Drones

the physical and psychological implications of a global theatre of war

update 2013

IMPACT

health professionals for a
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Contents

Boxes, tables and graphs

"You live in a small village near the border. Your husband frequently has to go to town to work. Your children go to the local school. There have been two attacks from the sky in the last four months. One killed your friend's husband and two of her children. The other devastated the market. There was no sign of where the attacks came from but you know something is up there watching, ready to bomb at any time. Very often you can hear it. Your husband says he can do nothing. Some people he knows have tried to go to the country that sent them, but there is no way they can get there. Some were arrested and have not been released. Your husband is powerless to reach that thing which hovers above. You can't sleep at night and you feel constantly watched by day. You don't want to let the children out of the house but you know the house is no protection. You jump at the smallest noise and shout too much at the children. You know your husband worries about your behaviour but you feel trapped and don't know what to do."

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The description on the opposite page is not science fiction. This story accurately reflects the daily experience described by many people who live under the threat of drones.

Introduction

"Their danger was the dark side of a moon of shiny progress – something imaginable but out of view".[5]

2013 has seen significant change in the world of autonomous aerial vehicles, more commonly known as drones. Drone technology has continued to advance, leading to the development and proliferation of newer models. Medact's report, launched at a meeting chaired by Labour MP John McDonnell at the House of Commons in October 2012, along with the work of other organisations, helped to raise the level of public awareness, making 2013 the 'Year of the Drone' in terms of mainstream media coverage. The All Party Parliamentary Group (APPG) on Drones chaired by MP Tom Watson was founded shortly after the launch of the Medact report. Medact is a civil society stakeholder in the APPG and the organisation's members regularly attend meetings organised by the group.

Military technology has advanced at a phenomenal rate in the last century. In the past, countries initiating war were mindful of the fact that their own compatriots could be killed or injured. Now, for the first time in history, it is possible to attack an enemy without fear of retaliation. Nations possessing the requisite technology can now eliminate an individual thousands of miles away, on the basis of a perceived threat.

In the past decade, there has been an exponential increase in the proliferation and use of armed Unmanned Aerial Vehicles (UAVs), commonly known as 'drones'. Although only three countries – the US, the UK and Israel – are known to have used armed drones to date, other countries have developed or bought unarmed drones for battlefield surveillance, or are seeking to obtain armed versions.

It appears that international law has not kept pace with this technology. The President of the United States, along with the National Security Agency (NSA), CIA and military advisors, asserts a right to authorize the assassination of individuals perceived to be a threat to the US. Some of these assassinations are carried out in countries with which the US is not at war. Consequently, the use of armed drones to carry out killings in these situations is unlawful.

Very little is known about drone strikes carried out by UK forces as information about them is tightly controlled by the Ministry of Defence. However the British military is known to deploy and to be expanding its fleet of armed drones.[6]

In this report, Medact considers the impact of drones from a public health perspective. As with any other agent of death, injury and disability, it is important to know how drones developed, and to assess their impact on health and wellbeing, the moral and legal issues raised by their use and, most importantly, how the damage they cause can be stopped. We draw attention to the growing asymmetry in warfare between those who have drones and those who do not. We believe that a completely asymmetrical conflict equates to terrorism.

The deaths and injuries suffered by innocent civilians who happen to be in the vicinity of a drone's target go largely unreported. These men, women and children remain statistics: anonymous and nameless. The psychological impact on civilians – including many children – who live under the constant threat of drones, is unacceptable, and is not taken into account by those who use them. Evidence is also emerging of damage to the mental health of those who operate them. Watching a target on a computer screen for days, tracking his every move, then pressing a button that will kill him and possibly his family or friends, can create 'physical exhaustion', 'high operational stress' and 'clinical distress'.

This report describes the journey that led to the proliferation of these weapons and their adoption by the UK government; it describes the physical and psychological damage they cause to civilians and to the military personnel who operate them; it explores the moral and legal issues raised by their use in so-called 'legalised' assassinations or 'targeted killings'; and it concludes with a list of recommendations. We believe it is time for the UK government to stop purchasing, developing and deploying armed drones.

A brief history of aerial warfare

Peter Felstead, editor of Jane's Defence Weekly, compared the development of drones to that of aeroplanes during the Great War: "First they were used for reconnaissance, then they were armed for bombing and ground attack missions and they eventually became air-to-air combat craft."[7]

Considering the history of aerial warfare can help us to understand how we reached this point.

One of the first recorded instances of planes being used against civilians took place in April 1937, during the Spanish Civil War. The air raid against the town of Guernica, a Republican stronghold in the Basque region, is believed to have caused more than 200 civilian deaths and left hundreds wounded (though exact figures are still disputed).[8]

The daytime attack on a defenceless city on market day provoked worldwide outrage. This bombing appeared to be in line with 'The Total War' theories of General Erich Luderndorff, who argued that in modern warfare civilians should be included as legitimate targets.[9]

Towards the end of World War 2, Hitler unleashed his infamous Vergeltungswaffen (or reprisal) rockets. More commonly known as V1s or doodlebugs, these rockets terrorised London and other British cities during 1944-45. V1 rockets, prototype unmanned aerial vehicles, continued along a set flight path until they ran out of fuel and crashed onto the ground below.[10] The suspense after the doodlebug 'cuts out' has been compared to the fear caused by the hovering drone, with the difference that the stress caused by the drone is constant.[11]

Guernica' by Pablo Picasso[13]
Serves as a memorial to civilians killed in war

After WW2, the US began to develop cruise missiles using technology based on the German V1 rocket design but tailored to deliver a high-explosive payload to a specific target.[12] Their first surface-to-surface cruise missile, the MGM-1 Matador, referred to as a 'pilotless bomber', was deployed to US bases overseas by the mid 1950s.[13] [14]

These and other remotely piloted vehicles (RPV) were developed to reduce casualties to aircrews caused by surface-to-air missiles. RPVs were deployed during the Vietnam War to perform high-risk operations, such as low altitude 'photoreconnaissance' of enemy territory.[15]

The Israeli military used drones made in the US as decoys to draw fire from anti-aircraft missiles during the 1973 Yom Kippur War. Israel later developed drones capable of transmitting real-time video footage of the battlefield.[16] [17]

Drones were used for surveillance and intelligence gathering during the first Gulf War in 1990-1991 and in Kosovo in 1999.

Prior to the 9/11 attacks, the US Air Force began experimenting with armed drones. In 2001, a Hellfire missile was successfully fired from a Predator drone at a stationary target in the Nevada Desert.[18] That year, a CIA-operated Predator drone was used in combat for the first time to assassinate Mohammed Atef, an alleged Al-Qaeda leader in Afghanistan.[19]

Over the past decade, drones have been used by the US in Afghanistan, Pakistan, Yemen, Somalia, Libya and Iraq.[20] Israel has reportedly used armed drones in Gaza and the UK has used them in Afghanistan. Currently, over 76 countries are thought to possess some type of drone.[21]

How did we get here?

1910 US Air Force experimental bombing
Sandbags over the sides of planes

1911 Ain Zara Libya
Hand dropped bomb

1914-18 World War 1
The aeroplane is the new battlefield weapon

1937 Spanish Civil War
Air raid on Guernica kills over 200 civilians

1944-45 World War 2
'Doddlebugs' or V1s – a prototype UAV

Mid 1950 United States
V1 developed into surface to surface cruise missile – a 'pilotless bomber'

1955-75 Vietnam War
Remotely Piloted Vehicles developed

1973 Yom Kippur War
Drones used to draw fire

1990-91 Gulf War
Unmanned Aerial Vehicles (UAVs) or drones used for surveillance

1999 War in Kosovo
UAVs used for surveillance

2001 Conflict in Afghanistan
Feb: first test of an armed UAV.
Nov: first assassination using an armed UAV

2007 Conflict in Afghanistan
British forces start to use UAVs

2002-2012 Armed UAVs used for assassinations in Afghanistan, Iraq, Libya, Pakistan, Somalia, & Yemen

2012 An estimated 76 countries have some sort of UAV
First British UAV base being set up at RAF Waddington
President Obama supervises a 'kill list' to decide which individuals are targeted.

2013 Public opposition to drone strikes increases
Four major reports released by UN and human rights groups calling for greater transparency and adherence to international law.

Beyond 2020 Prospect of rapid proliferation
Development of more autonomous UAVs including possible self selection of targets.

The global situation

In the past year drone use has expanded globally. The US extended its drone programme throughout Africa with the creation of a new base in Niger, home to a number of unarmed predator drones used for surveillance. The use of drones in neighbouring Mali has been confirmed with the report of a drone crash in the region.[22] Military strikes have not been ruled out if the situation in Mali should worsen.[23] The UN has also begun to use drones for surveillance in Africa with the acquisition of an Italian made Falco drone, deployed along the eastern border of the Democratic Republic of Congo.[24] In the UK, drone use has increased domestically with two surveillance drones being purchased by the Northern Ireland Police force to patrol the G8 meeting.[25] Police forces outside of Northern Ireland have had mixed success with drone use. Currently, the Civil Aviation Authority (CAA) restricts the use of drones, including use by police. This, however, is a procedural rather than legal block, and as such, is a major concern of privacy advocates.[26]

Non-military use of drones and blurred research boundaries

Alongside the growing military market, drones are being developed for a variety of civilian uses. Drones are being used in wildlife conservation efforts to track poachers in South Africa, as well being developed for the construction industry, disaster relief, search and rescue missions and agriculture.[27] In a working document the European Commission reported that there are currently over 400 projects in 20 European countries developing aerial drones for non-military commercial use.[28] The US Federal Aviation Administration (FAA) predicts that some 10,000 unmanned aircraft systems will be in commercial service within five years. In Europe this figure will be somewhat lower with EUROCONTROL predicting that by 2020 there will be 600 unmanned systems.[29] This raises two concerns; firstly, improving drone technology will remain at the forefront of *military* research. Drones were first developed to build military capability, and this is still the reason that many governments and militaries around the world are investing in the technology. The distinction between civilian and military research and development is a difficult line to draw and this is clear in the development of aerial drones. The technology that is being produced to allow civilian drones access to European airspace will inevitably provide benefits to military research programmes and thus to military drone capabilities. Secondly, there are important privacy issues concerning the use and spread of aerial drones in domestic air space. The American Civil Liberties Union warns that drones could "profoundly change the character of public life" and it actively campaigns for limits on when, by whom and for what they can be used.[30]

The only three countries known to have used armed drones in combat are the US, UK and Israel. However Singapore, India, China and Russia have developed or bought drones. The annual market for drones is expected to rise from $5.9 billion to $11.3 billion in the next decade.[31] The US has the largest fleet, estimated at around 7,500[32] and is seeking to spend $32 billion on drones over the next eight years.[33] The US successfully launched and landed an unmanned X47B aerial drone from aircraft carrier George H. W. Bush this year.[34] This move toward the use of aircraft carriers has important implications: first, it will reduce reliance upon land bases that may cause discontent in host countries. Secondly, aircraft carriers will be able to position closer to the shore-lines of states under surveillance. This, combined with the supersonic capabilities of the X47B and the Taranis, will extend the range that drones can operate at considerably beyond the current short-range propeller-driven predator and reaper models. After the US, the countries of the Asia Pacific are believed to be the second largest purchasers of drones and some are thought to be developing their own.

In January 2009, when President Obama was elected, the US had only carried out 44 drone strikes in Pakistan in five years. Since then, there have been more than 250 drone strikes in Afghanistan, Yemen and Somalia. Between April and the beginning of June 2012, there were 14 strikes in Yemen alone.[35]

NATO Secretary General Fogh Rasmussen has said that drones enable the alliance to 'respond effectively to the challenges of the future'. Whereas 25 other NATO members have access to small drones, France and Italy have now joined the US and UK in possessing larger ones, such as the Predator and Reaper, that are armed or capable of being in the air for a significant period of time.[36]

There are plans for drones to become increasingly automated, with the ability to fly pre-programmed missions and eventually select their own targets. In future there may be solar-powered drones and drones that can take off vertically from ships[37]. Blueprints for the production of nuclear-powered drones, capable of staying airborne for months at a time, were drawn up by the US government's main R&D agency Sandia National Laboratories. These plans have now been shelved in anticipation of negative public opinion.[38]

The University of Texas, Austin has successfully demonstrated to the US Department of Homeland Security the fragility of drone technology by sucessfully hacking into drones; the technique used in the demonstration was cheap and simple to implement. Furthermore, it may have been similar to that used in Iran to down a US drone in 2011. Thus, potential dangers include the hacking of drones by terrorist or other groups.[39]

UK drones

Surveillance drones

In 2007, British forces began to use drones in Afghanistan, rented from the Israeli military. The Hermes 450 drones were used to provide battlefield surveillance and intelligence.[40] The UK then developed its own 'Watchkeeper' drone, built by U-Tacs, a company jointly owned by Thales UK and the Israeli company Elbit Systems. Early test flights of the Watchkeeper took place in Israel.[41] Later test flights were carried out in Wales.[42] The MoD is hoping to get service approval for the Watchkeeper by the end of 2013.[43]

The Watchkeeper drone, designed to be airborne for 14-16 hours and to fly at an altitude of up to 16,000ft,[44] can operate in all weather conditions.[45] Its purpose is to provide ISTAR (Intelligence, Surveillance, Target Acquisition and Reconnaissance) capability. It is unclear whether the Watchkeeper will be deployed to Afghanistan at some time in the near future as originally planned.[46] [47]

The fact that many 'surveillance' drones can also carry missiles means that countries seeking to use drones as weapons could simply acquire surveillance drones and arm them. This could lead to an out-of-control arms race involving virtually any state or non-state actor.

Armed drones

This year the UK has doubled its armed drone fleet from five to ten Reaper drones, but these are yet to begin active duty.[48] These are operated by the RAF's new 13 Squadron (formerly 39) and involve personnel from all three branches of the forces.[49] Until recently they were based at Creech Air Force Base, Nevada but have since moved to RAF Waddington, Lincolnshire, where drones are being directed for use in combat and surveillance in Afghanistan.[50]

From 2008 to 2012, British Reaper drones have flown for over a total of 34,750 hours. This year's figure is now over 45,000 hours,[51] an increase of almost 30%. The UK government has expanded its fleet of drones to 500 and there are plans to make one third of the UK airfleet unmanned by 2030.[52]

In 2006, a £127 million contract was signed between the MoD and BAE to develop an 'experimental' combat drone, the Taranis. Its prototype was unveiled in July 2010.

The Taranis is currently being tested in Australia and presents significant developments in drone technology. This includes autonomous control, stealth, supersonic speed and in-flight fuelling capabilities.[53] Predator and Reaper drones already have some autonomous capabilities and can be programmed to fly a set route for a number of hours. However, the autonomy planned for the Taranis is more advanced, and will include take off, flight and landing, reducing the need for trained pilots. The technology for autonomous weapon use remains unviable for the foreseeable future.

The 2010 Strategic Defence and Security Review (SDSR) stated that the UK is committed to developing drones.[54] The MoD has sought to develop a drone with ISTAR capability and is currently developing the Mantis, which is designed to fly according to a pre-planned flight path.[55] France and Britain signed the 'Declaration on Defence and Security Cooperation' in November 2010 committing both countries' armed forces to greater collaboration, so a joint British-French drone could be developed by 2015-2020.

The first UK drone strike is reported to have taken place in June 2008.[56] In September 2012, Britain was reported to have carried out over 300 drone strikes in Afghanistan,[57] thus making the UK three times more likely than the US to deliver a drone strike within the region.[58]

The Reaper drone

The MQ-9 Reaper drone, also known as the Predator B, was first used by the US in Afghanistan in 2007. It can reach an altitude of 50,000ft and airspeeds of up to 338 mph. It can stay airborne for up to 14 hours and can carry up to 14 Hellfire missiles or laser-guided bombs.[59]

The Reaper sends high-quality images to a Ground Exploitation Station, which are then relayed to an operator. It can scan an area for moving objects and is equipped with a laser-guided targeting system.[60]

The US Air Force website states that the Reaper "is employed primarily in a hunter/killer role against dynamic execution targets and secondarily as an intelligence collection asset. Given its significant loiter time, wide-range sensors, multi-mode communications suite, and precision weapons… it provides a unique capability to autonomously execute the kill chain (find, fix, track, target, execute, and assess) against high value, fleeting, and time sensitive targets (TSTs)."[61]

A Reaper crew consists of a pilot who 'flies' the drone and a sensor operator who monitors the screens and its various instruments. Teams may switch during an operation. For example, a team in Afghanistan may launch the drone but a team based in the US may take control mid-flight.[17]

Impact on civilians

There are many reasons why health professionals have concerns about the increasing use of drones. In addition to the number of deaths and injuries of innocent civilians, we also have concerns about the psychological damage to people living under the constant threat of drone attack, and to service personnel who carry out the assassinations. There is also some evidence that medical personnel and others who arrive at the scene to assist the injured have been targeted in drone attacks[62]. This is a war crime.

There are some estimates of the number of civilians who have been killed by drones and these are most accurate for Pakistan. These range from light casualties to estimates from the Bureau of Investigative Journalism (BIJ) of large numbers of civilian deaths, including children, family members attending funerals, people on rescue missions and medical personnel.

The BIJ has issued reports on the number of deaths resulting from drone strikes and other covert operations in Pakistan, Yemen and Somalia. Between 208 and 258 children have been killed since 2001. Total deaths are estimated to be between 3,272 and 5,002.[63]

The following table from Amnesty International shows the number of strikes, deaths and casulties in Pakistan since 2004, according to the Pakistani Government, the US government and various independent organisations, including the BIJ since 2004.[64]

There are reports of 'double tap', where a second drone strike follows the first, as civilians attempt a rescue. Amnesty drew attention to the case of a 68-year-old grandmother called Mamana Bibi who was killed whilst working in her family's fields. Amnesty's report expresses concern over the lack of transparency which leads to civilian victims and their families having little recourse to justice, medical treatment or compensation.[65]

Human Rights Watch (HRW) released a report on the same day focusing on six strikes in Yemen that killed 82 people, at least 57 of whom were civilians. HRW's report questions the justification for strikes under the strict requirements of international law and goes one step further by calling for those responsible for unlawful killings to be disciplined or prosecuted.[66]

Data on the number of individuals injured by drone strikes conducted in Pakistan between 2004 and 2013 are estimated as being between 2,065 and 3,615. This is unusual because during a conflict the number of injuries is usually greater than the number of deaths by a factor of anything from 3:1 to 9:1. In this case they are 0.41:1 to 0.48:1.[67] While more injuries than deaths probably go unreported, this nevertheless gives an indication of the deadly nature of drone attacks and the unnecessary deaths that will occur if mistakes are made in targeting, observation or intelligence gathering. The deaths and injuries suffered by innocent civilians in what are euphemistically called 'surgical strikes' are often underreported. These are men, women and children who are mothers, fathers, sisters, brothers, friends, like Kareem Khan, who lost his son and brother in 2009.

	Number of drone strikes	Total killed	Civilians killed	Total injured
Government of Pakistan	> 330	2,200	400-600	> 600
Long War Journal/New America Foundation/Bureau of Investigative Journalism	348-374	2,065-3,613	153-926 (including 168-200 children according to The Bureau of Investigative Journalism) classified	1,117-1,505
US government	classified	4,700 (unclear whether this refers to all drone strikes or just some countries, including Pakistan)	classified	classified

Kareem Khan's brother, a school teacher, and his son, a government employee, were killed by a drone in 2009.

Noor Khan's father was killed in a drone strike in Pakistan on 17 March 2011. He is now taking legal action against the UK government regarding its intelligence sharing with the US for use of drone strikes in Pakistan.

Women are disproportionately affected by drones. What little control they have over their lives is further eroded by a weapon they know could strike at any time. Their lives and those of the children they try to protect are under constant threat. While men can sublimate their grief and anger to some degree by becoming fighters – one of the terrible consequences of drone warfare – women have no such outlet. And if their menfolk are killed in a drone strike, they may have to endure the continuing presence of the drone just overhead.[68] [69]

The degree to which drones contribute to the loss of human dignity is clear from this description of life in the Gaza Strip: *"The constant surveillance from the sky, collective punishment through blockade and isolation, the intrusion into homes and communications, and restrictions on those trying to travel, or marry, or work make it difficult to live a dignified life in Gaza"*.[70] People feel that their personal space is invaded by drones and normal life is physically and chronically restricted. In Gaza, drones are called 'zennana' – a word meaning a 'whining wife or daughter'.

The APPG met in March 2013 to discuss the psychological impact of drones on individuals and communities. Drone expert Jennifer Gibson presented the findings of the Living under Drones Project. The report found a significant psychological impact of US drone strikes in Pakistan. Also present at the APPG in March of this year was Dr Schappveld, a renowned psychologist, who was part of a separate fact-finding mission to Yemen set up by the charity Reprieve. Both of these projects found that the consequences of drones on communities led to a breakdown in trust, a breakdown in social relationships and a fear of sending children to school. In both countries, individuals were found to be suffering from numerous social and psychological disorders. It was discovered that domestic 'solutions' to these problems included anti-anxiety medication, anti-depressants or tranquilizers. Dr. Schaapveld went on to state, "It is possible that the trauma found in Yemen, and perhaps Pakistan, is a new form of Post Traumatic Stress Disorder (PTSD)." The effect on children was found to be more pronounced.[71] Dr. Schaapveld concluded with evidence collected from Holocaust victims that has shown PTSD can have trans-generational staying-power when inflicted on a community-wide scale, and warned of the high risk of a similar impact on communities in Yemen.[72]

There are also signs that the very presence of drones has contributed to the disruption of vital public health programmes. One Taliban leader in Waziristan stated that polio vaccinations of children in the region will be prevented as long as the US continues to use drones to kill targets there.[73]

Domestic opposition to drone strikes have become an election issue taken on by politicians such as Imran Khan who attempted a well-publicised peace march against drones in Waziristan.[74]

"Having endured the trauma of being hit by a drone, the sound of the drones still haunts him. After spending over a month in the hospital, being operated upon, losing his left eye and sustaining damage on his right eye which his already impoverished family had to fund, he came back to a half destroyed house and no semblance of a normal life. He experiences trauma every time he thinks of his deceased loved ones and his own condition, as well as every time another drone hits."

Faheem Qureshi, Ziraki, North Waziristan, Pakistan. [Case study provided by Reprieve]

Impact on drone operators

While the impact on civilians in areas targeted by drones is our primary concern, evidence is also being collected on the psychological impact on drone operators. Not at risk of death or injury, and thousands of miles away from the theatre of war, they may consider that they are merely taking part in a computer game. If their missile hits its target there is only *"an acknowledgement of a blank screen where previously there had been moving images"'.*[75]

Several people are involved in drone operations – pilots who 'never take to the air' but fire the missiles, sensor operators who guide missiles to their targets, and mission coordinators.[76] However, there may be many more people involved in the analysis of the operations.

The US Air Force conducted a survey that showed that 46% of Reaper and Predator pilots and 48% of Global Hawk sensor operators suffered from 'high operational stress.'[77] However the definition of high operational stress was somewhat vague. A smaller but significant number of operators – including a quarter of Global Hawk sensor operators, had what the study defined as 'clinical distress': anxiety, depression or stress severe enough to affect an operator's job performance or family life. This type of very intensive work is carried out over eight-hour shifts, which may also affect the ability to concentrate and think clearly.

Most occupational stress was reported to be 'operational' stress rather than stress due to exposure to 'combat'. In this situation, 'combat' is a live video feed of the assassination of enemy combatants or ground forces. Operational stress was attributed to shift patterns and hours worked. It was also attributed to the dislocation caused by maintaining a 'day job' as a 'war fighter' and going home at the end of each day to domesticity. Recommendations in this study all related to work conditions; none related to the task that drone operators were being asked to carry out, apart from a recommendation that periodic psychological health assessments be carried out to mitigate the risk of burnout.

There has been some speculation about the effect on drone operators of observing the target they have been assigned to kill on a high definition computer screen, often for several days. Exactly how this process impacts on the operator's perception of the target as a human being is unknown. With high definition screens, images are much clearer to drone operators than they are to aircraft pilots *'… long loiter times enable a pattern of life to be established in considerable and mundane detail, with meal times, prayer times, toilet habits, friends and even relatives being identified'*. Tracking targets for long periods of time may enhance empathy with them, rather than create a sense of detachment.[75]

It has been noted that older drone operators who are seasoned pilots experience their physical distance from the conflict as more troubling than younger drone operators who may not be trained pilots.[75] The younger operators have grown up with computer war games, and may have a 'playstation mentality'.[2] One advertisement in the United Arab Emirates, seeking to train new drone operators, asks 'Do you enjoy playing computer games?'[78]

There are also differences between what drone operators actually *do* and what they – and society – perceive they *should* do. Previous heroes of war had to overcome risk, fear, pain and discomfort. They were held in respect especially if the war was perceived as 'just'. The fact that their personal needs were subjugated to the common good also enhanced their self-respect.

On the other hand, drone operators have been described as 'outsourcing risk'.[79] All the aspects of battle, which normally enhance self-esteem and engender the esteem of others, are absent and there is the potential for this work to erode the self-image of the drone operator as well as the image of the war hero in the public mind.

Drone operators also experience physical exhaustion, and have been referred to as the most fatigued flight crews in the military.[80] This may be due to the buildup of adrenaline in men who are engaging their fight or flight response with no physical outlet.

At the end of their shift drone operators go home to their families, not having experienced the heat, dust and the fear of dying that accompanies more conventional warfare. They also lack the camaraderie of fellow soldiers and the opportunity to share feelings based on common experience.

A study conducted in 2013 by the US Armed Forces Health Surveillance found no difference in the incidence of stress disorders between pilots of unmanned and manned aircraft. The report reiterated the different circumstances of drone pilots in comparison to traditional combat roles. In particular, drone pilots have to deal with: "A lack of deployment rhythm and of combat compartmentalization (i.e a clear demarcation between combat and personal/family life), fatigue and sleep disturbances secondary to shift work, austere geographic locations of military installations supporting RPA missions, social isolation during work, which could diminish unit cohesion and thereby increase susceptibility to PTSD and sedentary behaviour with prolonged screen time".[81]

Legal issues

The Obama administration has claimed that killing using military force outside of armed conflict zones is lawful under international law. However there is a growing awareness that these claims are baseless. Nevertheless it may take a specific treaty to spell out the limits on the use of drones. Indeed while theatre specific conventions relating to war on land and at sea exist in international law, no such conventions apply to aerial warfare. A draft convention, *The Hague Rules of Air Warfare*[82], was proposed by the United States in 1923, but it was not adopted.

The UN has published two reports on drone warfare this year, the first by the UN Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions, Christof Heyns, and the second, by the UN Special Rapporteur on Counter-Terrorism and Human Rights, Ben Emmerson. The report by Heyns starts by acknowledging that, "Drones…are here to stay", and that the number of states using drones is set to increase as the technology becomes cheaper.[83] The future availability of drones raises a number of concerns over their use, running the risk of states distorting interpretations of international law and normalising the use of force. Compared to traditional forms of combat, the use of drones is relatively low-cost and has a low, or no casualty rate experienced by the drone-operators; these favourable variables reduce public pressure for responsible and accountable drone use. In response, Heyns calls for greater transparency and argues that drones should not be used by organisations that are prevented from publishing such details.[84] Whilst not mentioning either the US or the CIA specifically, much of the CIA's operations remain shrouded in secrecy.[85] Therefore, Heyns insists that states should reach a consensus on how the rules of international law apply to drones; he argues that this has become an absolute necessity as more states begin to acquire and use drones. Heyns concluded his report by stating, "The established international legal framework for the use of force (international human rights law, international humanitarian law and inter-state force) should be regarded as setting forth an adequate framework for the use of armed drones."[86]

The interim report by the UN Special Rapporteur on Counter-Terrorism and Human Rights, Ben Emmerson QC, also called for greater transparency on drone use.[87] In particular, Emmerson highlights that, "In the United States, the involvement of CIA in lethal counter-terrorism operations in Pakistan and Yemen has created an almost insurmountable obstacle to transparency". On international law, the Special Rapporteur states, "The United States…has publicly asserted a right under international law to use lethal force in counter-terrorism operations conducted outside areas of active hostilities. This gives rise to a number of issues on which there is either no clear international consensus, or United States policy appears to challenge established norms." Emmerson has welcomed indications that US drone attacks will decrease whilst calling for a complete stop in Pakistan due to strong government opposition and the apparent violation of Pakistani sovereignty.[88] During meetings in Washington, Emmerson was also told that the operation of drones will increasingly shift from CIA to military control, bringing the legal operation of drones under the US military code.[89]

International Humanitarian Law (IHL)

In situations of actual armed conflict, the Geneva Conventions and other rules of IHL apply. The Geneva Conventions that were developed in 1949 as a result of WW2 did codify general principles with clear implications for aerial bombardment, in particular the need for attacks to be proportional to their anticipated military advantage, and to discriminate between combatants and civilians. The Additional Protocols of 1977 developed these principles further, particularly in relation to attacks that affected a wide area, with the aim of protecting the civilian population in any conflict.[90] They contributed to the overall body of IHL, also known as the 'laws of war', as they are designed to mitigate the effects of, and apply in times of, armed conflict.[91]

It has been claimed that armed drones can be more accurate at discriminating between combatants and civilians than other weapons of aerial warfare,[92] and are thus more likely to conform with IHL. These claims are based on the ability of drones to observe targets for long periods and at unusual angles. As discussed elsewhere in this report, evidence of accuracy is not always borne out in reality, and identifying 'suspicious behaviour' from aerial observation can lead to mistakes. The fact that the US drones programme now classifies all military aged men within the area of a drone strike as possible militants, greatly increases the risk of civilian deaths, and the likelihood that attacks will be indiscriminate under IHL.[93]

Drone attacks by the US have caused an unknown number of civilian casualties and are deeply unpopular within Pakistan. They are also arguably a violation of the country's sovereignty. The fact that no armed conflict has been declared and the US is not at war with Pakistan complicates the legal situation. In June 2012, the now Defence Secretary, Leon Panetta, commented *"We are fighting a war in the FATA [Federally Administered Tribal Areas], we are fighting a war against terrorism"*. This appears to be the first time that a senior US official has referred to the US's actions in Pakistan as an actual war[94] and effectively implies that conflict could spread in this way to anywhere in the world.

The section of IHL that protects civilians is known as Jus In Bello (Law in War) and comes under Protocol 1, Additional to the Geneva Conventions. The basic rule states, "…the parties to the conflict shall at all times distingush between the civilian population and combatants and between civilian objects and military objectives and accordingly shall direct their operations only against military objectives".[95] The US has asserted that Al Qaeda is a terrorist organisation with no civilian wing; however there is growing evidence in Yemen that Al Qaeda has taken on more governance roles.[96] In this sense, it is mimicking the civilian roles taken on by other terrorist groups in the Middle East. The Red Cross has highlighted the difficulty of deciding which targets are legitimate as it is in the nature of terrorist groups to not wear uniforms and combatants may periodically return to civilian life. However the greatest cause for concern in 2013 are allegations that the CIA counts all casualties as combatants in cases of ambiguity, the result being that all men of military age, defined as being between 15 and 55 are treated as combatants.[97] This accounts for the very low civilian casualty rates given by the US, which stand in stark contrast to the counts given by independent organisations.

International Human Rights Law (IHRL)

IHRL, designed for times of peace and to be universal, was developed separately to IHL. It includes the International Covenant on Civil and Political Rights. The international reach of IHRL, and whether it governs the actions of one state in the territory of other states, has been questioned in recent years. In some cases this has been looked at in relation to the actions of non-state actors in a foreign country, and to what extent their own government bears responsibility for these actions. However experts are in general agreement that IHRL has an 'extra territorial reach'.[98] [99]

IHRL would also apply in a country experiencing conflict, but where conflict had not been officially declared. A government can suspend some (but not all) of these rights if there is a national emergency that could be caused by an 'unofficial' conflict. One of the rights that cannot be suspended is the 'right not arbitrarily to be deprived of one's life'.[100] If attacks by armed drones were shown to be arbitrary they would then be considered illegal depending on the definition of 'arbitrary'. The International Court of Justice has ruled in one case that this should be decided 'lex specialis', i.e. by the law applicable in situations of declared armed conflict, bringing the argument back to IHL, and to its core principles of proportionality and discrimination.[101]

Intelligence gathering

It is said that the ability of drones to observe targets over long periods of time means that the attacks are more accurate. However local intelligence plays an important role in the selection of targets and misleading intelligence can create 'false targets'. One of the intelligence sources in Pakistan is the Inter-Services Intelligence (ISI), Pakistan's secret service. It has been reported that the ISI may provide intelligence about targets it wishes to eliminate. An example of this might be the case of the recent Pakistani Taliban leader Baitullah Mehsud.[102]

It is clear that not all intelligence is correct: information may be sold, it may be wilfully inaccurate, or have been obtained through torture. The problem of inaccurate intelligence is not new; however it is of greater significance in a conflict in which there is no engagement on the ground. The difficulty of ensuring that intelligence is accurate in conflicts that are as complex as that in Afghanistan cannot be overestimated. And this in turn has the potential to throw into question the justification and the legality of any attack.

Proportionality and 'imminence'

There is also a problem with claims of proportionality, i.e. that the military benefit justifies the risk of civilian death and injury. It is claimed that the accuracy of drones increases their ability to be more 'proportional'. This may make them more likely to be used.

However, armed drone attacks are increasingly based on information about an 'imminent' attack which may be at an unknown time in the future. An assessment may be made that killing 10 innocent civilians who happen to be in the same building as the target can be morally justified because it is believed that the target may be planning to kill 100 people in the future. Given that the majority of these attacks are pre-emptive, that intelligence may be inaccurate, and observation misleading, the slippery slope which leads to the death of civilians becomes clear.

One purpose of law is to determine accountability. When a mistake is made and civilians are killed due to incorrect intelligence, possibly obtained under duress or provided with alternative motives, who is to blame? When an attack is carried out in anticipation of an action, who is to judge the likelihood – and therefore proportionality – of that action? All these issues muddy the waters not only of the legal, but also the moral and ethical situation, which is discussed later.

> *"I'm thankful that my doctors don't use their (the administration's) definition of imminence when looking at imminent death. A head cold could be enough to pull the plug on you."*
>
> **Morris Davis – Law Professor and former Air Force Lawyer**

Signature strikes

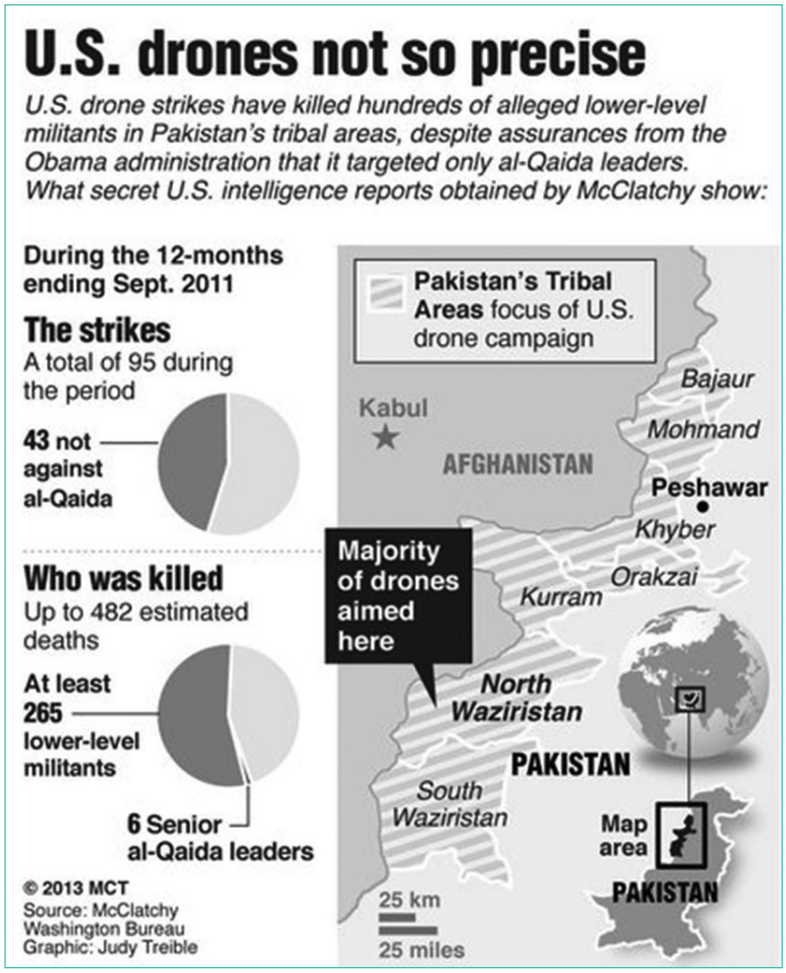
In June 2012, 26 members of Congress signed a letter to President Obama asking him to provide Congress with information about the legal justifications and the process behind the authorisation of so-called 'signature drone strikes'.[103] 'Signature' strikes target unidentified individuals whose behaviour is considered to be suspect, rather than a named and identified individual, such as a known militant. Signature strikes can be based on 'suspicious behaviour' alone and all adult males within the target area can be considered to be terrorist suspects.[93]

The letter to President Obama from members of Congress said ' *'We are concerned that the use of such 'signature' strikes could raise the risk of killing innocent civilians or individuals who may have no relationship to attacks on the United States…The implications of the use of drones for our national security are profound. They are faceless ambassadors that cause civilian deaths, and are frequently the only direct contact with Americans that the targeted communities have."*

In addition to signature strikes against unidentified person(s) acting suspiciously, the US also has a list of known suspected terrorists it wishes to eliminate. The process by which names appear on the 'kill list' is not clear to anyone other than the President and his advisors. Disclosed Wikileaks cables suggest that US drone attacks take place with the tacit approval of the Pakistani government. Prime Minister Yousuf Gilani commented at a meeting with Interior Minister Rehman Malik and former US ambassador to Pakistan, Husain Haqqani, on August 21, 2008, *"I don't care if they do it as long as they get the right people. We'll protest in the National Assembly and then ignore it."* [104]

In April 2013, news website McClatchy released an analysis of top-secret US intelligence reports on drone attacks. The reports call into question the statements given by the Obama administration who have repeatedly stated that drones have only been used on specific targets connected to the 9/11 attacks and individuals planning imminent attacks on Americans.[105] In contrast to these claims, the reports received by McClatchy covering 2006-08 and 2010-11 include targets whose organisations fall outside of the definition provided by the Obama Administration, and refer to targeted unidentified individuals described as "other militants" and "foreign fighters"; this indicates that the administration may have mislead the public on who is, and is not, being targeted.

President Obama gave a much-publicised speech at the National Defence University in May 2012 at which he indicated that drone attacks in general, with a focal point on signature strikes, will be and are decreasing.[106] However, a strike in July 2013 had the highest death toll since 2012 in contrast to the declining trend seen in the previous 12 months.[107] Amnesty has compared President Obama's



promises on drone reform made in 2012 with his actual policy responses. They have found that on a number of issues, including transparency, adherence to international law, accountability and the use of force against 'imminent' threats, policy has remained largely the same with a few cosmetic changes.[108] Nevertheless, it is unclear if the decrease in strikes is due to the public backlash against drones, the success of the drone campaign itself, or because of a change in tactics in response to drone strikes on the part of those being targeted.

Asymmetrical warfare

The danger posed by armed UAVs cannot be separated from the asymmetric manner in which they are presently used. There is presently no international law relating to asymmetric war, one area where international law is lagging behind technological development.

Asymmetry is a characteristic of many of the conflicts in which armed drones are being deployed today. The armed forces of rich nations have an ever-increasing global reach. In this scenario, drones could play a key role in creating a completely asymmetric war in which one side has no possible means of retaliation. This is terrorism.

Moral and ethical issues

"The use of unmanned weaponry necessarily has a corrupting effect on those directing it because it implies that war is being waged only against a few sinister individuals".[109]

Perceptions of the enemy

Morality has been defined as *"a suite of interrelated other-regarding behaviours that cultivate and regulate complex interactions within social groups"*[110] This refers to an ability to understand or empathise with your opponent. In the First World War when opposing sides played football at Christmas there was a degree of understanding and respect. This was eroded as the war progressed, partly due to the disapproval of officers who were concerned about the fighting spirit of their troops. More recently the UK Ministry of Defence Development, Concepts and Doctrine Centre noted the need to *"ensure that, by removing some of the horror, or at least keeping it at a distance, we do not risk losing our controlling humanity and make war more likely"*.[111]

Aerial bombing – an exception?

All aerial warfare raises moral and ethical issues. The extensive bombing raids during World War 2 were not addressed in the Nuremberg trials in 1945-6 where one of the American prosecuting lawyers, Mr Rosenthal, was a former bomber pilot.[112] There was also no judgement of those who dropped the nuclear bombs on Hiroshima and Nagasaki.

Explanations for this have ranged from the urgent need for justice to be seen to be done to the victors' reluctance to include actions that might incriminate them. Since then, the power of aerial bombardment has increased dramatically. More bombs were dropped on Vietnam than were collectively dropped during the whole of World War 2.[113]

Force protection

The ability to kill and injure from a greater distance than your adversary has always been an advantage in warfare. The reach of longbows gave the upper hand to the English in the Battle of Agincourt.[114] Air power combined the advantage of distance from impact with the ability to rapidly leave the scene of the attack. This is particularly advantageous where the adversary has no air force or anti-aircraft weapons, as is generally the case with those targeted by drones.

The UK Ministry of Defence Development, Concepts and Doctrine Centre on Unmanned Aircraft Systems has expressed reservations about drones, but has also said their negative aspects must be *"tempered"* by the fact that *"the use of unmanned aircraft prevents the potential loss of aircrew lives and is thus in itself morally justified."*[111]

Lowering the threshold to conflict, failing to promote peace

"The idea is that, once these are 'taken out' (like bad teeth), the rest of the population will gladly submit to us. This ignores the widespread resentment and hostility – much of it produced by our own previous acts – which has produced these opponents in the first place and will surely produce other, quite possibly more extreme, champions to follow after them."[109]

Bombing civilians raises moral issues for both those who are directing the operations and those who are carrying out the attacks. This relates both to civilian deaths and a failure to prevent further conflict. The civilian deaths that occur as a result of so-called 'surgical' strikes are also counterproductive, increasing resentment and bitterness among the local population.

Robert Grenier, formerly in charge of CIA's counterterrorism warned *"We have gone a long way down the road of creating a situation where we are creating more enemies than we are removing from the battlefield. We are already there with regards to Pakistan and Afghanistan."*[93]

Drone attacks have increased tension between the US and Pakistan. Following an attack on a military base in north west Pakistan in November 2011 resulting in the deaths of 24 Pakistani soldiers, Pakistan closed two supply routes to Afghanistan. These supply routes were reopened in July 2012, following an apology by the US.[115]

There is also some evidence that drone attacks may increase suicide missions. A suicide attack at a military base in Khost, Afghanistan in December 2009, resulted in the deaths of seven CIA agents.[116] In a video the suicide bomber said *"This attack will be the first of revenge operations against the Americans and their drone teams outside the Pakistani borders."*[117]

Armed drones lower the threshold for conflict. In the past, leaders had to balance a willingness to go to war against the possible loss of soldiers deployed on the battlefield. The coffins and disabled veterans returning home eroded popular support for the wars in Vietnam, Afghanistan and Iraq. Drones may become a routine weapon of war, in order to avoid anti-war sentiment and to reduce the political cost of initiating a military intervention.[118]

It is hard to imagine that the US could have undertaken military action in Iraq, Afghanistan, Pakistan, Yemen, Somalia and Libya in one year (2011) without drones. Drones could lead to a world of globalised warfare, in which people may find themselves within a theatre of war literally anywhere on the planet.

Public opinion

A recent study by the Pew Research Centre asked the following question: 'Do you approve or disapprove of the United States conducting missile strikes from pilotless aircraft called drones to target extremists in countries such as Pakistan, Yemen and Somalia?'

The study found widespread opposition to US drone strikes in some countries, especially among women. There was less opposition to drones in the US, the UK and India.

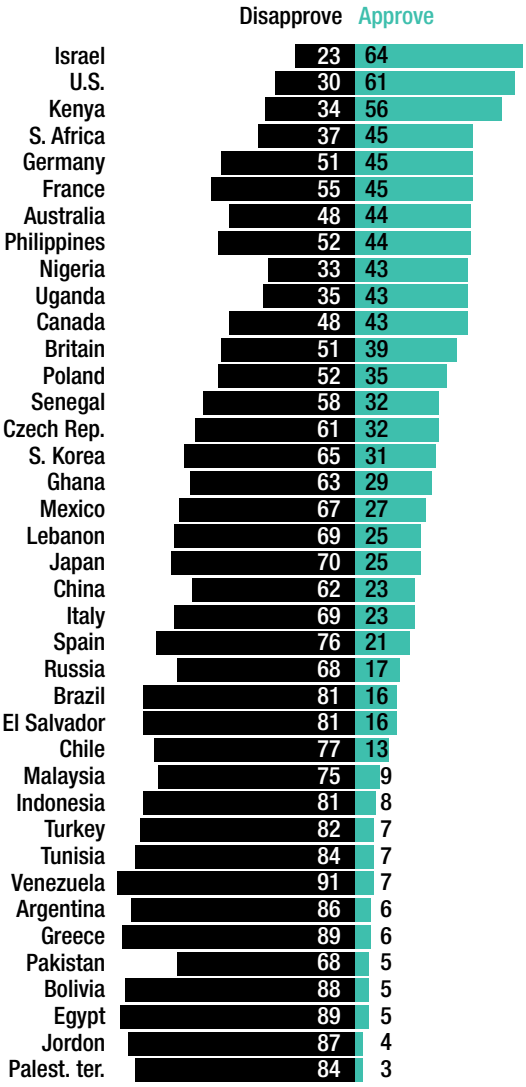
New America Foundation and Terror Free Tomorrow conducted 1,000 face to face interviews with adults (18 and older), from across seven districts of the Federally Administered Tribal Areas (FATA) of Pakistan.[119] Interviewees were from 120 villages. The results showed that more than 75% were against drone attacks and 48% believed that civilians make up the majority of drone attack casualties. Only 16% thought that drone attacks mostly killed militants.

Of the 1,000 interviewees, 83% had a negative view of President Obama and 90% were against the US military pursuing al-Qaeda and the Taliban in their region. However a strong majority also opposed the presence of the Taliban and al-Qaeda in their region, and 70% supported the Pakistani army hunting Taliban and al-Qaeda fighters. While 10% said that suicide attacks could be justified against Pakistani forces, almost 60% said they could be justified against US forces. Three quarters of those interviewed said their attitude towards the US would improve if the US were to withdraw from Afghanistan and issue more visas and scholarships for education in the US.

Drone attacks are frequently justified on the grounds that they are needed to defeat terrorism, especially if an alleged target is in a hard to reach location. However, there have been reports that far from defeating terrorism, drone attacks act as a recruiting agent for organisations such as al-Qaeda and are fuelling violence.[2]

A failed car bombing of Times Square in May 2010 and a double suicide bombing in Pakistan in 2011 were believed to be in retaliation for US drone attacks in that country.[120 121] A drone attack on an alleged Pakistani Taliban leader killed at least 40 people in March 2011, including elders and other civilians in the North Waziristan region. This led to tribal chiefs calling for revenge. General Ashfaq Parvez Kayani, chief of staff of the Pakistani military said it was *"highly regrettable that a jirga of peaceful citizens, including elders of the area, was carelessly and callously targeted with complete disregard to human life.... Such acts of violence take away from our objective of elimination of terrorism."*[122 123]

Widespread Opposition to Drone Strikes



Wide Gender Divide on Drone Strikes

	% Approve of U.S. drone strikes male %	female %	gap %
Japan	41	10	-31
Czech Rep.	47	17	-30
Canada	57	28	-29
Australia	58	30	-28
Germany	58	33	-25
Spain	34	9	-25
Britain	51	27	-24
Poland	45	26	-19
U.S.	70	53	-17
France	52	38	-14
S. Korea	38	24	-13
Uganda	49	36	-13

Pew Research Centre Report
Available at: http://www.pewglobal.org/2013/07/18/chapter-1-attitudes-toward-the-united-states/#drone-strikes

Recommendations

More than 300 drone strikes have been carried out by the UK since 2007, and the government has provided very little information about them or about how targets were selected. The reasons given for this are that a release of such information would *'undermine the effectiveness of the UAVs' and 'put the lives of British forces in danger'*. The government has also claimed that *'there is a risk that [the information] could be used by enemy forces to adapt their tactics to reduce the operational effectiveness of Reaper. This would increase the security threat to our own forces and those of our allies'*.[1]

We believe that it is in the public interest, and in the interest of our armed forces, that there should be more transparency, parliamentary scrutiny and public debate on how drone strikes are planned, how targets are chosen, who is targeted, and why.

Currently, the procedures and chain of command governing a strike, including the legal advice sought, under daily tasking orders (pre-planned strikes) and under dynamic targeting (unplanned), are not transparent.

We recommend that:

- all operators and other personnel involved in the operation of drones be given training in the relevant sections of both International Humanitarian Law and International Human Rights Law, and their managers explain their responsibilities and liabilities.
- the UK government draws up suitable safeguards in order to clearly demarcate civilian drone research and its associated funding from research and funding for military purposes.
- the UK government implements appropriate legal safeguards for the protection of privacy, given the inevitability of the insertion of drones into civilian airspace.
- the All Party Parliamentary Group on Conflict Issues publicises the issues surrounding the use of armed drones.
- the UK government works with the UN and other international bodies to include drones in the development of arms limitation treaties, or to make them the subject of specific legislation to limit and eventually stop their development, use and proliferation.
- the UK government stops any further reduction in human decision making in the operation of drones, while they continue to be in operation.
- the UK government actively engages with civil society groups and others who are playing a vital role in raising the concerns described in this report and who are lobbying for greater openness and an end to proliferation.
- the UK government should publicly recognise the civilian causalities of its armed drone programme, and offer appropriate compensation, including medical, psychological and financial assistance.

Furthermore, we call on the UK government to provide information on:

- dates and places of previous drone strikes and reasons for launching strikes
- whether a drone strike was part of an 'air tasking order', or a 'dynamic tasking procedure', and carried out in order to eliminate individuals found to be engaging in 'suspicious behaviour'
- casualty figures, how these are arrived at, and how the distinction between civilians and combatants is made
- whether the UK government has an independent command and control over Reaper drones or whether these drones are wholly or partly under the command and control of NATO
- whether a drone strike is ever carried out against an individual who is not directly participating in hostilities, and if so to provide details
- when the RAF 13 Squadron will begin controlling UK Reaper drones from RAF Waddington
- whether any written reviews have been undertaken by MoD staff into the use of UK Reaper UAVs in Afghanistan. If so, these should be made public.

"In a moment of quiet I went out of the house. I saw two men I knew… and we started talking about the last attacks…We were still talking when a drone shelled us. We did not notice it before because there were many drones flying around. Immediately after the explosion I saw that both of my legs were gone. …One of the men I was talking to died on the spot, the second one was injured. I do not know what happened to him afterwards.".

Independent fact-finding mission into violations of human rights in the Gaza Strip during the period 27.12.2008-18.01.2009

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Drones: the physical and psychological implications of a global theatre of war

In the past decade, there has been an exponential increase in the proliferation and use of armed Unmanned Aerial Vehicles (UAVs), commonly known as 'drones'. For the first time in history, it is possible to attack an enemy thousands of miles away without fear of retaliation.

In addition to the number of deaths and injuries of innocent civilians caused by their use, there is increasing evidence of the psychological damage to people living under the constant threat of drone attack, and to the drone operators themselves.

Up to the end of October 2013, the US and the UK had carried out over 1200 drone strikes in Afghanistan, Iraq and Libya. The UK's small and active fleet is set to double to ten weaponised drones. UK piloted drones launched a high proportion of the total number of missiles fired from drones worldwide.

Considering drones from a public health perspective reveals the human cost of their use, the moral and ethical issues raised by 'targeted killings', and their dubious legal status. Drone strikes are frequently based on an 'imminent threat' and potentially inaccurate intelligence, in situations of highly asymmetric conflict. Far from defeating terrorism, drone attacks appear to act as a recruiting agent, including for suicide missions.

The recommendations of this report include greater parliamentary and public scrutiny of the use of drones, their inclusion in arms limitation treaties, and a stop to further automation in their operations. We believe it is time for the UK government to stop purchasing, developing and deploying armed drones.

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