventional air forces. It has been argued by many scholars like Michael J. Boyle (2015) that the use of UCAV is not problematic rather the policies are problematic, so this section will seek to answer, how the 'problematic' policies are being governed by the larger principles of air warfare. Hitherto, the idea of air power is primarily oriented towards the conventional manned aircraft. This section will elucidate how the governing principles of the UCAVs are rooted in the classic air power theories, especially the air power theories of Giulio Douhet.

Douhet's first and foremost principle of air warfare was the 'command of the air'. For him, command of the air means "to prevent the enemy from flying, while retaining the ability to fly oneself" (Douhet 1921: 24). He assumed that command of the air can

assure victory because of the tremendous advantages that associated with air power. He argues that "there are places (land) untouched by sea, but there is no place untouched by air" (Douhet 1921: 27). Moreover, he argues that the air is a free space to manoeuvre, so air power can use this leverage. Although, the free manoeuvrability of air force is not so relevant in the age of sophisticated anti-aircraft defence systems, but the larger idea of command of the air remains relevant. For instance, the Battle of Britain of 1940, where the British forces neutralised the amphibious[6] German attack by achieving command of the air (Hussain 2001). In the case of asymmetrical warfare, the idea of 'command of the air' becomes prominent and the extensive use of UCAVs in asymmetrical warfare resonate this trend. Obama's policy of increasing air forces instead of ground forces resembles Douhet's urge to do the same in Italy. The US policy of 'signature strike'[7] is clearly a manifestation of such command of the air.

Command of the air can be achieved, where the air force is invulnerable. In the contemporary time of Douhet, aircraft were vulnerable to Anti-Aircraft Artillery (AAA), now the scenario is completely different. States do possess air defence systems with sophisticated systems like- Surface to Air Missile (SAM), Man Portable Air Defence System (MANPAD), Anti-Aircraft Artillery (AAA) and Air to Air Missiles (AAM) to defy any unilateral command in the air.[8] Hence command of the air can be acquired only in asymmetrical warfare, where the enemy does not have air defence.[9] In the asymmetrical war, the nature of the target is so different that mere command of the air may not result in desired outcome rather 'surveillance in the air' may accomplish the mission. The relentless UCAV's hovering in the skies of Afghanistan, Yemen, Somalia, and Federally Administered Tribal Ares (FATA) of Pakistan are the examples of this changing trend to fight and win asymmetrical warfare. Command of the air and surveillance in the air is becoming a means of deterrence against asymmetrical forces. Hence after the idea of close air support developed during the Second World War, command of the air is reviving in the contemporary military discourse vis-a-vis the non-state actors.

[6] In Military Discourse amphibious means coordinated attack by using of Army and Naval forces

[7] 'Signature strike' is an US military tactic in anti-insurgency operation, where strikes are carried out based on 'assessing' the 'way of life' of people, since there is no specific target to strike.

[8] However, at exceptional circumstances, some states like Bhutan, Nepal does not possess air defence system.

[9] Asymmetrical warfare is simply considered here as State vs. Non-State actor.

Douhet's second most prominent claim was an 'independent air force' (Douhet 1921: 31). Specialised battles like navy and air battles are becoming more independent, instead of remaining a mere auxiliary force of the Army. It was about the recognition of the 'air force' as an independent force, which will be able to carry out the surgical strike. The modern war tactic shows that no specialised force is independent of others. For instance, the army would require naval as well as air assets. Similarly the Navy would require assets of land and air warfare to accomplish their respective goals. Ultimately, the objective is to win the war. However, Douhet did not claim that the command of the air alone can win a war, rather said without command of the air the ground and naval forces would be jeopardised (Douhet 1921: 140).

The Second World War witnessed coordinated air strikes, especially by Air Force and the Army. That means the Air Force has been recognised as a separate entity, but it remained as an auxiliary force. But now, the UCAVs are also emerging as an independent force with some precise and limited objectives. Douhet defines independent air force as "an entity capable of fighting on the new battlefield, where neither Army nor Navy can take any part" (Douhet 1921: 33). He further defines independent air force as the "complex total of aerial means which, taken as a whole, makes up an air force capable of conquering the command of the air" (Douhet 1921: 34). The same trend is also seen in the case of the use of UCAVs. Earlier, the UCAVs were used primarily an auxiliary force or force multiplier. But now, with the growth of the Special Forces, UCAVs emerging as an independent force to independently accomplish objectives. The rise of the US Special Forces or the UCAV forces reiterates this evolution. The Central Intelligence Agency (CIA) led UCAV strikes are formidably covert and conducted by special units with precise and independent objectives.[10] So, Douhet's expectation for an independent air force is palpable now.

Although the guiding principles of classic air power theories of Douhet and contemporary deployment of the UCAVs are same, but the context is different in many ways. For instance Douhet argues that aircraft is pre-eminently an offensive weapon (Douhet 1921: 17). Since the defender is unaware of the direction of the aircraft they need to scatter their forces, unlike the Army invasion, where the defender

[10] The US Special forces are small forces, especially formed to carry out independent operations. However, the special units for UCAV operation are comprised of Joint Special Operational Command, private militia and CIA.

is aware of the possible route of invasion and hence prepares the defences accordingly. Now, the situation is little different, the receivers are already scattered, they need to be reached out. Modern day fighter aircraft are both defensive as well as an offensive weapon because they are equipped with defensive weapons too. However, the UCAVs are primarily an offensive weapon because in an asymmetrical warfare they do not need defence. They are not even equipped with any defensive weaponry. The UCAVs can fight in a scenario, where the enemy does not possess the anti-aircraft war-fighting capability, where it can carry out the unlimited offence with 'zero casualties' on the side of the attackers.

The difference here is that earlier air power was used to expand the battleground. Conversely, the UCAVs are used to shrink the battlefield with due precision and accuracy. Hence there is a difference at a theoretical level. Douhet was pessimistic about the idea of precision and accuracy. For him, "accuracy of the aerial bombing can never be achieved, even they are not necessary" (Douhet 1921: 19). It was primarily because of his reliance on the principle of aerial bombing is to cause collateral damage as possible. Humanistic concern was marginalised, overstated by strategic advantages. In a way, Douhat's thesis was quite directed against counter-value operation to cause severe damage to the enemy. In fact he suggested the use of delayed bombs, chemical and bacteriological weapons to deter enemy manoeuvre (Douhet 1921: 7). However, his strategy was supported by his advocacy to use large bombers with greater radius and carrying capacity to fulfil its objective of destroying 'nests' and 'egg'[11] of the enemy air force. And the task of combating in the air was entrusted to the bombers. Now, the task of destroying the 'nest' and the 'egg' lies with the combat aircraft or the UCAVs.

After the First World War and Second World War, from the inception of air dominance, it was perceived that no battle has been lost while maintaining air dominance. It was only after the Vietnam War the idea of air dominance declined, where the US failed to yield substantial political as well as military victory despite having air dominance. It is due to the asymmetrical tactic or guerrilla warfare and the widespread use of Surface to Air Missiles (SAM). For instance, the US forces in

[11] Douhet used the analogy of a bird, nest and egg to air warfare, and considered it is important to destroy the nest and egg of the bird to make her helpless and extinguish from its root. Here he uses 'Nest' and 'Eggs' to mean the destruction of the air bases and the aircrafts before they fly and fight back.

Vietnam failed to destroy the strategically important Thanh Hoa Bridge in North Vietnam using unguided bombing and lost ten US bomber aircraft, which was later accomplished by using laser guided PGM by Phanton-F4 fighter-bomber aircraft (U.S. News and World Report 1987, Cited in Chapman, 2003). It led to the decline of the idea of air dominance or command of the air and the idea of carpet bombing which was prevalent during the two world wars and also endorsed by Douhet. The Vietnam war have also experienced the extensive use of the ground forces. Even the use of ground forces remained futile and bereaved of political gain, because the US was constrained by norms and public opinion to withdraw their ground forces to stimulate political transition in the respective states. In the similar vein, the US was constrained by norms and death tolls that stimulated the gradual withdrawal of the US troops from Afghanistan. Here, the UCAVs emerged as a saviour to continue the US military policies in Afghanistan despite gradual withdrawal of ground troops.

Physical offensiveness is considered a salient feature of asymmetrical warfare, where the small and independent units of fighters can act as a mysterious fighter to create a state of insecurity and fear psychosis among common people as well as soldiers. P.S. Joshi (2008) considered asymmetrical warfare as the 'next logical step' of the continuum evolution of warfare from frontline attack in First World War to the tactic of manoeuvre in Second World War. One of the salient features of the asymmetrical warfare is the extreme informality of organisational structure and also lifestyle. The motto is to deprive the enemy of an enemy (Joshi 2008). It makes the task of the ground forces more difficult. That is why the ground forces became futile against asymmetrical forces. Here the use of UCAVs emerges as a credible means to check asymmetrical warfare tactic of the non-state actors. Douhet's idea of 'command of the air' was in embryonic stage at that time, but these cannot be relegated in the present changing scenario.

UCAVs: A Capability Multiplier

This section will elucidate the growth of the UCAVs in terms of its technological evolution. It will also discuss, what is unique about the UCAVs that are considered as problematic. And why UCAVs became a 'weapon of choice' despite having numerous concerns.

Human endeavour to make oneself invulnerable in warfare is the driving philosophy of increasing use of the UCAVs. Hence the attempt to use rudimentary unmanned aerial vehicle is not new. Military application of unmanned aerial vehicle can be date back to mid 19th century when Austrian military forces used unmanned balloons filled with time regulated explosive to attack an Italian city Venice in 1849 (Miller 2013). However, it was in very embryonic stage of using unguided and unmanned balloons and does not resemble today's UCAVs in doctrinal as well as operational terms. Yet, that was the first even known example of using an unmanned aerial attack or balloon warfare as termed by Ann Rogers and John Hill (2014). There were always some driving forces to adopt distance killing weaponry systems and use of balloon warfare was a part of that quest.

As mentioned earlier, the development of Unmanned Aerial Vehicle predates the modern concept of RMA. Probably, it is a product of 'Mechanical Revolution' of 1920s and 30s, with very limited use. The information technology revolution, which gave rise of the modern RMA, is the sole force behind the growth of UCAVs as well. Lessons learnt from different historical failures motivated human quest to find out alternative options to overcome such deficiencies. There were certain developments, which stimulated the evolution of UAVs or UCAVs.

Unmanned Combat Aerial Vehicle or Remotely Piloted Aircraft, also known as the Drone are remotely controlled aircraft with versatile combat capability. However, these are not embryonic as the balloon. These are sophisticated systems, also sometime referred as 'killing machine'[12] because of its destructive ability. A group of scholars such as Ruwantissa Abeyratne and Arman Khan (2014) say that, the evolution of the UCAVs begins with the innovation of modern 'Aerial Torpedo', which is also known as 'flying bombs' with self-propelled mechanism. During the Second World War, Germany used this weapon, which the US reverse engineered and created their version (Miller 2013). However, the 'Aerial Torpedo' is regarded as the precursor to the modern 'cruise missiles' not exactly the UCAVs. Despite their similarity of being distant manipulation, the UCAV and the Cruise Missiles are

[12] 'Killing Machine' is just an illustration to indicate its destructiveness. In areas like Afghanistan, FATA of Pakistan, common people call it with different names like death TV, killing machine, Bangana etc. See Medea Benjamin, Killing By Remote Control, 2013.

different, the UCAV is a carrier of arms and ammunition but the 'cruise missile' itself an ammunition.

The development of the modern UCAVs can be traced back to 1920-30s, when remotely piloted aircraft were used for anti-aircraft testing by Germany, the UK, the US and later joined by the USSR (Benjamin 2013: 13). Archibald Low, a British engineer, is regarded as the father of unmanned aerial system, who demonstrated remotely controlled wireless aircraft codenamed as 'Aerial Target' for the British army in 1917 (Hall 2013). The literal meaning of the term 'Drone' is a male bee, which does not bite. Probably, the term 'Drone' emerged out of that, perceiving it as a non-violent or non-lethal ISR vehicle. But, UCAVs are no longer non-violent.

In 1959 the US Army introduced radio-plane fitted with film cameras for reconnaissance purpose, but it received less importance because of general scepticism towards unmanned systems and lack of urgency. The urgency to developed UCAVs in the US for reconnaissance and intelligence gathering purpose was emerged as a lesson learnt from the two U-2 incidents. During that time, UCAVs had limited utility, so were less formidable. In the battlefield, UCAVs are first used in Vietnam for intelligence and reconnaissance purpose. This deployment was partially successful and partially failed. Failed because, from 1964 to 1975 the US lost as many 554 UCAVs in combat (Sachdeva 2015). However, it can also be assumed as a success since it saved lives of aircrew. It is worth mentioning that 90 percent of US prisoners of war are from descended from aircraft (Sachdeva 2015). Apart from that, in between the period 1946 to 1990, about 23 aircraft and 179 crewmembers were lost which were deployed only for surveillance purpose (Newcome 2004: 71). In this sense UCAVs have saved lives.

Observing the partial success of the deployment of the UCAVs, Israel, another important stakeholder of UCAV development, has considered it as a potential future weapon system. So, Israel obtained Ryan UCAVs from the US and deployed during the Yom Kippur War against Egypt in 1973 for reconnaissance and intelligence purpose (Sachdeva 2015). The Israelis used it for deception purpose against Egypt by misleading the Egyptian forces by using a proxy UCAV air strike followed by real air strike. This deployment led to the tactical success of the Israeli forces.

There was a natural reluctance from the US to use UCAVs because of its poor performance during the Vietnam War. But, the relative success of the Israeli forces in 1973 war and also in the 1980s strikes against Syria, contributed to the contemplation of further battlefield use of the UCAVs by the US. The US developed a formidable fleet of different UCAVs for ISR purpose and extensively used in the First Gulf war.

For the first time, UCAVs capable with lethality emerged to assassinate Osama Bin Laden, the leader of Al Qaida. The inception of the UCAV was a follow-up development of the US President Bill Clinton's decision to shut down an operation to assassinate Osama Bin Laden using cruise missile due to unbearable collateral damage and unreliable intelligence inputs (Zenko 2012). As a part of this initiative, the test firing of Hellfire Missile from the Predator UCAV was successfully done on February 16, 2001, and became the first lethal weapon of its kind. The Prototype of the Predator was developed in the 1980s by and Israeli engineer Abraham Karem with individual effort and later he sold the project to 'General Atomics' of the US in a condition of appointing himself as a consultant (Benjamin 2013). In 1993, the Director of CIA James Woolsey, who was unhappy with the inefficiency of CIA in gathering information in Bosnia, communicated to Abraham Karem and General Atomics for help and hence Predator UCAV came about. However, until the Kosovo war of 1999, Predators had no kinetic capability, but the idea of 'zero casualty warfare' of Kosovo insisted on going for Kinetic UCAV and the formidable predator emerged.

The prime feature of the UCAV is that it is unmanned and can be operated from a safe distance. The US Department of Defense (DoD) Dictionary of Military Terms simply defines the Unmanned Aircraft as "An aircraft that does not carry a human operator and is capable of flight with or without human remote control." Jeremiah Gertler (2012) in his CRS report to the US congress expands the definition of Unmanned Aerial Systems as: "Powered, aerial vehicle that does not carry a human operator uses aerodynamic forces to provide lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry lethal and nonlethal payload" (Gertler 2012: 1).

There have been intellectual debates on roboticisation of warfare, alienation of morality from warfare and, transcending of ethical and democratic constraints from

warfare. A general scepticism is expressed by the intellectual community towards the use of UCAVs. However, the capability of the precision targeting is considered as a significant feature, which is used to justify the use of the UCAVs in the battlefield or in military operations. As per the current technology, UCAVs can carry two Hellfire Missile with precision guided air to surface missiles, which can hit precise targets. James J. Wales (2013) claims "Drones are armed with accurate missiles that can target individual vehicles, houses, and other structures, and even particular rooms in a building" (Wales 2013: 7). This proclaimed accuracy remained the justification for the use of UCAVs.

Another most important feature of the UCAV is its ability to hover in the sky for a longer period of time much more than the manned aircraft does. This is the reason why the UCAVs can be differentiated from the manned aerial vehicles. A surveillance aircraft can hover in the sky for average 14 to 20 hours, whereas the manned aircraft can fly two to three hours without refuelling. Even, some special UCAVs such as Global Hawk have the duration of 35 hours with their ability to fly very high altitude with 12,000 nautical mile range (Sachdeva 2015). The UCAVs has long hover capability primarily because of its fuel carrying capacity and secondly, there is no human related complexity associated with it. Such aircraft are accompanied by the highly sophisticated sensor and cameras, which gives extra leverage to the UCAVs. As per the latest technological development by 2015, the latest sensor camera is 1.8 Gigapixel powerful and it can capture clear picture from 30 thousand to 60 thousand feet altitude. Some UCAVs are also customised with an infra-red camera with heat signature of the human body, which is very used to trace the human person in wide uninhabited terrain. This can be used in rescue missions as well as asymmetrical warfare in uninhabited terrains.

So far very fewer countries have used UCAVs in military operation. Countries such as US, UK, Israel and recently Pakistan have used UCAVs for surgical strike. However, some other countries like China, Russia and Iran are believed to posses UCAVs but they have not yet used it in military operations. In case of the military operations, Israel has used UCAVs in the war against Hezbollah in 2006. Israel also uses the UCAVs in the red sea to detect any suspicious shipping of arms to militant organisations such as Hezbollah or Hamas (Rogers 2010). The UK continues their operation alongside the United States and also acquired the capability from the US.

The US is the only major actor to use UCAVs in a massive way in multiple operations, including in Afghanistan, FATA of Pakistan, Yemen, Syria and Somalia against Al Qaida as a part of the US-led Global War on Terror (GWoT). However, the fundamental similarity of the deployment of the UCAV is that they are being used against non-state actors or in other words in asymmetrical warfare.

Being the largest user and possessor of the UCAVs, the US is the important field of this study. So far, the US possessed more than 7000 UAV/UCAVs of various kinds (Hall 2013). After Barak Obama came into power, he intensified the UCAV program in order to roll back military forces from overseas as a fulfilment of his electoral promises.

Regarding the military strategy of the US, the UCAVs are operated by Special Forces: the Joint Special Operational Command, CIA and private mercenary, which resemble the air power theory of Douhet, who suggested for an independent air force that can carry out operations independently. Special Forces are defined as a "tactical-sized force that can have strategic impact" (Robinson 2013: 4). The special operations forces will remain largely a tactical force that achieves limited rather than enduring or decisive effects in confronting terrorism, insurgencies, and other irregular threats. The Douhet's thesis of command of the air is also palpable in the Tactical Air Control Party of the US. The Tactical Air Control Party is designed to reach out unto the last manoeuvre of the enemy combatants, which hid among the civilians (Robinson 2013: 28). At large, the US-led UCAV strategy has revived the classic air power thoughts of Douhet in the present context.

The following section explains the questions, why the US considered a shift in the larger domain of war fighting and what are the motivating factors that led to a major shift in warfare in terms of the inception of the UCAVs.

Development of the UCAVs: Motivations

It begins with the cold war complexities when the US felt the need of a high altitude flying Intelligence, Surveillance and Reconnaissance (ISR) aircraft and developed U2 spy plane. The U2 is a manned aircraft and entrusted with the responsibility to gather intelligence on the Russian nuclear developments (Jones 1997). The 'Gary Powers

Problem'[13] has changed many things. The problem of political sensitivity and diplomatic complexities or 'Gary Powers Problem' that arise from attribution is also another motivational reason behind the growth of the UCAVs, especially for ISR purpose. The U-2 incident of 1960 was significant because it brought the issue of pilot's captivity into the limelight. After the incident, the US President Eisenhower for the first time had to admit state-sponsored espionage (McDermott 1998). It was a big embarrassment for the United States. Moreover, Capturing of one pilot by the enemy nation creates a lot of political as well as diplomatic complexities, which could have been transcended by using unmanned aerial vehicles.

The second U2 incident is another landmark development, which contributed to the development of the UCVs or UCAVs (Jones, 1997). In the wake of Cuban Missile Crisis, the Soviet Surface to Air Missile (SAM) has destroyed a US reconnaissance U2 aircraft and killed the pilot Rudolf Anderson (Jr.). This incident, especially the death of an American soldier have intensified the tension and mounted intense pressure on the US President J.F. Kennedy and also had a possibility of leading an unwanted nuclear escalation (Wilson 2013). This human factor received due importance in the US Congressional debate (The US Congressional Record 2000). And the UCAVs emerged as an alternative to this problem. In fact, the 'Global Hawk' reconnaissance UCAV project was initiated primarily to replace U2 reconnaissance planes (Benjamin 2013: 50).

The inception of the UCAVs can be underlined from the economic explanation as well. The development of UCAV resembles the US attempt to overcome its financial constraint to wage longer wars on terrorism. One motivation or justification for the endorsement of the UCAV policy is its political economy. The UCAVs are relatively cheaper and affordable with the versatile military application. For instance, the most used US UCAV Predator costs 4 million, this is far less than in F 16 fighter jet, which costs 16 to 17 million US Dollar (Hall 2014). The congressional debate on the UCAVs has also pointed out the economic factor (The US Congressional Record 2000).

[13] 'Gary Powers Problem' is a phrase coined to mean the political and diplomatic row, followed by a revelation of state sponsored covert mission. The origin of the term is attributed in the name of the U2 pilot Francis Gray Powers, who was captured by the USSR after the U2 incident of 1960.

Although UCAV is perceived a cost effective, yet some UCAVs such as Global Hawk IRS UCAV, Predator (B) or Reaper and Predator(C) or Avenger is not that cost effective, which costs around 20 to 28 million US dollar (Benjamin 2013: 41). Moreover, the cost associated with the maintenance is also there. Looking at these circumstances, the argument of the existence of Military Industrial Complex cannot be relegated.

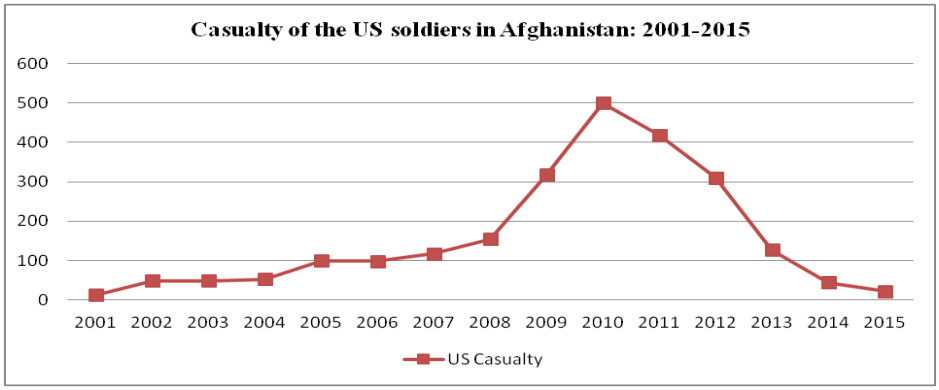
As mentioned before, several scholars argue that it is not about the cost effectiveness of the UCAVs, rather because of the 'Military Industrial Complex' is a reason but, of course not a motivation, for the increasing numbers of the UCAVs, especially in the United States. There were significant efforts made by giant UCAV manufacturing companies through lobbying to persuade the government to procure more UCAVs. For instance between 2000 to 2002, UCAV manufacturing company General Atomics lobbying interests increased by 49 percent per year. Another company Northrop Grumman increased have also increased up to 27 percent (Hall 2013: 454). Such vast increase clearly indicated the intense pressure mounted by the private arms companies to adopt a UCAV policy as the United States national security policy. Even such attempts mounted some results. The Congressional Unmanned Systems Caucus (CUSC) which was formed 2009, consisting of 50 members from House of Representative significantly emphasised on expanding UCAV industry. Explaining the reason, Abigail R. Hall et al (2013) writes, "Every member of the caucus comes from a state with some connection to drone manufacturers meaning they have a vested interest in expanding the industry to generate benefits for their constituents" (Hall 2013: 456). He buttressed his proposition by citing examples of some representatives, who benefitted from UCAV manufacturing companies.

The idea of Zero casualty warfare that the NATO experienced in the Kosovo war of 1999 however had a greater impact in formulating the direction of UCAV policy. Several scholars such as Medea Benjamin (2013) attributes the increasing pace for the development of the UCAVs emerged as a step to acquire 'zero casualty warfare' capability. In the Kosovo war, the NATO commander disagreed to fight below 15000 feel altitude so that the hand held air aircraft defence cannot hit the aircraft and hence the NATO enjoys complete invulnerability (Rogers 2000: 4). As a result, the Kosovo war was ended without any casualty on the side of NATO forces. This led to further contemplation on the possibility of zero casualty warfare, especially in the case of

asymmetrical warfare against non-state actors, where the enemy does not have any air defence capability. Theoretically, the US-led global war on terror was compatible battleground to use UCAVs.

The USA had learnt lessons from the Vietnam War before they involved into the 'Global War on Terror' (GLoW). The anticipation and apprehension were that the US would not be able to continue long military operations with huge soldier casualties. Moreover, the unending misery faced by the US troops in the long-running fight compelled the US ultimately to withdraw their forces conceding defeat. Here, the UCAVs are believed to be emerged to compensate such deficiencies in the next long-running war on terrorism. The UCAVs emerged as a 'weapon of choice' for the US (Orozobekova 2015). But, however, there is a puzzling question appears, whether the UCAVs really succeeded in reducing US casualties or it is mere speculation.

After Barak Obama had assume power, he intensified use of UCAVs in Afghanistan. Since Obama was from the Democratic Party and he also engaged in anti-war campaign, yet he could not afford to withdraw the US troops from Afghanistan, so he intensifies the UCAV programme to transcend the democratic barriers, towards which he has liability to comply with. In the first term of the Obama administration, UCAV strike was six times higher than his predecessor George W. Bush (Boyle 2013). Ideally, it should reduce the casualty rate of the US soldiers. But, the figures shows, the US suffered the highest number of casualties in the years followed by the intensification of the UCAV strikes.



Source: iCasualties.org[14]

Figure 1: Casualty of the US soldiers in Afghanistan: 2001 to 2015.

[14] 'iCasualties.org' is an independent website developed to track casualties of Iran and Afghanistan war, founded in 2003.

This statistics disagrees with the assumption that, use of UCAVs helps in reducing fatalities and but the use of UCAVs can help in transcending domestic public pressure to carry out long durational war overseas. The fatality rates of the US soldiers are higher in the period of maximum use of the UCAV. Despite the fact, the US led UCAVs strike received due domestic public support.

In an opinion poll published by the Washington Post in 2012, more than 83 percent of people approved the use of UCAVs overseas (Benjamin 2013: 9). It is bit puzzling stance, yet the inference can be drawn that, despite of UCAVs inability to prevent the casualty of the US soldiers on the ground, the UCAVs are approved by domestic population as a tool for overseas operation. It might be because of the inherent invulnerability of the soldiers and the expected ability to carry out operations in absence of heavy boots on the ground.

The fatality analysis of the other examples viz. Yemen, Somalia, and Pakistan, reflects the effectiveness of the UCAVs to carry out independent operations without declaring war, where the US uses UCAV in anti-terror operations without sacrificing their soldiers.

However, the inability to halt soldier's casualty might have negative repercussion perhaps that is the reason, why the US Military have removed the data of UCAV strikes in Afghanistan. However, one can put the question, why the analysis of soldiers' casualties of Afghanistan has only been considered. The justification is that, only in Afghanistan the US deployed ground forces and UCAVs at similar pace.

The following table will illustrate an account of the fatalities caused by US-led UCAV strikes in different countries. The data has been taken from the Bureau of Investigative Journalism, which is the main source of information related to UCAV strikes across the world. The differences in terms of civilian casualties would provide a scope to analyse differences in terms of policies of the US counterterrorism UCAV operations. The succeeding chapters will try to illustrate if there is any differences of approach that caused different degree of civilian casualties.

Period	2015[15] to May 2016	2004 to February 2016	(2001)[16] 2007 to April 2016	2002 to April 2016
Field of Operation	Afghanistan[17]	Pakistan	Somalia[18]	Yemen[19]
Total Strikes	309-314	423 (Obama Administration ordered 372 strikes)	24-28 (Ordered by Obama Administration)	117-137 (Ordered by Obama Administration)
Total Casualties	1,463-1,956	2,479-3,999	213-377	528-765
Civilian/ Children casualty	75-103civilian 4-18children	423-965 civilian 172-207children	3-10 civilian 0-2children	65-101civilian 8-9 children

Source: The Bureau of Investigative Journalism[20]

Table 2: Fatality analysis of US led UCAV strikes in Afghanistan, Pakistan, Somalia and Yemen.

The purpose of the weapon is to gain political as well as military objective. If the weapon is not capable of fulfilling the political objective, despite having tactical utility, it is futile. The UCAV appears to have a political weapon to justify the longer war on terrorism, because it goes beneath public domain. As the classifications of the 'Military Science (Arts)' is concern, the UCAVs have not merely directed the US tactic or operational art, rather the ambit of strategic calculations or grand strategy, by which they are trying the make safe presence of the US in different regions, which is termed by different scholars as drone vision or Predator empire or maps of empire as mentioned in the introductory chapter.

[15] Data could not found from the beginning. The Bureau of Investigative Journalism started keeping records of Afghanistan UCAV strike only after 2015.

[16] The US operation started from 2001 but, the Bureau of Investigative Journalism has data from 2007 onwards.

[17] Acknowledgement: The Bureau of Investigative Journalism does not claim the exhaustive of the given data.

[18] The Bureau of Investigative Journalism also claims, presence of another 8 to 11 covert UCAV strikes in Somalia other than the mentioned figure, causing 40 to 141 total casualties including 7 to 47 civilians and 0 to 2 children.

[19] In Yemen, The Bureau of Investigative Journalism discerns at least 16 to 79 covert UCAV strikes causing 206 to 441 fatalities including 68 to 102 civilian casualties.

[20] Dataset of the Bureau of Investigative Journalism has been considered here, based on the credibility of their methodology and own investigation, unlike other data aggregators. Data accessed on 17 May, 2016. They have also been shortlisted for Data Journalism Award, 2016 because of their exhaustive work on the US led UCAV strikes.

As the statistics show, the use of UCAV is declining from 2012 onwards. However it does not mean that the prospect for the use of UCAVs is declining. For instance, for the first time, the US has trained more UCAV pilots than that of the manned aircraft pilots in 2012. It clearly indicates, the scope is open and probability is there. As argued by Michael Mayer (2015), Vivek Kapur (2014) the fifth/sixth generation stealth UCAVs may be used in high voltage warfare too. However the US Defense Budget Priorities and Choices (2012: 9) clearly indicates that since US "will continue to be engaged in counter terrorism operations around the globe" so four options were considered viable: (1) Special Forces (2) Unmanned Aerial Systems (3) Sea based unmanned ISR systems and (4) Advance unmanned ISR systems.

Hitherto, the US has extensively used the UCAVs in counterterrorism operations. Different scholars perceive the results differently. The use of UCAV has been considered as both a 'failed' and 'successful' policy by several scholars. It has been argued that it is a failure because it leads to the growth of anti-American feeling among common people of the ground (Dengler 2013). Another group of people argue that it is a successful strategy, because it has dramatically reduced casualty in terms of collateral damage as well as the death of the soldiers. Another line of argument could be, use of UCAVs enabled the US to continue their military operations is the terrorist bases transcending democratic barriers, especially transcending public opposition at their home. Hence it is a strategic success in that sense, because public support for the US UCAV strike is still high at the domestic level.

However, the intensive use of the UCAVs has failed to generate concrete outcome, since they failed to reduce fatality of the US soldiers in Afghanistan. But, it remained successful in checking militant activities of the non-state actors through its surveillance policies, because terrorist activities reduced until Kunduz was seized in 2015 by the Taliban. So, the assessment of the outcomes of the UCAV strikes correlates the proposition that, UCAVs are neither effective weapon in reducing casualties of soldiers, nor it can reduce casualty of civilians.[21] As an obvious repercussion, the growing anti-American feeling grew in Afghanistan, Pakistan and other countries. Yet, as a means for continuous surveillance mechanism, the UCAVs are considered as effective, because of its longer hover capability, which can

[21] Not effective because, the UCAVs have deliberately targeted schools and killed approximately 69 school children, which otherwise would not have been done by any other forces.

ultimately help in checking militant activities of the non-state actors. Nevertheless, the UCAVs evolved, emerging in terms of capability and proliferating in terms of number despite its positive as well as negative outcomes. The following chapter will elucidate, how the development of the UCAVs has brought changes in legality, ethics and tactics of moderns warfare, especially in case of asymmetrical warfare.

Conclusion

This chapter has discussed a range of concepts, which are intrinsically related to the development of UCAVs. This chapter explained how UCAVs have evolved along with other developments including RMA to deal with the changing circumstances in waging warfare. Citing the historical evidences of use of balloon in warfare, this chapter argued that the eternal human tendency to keep oneself invulnerable in warfare is the driving force for the development of UCAVs. The idea of 'zero casualty warfare' which was a tactical motivation for the rise of UCAV belongs to the same line of argument. The argument that UCAVs as the product of RMA is a flawed argument. It has been observed that, although RMA and technological revolution is the enabling reason, yet the eternal human tendency to remain invulnerable in warfare was the driving force to acquire UCAVs.

This chapter also argued that inception of the UCAVs gave rise to classic air power theory of Douhet, especially his idea of 'command of the air' and 'independent air force'. The deployment of Special Forces with relentless hovering of the UCAVs gave rise to these classic ideas on air power. The succeeding chapters will discuss why revival of Douhet's ideas became apparent and how these are helpful for states to continue the military operations, transcending democratic barriers.

This chapter looked at the development of the UCAVs from the prism of 'Military Science (Art)'. Whether UCAVs can influence the lower rungs of the hierarchy of Military Science (Art) or it mounts influence on the grand strategy as well. The analysis supports the proposition that the UCAVs influence grand strategy of a state as well. For instance, the US counterterrorism policy is based on unmanned weapon system as clearly mentioned in the 2012 US Defense Budget Priorities and Choices. Hence, UCAVs have influence in shaping directions of a state policy.

The possibility for simmering use of UCAVs leads to the contemplation on more intellectual discourse on the changes and challenges that are waiting ahead. The differences in terms of civilian casualties in different countries keep an option open to analyse if there is any differences in terms of counterterrorism UCAV operations. Whether, differences of casualties have any correlation with the changing ethics of warfare and nature of conducting UCAV operations. Hence the succeeding part will elucidate the issue related to the changing nature, ethics and laws of warfare due to the inception of UCAVs.

Chapter III

USE OF UNMANNED COMBAT AERIAL VEHICLES IN MILITARY OPERATIONS: CHANGING NATURE, ETHICS AND LAWS OF WARFARE

Introduction

The nature, ethics and laws of warfare are intrinsically related concepts. Hence this study considers the comprehensive analysis of these three variables is important to have a glance of their interrelations and also to have a solid understanding of the emerging issues. It begins with the assumption that there is a change in the nature of war fighting with the inception and use of the Unmanned Combat Aerial Vehicles (UCAVs) in military operations, especially in asymmetrical warfare. As the previous chapter has highlighted, the use of UCAVs are primarily directed against non-state actors. This chapter will elucidate the legal framework to understand the legality of the UCAV strikes and also try to show, how the legal and ethical deficiencies are emerging due to the changing nature and tactic of war fighting.

As discussed in the previous chapter, there is a change in the tactic of war fighting, especially in air warfare, where it can be discerned that the emergence of the concept of command of the air and independent air force with a responsibility to accomplish independent military objectives. This chapter will examine how this new form of tactic has brought legal ambiguities. Again, use of the UCAVs in military operation is largely considered as ethically problematic, which also goes beyond existing legal framework. A legal vacuum has been created because of the ambiguous nature of deployment of the UCAVs. The hitherto use of the UCAVs are neither law enforcement mechanism which can be guided by domestic judicial mechanism nor a declared war zone that can be guided by laws of warfare or *Jus ad Bellum*. Michael Walzer (2007) considered it as ‘in between zones’, which he projected as a legal problem. This problem appears as a larger one with a gradual change in nature of the military operation, taking advantage of legal loopholes. The problem begins with the consideration of these zones as ‘conflict zone’ with the right to use force. This acceptance has contributed to the undermining of state sovereignty and gave justification for UCAV strikes.

Nature of UCAV Warfare: From Strikes to Surveillance

The US declared 'Global War on Terror' (GWoT) as a response to the September 11, 2001 attack on the US soil also known as the 9/11 attack. The GWoT has widened the idea of traditional battlefield. Defying the essence of the Treaty of Westphalia, a breach of state sovereignty has been experienced in search of an enemy, who does not possess a concrete land. As an immediate response to the 9/11 attack, the US Congress has passed the 'Authorisation to the Use of Forces Act, 2002' to authorise the US executive to take military action against 'Al Qaida' and its allied forces, which is considered responsible for the 9/11 devastation.

As a next step towards the elimination of 'Al Qaida' and its allied forces, the US and its coalition forces invaded Afghanistan in 2002. The North Atlantic Treaty Organisation (NATO) which was a cold war military alliance of the capitalist block has been tacitly mandated by the UN Security Council Resolution 1373/2001, to carry out military operations against the terrorist groups.[22] The combination of the UN-mandated coalition forces is formally known as 'International Security Assistance Force' or ISAF in short (Ranjan 2014: 457). In this sense, the ISAF is perceived as a legitimate body to carry out military operations in Afghanistan soil with UNSC mandate to eliminate terrorist groups hiding in hills and caves of Afghanistan (1373/2001 UNSC Resolution).

It was certainly an asymmetrical warfare because it was a fight between many powerful states on one side and a few unorganised and saturated terrorist groups on the other. However, the tactic of asymmetry was not first used by the coalition forces, rather by Al Qaida by initiating and successfully executing 9/11 attack.[23] P.S. Joshi (2008) categorically says that asymmetrical warfare in the next logical step of warfare. By definition, asymmetrical warfare is a fight between unequal. In asymmetrical warfare, ambush tactics of Guerrilla Warfare are adopted by small groups to inflict sudden damage to big parties. It has been a challenge for a big party to defend its assets in an asymmetrical warfare. The 9/11 is a concrete example.

[22] The author understands the pejorative connotation of the term 'terrorism' yet for a better understanding and logical flow, the term has been used throughout the study.
[23] However, there is a conspiracy theory explanation of considering the 9/11 attack as insider job. This study does to that explanation.

In the beginning of the operation against Al Qaida in Afghanistan, the coalition forces used ground operations as a full-fledged war since it was a declared war under the UN mandate (1368/2001 UNSC Resolution).[24] The initial operations were relatively successful because it could wipe out Taliban forces and Al-Qaida from their bases. The problem begins with that temporary triumph.[25] The Al Qaida and Taliban fighters moved to different terrains and population centres. They hid in the difficult terrains and border regions especially close to Pakistan, which shares a significant array of the border with Afghanistan. Despite the agreement on anti terror operation between Pakistan and the US, Pakistani army proved either inability or unwillingness to attack terrorists in the Afghanistan-Pakistan border region (Aslam 2011: 316). Hence US had to execute the anti terror operation with another means.

The wisdom of conventional warfare faded due to the saturated nature of the battlefield. In order to accomplish their military objective, the coalition forces had primarily two options: (1) to find out unto the last member hideout in population centres, (2) to pursue the Al Qaida fighters which moved to Pakistan. Both the tasks were not easy to execute. Here, the UCAVs emerged as a saviour. However, this is not the only tactical situation that compelled the US-led coalition forces to use UCAVs. The UCAVs were used from the beginning of the operation in 2002 but in a coordinated way mostly for surveillance and intelligence-gathering purpose. Gradually the UCAVs emerged as an independent force with independent operational objectives.

The inception and use of the UCAVs in military operations have brought a way to deal with the changing nature of the asymmetrical warfare. Now, the asymmetrical warfare is initiated by the big party using Special Forces equipped with technological sophistication and invulnerable weapon systems such as UCAVs to reach out unto the last enemy fighter.[26]

[24] In clause 3 of the 1368(2001) resolution, in reference to the 2001 Attack on the US, reasserts the right to self defence of the states, and also writes 'Calls on all States to work together urgently to bring to justice the perpetrators, organizers and sponsors of these terrorist attacks and stresses that those responsible for aiding, supporting or harbouring the perpetrators, organizers and sponsors of these acts will be held accountable'. It gives, the US and NATO to legitimately go for war on terror operations.
[25] The initial operations are considered a militarily successful in terms of military gain and death tolls. However, it does not indicate a complete successful operation.
[26] Invulnerable in terms of human casualty

Out of the two viable ways available to the US-led coalition forces, both the options were pursued. And in both the cases, the use of UCAVs has enabled its smooth execution. In the first scenario, the deployment and use of the UCAVs with their acquired precision has enabled to find out unto the last fighter of Al Qaida and Taliban.[27] The acquired precision also helps to maintain the principle of proportionality in case of targeted surgical strikes in population centres.[28] The use of UCAVs here appears legally correct and viable since the principle of proportionality is believed to be followed here. In the case of the second scenario, the principle of 'Hot Pursuit'[29] was followed as a legitimate right to pursue those enemy fighters, who took a position in a third party territory that is the Federally Administered Tribal Area (FATA) of Pakistan.

Both these cases are ethically and legally problematic, which will be discussed in the succeeding sections of this chapter. But the transformation that has been observed in terms of nature of warfare is that the tendency to defeat asymmetrical or weak forces by using military means, irrespective of state boundary and irrespective of popular sentiment associated with it. A dilution was felt between the act of law enforcement and the act of military operation. The use of UCAVs for striking and surveillance purpose, enabled by its versatile use, has contributed towards this change. This trend is further observed in the UCAV strikes in Somalia and Yemen following both 'reaching unto the last' and 'hot pursuit' policies.[30]

The Obama administration's warfare policy or anti-terror policy is hence taking a shift from conquest to pursuit (Gordon 2015) based on the right to 'hot pursuit' to ensure 'self defence'. This precedence has certainly undermined the principle of territorial integrity and sovereignty. This is a fundamental change in the nature of warfare, which has relegated the territorial sovereignty in the name of 'hot pursuit' or in other words 'pre-emptive strikes' to avail one's right to self defence.

[27] The idea of 'unto the last fighter' is a vague idea, which would be discussed in the later part. In this sentence, these words are used to specify the military objectives.
[28] However, there is a critique on the maintained proportionate principle of the UCAV strikes, which will be discussed in the part on legality.
[29] The term 'Hot Pursuit' is a legal term, especially applicable in case of Laws of Sea, where a host country can pursue a vessel, which violated the territorial restricts of the host country.
[30] However, none of the terms were used in any document, rather this study considers so based on the nature of their operation that suits these terminologies.

The US is no longer the only state actor to use UAVs or UCAVs. This tactic is adopted in many other counter-insurgency (COIN) operations. There are instances where UCAVs were used in military operations against non-state actors within state territory. For instance China used UCAVs in Jinxing region, Nigeria used against Boko Haram, India used against Left Wing Extremists (LWE) in the Operation Green Hunt (Sachdeva 2015). However, these are the examples of using UCAVs for surveillance purpose as force multiplier, not for striking purpose as did by the US. These are examples of coordinated strikes, where precise targets are traced by using UCAVs and hunted by the ground forces. The difference between these is that, in the independent UCAV operation, the targets and objectives are not certain. It hovers, loiters and observes for a long time to ensure everything is normal and decided the target based on any 'abnormal' or 'suspicious' behaviour on the ground.[31] In the case of coordinated operations, there is specific target or response from the enemy that ensures the authenticity of the enemy presence to carry out lethal strikes. The repercussions of this nuance leap have severe ethical implications, which would be discussed in the succeeding section on ethical implication of the use of UCAVs in military operations.

The precedence set by the US was adopted Pakistan while carrying out Operation Zarb-e-Azb and used UCAVs causing at least three casualties, but details are classified (Panda 2015). It is one of the rare instances of COIN operation using air power on its own populations.

One obvious change in the nature of war fighting is that asymmetry war in no longer remained an advantage for the small forces to initiate an ambush and Guerrilla tactic to surprise belligerent due to the bird eye view of the battlefield, rather asymmetry became a state of vulnerability of weak and complete invulnerability of the powerful party. The versatile capability of the UCAVs gave the ability to gather real-time intelligence with an ability to hit the target precisely. Now, with the help of bird eye view, ambush attempt became vulnerable to be detected. That is how at least to some extent guerrilla warfare tactic has been checkmated by using UCAVs.

[31] The use of the term 'Normal' is very subjective. What is normal for the Afghan people (for instance, carrying guns) may not be normal nor US soldiers looking for terrorists.

This tactical advantage against guerrilla warfare tactic has a larger implication in shaping the military policy in the GWoT, especially in difficult terrains. It gave rise to the policies such as targeted killing and signature strike. This is the juncture that makes UCAV technology as value-laden weapon system, precisely because only UCAV systems with distinct technology enable a state to pursue policies like targeted killing and signature strike. This is also the tipping point that explains the connection between the Military Science/Arts and the development of the UCAVs as discussed in the first chapter. As argued in the first chapter, the inception of UCAVs has not only influenced the lower rungs of Military Science/Arts which are the tactical and operational art but also the upper rungs which are the larger strategic dimension of the military policy. The inception of the UCAVs has not only influenced policies such as targeted killing and signature strike, rather shaped the direction and continuation of the Global War on Terrorism across regions. Expansion of the Global War on Terror to Somalia and Yemen is its evidence.

Targeted killing is perhaps the primary policy outcome enabled by the UCAV technology. Targeted killing is a tactical policy, but it framed the larger US policy to continue GWoT. In a very simple sense, targeted killing means pursuing and killing specific targets decided by high-level authority.[32] Targets are generally High-Value Targets (HVT) which is well protected. Pursuing such targets using ground forces means a lot of bloodshed and loss of lives from both the sides. As in UCAV operations one party remains invulnerable, so it becomes easier to pursue and kill High-Value Targets, without killing or ignoring the presence of common fighters. Such technological advantage gave rise of the targeted killing policy.

The US targeted killing policy is based on a top-secret kill list also known as the 'Disposition Matrix' that provides series of names or targets for assassination (Shaw 2013). The targets of the 'Disposition Matrix' are set at the topmost level of the command chain, and maintain watertight secrecy. Probably each and every target is approved by the President of the United States (Shaw 2013). However, the tactical disadvantage with the targeted killing policy is that the 'Disposition Matrix' is lacked adequate intelligence information and hence an incomplete list of specified targets.

[32] Targeted killing policy resembles 'assassination' but the US is not using the term assassinations, because assassination is banned in the US under the executive order 12333 given by the US President.

To overcome this deficiency, another policy was adopted and authorised by the US President George W. Bush (Jr.) and later intensified by Obama Administration, is the 'signature strike' policy. The first case of signature strike was reported in 2008 during Bush Administration (Zenko 2013). The Signature Strike or Terrorism Attacks Disruption Strike (TADS) is a succeeding policy of the targeted killing. This is a targeting policy, where targets are not known. Signature strike not only eliminates specified targets, rather it finds out targets based on 'irregular behaviour' or 'pattern of life' which are deemed to be suspicious on the surface (Amnesty International: Will I be Next? 2013). This is the significant change in terms of the nature and tactic of war fighting that emerged primarily due to the inception of the UCAVs in military operations.

There are a number of ethical concerns that emerged out of such changes. Amnesty International in a report, 'Will I be Next?' explicitly writes "Signature strikes do not appear to require specific knowledge about an individual's participation in hostilities or an imminent threat, raising concerns that such strikes are likely to lead to unlawful killings" (Amnesty International: Will I be Next? 2013: 28). In the similar vein, another vehement criticism of the signature strike policy is the 'knowledge gap' or anthropological and cultural ignorance about the people on the battle surface. Hence another change is taking place that is the involvement of academic community to generate battlefield related information, precisely known as the 'Human Terrain System' or HTS. The Human Terrain System actually started in 2005-2006 in the pretext of initiating 'signature strike'. The task of the HTS team is to assist the military in generating knowledge about the human terrain of the conflicting zones so that they can differentiate between the 'regular' and 'irregular' pattern of life in the vicinity.

Hence there has been a new trend observed in the nature of military operations that is the involvement of the intellectual community or use of ethnographic knowledge for military purpose.[33] This point is worth mentioning because such lexicons will gradually lose its independence in academic pursuit and will be trapped in military discourse. Controversy rose, when the American Anthropological Association (AAA)

[33] However, involvement of the anthropologists in the military discourse has been a controversial issue. Many spoke in favour of it and many spoke against it. This author does not believe that ethnographic study is bad, but apprehensive that the trend might be problematic.

issued a statement in 2007, labelling HTS as an "unacceptable application of anthropological expertise" (American Anthropological Association (AAA) Executive Board 2007). However, later American Anthropological Association disapproved their statement and the controversy ended in American. Yet, it remained controversial in public discourse.

Another change that has been observed in the UCAV operations is the involvement of the Special Forces and intelligence agencies, rather than the regular forces. As explained in the earlier chapter, the development of independent air force with independent objective is palpable now. The Joint Special Operational Command (JSOC) is in charge of the overt UCAV operations in Afghanistan, and the Central Intelligence Agency (CIA) carries out covert operations. This is not the case only in US, for instance, in India also, National Technical Research Organisation (NTRO) which is a wing of Research and Analysis Wings (RAW),[34] has in charge of many UCAVs, however, for surveillance purpose only (Bhatt 2010). That means the responsibility is gradually shifting from military to Special Forces. In operational terms also, Indian Air force is planning to set up a 'Drone Command' to look after UCAV operations in a relatively independent manner. These instances underpin the argument that, the Douhet's legacy of 'independent air force' in reviving along with the inception of the UCAVs.

Hence an apparent change has been observed in terms of the nature of war fighting because of the inception of the UCAVs in military operations. Since nature, ethics and laws of warfare are intrinsically related, so such changes in the nature of warfare has led to changes in the ethics of warfare as well. The following section will elucidate how the ethical changes and concerns are increasing due to the intensified use of UCAVs in military operations.

Ethics of UCAV Warfare: Targeting and Precision

Ethics is closely associated with governing of warfare in many ways. From ancient time to present, there have been attempts to govern warfare from the prism of ethics. In the ancient Indian scripts of Mahabharata, the idea of '*Dharma Yuddha*' was embraced. In Christian philosophy too, '*Jus in Bellow*' tradition is well discussed to

[34] Research and Analysis Wings (RAW) is the external intelligence agency of India.

govern the conduct of warfare. The core Islamic texts Qur'an and Hadith literature also talk about their way of conducting warfare in an ethical way (Popovski 2009). These principles still play a significant role in shaping causes and ways for waging warfare. Nonetheless, religious ethics for governing warfare is not necessarily the modern 'principles of warfare' precisely because of the diverse interpretation and differences among major religions.

'Ethics of warfare' is however, not necessarily mere the principles of governing warfare. Certain values, norms and policies can also be attributed to war ethics (Chamayou 2015). Jai C. Galliott (2013) has raised the question on the moral ground of the widening gap between belligerent forces in terms of vulnerability. As the previous section had put a light on the changing nature of warfare, this section will elucidate how the inception of UCAVs along with the changing nature of warfare have contributed towards the fundamental change in the thinking on ethics of warfare.

Let the study begin with the basic understanding on the idea of war ethics. The Oxford Dictionary defines ethics as, 'moral principles governing or influencing conduct'. Unlike laws of warfare, war ethics have never been codified. It remained as mere principles. Some of them have been translated into laws of warfare or in modern times as International Humanitarian Law (IHL). From this point of view, the larger idea of ethics of warfare comes in the ambit of international humanitarian law or laws of warfare.

However, the entire lexicon of 'ethics of warfare' does not come under the purview of laws of warfare, precisely because, it is more loosely set, sometimes speculated concepts, which are 'real' but may not be 'concrete' in form. Perhaps that is the reason why religious scriptures talk more about war ethics rather than legal documents dealing with governing of warfare. This section will discuss some of these concerns in the wake of increasing use of UCAV. Study of such speculation is important in two ways: (1) it can generate influence on our way of thinking towards technological developments (2) it might help in better understanding of the legal concerns of the use of UCAVs. Since laws of warfare have been developed to address ethical concerns under legal framework, so study of the ethics of warfare will help in dealing with serious ethical issues which are not adequately covered by the legal discourses. As explained in the beginning of this chapter, there is an intrinsic

relationship between nature, ethics and laws of warfare. Nothing can be compartmentalised and studied independently of each other.

C.P. Snow (1965) in his celebrated writing '*Two Cultures*', talks about the growing bifurcation between science and humanities, and considered it as a negative sign of progress. Revisiting this point, John Brockman (1995) has written '*The Third Culture*' and attributed the source of the problem to 'technology' which he referred as the 'Third Culture'. Moreover, a fundamental debate is going on, whether technology is ethically neutral or it possesses inherent values. This scholarly debate is important in the discourse on the use of UCAVs in military operations, precisely to understand, whether UCAVs are value neutral or it has some inherent values, which are perceived to be problematic and only governing principles are problematic.

A fundamental question has been raised, how UCAVs are different from manned fighter aircraft since they perform almost similar tasks. The answer is technical or technology oriented, but it leads to further ramification and differentiation between the two kinds of technologies. The basic difference between manned aircraft and UCAV, as the name itself suggests, the manned aircraft are controlled by pilot 'on board' and UCAVs are remotely controlled by pilots 'in board' (Sachdeva 2015). This fundamental difference leads to further abilities and effectiveness of the machines, which are discussed in the first chapter.

A US UCAV pilot Matt J. Martin states, "We treat drone technology an extension of airpower. We follow the same rules of engagement and use the same procedure as all other aircraft, manned or unmanned" (Jha 2014). In a way, Martin dismisses the critique on UCAV operations precisely because of its unmanned nature. If the UCAV technology is ethically neutral, it will have no difference from the manned fighter aircraft. As discusses in the previous chapter, UCAVs possesses certain unique technological advantages, this chapter will elucidate, how these technological advantages are sources of ethical concerns. Although, the technology is perceived as neutral, but it needs to be answered how these technologies are directly influencing the policy formulation. So, as stated by Martin, the similar treatment of the manned and unmanned aircraft cannot easily be left without proper scrutiny. The belief of the UCAV pilot appears to be slightly problematic, which will give an open hand for

alienation of human being from machines that were developed to kill. The following paragraph will explain why.

There is a perennial concern about the alienation of 'ethics' from warfare. Brand Allenby et al. (2014) have talked about 'universal conscription' as a 'technology policy' for addressing such problems. The authors have problematised the widening gap between humanities, science and technology as the real problem. It is because developed technology is lacking proper direction based on humanist considerations. This problem is apparent in case of use of the UCAVs military operations. Medea Benjamin (2013) aptly mentions about the policy of 'clean operation' as an ethical concern of military operations. The 'clean operation' means death on the spot in order to avoid further lengthy judicial trial and human rights related issues followed by the arrest of a terrorist or an alleged terrorist. This proposition can be buttressed by the extreme secrecy maintained by the Obama Administration. The Obama administration maintained so much of secrecy that it even denied information to the Senate Intelligence Oversight Committee until publicly pressurised to do so (Greenwald 2013). It clearly manifests the argument that, unmanned aerial vehicles have been used in military operations, to transcend democratic barrier, so as to achieve some ambiguous objectives.

Maintenance of watertight secrecy leads to range of other question. Does it validate the argument that, UCAVs have been used to transcend democratic barriers to continue long wars? To some extent, the answer would be yes. For instance, the trend of watertight secrecy also leads to ambiguity on the accountability of death tolls. Since private mercenary forces are also stakeholders of the CIA led UCAVs strikes in many places, so who is going to take responsibility of the unknown and innocent deaths: government or the private mercenaries? Even, such ambiguity is a peak in case of attacks in a third country by violating sovereignty with ambiguous consent. This loosely defines accountability becomes apparent when innocent victims are denied of any compensation, which every civilian and democratic government is liable to pay if their action causes direct harm to civilian, especially in a zone of peace.

Involvement of the mercenaries and covertly engaged CIA in UCAV operations gave rise to the loose norms on collateral damage assessment, which can be regarded as the

problem. A comparative study between collateral damage assessment of the US Army and CIA led covert UCAV strikes will crystelise the argument. In the official war zones, where the US army was in charge, probability of collateral damage from a planned strike or 'Non-combatant Casualty Cut-off Value' should be less than 10 percent, which they have calculated using 'collateral damage methodology'. On the other hand, in the CIA led covert UCAV strikes, such probability of collateral damage or 'Non-combatant Casualty Cut-off Value' is not even taken into consideration (Braun 2013: 305). The obvious result of such unguided policies can be seen in terms of impacts on civilian.

A comparative study of civilian casualties of Afghanistan and Pakistan, taken from the Bureau of Investigative Journalism shows the differential impact on the ground. The civilian casualties in Afghanistan are around 5.13 per cent to 5.27 per cent. On the other hand, in Pakistan percentage of civilian casualty is around 17.06 per cent to 24.13 per cent.[35] It buttresses the argument that the policy of covert UCAV strikes and the loose regulatory mechanism has a direct impact on the civilian population on the ground. This is certainly an ethical as well as legal concern.

Military policies such as targeted killing and signature strike gave rise to some supplementary but dangerous policies like double tap. In very simple sense, double tap means a second strike followed by a missile attack. The tactical military objective of double tap is to kill the all members of targeted terrorist group, whosoever survived after one strike and came forward for help to their fellow friends. In a war zone, at tactical level, it looks fascinating. But, under faulty policies of signature strike, where targets are unknown and unconfirmed militants, such double tap policies appears to be formidable. This policy is both ethically and legally problematic. International Humanitarian Law does not allow a belligerent party to conduct strike over wounded soldiers. For instance, article 3 of Geneva Convention 1949 for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field writes, "Persons taking no active part in the hostilities, including members of armed forces who have laid down their arms and those placed hors de combat by sickness, wounds, detention, or any other cause, shall in all circumstances be treated humanely". Unfortunately,

[35] The dataset presented in the Table 2: Fatality analysis of US led UCAV strikes in Afghanistan, Pakistan, Somalia and Yemen.

there are enormous examples available in the public domain, where innocent people were deliberately killed by double tap strikes. Even if the wounded soldiers or civilians intend to surrender, there is no scope for it. What appears to be dangerous is the trend of using double tap as a normal military tactic. For instance, following the precedence set by the US, Sri Lankan government has also used air strikes against LTTE and civilians following the same double tap policy in 2008 (Macrae 2011). Such ethical compromises are a formidable precedence.

As an obvious consequence of the faulty policies like double tap, the right to surrender has been relegated from warfare or military operations. As pointed out at the beginning of this section, right to surrender is a legal issue and ethical concern. But, this lapse emerged from an ethical deficiency. Since UCAV strikes do not give a scope for surrender. Rule 47 of the International Committee of the Red Cross (ICRC) Customary IHL mentions, attacking a combatant with an intention to surrender is prohibited under the 1949 Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field. But a situation did not emerge where the combatant will not get any scope even to express intention to surrender. So, combatant's moral right to surrender remained an ethical and legal question to be addressed.

A new invulnerability of the troops in new war ethics emerged. Gregoire Chamayou (2015) talks about the philosophical 'right to kill' while waging warfare. Here she talks about the mutual vulnerability as a condition to have the right to kill enemies. Reasserting the same point, Gordon (2015) writes, "Exposing the lives of one's troops was never considered good, but historically it was believed to be necessary." The inception of the drones has given a risk-free ethics of killing. Although this argument is value laden, which 'believe' that vulnerability in warfare is 'necessary', yet it comprises the same line of argument that there should be some tactical restraint on the superior military force so that it cannot go for unnecessary war.

In connection with the previous point, another change in military objectives has been observed especially due to the inception of the UCAVs. The objective of the military force in a conventional way is to defend its citizens or civilians for whose protection the arm forces are fighting. In case of the UCAV strikes, arm forces operate from a distance by keeping themselves invulnerable to be attacked. Here, the sense of

accountability or responsibility to protect the civilians from hostile forces is fading. It gave rise of an irresponsible sense of military objective to be achieved which is to kill combatants, without defending its population.

Latency is another technical deficiency but an ethical problem that emerged primarily from the UCAVs and its salient feature of distant manipulation. Latency means the time gap that takes while transmitting information from the battleground to the control room. It is a normal weakness in case of other military weapon systems. In case of the UCAVs, it is quite different, since the UCAVs execute actions based on real-time intelligence by hovering over the battleground and pursue its enemies instantly. So, delay in real time intelligence causes serious problems, especially in avoiding collateral damage. There are many examples, where unwanted casualties could not be prevented precisely because of latency problem.

Criticising the idea of precision, Maja Zehfuss (2010) argues that the acquired precision by using PGMs or by using UCAVs have brought a nuanced change in the recent war ethics. The new war ethics embraces the idea of precision, which will give legitimacy to the war fighting tactic of the western and militarily developed countries to wage war. If the issue is clinically examines using critical theory understanding, it can be concluded that such newly emerged war ethics has given blanket permission to killing using precision capability instead to restraining death tolls. However, Zehfuss (2010) also questions the ability of the precision strikes to minimise death tolls despite the claim that precision minimises death.

The above-mentioned arguments clearly manifest the fact that the policy guidance on the use of UCAVs is highly problematic. However, the policies are not independent. These problematic policies are enabled by the technological sophistication of the UCAVs. Hence the argument that technology is neutral and depends on its use is a flawed argument. The problematic policy formulation for continuing military operation across the world by the US is enabled by the UCAV capacity. The policies such as secrecy, targeted killing and signature strike are designed especially to transcend democratic barriers. This is pertinent because, secrecy can never be a policy in a democracy.

Laws of Warfare: From Ambiguity to Inadequacy

Evolution is a sign of progress. International legal system, especially the laws of armed conflict that have been evolving from an embryonic phase to a systematic one based on norms, conventions and institutionalisation. Despite such progress, international law in general and laws of warfare in particular, have been criticised as weak and ambiguous. There are many examples, when state parties have violated international law, taking the advantage of its weak and ambiguous nature. The prime reason is that, the growth of International Law or laws of warfare was more of normative, prescriptive and philosophical. The ancient Greek, Chinese, Indian literatures bear example of such philosophical trend of prescriptive laws of warfare (Charlottesville 2012).

The modern laws of warfare, which has root in the ancient European theology and philosophy, remained a philosophical discourse until its codification. For instance, Aristotle has written about some rules to treat the war prisoners, not considering them as slaves. Modern international law talks about humane treatment of the prisoners. The just war theory, which is originated in Christian theology was first systematised by Thomas Aquinas in his book *Summa Theologica* in 12th century AD, and prescribed some parameters to engage in a 'just war'. There are two basic tenets of just war theory '*Jus ad Bellum*' and '*Jus in Bello*'. '*Jus ad Bellum*' means right cause or circumstance to wage warfare that includes: (1) legitimate authority (2) self defence and (3) the right intention.

'*Jus in Bello*' means the conduct of the warfare. There are certain principles followed under the International Humanitarian Law (IHL) to govern conduct of warfare. There are three basic principles under the rule 14 of ICRC Customary IHL: (1) the distinction between civilian and combatant, (2) the principle of proportionality and (3) the principle of necessary precaution. There is one more principle called '*Jus Post Bellum*' which means, regulating the end of warfare or the return from war to peace (Orozokova 2015). However, this principle has not received due intellectual attention and yet to be codified. Nonetheless, the given parameters of a just war remained ambiguous, philosophical and prescriptive in nature.

Despite the weak presence and ambiguous nature, the essence of International Law cannot be relegated. The institutionalisation of Nation State System after the Treaty of

Westphalia 1648, states have been considered as sovereign entity, and the norm of respecting state sovereignty developed. The sovereign authority became the legitimate authority to declare war, hence parameters for waging warfare justly is becoming apparent. The treaty of Westphalia can be regarded as the beginning of the institutionalisation and codification towards the modern international system.

The institutionalisation however did not stop there. Despite the norm of respecting state sovereignty, states engaged in warfare and indulged in acceding or counter acceding territories. Sometimes, the sovereign states engaged in warfare to acquire colonies to carry out exploitation without acceding territory. The First and Second World War are the examples of these kinds of wars. Although there were several attempts to codify laws of warfare, especially some humanitarian concern such as treatment of wounded soldiers and the prohibition against attacking neutral personnel were codified in Geneva Convention of 1906, but it experienced grave violation during the two world war period.

The two devastating world wars have led to serious contemplation on institutionalisation of laws of warfare, due to unbearable destruction and casualties of the two world wars. Geneva Convention, 1949 was the first attempt to codify International Humanitarian Law in post-World War II era (Nasser 2014). However, this is not the first attempt to develop or institutionalise international law, especially laws of warfare. The attempt to systematise and institutionalise laws of warfare starts long before. The two Hague Conventions of 1899 and 1907 are milestones. Unfortunately the two world wars witnessed grave violation of human rights, international law and laws of warfare.

Such grave violation of international law, however, led to some positive developments in post-World War era, due to the seriousness of the issues. After the successful operation of the United Nations some binding and structured laws as well as norms developed. [36] Laws of warfare also got a concrete from. For instance the article 2(4) of the UN Charter prohibits use of force or threat to use of force by any member state against any member states. Article 2(6) of the UN charter, even extends this prohibition to non-members also in order to maintain international peace and

[36] Despite of its enormous failures, this study considers the operation of the UN as a successful one, due the legitimacy that US still possess.

security. It writes, "the Organization shall ensure that states which are not Members of the United Nations act in accordance with these Principles so far as may be necessary for the maintenance of international peace and security."

This is the brief evolution of the international law and laws of warfare, which can be labelled as progress or positive development. However, evolution is not a lineal process. Norms change along with changing circumstances and behaviours of the stakeholders. As discussed in the earlier section, a change in being felt in the nature and ethics of war fighting, especially against the non-state actors. Hence it also led to some obvious change laws of warfare as well.

This section will elucidate the obvious evolution of the laws of warfare in the new battlefield.[37] The core argument forwarded here is that the international law and laws of warfare, which are considered as ambiguous is becoming insufficient due to the changing nature and ethics of warfare.

International laws that govern conduct of warfare are primarily of two types: (1) the conventional international law and (2) customary international law. The conventional international law means, those laws based on concrete legal framework. For instance the Rome statute and Geneva Convention are the examples of conventional international law. On the other hand, customary international laws are bit different from conventional international law in terms of international agreeability. Customary international laws are result of general and consistent practice by the states parties that developed a sense of legal obligation towards it. Customary international law is also known as '*opinio juris*' (Orozokova 2015). The customary international law might be unwritten and may not need acceptance by the all the stakeholder states (The United States Army Judges and Advocate General's Legal Center and School 2012). Present examples of customary international laws are the armed conflict laws of the International Committee of Red Cross. The UCAV strikes, where two state parties are not involved have to be governed by the customary international law. The common article 3 of the Geneva Convention, 1949 says that the conflict between national and transnational actors, outside the national territory, is a non-international conflict. That is the reason why the importance of customary international law is increasing, since

[37] Evolution is however, not necessarily progressive. It is just an adjustment to cope with changing circumstances.

by following this provision, Global War on Terror cannot be an International Armed Conflict.

This chapter seeks to examine the legal implications of the use of UCAVs. Use of UCAVs is not restricted under International Law, because of its ability to discriminate between combatants and non-combatants unlike Chemical weapon, biological weapon, land mines and cluster munitions.[38]

The UCAVs were used mostly by the US as a part of the Global War on Terrorism (GWoT) which was authorised by the US domestic law as well as international law. At the domestic level, 'Authorization to Use Military Force in Response to the 9/11 Attack' (2001) has authorised the use of any means to check terrorism. At the international level, the UN Security Council Resolution, 1373/2001 has also reiterated the stand to take action against terrorism, hence gave tacit approval for use of force to the US and its allies. The discrepancies of the UN legal framework become evident in the explanations of the GWoT. The UN charter outlaws use of force or threat to use of force against any member states in the article 2(4). However, nowhere in the UN charter talks about a war between non-state actors and state parties, but allows a state or states to use force against alleged or accused terrorist, without taking any appropriate mechanism to govern it, hence relegating the essence of '*Jus in Bello*'.

In case of legality, another question may arise about preference. To put in another word, out of many contradictory principles, which principles should be given first hand and under what circumstance. For instance, maintenance of state sovereignty is a fundamental principle of international relation. The article 2 (4) of the UN Charter clearly says: "All Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations." On the other hand, the right to self defence is another fundamental principle, which is laid in the article 51 of the UN Charter. So, the question may arise, under what circumstance, the principle of self defence can override the principle of sovereignty. This legal debate remained 'gap' in international legal discourses. For instance, the US justifies a breach of sovereignty principle based on the 'imminent threat' to their homeland.

[38] One deviation is Nuclear Weapon. Despite of its indiscriminate nature if killing people nuclear weapon has not been banned under international law.

Hence the question arises, what is parameter under international law or humanitarian law or the UN Charter that constitutes defines the 'imminent threat', under that circumstances breach of national sovereignty can be legally justified.

In a bid to justify the use of UCAVs in military operations and its targeted killing policy, the US Justice Department had released White Paper in 2013. This White Paper writes that the UCAVs are targeting only those members of the enemy force, who is posing an 'imminent threat' to the US. The White paper also says, lethal action is justified if capture of the imminent threat is not feasible. Ironically, contributing to the sheer ambiguity, the same white paper clarifies the confusion that "imminent threat does not require the United States to have clear evidence that a specific attack on US person and interest will take place in the immediate future" (US Department of Justice 2013). That means, the US is keeping all the options open to perceive anyone as imminent threat and can use force against it. This is not mere ambiguity, rather a clear legal loophole.

The sense of urgency associated with the term 'imminent threat' and the inability to follow due process of international law to the is not palpable in most of the cases. So the UCAV strikes justifies under the argument of 'imminent threat' is more looks like a 'pre-emptive strike'. Here, it is important under international law that, it does not allow any pre-emptive strike for self defence. For instance, the argument 'capture is not feasible' to justify targeted killing is another problematic legal basis. The issue came to the forefront, when the US UCAV strike has killed an American citizen in Yemen, named Anwar al-Awlaki, an alleged Al Qaida terrorist. If question raise whether US made any capture attempt, whether US asked the Yemeni government for his repatriation, the answer is 'No'. Use of the UCAVs became the first resort, as rightly pointed out by Benjamin (2013) as 'clean operation'. This clearly goes against the legal norms. From 2011 to 2014 there has been only three known capture attempt made by the US government in compared with more than 200 UCAV strikes in different places (Zenko 2014: 10). It reiterates the argument that the UCAVs are contributing towards a sense of 'killing first' rather than other available means.

In the Congo vs. Uganda case, the International Court of Justice gave the verdict that Congo's inability to control sporadic armed conflict does not legally allow Uganda to intervene (Armed Activities on the Territory of the Congo/Democratic Republic of the

Congo v. Uganda 2005). Following that judgement, under the existing legal precedence, the US does not have any right to intervene for pre-emptive strikes in countries such as Yemen, Somalia and Pakistan for self defence purpose.

The US UCAV strike in a third party territory has been claimed as a legal action under the UN Charter, because Article 2(4) of the UN charter does not restrict such action with the consent of the host country. That means there should be some sort of legal and explicit consent of the host state, which is not seen in the US-led UCAV strikes. Even if a state initiates armed strikes in the consent of the host country, one question may raise, whether such consent should come under UN record keeping mechanism or not. This is primarily to check the dominating role of powerful states, by disrespecting the state sovereignty. For instance, the Pakistani government has publicly opposed US UCAV strike as a breach of its national sovereignty. In fact, a Pakistani court held random UCAV strikes as 'war crimes' (Nasser 2014: 312). Even if the Pakistani government have given consent, it is not available in public domain. It means a lot, especially the disjuncture between 'perceived legality' and the state of secrecy.

Since the GLoT is a non-international armed conflict, hence it belongs to the domain of customary international law. There are three fundamental rules found in the International Committee of the Red Cross's customary International Humanitarian Law to which states do adhere. The principles are: (1) distinction between civilian and combatants (2) the principle of proportionality and (3) the principle of precautions (Boyle 2015). This section will explain how these principles of the international humanitarian law have been implemented in the US-led UCAV strikes. In the white paper released by the US Department of Justice, it clearly mentions of its adherence to these principles.

The distinction is a principle of laws of warfare. It means the distinction between civilian and combatant in conflict. The justification for the UCAV operation lies in its ability to discriminate between civilian and combatant because of its acquired precision. However, the policies that govern the UCAV strikes do not go in consonance with the proportionality principle. For instance, the signature strike does not explicitly distinguish between civilian and militants. By nature, it is a policy that decides the target based on their 'suspicious behaviour' or 'way of living' without

authenticating the target. By default, it restricts the entire population under constant surveillance and a state of vulnerability. Although, nothing has been specified, what 'suspicious behaviours' consists of, but it can be understood from the strikes carried out, grouping, attending the funeral of dead militants and carrying a gun are prominent. The policy barely remains 'discriminate in nature', because it has severely impacted the way of living and social fabric in Afghanistan. Such indiscriminate surveillance and paranoia created by 'discriminatory weapon' by keeping all people in extreme vulnerability, has not been properly addressed by any international legal mechanism.

Proportionality is another principle of customary international law. According to the principles of proportionality, damage of a military operation should not exceed tactical or strategic gains. According to the Bureau of Investigative Journalism, since 2004 the coalition forces had only 1.5 per cent High-Value Targets (HVTs)[39] (Orozobekova 2015: 52). Here it comes, the question of proportionality. How much is it acceptable to eliminate 98.5 percent common militants and civilians, to achieve 1.5 per cent High-Value Targets. As there is no specific degree of maintaining proportionality, so it signifies once again the legal deficiency to deal with new complexities.

Maintenance of necessary Precaution is another fundamental facet of international humanitarian law. But, unfortunately the CIA led covert strike does not adhere to this principle. Collateral Damage Estimate Methodology, which is designed to protect civilians, is not even applicable in the CIA led UCAV strikes. That means there is no precaution at all. That might be the reason for justification of the UCAV strike on a Madrassa in Chenegai of FATA in 2006, where 69 school children were reported to be killed.[40] Along with the measures of precaution, religious places are debarred from targeting by Article 85(4) of the Additional protocol 1of the Geneva Convention. But even, then it was justified. So, the legal deficiency appears in addressing the trend of covert operations using UCAVs, which is even increasing day by day. The issue of transparency, especially while using force citing a legitimate reason for self defence is

[39] The figure of Bureau of Investigative Journalism is approximate, and can be contested its accuracy.
[40] The news is available in public domain. For authenticating see firsthand source - The Express Tribune, 12 August 2011.

a matter of concern and a legal deficiency, precisely because all the legal protection of people can be easily bypassed just by maintaining secrecy.

As discussed above, to deal with such 'imminent threat' the United States adopted the policy 'Targeted Killing' based on the 'Disposition Matrix' or kill list approved by the President. By nature 'Targeted Killing' resembles 'assassination', but the novel neologism was used, precisely because 'assassination' is banned as a policy of the US government by the Executive Order 12333 given by the US President Ronal Reagan. In that sense, the US is playing with words to legalise its illegal policies.

The above mentioned sets of arguments have clearly illustrated the fact that the use of the UCAVs by the Special Forces and intelligence agencies are completely against the international humanitarian law. The policies like signature strikes are so much problematic by default that the existing IHL can not govern it. Since, the UN and the conventional international law, does not cover this aspect, hence it indicates a clear deficiency is governing warfare, than remaining mere ambiguous.

A clear change is crystallising in the legality of use of force after the inception of the UCAVs. As mentioned earlier, use of force is permitted under international law for self defence purpose. The US is availing this legal mechanism to use force against Al Qaida on foreign soil, with their ambiguous justification of 'imminent threat'. Here politics decides or directs the action. The use of UCAV is the use of force against these perceived 'imminent threats'. Again, the International Humanitarian Law (IHL) clearly said, use of force or killing can be justified as the last resort, where 'no other means, such as capture or non-lethal incapacitation' are available (Sachdeva 2015: 147). But, in this case, use of the UCAVs is not guided by this principle, because the UCAVs are not for capturing purpose by default, rather to kill. Here UCAV defines the direction of the US policy action, not legal framework.

Conclusion

This chapter has elucidated the changes in the nature, ethics and legality of warfare in the light of UCAV operations. It has been observed that the decentralised nature of the enemy propelled the states to adopt viable policies to pursue their targets. Hence UCAVs emerged as a viable option to address novel tactical requirements. Although

use of UCAVs has not fundamentally altered the nature of warfare, yet it has led to the emergence of legal as well as ethical discrepancies.

Ethical concerns such as roboticisation of warfare, armchair warfare, zero casualty warfare and clean operation are real but not rampant though. These are emerging because of the invulnerability given by the remote control machines. If such invulnerability persists it will widen sense using force in the first place by the powerful parties instead of other available non lethal means.

In terms of legality also, the use of UCAVs have created such a scenario where existing laws of warfare appears to be inadequate. For instance, international law deals with the treatment of soldiers who intended to surrender, but now discussion is needed to enable soldiers to surrender even to UCAVs. It is because, UCAVs does not give a scope to soldiers with an intention to surrender. This is just one illustration. There would be many legal discrepancies.

As the question rose in the previous chapter, whether there is a correlation between civilian casualties and counterterrorism approach, this chapter finds that the secretive nature of the UCAV operations accompanied by lack of precautionary measures is the reason behind the increasing number of civilian casualties in Pakistan in compares to Afghanistan. Hence, the next chapter will explain why and how states do maintain secrecy in UCAV operations.

The strategic and tactical utility of the UCAVs cannot be denied. Even UCAV operations have proved to be partially successful. The effective and versatile use of the UCAVs attracts not only state actors, but also non state actors. The following chapter will try to illuminate new challenges and complexities in terms proliferation of UCAVs, use of UCAVs by non state actors and impact of use of UCAVs on social fabric that end up strengthening terrorist networks.

Chapter IV

EMERGENCE OF UNMANNED COMBAT AERIAL VEHICLES: CHALLENGES AND COMPLEXITIES FOR INTERNATIONAL RELATION

Introduction

This chapter begins with the pragmatic debate on how inception of UCAVs has open up new complexities and challenges in the global context. This chapter covers four issues: (1) secrecy in UCAV operations (2) proliferation of UCAVs (3) use of UCAVs by non-state actors and (4) the impact of UCAV operation on social fabric. There are enormous numbers of evidence to assert the proposition that in the coming centuries these issues will remain a perennial problem for humankind. One might argue, after the death of Osama Bin Laden in 2011 and the gradual defeat of Al Qaida in the subcontinent, use UCAVs are becoming redundant. But, it is noteworthy that 2012 is the year when the US trained more UCAV pilots than conventional manned aircraft pilots. It implies that the coming times are not going to be a UCAV free. The continued strikes in Pakistan, Afghanistan, Somalia and Yemen stand testimony to it.

The question can be raised why are the apprehensive study on use of the UCAVs important? One illustration may help here. While talking about the 'World Risk Society' Ulrich Bech quoted Socrates, who said "I know one thing that, that I know nothing." Bech modifies the quotation to the present context and writes "We do not know what it is we do not know" (Bech 2006: 329). He deployed the example of the Chlorofluorocarbon (CFC) gas, which was initially a symbol of scientific triumph but later proved to be a curse of scientific innovation because it contributes to the depletion of ozone layer. Bringing the same analogy, it can be said that, the consequences of the use of UCAVs remains a matter of intellectual concern. This study is an attempt to understand such apprehension.

The emerging complexities and challenges are evident because of the unprecedented engagements of the UCAVs so far. The clear legal loopholes as pointed out in the previous Chapter, technological sophistication, speedy proliferations, and unprecedented tactic of its use have contributed to emerging challenges. Absence of regulatory mechanism and maintenance of watertight secrecy adds complexity to it.

So, this chapter will seek to address how the new complexities and challenges are developing and how these developments are going to impact future discourses. However, while discussing about the impacts on future discourses, this study does not indulge in the futuristic analysis rather will elucidate based on current developments, which are becoming apparent.

Secrecy in UCAV Operations

United States has maintained tremendous secrecy about its UCAVs programmes, especially about the CIA led covert operations whose existence was not even acknowledged till 2010. This section will elucidate why and how secrecy is being maintained in UCAV operations.

Secrecy is considered as a part of military operations, but however, there is a nuance difference in the kind of secrecy maintained in the conventional military operations and covert UCAV operations. Military forces maintain secrecy to keep themselves invulnerable. They are more secretive about the operational art. However the kind of secrecy maintained in UCAV operation is somewhat different. Despite being secretive about the 'operational art', UCAV operations are also secretive about the principle that they follow and the outcome of their operations. For instance, the US government has not released any information about the 'disposition matrix' nor about the guiding principles to prepare the 'disposition matrix'. Conceding to the fact that, concealing the 'disposition matrix' is an operational necessity, but why the secrecy about the guiding principle? Secrecy about the principles indicated two things: either they do not have one or these principles are very much arbitrary in nature.

Secrecy about the outcome of the UCAV operations is another area of concern. States do not reveal the outcome of an action probably because the outcome is disturbing and might deteriorate public support to government actions. There might be three explanations why does a state reluctant to reveal information about the outcome of a military action: (1) loss of soldiers or assets (this is not a possibility since UCAV operations enjoy a high degree of invulnerability vis-a-vis asymmetrical forces) (2) to conceal a violation of law (or international law) and (3) to keep common people in darkness about the crimes committed by the state.

The practice of watertight secrecy also helps to transcend domestic law or procedural justice by citing ambiguous national security threat. For instance, an US citizen Anwar al-Awlaki was killed in Yemen for his alleged involvement with Al Qaida. In an American Bar Association Conference held in December 2011, CIA and Pentagon law officers had clearly declined to answer about this case, when they were questioned about the legal ground of the UCAV strike. By maintaining the same trend of secrecy, the US government have gone unquestioned about, why his arrest was not pursued? Or why his extradition or repatriation was not demanded from the Yemeni government so that procedural justice can be fulfilled? Since the intelligence agencies are answerable to White House and the criteria of putting someone's name on the 'disposition matrix' is classified, so no one can question his killing or the justification for killing. Even the US judiciary has terminated the case citing UCAV strikes as a national security issue (DeYoung 2011).

Two weeks after Anwar al-Awlaki's assassination, his 16-year-old son Abdulrahman al-Awlaki was killed in a targeted killing. Soon after, an anonymous US official clarifies that he is connected with Al Qaida and 21 years old. When his birth certificate was produced to the US court by his family, then the authority conceded it was an 'outrageous mistake' and hence a review was initiated (DeYoung 2012). Drone Papers (2015) released by 'The Intercept' claims that even the US President was upset about the incident. Responding to a question about the review report, the National Security Council spokesperson said, "We cannot discuss the sensitive details of specific operations" (Scahill 2015a: 10) It clearly indicates one thing, whenever state has no justification for their extrajudicial actions, they start claiming it as classified information. That is where democratic principle ends.

Secrecy also helps in hiding the lack of 'precautionary measures' to prevent collateral damage. The absence of Non-combatant Casualty Cut-off Value' in the covert CIA led UCAV strikes stands testimony to it (Braun 2013: 305). That partially answers the reason for higher collateral damage in drone strikes as against the claimed of the government. It also explains why civilian casualties that occurred in different UCAV strikes are 'classified' information. These loose norms are designed for CIA and the Special Forces so that they can accomplish military objectives, easily ignoring humanitarian concerns. The secretive nature suits government policy to hide their failure to accomplish the objective. According to the Bureau of Investigative

Journalism report, out of all fatalities caused by the UCAVs strikes only 1.5 percent are High-Value Targets (Orozobekova 2015: 52). Rests are common soldiers and civilians. In terms of civilian casualties also CIA led covert UCAV strikes causes much higher civilian casualties than that of JSOC led overt UCAV strikes in Afghanistan. It reflects the current state of covert UCAV operations. As claimed by The Intercept drone papers, the government cannot concede to the policy of random killing. Where "anyone observed in the vicinity is guilty by association" and hence deserves to be killed (Scahill 2015b: 14). This is completely arbitrary in nature, causing enormous civilian casualties.

The nature of deployment of the UCAVs allows maintaining secrecy. The independent nature of the UCAV operation helps maintain covertness. For instance the agencies like CIA, JSOC are very independent in carrying out operations with ambiguous chain of command.[41] They are answerable to the White House. The JSOC, which emerged after the failed operation eagle claw in 1980 to rescue American officials from Iran, has been expanded to 147 countries by 2015, which represents 145 percent jump than that of the Bush Administration (Nick Turse 2015). In India also, the National Technical Research Organisation (NTRO) which is a wing of the Research and Analysis Wings (RAW) has the responsibility of gathering intelligence by using UCAVs. During the operations against the Left Wing Extremism (LWE) in the red corridor area, NTRO had in control of the UCAVs (Sachdeva 2015).[42] Although NTRO has not taken any independent lethal UCAV operations unlike CIA, but the similarity observed is the increasing involvement of secret services in control of the formidable weapon system.

The increasing executive control over the UCAV policy is also another reason, which is enabling secrecy. After the 9/11 attack, the US Congress passed 'The Authorisation for the use of Military Force' that empowered the US President to take all necessary and appropriate measures to prevent any future attack on the US soil. The Obama administration maintained so much of secrecy that it even denied information to the Senate Intelligence Oversight Committee (Greenwald 2013). Judiciary also has no oversight on the issues related to UCAVs strikes. Such executive supremacy,

[41] For instance no special permission is needed to carry out strike in Pakistan

[42] Red Corridor is a Maoist affected area in India, which includes the many Indian states like – Chhattisgarh, Orissa, West Bengal etc

especially in the matters related to international as well as domestic law is seemingly problematic.

Several members of the Senate Intelligence Oversight Committee have also complained about the denial of information on many critical issues about the UCAV strikes. A great deal of deficiency was revealed by the Bureau of Investigative Journalism, that there is a difference between the information provided to the Senate Intelligence Oversight Committee and the ground realities (Ross 2013).[43] The Bureau of Investigative Journalism writes in a report published in 2013: "If the report of what was shown to the oversight committees is accurate – and if the Bureau and other news agencies are correct – then it appears that committee members were only shown video covering the final part of the incident, giving a misleading impression that concealed over a dozen deaths" (Ross 2013). Such action certainly goes against the democratic values.

Proliferation of the UCAVs

The idea of cheap and effective UCAV promoted by the US has immensely contributed towards the proliferation of this weapon. The intensity of the proliferation can be realised by looking at the pace of proliferation of the UCAVs. For instance, in 2005 only 41 countries had UCAVs and by 2015 it has grown to 87 (Sachdeva 2015: 20). Although only a few states possess armed UCAV, yet most of the states are engaging in race to develop such weapon systems. It is believed that at least 30 states are developing armed UCAVs (Sayler 2015). However, the proliferation of lethal UCAV is much less than that of the ISR UAVs. It is difficult for every state to acquire lethal UCAVs because unlike surveillance UCAVs combat vehicles are much more sophisticated and complex in nature. It requires approximately 80-100 skilled people to run a UCAV (Jha 2014). It also requires proper ground control station, beyond the line of sight communication and access to satellite bandwidth to execute an action (Zenko 2014). So, it is difficult to acquire and maintain such a complex fleet of systems for small or less interested states.

As an outcome of increasing number of ISR UCAVs, increasing deployment of the IRS UCAVs for the conventional military purpose is obvious. There are at least two

[43] Which they claim is based on credible sources.

sets of arguments on the increasing deployment of the IRS UCAVs. One side of the argument says that deployment of the UCAVs will bring military stability by acquiring the ability to discern elements of surprise from warfare. Since surprise is the fearsome element in warfare, so the ability for early detection certainly contributes to military stability.

The other side of the arguments says that increasing deployment might lead to military escalation, especially in areas with the conflicting claim. For instance, China and Japan has conflicting airspace in the East China Sea. The Chinese military policy of 'Air Defence Identification Zone (ADIZ)' requires any inward or outward moving aircraft to respond to the Chinese authorities by providing flight detail. Non-compliance will invite an immediate military response (Gupta 2015).[44] Since UCAVs are non-responsive to radio or pilot warning (Zenko 2014: 12), so it might lead to further unwanted military confrontation or political standoff.

However, unlike the nuclear weapons, the proliferation of the UCAVs cannot fulfil deterrence objectives. A country cannot be deterred simply by possessing UCAVs by the adversary. By this means, UCAVs are ordinary weapon systems. But, at the same time, it reduces the barriers in terms of human casualties from using force against asymmetrical forces, which otherwise could be done. Since human casualty deters states to go for war against asymmetrical forces.

States do follow precedence. The perceived effective and versatile military use of the UCAVs has attracted many other states to follow the same: the trend and the means. So far 90 states have acquired UCVAs for surveillance purpose and the number is increasing. In case of armed UCAV, the number of states with acquired capability is very less, but it is gradually increasing (Sayler 2015). For instance, China is developing CH-3/CH-4, Pakistan also developed Burraq UCAV that resembles the Chinese version of CH-3, Iran had claimed to have armed UCAV, which the US claimes that Iran had acquired the capability by doing reverse engineering of the US lost UCAV sentinel, Taiwan military is engaging in research on UCAVs in Chung-Shan Institute of Science and technology (Sachdeva 2015: 19). India has also intensified its indigenous Autonomous Unmanned Research Vehicle (AURA)

[44] The problem is even more apparent, because Chinese ADIZ overlaps with existing ADIZ of Japan. So, volatility of confrontation persists.

program and recently unveiled the 'Project Ghatak' to develop engine for it (Pubby 2015). There would be many more examples accross the world. Following the same precedence, all these states are secretive about their UCAV programmes that might lead to security dilemma and unwanted arms race.

The way of deploying drone also resembles the same US design. For instance recently Pakistan had conducted targeted killing in Waziristan and killed three people. Probably, the world will experience more targeted killing all around the world. Now, by following the same logic of the US, a state can initiate covert drone strikes and kill people on any foreign territory without even asking for the extradition of the alleged person. Then the powerful states like the US will not have any logical ground to oppose it. China, for instance, had a plan to use UCAVs using 'hot pursuit' policy against Naw Kham, a ringleader of drug trafficker based in Golden Triangle. Liu Yuejin the then director of China's public security ministry's anti-drug bureau, describes "One plan was to use an unmanned aerial vehicle to carry 20kg of TNT to bomb the area, but the plan was rejected because we were ordered to catch him alive" (Singer 2013: 3). It indicates two developments: (1) the ability and willingness of the states to use UCAVs in first place (2) the tendency to hit the target by entering deep into a foreign territory. This implies not merely proliferation of the UCAVs, but also policies, which were used by the US with ambiguous legal status. Apart from the political explanations, the non-use of the Chinese UCAVs can also be attributed to rudimentary nature of their technology, since their UCAVs were not equipped with PGMs. China would have executed the plan if they had equivalent capability like Predator UCAV of US.

Even countries with less intention to acquire armed UCAV are now planning. For instance, Germany earlier confirmed their desire to use UAVs for IRS purpose only. Now Germany is contemplating to procure armed version of UCAVs for deployment abroad (Medick 2013). Once again 'for deployment abroad' indicates the same tendency to pursue precedence set by the United States and its allies. In this sense, mere proliferation of the UCAVs may not be a problem. Along with that, policy level change in the use of UCAV is an alarming precedence. Pakistan had set precedence by using UCAVs over its own population. It will not be surprising to see other states to follow this precedence. Hence proliferation of UCAV is no longer remained an international or strategic issue rather a domestic political concern too.

Apart from the indigenous development, proliferation through transfer of UCAV is another concern. The Missile Technology Control Regime (MTCR) of 1987 has placed UCAVs of 300 kilometre ranges with 500-kilogram payload in the category one list with tight restriction on export. However as we know MTCR is not a universal mechanism and non-binding in nature. Hence it remains a weak export control mechanism. States do transfer UCAVs below the threshold, which is enough to destabilise security environment. For instance, General Atomics has specially designed category II version of Predator (XP) to export to United Arab Emirates (Zenko 2014). Recently, the US has cleared a request from Italy to arm a fleet of UCAVs, which were previously sold by the US for only ISR purpose (Kimball 2015). Such conversion from non-lethal to lethal has never been an issue but now it needs proper scrutiny. Moreover, it would be difficult for the US to deny other NATO alliances, who requested the US for armed UCAVs. Hence, a Pandora's Box would open up. So, the given threshold of MTCR remains a weak mechanism to halt proliferation of UCAVs.

Again, the major stakeholders China and Israel are not a part of the regime. Israel, which is a major exporter of UCAV in outside this export control mechanism. It weakens the ground for restraining export from other member countries like the US, which is already facing intense pressure from UCAV manufacturing companies to ease norms for export (Morley 2014). As a response to such pressure, probably the US government eased the norms to export Predator (XP) to UAE as mentioned before. Hence, there is a great deal of dilemma in US export control policy, and a contentious stand is clear between the state department's non-proliferation Bureau and Pentagon's defense technology administration branch. The dilemma can be manifested in the language of Micah Zenko, a fellow at the Council on Foreign Relations. In his words: "if you pull at the thread of MTCR, you will weaken the non-proliferation regime as a whole. The other side says the international market is going to supply these UAVs anyway" (Morley 2014: 1). Such market-driven security policy is indeed a matter of concern.

Apart from transfer through arms trade, covert logistical aid and technological support stimulate proliferation of the UCAVs. For instance, the Pakistani UCAV Burraq can be traced to be a replica of Chinese origin CH 3 UCAV (Mangi 2015). Another example is that Iran has given help to Hezbollah by providing UCAV for carrying out

strikes against Israel (Sayler 2015). Hence, UCAVs are becoming a means for proxy war. The only difference with the cold war era proxy war is that during cold war countries used other countries to wage war, now they are using machines.

As discussed earlier, UCAVs are not cruise missiles. Although UCAVs are not cruise missile yet it has a fundamental similarity of being distant manipulation. It may be difficult for a non-state actor to acquire military hardware, so non-military UAVs can be used by the non-state actors to carry out terror strikes. It might carry out suicide attacks like the Kamikaze attack carried out by Japan during the Second World War.[45] There are some governmental developments on this, for instance South Korea has developed 'Devil Killer' UCAV system, which can lock the target and detonate the explosive carried therein (Sachdeva 2015: 50). Although there is no instances of using suicide UAV/UCAVs by any non state actors, but its possibility cannot be easily rolled out.

The UCAV market is no longer remained a beginners market. It reached $5.2 Billion in 2013 and is expected to grow up to $8.35 Billion by 2018 (Zenko 2014: 7). A US-based aerospace consultancy TEAL group has estimated in 2014 that the UCAV market will be worth of $91 billion within a decade, with the sale of 89 to 86 percent UCAVs and 11 to 14 civilian UAVs (TEAL Group 2014). Although the figures are varying, it indicates one thing that UCAV market is going to be an influential one. Generally the United States has strict norms over arms trade. So there is a constant pressure from the domestic drone industry to ease certain export norms, which currently prohibits export of the armed drone (Hall 2013: 446). Probably as a response to such pressure, the US had adopted its new transfer policy for UCAVs in 2015, which has eased the norms for transfer by putting emphasis on case by case cautionary measure on its end use (US Department of State 2015).

With the existing military industrial complex, there is a possibility that 'grey market sale' of arms might get extended to the UCAVs as well.[46] It leads to the possibility of falling UCAVs in the hands of unwanted non-state actors. The necessary precautions

[45] The literal meaning of Kamikaze is 'Devine Wind'. It was a suicidal attack tactic used by Japan during WWII, where pilots were motivated to sacrifice themselves and their aircrafts to inflict severe damage to the enemy.

[46] The term 'Grey Market' is used precisely to means the customers of arms with ambiguous legal status and unknown connection with unwanted users. This remains a well accepted problem of arms trade in international relation.

on the end users are also maintained in other arms too including small arms even then terrorist organisations have enormous excess to these. From that sense, UCAVs are also not the exception.

Apart from the patronised proliferation by private parties through gray market sale, state-sponsored proliferation to non state actors remains another concern. In 2006 Hezbollah used Iranian-made UCAVs in the war against Israel (Sayler 2015). Similarly, as Pakistan is accused of sponsoring terrorism to wage proxy war against India, so the possibility of providing drones to carry out sophisticated attack cannot be relegated. It leads to new concerns on the use of UCAVs by non-state actors. One minute point needs to be understood that along with the ISR or armed UCAVs the proliferation of the 'Hobbyist Drones'[47] or commercial UAVs also leads to concerns about unwanted use by non-state actors. All these concerns would be discussed in the succeeding section.

Use of UCAVs/UAVs by Non-State Actors

Ever-existing threats posed by non-state actors using novel means have always been a matter of concern. Threats of terrorist attack by using unmanned aerial vehicle is persisting and increasing. Before the study goes into detail it is important to clarify that the Unmanned Combat Aerial Vehicles (UCAVs), which are primarily used by the military for striking purpose is not easy for a non-state actor to acquire and maintain unless directly assisted by a capable state actor. As mentioned earlier, it needs complex set of facilities including satellite communication system and ground station. However it does not relegate the possibility of use of UAVs by non-state actors by terrorist activities.[48] The sophisticated modus operandi of terrorist operations stands testimony to it. So, it is important to classify different types of UCAVs, which can easily be acquired and used by non-state actors.

Center for New American Security (2015) made a classification of UAVs based on two criteria: (1) the degree of accessibility by any actor and (2) technology base required for its maintenance. The report has classified UAVs/UCAVs into four

[47] The neologism was used by Kelley Sayler in a report: A World of Proliferated Drones: A Technology Primer, to means all kind of drones used by common people for entertainment purpose, not necessarily for commercial purpose.

[48] However, UAVs are not necessarily military or combat vehicles, rather all kinds of UAVs, including commercial and hobbyists.

categories viz. Stealth Combat, Large Military Specific, Midsize Military and Commercial, and Hobbyist (Sayler 2015). The first two types of UCAVs are highly sophisticated and difficult to acquire by non-state actor and also needs high degree of sophisticated infrastructure to maintain it. Even most of the state actors do not possess this kind of technology. The third and fourth types of UAVs of the given taxonomy are prone to be acquired and used by non-state actors. Since these categories are not necessarily combat vehicle, so the term UAV is being used throughout the study. Center for Arms Control, Energy and Environmental Studies, Moscow (2005) have conducted a detailed study on the possibility of use of UAVs by non-state actors and concludes about the weak defences against UAVs, higher possibility of attack and severity of damage it might cause.

Before going into how non-state actors may use UAVs, it is important to understand why would they choose UAVs instead to other available conventional methods? It is said that if a suicide bomber can reach the tipping point of the target, then why would a terrorist organisation look for a UAV to be used in Kamikaze style? The answer lies with the diversified nature of the targets that the non-state actor might want to pursue. There might be four basic explanations why non-state actors would UCVA/UAV. (1) Now UAVs can reach unreachable targets like aircraft and skyscrapers, which were earlier difficult to reach. (2) The ability and effectiveness associated with UCAV operation that might persuade non-state actors to use UAVs. (3) Casualty of skilled fighters of the non-state actors also hampers their organisational strength. So they would try to reduce the loss of their skilled members. Hence following the same rationality of the government forces, non-state actors may also use unmanned technologies like UAVs. (4) UAVs can provide effective surveillance capability to powerful non-state actors. Deploying UAVs for surveillance purpose may not be so offensive, but as a severe force multiplier it gives tactical advantage to non-state actors and might jeopardise counter-insurgency operations. For instance, in their fight against Moammar Gaddafi, Syrian rebels have deployed night vision equipped commercial UAVs for surveillance purpose to position of the regime forces (Sayler 2015). Again, ISIS is also currently using UAVs for surveillance purpose (Sayler 2015). It indicates the reality of the stated problem, that concern about use of UAVs by non state actors, is no longer a futuristic apprehension rather a pragmatic one.

Apart from the rational choices, the technological and policy level loopholes have also keep options open for the use of UAVs by non-state actors. The first problem is lack of defence or weak detection system against small UAVs. There is an example of UAV crush in White House, in January 2015. The secret service officials on duty in White House said, the UAV was too small and flew too low to be detected by RADAR system (Schmidt 2015). It indicates the fragility and vulnerability of the most securitised places.

At policy level weakness, the lack of international regulation of UAV is most important (Schdeva 2014). Since the use of hobbyist UAV and commercial UAV is a new phenomenon, so most of the countries do not have regulatory principles. For instance, India does not have any regulation policy, so India has banned commercial use of UAVs until regulation of the UAVs come into effect (Current state of global drone regulation 2015). Since, there is no regulation, so any unwanted appearance of UAV with malign intention may created panic and havoc in the system. This lacuna is apparent in case of international regulation of the UAV too. The recent crush of a drone with passenger aircraft in England has created wide public concern by unveiling this loophole and lack of regulatory mechanism.

Since the threat is real, so it is a relevant question to rise, how come non state actor might acquire UAVs? As mentioned earlier, it is not easy to acquire and maintain military level large UCAVs and Stealth UCAVs, unless any state directly provide it. Moreover, most of the states do not have such sophisticated UCAVs. But, the hobbyist UAVs and mid range military cum commercial UAVs are widely available and accessible to non state actors. The hobbyist drones or small UAVs for entertainment purpose such as photography and videography. It is cheap and widely available in public domain. Although it has enormous limitation in terms of endurance, range, payload and line of sight communication system. It makes hobbyist UAVs less useful for non state actors to carry out attacks. Even then apprehension is desirable.

Apart from such battlefield use of the UAVs, sporadic use is also another concern. Concern over ‘flying IED’ is growing over time. The Wall Street Journal reported that US, Spain, Egypt and Germany have foiled more than six sporadic attacks using UAVs since 2011 (Sayler 2015). The US is especially concerned about such ‘flying

IED' kind of attacks, especially after the crash of a mini-UAV in White House in January, 2015.

In the Official US Department of Defense Science Blog the concern over flying IED was explicitly expressed:

> The IED is a staple weapon of asymmetrical warfare tactics, providing an inexpensive, easy to build and difficult to detect weapon capable to inflict painful losses on a technologically and numerically superior army. With the evolution and proliferation of drone technology, ordinance disposal units are facing a new and worrisome threat, the flying IED (Homeland Defense and Security Analysis Center 2015).

The statement clearly indicates that flying IED is no longer a fiction or a futuristic assumption. It is a hard reality. The security breach of the White House by a small UAV in January, 2015 had brought this issue to the forefront. The radar system deployed in White House to detect any flying object failed to detect this small machine, which crushed in the south lawn of White House (Homeland Defense and Security Analysis Center 2015). Although it was declared as an accident de-securitised the issue, even then the military perceived it as an imminent threat to security establishment.

Although the hobbyist UAVs poses a serious threat, yet use of midsize military grade and commercial UAV by non-state actor is even more serious. Though, these kinds of UAVs are difficult to easy access, but not impossible. A non-state actor can acquire it, in three ways: (1) purchasing from grey arms markets, (2) for false commercial purpose and (3) with direct support from any state.

There are examples of using commercial UAVs for military purpose both by state actors as well as non-state actors. For instance, the Ukrainian military had used UCAVs in their fight against the Russia-backed rebels (Tucker 2015). A RAND Corporation report also says that ISIS used the DJI Phantom FC40 a commercial UAV for surveillance purpose (Tadjdeh 2014). However, increasing sophistication of hobbyist UAVs have made things easier for non state actors. For instance, commercial off-the-shelf (COTS) drones – are now equipped with GPS and waypoint navigation systems, such as the DJI Phantom of the United States. It enables the UAV to

accurately determine its position, hence can overcome the limitation of line of sight communication system (Sayler 2015). In fact, such operation can be managed simply using a Smartphone. It gives an easy management of terror operations conducted by non-state actors.

Although, some of the sophisticated commercial UAVs are designed to restrict itself in the 'no fly zones' such as airports, sensitive national security establishments and nuclear installations, but these limitations are not applicable in case of UAVs prepared with component parts. Moreover any expert programmer can override such restrictions.

Both Hamas and Hezbollah have used midsize military-grade UCAV, believed to be variants of the Iranian-supplied Ababil-1 and Mohajer 4 respectively. In 2006 war, Hezbollah even succeeded in deploying their UCAV loaded with 27-kilogram explosive and reached near to Israeli territory. Hezbollah successfully eluded Israeli RADAR system because of the small size of the UCAVs (Sayler 2015). It indicates the vulnerability of the civilian population to be attacked in such kind of tactics by using Weapons of Mass Destructions (WMD) such as Chemical, Biological and Radiological weapons.[49] Although Concerns are new because of increasing sophistication and proliferation of UAVs, but terrorists attempt to inflict damage using remotely piloted aircraft is not a new one. For instance Aum Shinrikyo, a Japanese terrorists group had planned to use remotely controlled helicopters to spray sarin gas on a Tokyo subway in 1995 (Lele 2009).[50] They were successful in causing the death of 12 people and keeping approximately 1000 people visionless. It clearly buttresses the proposition that use of UAV by non state actors for WMD attack is real, not an unrealistic and futuristic assumption.

Hence it is becoming significantly important to address the scope for such potential attacks using UAVs and UCAVs. Since the halting proliferation of UAV is becoming difficult because of its excessive civilian and commercial use, so the development of proper detection mechanism to foil attack appears to be a viable option. Again, since radio detection or RADAR has proved to be significantly ineffective vis a vis, so the development of the other kind of detection mechanism has received due importance.

[49] However, there is a great deal of debate, whether any non state actor can easily acquire such WMDs. However, this study keeps the option open as a matter of concern.
[50] A poisonous gas, developed during WWII.

Different detection systems such as audio detection, video detection, thermal detection might help to discern and destroy miniaturised UAVs or Micro Aerial Vehicles (MAVs). The Recent innovation of Drone Catcher can be helpful in deterring the offensive use of the UAVs by any unauthorised entity. But, these are yet to evolve.

Living under/with the UCAVs: Impact on Social Fabrics

UCAVs are unique because of its ability to hover for longer durations. It can endure approximately for 18 to 24 hours. Since ISR is a continuous process so UAVS do hover continuously and also capable of conducting kinetic action instantly. Hence it leads to a scenario where invulnerability persists on the surface. That leads to a unique situation of living under the UCAVs and its inevitable consequences on the social fabric.

While discussing about proliferation of UCAVs, it was elucidated that UCAVs are not only proliferating horizontally and vertically rather the field of operation is also expanding. Within a very short span of time, the field of active operation widened from Afghanistan to Pakistan, Somalia and Yemen. It is also an important question to understand whether living under/with the UCAVs make people safe or vulnerable. It may be safe in the sense that continuous surveillance may deter the enemy forces or terrorists organisations from carrying out harm to common people. Or it makes people vulnerable to be attacked by UCAVs at any time. People on the surface may be more vulnerable in their social gathering that might be perceived as 'abnormal' or 'suspicious' by the people outside of their culture.

A major affected community of the UCAV strike is the Pashtun community. They are scattered in the Afghanistan-Pakistan region with 25 million populations being the largest tribe in the world (Johnson 2008). They have frequent interaction across the Afghanistan and Pakistan border because of its porous nature. Uses of UCAVs have affected the socio-cultural values of the Pashtun community. This section will try to elucidate some of the visible impacts.

Before the study proceeds, it is important to note that life under Taliban regime was quite worrisome for local tribes. Brian Fishman (2010: 6) of New American Foundations writes, "Taliban militants have systematically undermined the tribal

system, which serves as a social organising principle and the primary system of governance in the FATA." Imposition of strict Sharia law with mandatory obligations contributed towards homogenised version of Islam, by completely vanishing the tribal characteristics of the local population. Extreme violent means adopted by the Taliban to intimidate the local people and eliminate so-called or alleged government spied have also created a persistent fear psychosis among the population. It was no longer a better atmosphere except for the indoctrinated and radicalised followers of Islam, who had nothing beyond religion.

A recent finding based on semi-structured interview of teenagers, on the blowback effect of UCAV strikes in FATA of Pakistan, Aqil Shah (2016) a Pakistani academician finds that more than 79 percent respondents have endorsed UCAV strikes. It partially explains the apprehension of common people towards Taliban and other terrorist forces rather than UCAV strikes. Hence, Listening to subaltern voice has been considered very important to get an alternative narrative. The sample of Aqil Shah, which constitutes mostly teenagers from the ground zero, reflects an immature but crude version of narratives, which is prevalent in the vicinity not in media discourse. The endorsement of the drone strike is a reflection of two worst alternatives: (1) large-scale ground operation by the Pakistani army and (2) threat from the presence of Taliban regime and growing strength of ISIS in the Af-Pak region.

The 'about to become youth' section of the society, who are perceived by the radicalising forces as an easy target. This vulnerable section is also perceived suspiciously by the government forces. Their endorsement of the UCAV strikes probably would indicate the negative attitude towards radicalising forces. It is also an urge for the state apparatus to contemplate for a better and sustained approach to deal with the problem of radicalisation and militarisation simultaneously. Notwithstanding, UCAVs are effective in killing targets but they are not intended to defend the population. The entire population especially the fragile youth section are still vulnerable to be attacked through militarily and ideologically.

There lies the difference between the Government and non-state terrorist organisation. Terrorist's rationality lies in intimidating people and to cause maximum harm to the population who does not obey, whereas the government's duty is to protect people.

This philosophy creates the difference between the 'double suicide' policy of the terrorists and the 'double tap' policy of the government.[51] The government's policy of 'double tap' is a deviation from its duty to protect citizens and civilian populating. That is why a state claims legitimacy for. Use of UCAVs reduces the vulnerability of the forces, and it leads to another philosophical question how much is it acceptable to keep the civilian population in vulnerability to be attacked by both government and terrorist forces? It implies the eroding responsibility and accountability of the legitimate forces, hence eroding their claim for legitimacy.

The relentless deployment of the UCAVs severely impacts the social fabric of a particular society. The study will try to give a glance of such impacts on the social fabric. Several scholars such as Avery Plaw and João Franco Reis (2015) have justified the trend of US-led UCAV strikes especially the 'signature strike' policy and state that signature strike policy is not necessarily targeting civilian population. The title of their paper 'Learning to Live with Drones' implies the formidable trend of living with or under the UCAVs with a fear psychosis of being killed. Other consequences such as anticipatory anxiety and post-traumatic stress disorder are most prevalent. The traditional values of Pashtun society contribute to its rampage. Pashtun social life and legal norms are guided by a set of ethnic and customary norms called as *Pashtunwali/Pukhtunwali*. These traditional values consider bravery as a fundamental principle of life (Living under Drone 2012: 22). It also discourages the expression of emotional or psychological distress especially of the male. It leads to the reluctance to admit mental or emotional distress and 'anticipatory anxiety' by making things worse.

The intense mental and psychological distress of the people on the ground leads to another verity of discrepancies including economy, education and societal interaction. In the short term, deficiencies of these consequences may not be apparent but it long run it is certainly going to pay off negatively. Putting in a simple sense apart from fanatic ideologues, unemployment and lack of education serves as a multiplying force for terrorists' recruitment. Since UCAV strikes have impacted the both, so young people with an antagonistic mindset towards the west, are the vulnerable target of the terrorist group to be recruited and used for suicidal activities.

[51] Double suicide policy is a terrorist's tactical policy, where they send a second suicide bomber to the funeral ceremony of those people, who were killed in a first suicide attack.

The relentless vulnerability of people on the surface had severely affected Pashtun socio-political structure. For instance, the *Jirga* system, which is a traditional dispute settlement mechanism of the Pashtun society, has been highly affected by the UCAV strikes. '*Jirga*' is a tribal dispute resolving mechanism of the Pashtun community formed by elder male based on Pashtun idea of 'Justice'.[52] This *Jirga* system played a very crucial role even before formation of Pakistan to decide the relation of the Pashtun community with Pakistan (Haroon 2012). Subsequently the *Jirga* system was accommodated by the Pakistani government to make a systematic and political mechanism for viable means to coordination between the Pakistani government and the traditional Pashtun tribe, has been compromised. Pakistani government appoint '*Malikis*'[53] as an official for coordination and management of the *Jirga*s, and they try to ensure justice based on Pashtun code of conduct. Affect on *Jirga* system will certainly jeopardise *Maliki* system as well.

The UCAV strike on *Jirga* has created a negative environment to hold such meeting. For instance, the well-known March 17, 2011 UCAV strikes in Datta Khel of North Waziristan, where around 42 people killed and 14 injured in that strike. The strike was actually on a *Jirga*, which was going on, in an open-air bus depot. About 40 prominent civilian tribal leaders and government appointed *Maliki*, were holding the *Jirga* to resolve a dispute on a chromate mine. Pakistan intelligence agencies said, there were 12 or 13 Taliban militants. Whosoever, the stakeholders, are, the system was severely affected.

Post *Jirga* targeting is another concern of people. A Pashtun boy Tariq Aziz from FATA has attended and addressed a press conference in a *Jirga* held at Islamabad in 2011, was killed in a UCAV strike just two days after the came back from the *Jirga* His offense is, he was offered to learn basic photography by an Islamabad-based photojournalists to keep record of UCAV strikes in his vicinity (Chatterjee 2011). It has severely affected the psyche of people to express their miserable condition to the world and deters anyone else to come forward to unveil miseries of people on the ground.

[52] However, there might be a feminist's contestation to the necessity of the male dominated justice system. For the sake of the coherence of the study, the issue has not been considered in this study.
[53] Literal translation of the term '*Maliki*' means 'the owner'. However, these posts are appointed by the Paistani government, not necessarily the most influential tribal leader.

Apart from '*Jirga*', there is another Pashtun social system affected by the UCAV strike, is '*Hujra*'[54]. *Hujra* means the main meeting of a Pashtun family. All male members of a Pashtun compound[55] gather in the room to discuss family issues. Series of strikes on such '*Hujra*' have severely affected the system. People are afraid to hold such family meetings. The report 'Living under the Drone' (2012: 70) mentions the description of a stroke strike by a primary stakeholder. It writes, "At about 5:00 that evening, they heard the hissing sound of a missile and instinctively bent their heads down. The missile slammed into the center of the room, blowing off the ceiling and roof, and shattering all the windows." It elucidates the state of fear psychosis among people on the ground, even to hold a family gathering.

A boy Zubair from Afghanistan, whose grandmother was, killed in a UCAV strike states in UN that he fears clean blue sky because missiles might come at any time. Rather he likes cloudy sky because UCAVs cannot operate in the cloudy sky (Abad-Santos 2013). This is just an illustration how social fabric is being affected by the relentless hovering and targeting by the UCAVs with weapons of warfare. Now, privacy is no longer remained a private affair. Private spaces have been securitised and people are deterred in their castle itself.

Such increasing vulnerability and shrinking of safe spaces have impacted the education of the people. The Chenegai tragedy of FATA in 2006, where 69 school children were killed, is a clear example of such persisting vulnerability even in schools. Lack of minimum precautionary measures has saturated things more.

The double-tap strike, which has not only deprived wounded people from receiving minimum humanitarian aid from people coming spontaneously, but it has also deterred professional aid workers from extending emergency medical assistance. There are at least 18 confirmed double tap strikes that have been reported (Woods 2012). There might be more unreported or unconfirmed double tap strikes. It has resulted in the drastic reduction of funeral and other social ceremonies like wedding. It stands testimony to the impact of the UCAVs strikes on social fabric.

[54] Literally '*Hujra*' means the main room of a Pashtun compound, where male members often meet or guests were met.
[55] Traditionally Pashtun people live in a compound consisting of many houses.

The paranoia and fear psychosis increases due to the hostile and sceptical environment that prevalent in the vicinity. The presence of hostile spies all around the space has created an environment of fear. The internal animosity of people is reflected in proving wrong intelligence directed against innocent by putting simply a SIM or chips in their compound, whose satellite signals are being traced by the US and being targeted at the end, causing unintended and innocent deaths (Living under the Drones 2012: 100). Such unconfirmed targeting resulted in death of 16 year Abdulrahman al-Awlaki.

Since the disposition matrix is a completely classified, so some activists in the regions remain in constant fear of being enlisted in the kill list. Even if a person has been enlisted, there is no way out in the hand of the person to get off the list. Otherwise he or she will be killed. In case of signature strike, defining characteristics or 'signatures' were never made public, on which basis a person's behaviour can be considered 'suspicious'. It leads to unnecessary anticipation among people, causing severe impact on social fabric.

Conclusion

UCAVs have evolved and reached a sophisticated form with a range of pro and cons. As discussed earlier, it has created new problems and challenges. Since undoing of technology is a near impossibility, so regulatory and restrictive measures are necessary to deal with the emerging challenges and complexities.

The study is not intended to suggest any solution to these problems rather this study argued that the democratic barriers against the use of any weapons is indeed important, so that war can never be a normal affair and an easy option. Relegation of democratic oversight over warfare or military operation may give rise to extrajudicial and extraterritorial killing. Such lawlessness of warfare in indeed problematic, because ethical issue such as such as human rights protection and protection of civilian would be severely undermined.

Proliferation of UCAV has been considered as a matter of concern in the global context. However, this chapter argued that along with the weapon system, proliferation of the policy of extraterritorial and extrajudicial engagement of UCAV is the real concern. This tendency has severely undermined the respect for national

sovereignty at international level. The proliferation of the extraterritorial and extrajudicial military policy is a result of the precedence set by the US as an easy solution of long term problem of terrorism.

Terrorism is a threat to the world peace, which is now emerging in a decentralised form. The availability of UCAV/UAVs for commercial as well as hobbyist purpose is giving a scope for decentralised terrorist networks to use this machine. Vulnerability persists because of weak defence and detection system that needs to be upgraded.

Use of UCAVs emerged in large number and proliferated speedily. So it is also important to know the use of UCAVs on the social fabric. It has been observed that, UCAV strikes have severely impacted the *Jirga* and *Hujra* system of the Pashtun community. Life under the UCAV is traumatising. Statements from different stakeholders stand testimony to it. So, before taking a decision on the use of UCAVs it is important to understand the state of vulnerability of the people on the ground. Otherwise in long run it might pay off negatively.

Chapter V

CONCLUSION

Questions have been raised and tentative hypotheses have been proposed in the beginning of the study. Several issues have been observed throughout the research and hence the concluding chapter will summarise the arguments forwarded throughout the study.

Development of the UCAVs, which is considered as a by-product of the larger Revolution in Military Affairs (RMA) is indeed a flawed assumption. As discussed in the chapter on evolution of the UCAVs, it has been elucidated that UCAVs developed as a response to the eternal human tendency to keep oneself invulnerable in warfare, which was there since long before. Use of longbow and balloons in warfare resonate the same tendency. Even in terms of technological developments, UCAVs emerged in the period of mechanical revolution of the 1930s. However, the way of deployment and rapid proliferation of the UCAVs can be attributed to the sophistication given by the information technology revolution, which is the prime force of modern RMA. Although UCAVs are not the product of modern RMA, but modern RMA is the enabling factor for the rising use and proliferation of the UCAVs.

Presence of UCAV capability does influence the policies of a state at tactical as well as strategic level. Although UCAVs do not fulfil deterrence purpose unlike nuclear weapons, yet it does help a state in shaping their national security policy. For instance, the UCAV capability is influencing the continuation and expansion of the GWoT of the US. Again use of UCAVs has also helps to transcend democratic barriers of a state to engage in long wars. However, for that it needs other compatible policies, especially the well maintained secrecy. Hence the first hypothesis, "Use of Unmanned Combat Aerial Vehicles helps states to continue their military activities abroad transcending domestic public pressure and international restrictions" stands modified. It has been understood throughout the study, which could be the finding of the study that "Use of Unmanned Combat Aerial Vehicles with a secretive policy does helps states to continue their military activities in non-war zones, transcending domestic public pressure and international restrictions."

The above mentioned finding partially answers the question why do states continue military operations using UCAVs despite their apparent demilitarise move from the battlefield abroad. It is because sometimes states have to withdraw forces due to public pressure without achieving any political or military objective. So, in order to gain military as well as political objective states tend to continue UCAV operation despite their demilitarise move from a region.

The secretive policy and covert use of the UCAVs have been a product of the revival of Douhet's legacy in terms of 'independent air force'. However, independent air force does not mean larger military forces like USAF and IAF, rather it means some independents units capable of carrying out independent operations which can yield strategic impact. The rise of the US Special Forces, the involvement of intelligence agency CIA and private military companies such as Blackwater confirms the mentioned proposition. These small units act beyond the sight of democratic institutions and are capable of carrying out small and tactical size operations, which might have strategic impact. It helps the government agencies to camouflage information about the covert military actions.

The rise of the independent air force is, however not an independent development. It is a response to the kind of targets it had to pursue. The saturated nature of the battlefield in the GWoT has contributed to it. The targets are concealed in the human matrix or in difficult terrains, so in order to pin down the targets different tactics were needed. Use of ground forces in such situation may be fatal. So independent air force, with continuous ISR capability emerged to deal with the situation.

The desperate attempt and dubious intention of the US have resulted in some policies like 'double tap' with ambiguous targeting policy that resulted in unwanted civilian casualties. The policy of signature strike has an enormous role in shaping the nature of collateral damages, including impacts on social fabric by keeping the entire community in constant vulnerability. These policies are certainly problematic, but formulation of these policies is directly influenced by the UCAV capability and its ability to relentlessly observe suspicious targets. In this sense, UCAV is a value laden weapon system that makes it problematic and different from that of the conventional military aircrafts.

The second proposed hypothesis "development of the Unmanned Combat Aerial Vehicle has contributed towards the change in the nature and tactic of asymmetrical war against non-state actors" has also been scrutinised throughout the study. It has been observed that the US-led GWoT is itself has contributed to the change in the nature of battlefield hence the nature and tactic of warfare. However, the UCAVs have directly contributed towards a new way to fight such warfare. So the second hypothesis has been partially falsifies and modified finding may be that the "development of the Unmanned Combat Aerial Vehicle has paved a tactical way to fight and win an asymmetrical war against non-state actors". Terrorist networks such as Al Qaida and ISIL based in Afghanistan do express their fear UCAV strikes (Quraishi 2015). The Change from strike to surveillance is a tactical change, not necessarily a change in nature of warfare.

Although, there were no significant change in terms of nature of warfare, but inception of the UCAVs have brought some tactical, ethical as well as legal changes. The allegation that the use of UCAVs has given rise of 'play-station mentality' is real because of the new recruitment system and the physical distance from the reality. 'Invulnerability' is becoming a dominant criterion of military discourse, rather than protection of people by keeping forces at risk. 'Risk' in warfare has been historically considered as necessary to keep warfare a costly affair. But, the disassociation of risk from warfare would give rise to tendency of easy war or clean operation, which is certainly an ethical issue.

The ability and the sense of easy warfare have enabled powerful states to go for warfare in a third party territory as a secret mission. The gradual expansion of the US UCAV strikes could be attributed to this trend. The over emphasis on perceived precision have influenced to ignore other ethical problems associated with UCAV strikes, where the entire population is keeping under seize. It creates a legal inadequacy whether only striking of civilian is restricted under international law or targeting of civilian population is also restricted, because the policies like signature strike targets everyone, keeps everyone is a state of vulnerability of being killed although it kills the chosen targets. The absence of legal mechanism to deal with targeting policy on civilian population indicates the need for more engagement in terms of legality of conduct of warfare.

The well maintained secrecy ignites the ambiguous and dubious policies of the government. It allows the executing agencies to remain reliant on faulty intelligence. The drone papers released by The Intercept say that the US intelligence gathering suffers from the over reliance on signal intelligence and sight, which appeared to be misleading in many cases. If the intelligence agencies are not in a position to gather succinct information about the background a person on the ground than they will not have legal ground to eliminate the target. If target fixing policies are not based on solid principles, it will keep option open for misleading information from mere sight and signal intelligence. No principles, no verification rather based on mere suspicious behaviour of the alleged person (even if the person is attending any gathering) the target would be eliminated. In many cases, even the CIA does not know who they are killing. They just direct the precision guided munitions (PMG) to hit the intercepted single on the ground. The unfortunate death of 16 year old Abdulrahman al-Awlaki and many more others stand testimony to it. He was considered as a target because he had a connection with his father, who is a HVT. The US security establishment assumed, every satellite signals connected with Anwar al-Awlaki is a perceived target, so a 16-year-old was targeted, without even confirming his identity and age.

Recently in march 2016, the Obama Administration had announced to make public the number civilian casualties of UCAV strikes (Prupis 2016). The step is certainly welcoming, but it is becoming redundant now, since lots of civil society organisation and investigative journalism have systematically investigating death tolls. Even, people claim that unofficial information is more reliable than the ambiguous government reports, since the US government considers all dead adult male as terrorist unless proven innocent.

However, the announcement means a lot. Perhaps, the necessity to discontinue such covert program and extrajudicial activity would certainly be a welcoming step. And as a part of his promise he released the number of civilian casualties of UCAV strikes in Yemen, Somalia and Pakistan. As per the government estimation between 64 to 116 civilians died in UCAV operations since 2009. As anticipated, the number it too less than the real death because of the US policy to count all dead adult male as terrorist unless proven innocent.

There are enormous complexities and challenges that are emerged from the opening of Pandora's Box that justifies the use of UCAVs and its perceived effectiveness. The foremost challenge is to halt the speedy proliferation. So far, more than 90 countries have acquired UCAVs for ISR purpose and 30 other countries are endeavouring to acquire the armed version of UCAVs. It gives rise to two possibilities: (1) the sense of using forces in the first place. (2) The possibility of use of UCAVs by non-state actors.

China, for instance had a plan to kill a ringmaster of illicit drug racked by using a UCAV entering deep into Myanmar territory, which they had the capability to capture as well. Although the plan was not executed even then the decision to use force first or kill first tendency can be attributed as an apparent outcome of the UCAVs. Germany on the other hand expresses their desire to procure armed UCAVs for deployment abroad. There is a need to check this tendency to undermine national sovereignty. Otherwise it will create serious political as well as military complexities in international relations.

Use of UCAVs by non-state actors acquired by state-sponsored means or my grey arms market is another concern. ISIS for instance, used DJI Phantom FC40 for surveillance purpose. Acquisition of such capability multiplier would certainly jeopardise counterterrorism operations. So, these issues need international attention.

Apart from that, the possibility of surprise attacks by non-state actors using hobbyist UAV has also been apprehended. Easy availability of the hobbyist UAVs, unlike the commercial off the shelve UAV made the easier for the non state actors. Since detection of mini and low altitude UAV is difficult, so it remains a challenge to figure out defensive mechanisms. The crush of a small UAV in the south lawn of White House raised the reality of the challenge posed and lack of defence mechanism to protect, even most securitised places of the world. The decentralised nature of the terror networks adds concern to it. Although this problem of use of UAV by non state actor is less in developing countries like India, due to non availability, yet contemplation is required before it takes number of innocent lives.

Terrorism is a menace. There is a need to check terrorism, especially religious terrorism, which is based on least rationality.[56] Expansion of Daesh in Afghanistan and revival of Taliban might need strong military response. But however, it may result negatively, if over-reliance on UCAVs continues. The UCAVs, which can kill terrorists as well as civilians, cannot protect people from the expanding wave of the terrorist networks. So, there is a need to have responsible and accountable action from the government, who claims legitimacy to protect people. Again, as the presented data set of the Bureau of Investigative Journalism reflects, UCAVs remained an effective in killing terrorists even in difficult terrains. However, it can be perceived as a problem, when such assumed effective action happens beyond public scrutiny. As mention earlier, covert UCAV strikes cause more civilian casualties, for instance, 17.06 to 24.13 percent in Pakistan. It creates grievances and anguish among the population. So, it is important to keep UCAV strikes under the legal ambit in order to restrict its misuse.

However, the contradictory finding of Aqil Shah, where 79 percent of young respondents endorsed UCAV strikes, brings a new dimension to this debate. The contradictory findings have ignited the debate and policy dilemma of the US, whether the use of UCAV should be continued (intensified) or not. The given narrative would probably favour continuation. But, it leads to another set of questions on the psychological impact of UCAV strikes on the entire population, which is accepted by one-fourth of the respondents. Addressing the issue of trauma and psychological impact on the civilian can be considered the most important factor to deter radicalisation. We need to remember, radicalisation is an outcome psychological indoctrination. So measures need to be taken up to ensure the 'state of safe' feeling even under an armed drone.

The 'state of safe' feeling beneath an armed UCAV is not a concrete state to measure. It requires a degree of reliability on the target choosing mechanism of the stakeholder states. The covert UCAV strikes ran by CIA has increased US reliance on faulty satellite intelligence mechanism that causes unwanted casualties is certainly unwelcoming. If such targeting policies are clear, if unknown targets are not

[56] Someone might argue, religious terrorists groups might have their rationality. But the point is that, religions talks more about submission and belief rather than questioning, thus human rationality to levels down to mere belief.

considered as de facto terrorists, only then the dubious and apprehensive state of being attacked by UCAV can be transcended.

Intensive use of the UCAVs along with faulty policies has made fragile political system even worse. For instance, the *Jirga* system of Pashtun community, which Pakistan had tried to give a political frame in FATA, was affected from UCAV strikes. It might pay off negatively in the long run to bring political settlement to conflicting issues. Rather there is a need to go for sustained policy to de-radicalise young minds by imparting modern and secular education which embraces multiculturalism and peaceful co-existence.

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