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Welcome to the world of 'network-centric warfare', a paradigm shift in the way that wars and undeclared wars are being fought, where operators dispatch 'targets' at the touch of a joystick, behind the safety of a computer screen - the world of drone technology. A technology that was once the stuff of video games and science fiction is now a reality. The use of robotic weapons delivery systems has the potential to massively change the way that wars are fought in the future and it is being brought in now, with almost no public debate. This briefing aims to provide a basic overview of what drones are, their rapid proliferation and use, some key issues of concern that this raises and what is becoming known about Britain's use of drones.



Reaper drone firing hellfire missile. Picture taken from <http://tiny.cc/4i5gi>

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Drones - an introduction

Unmanned aerial vehicles (UAVs), also known as drones, are remotely-piloted aircraft controlled from the ground or autonomously following a pre-programmed mission. While there are literally dozens of different types of drones, they fall into two basic categories: those that are used purely for surveillance and intelligence purposes and those that are also armed with missiles and bombs and can be used for attack. Drones are initially launched by ground support troops from an airbase in the war zone. Control is then handed over to a crew of three operators sitting in front of screens in specially designed trailers. In the case of drones used by the US and UK military, the aircraft are launched at Kandahar airbase in Afghanistan, while operators sit in trailers thousands of miles away at Creech United States Air Force (USAF) base, in the Nevada desert. One crew member 'flies' the drone, another controls and monitors images streamed from the onboard camera and sensors, while a third person is in contact with the "customers", ground troops and commanders in the war zone.

Rapid escalation of production and use post 9/11

Drones are not in fact new but were developed in the mid-twentieth century, primarily for surveillance and reconnaissance and were used in the Balkan conflicts in the 1990s. The first use of a drone to fire a missile was in Yemen, in 2002. Since then, the production and use of armed drones has increased exponentially.

Armed drones now come in many forms and sizes with ever increasing capability and sophistication, two of the most commonly used being the Predator and its bigger brother, the Reaper. Already under development, the next stage will see fully autonomous drones, able to select and dispatch 'targets' without the need for human intervention, the so-called 'man in the loop'. Compared with conventional piloted air power, drones are becoming an attractive option for military planners because of their relative cheapness in comparison to conventional aircraft and because they do not put expensively trained pilots' lives at risk. As a result the development and manufacture of drones is becoming big business, with numerous state and non-state actors seeking to have drone capability. Recent figures suggest that the total drone market is expected to be worth \$13.6 billion between now and 2014. [1]

The use of armed drones in combat has also rapidly multiplied since 2001, in the conflicts conducted by coalition forces in Iraq and Afghanistan, by the US Central Intelligence Agency (CIA) in the tribal areas of western Pakistan, Somalia and Yemen, and by Israel in operations against Gaza. The use of armed drones by the United States (US) in Afghanistan and Pakistan has increased massively, with 131 drone strikes reported in northwest Pakistan alone since 2004, of which a quarter took place in the first five months of 2010. [2] Although the US is currently in the driving seat with drone use, the UK is by no means uninvolved. The UK's Ministry of Defence (MoD) wrote in response to a Freedom of Information request by FoR in April 2010, that: 'armed Reaper capability was introduced to Afghanistan in May 2008, [and] weapons have been released on 84 occasions'.

The use of armed drones in warfare raises a number of issues of critical concern, both from a moral and legal perspective. In addition, there are questions to be asked regarding the underlying premise on which armed drones are being brought into use in warfare, namely, a mistaken belief that they will provide cheap, effective solutions to the conflicts that they are expected to resolve.

Right - Inside the operations trailer. Copyright Royal United Services Institute (RUSI)



The (in)human cost of drone strikes

Civilian casualty figures for drone strikes cannot be confirmed with total accuracy. However, even conservative estimates from think tanks such as the New America Foundation, record that from 2004 to the present day, between 908 and 1,347 individuals have been killed by drone strikes in Pakistan, of which around 618 to 966 were described as 'militants' - suggesting 1/3 of all casualties were civilian. These figures are contested by Pakistani officials who put the casualty rate from January 2006 to April 2009 alone, at 687 civilians with only 14 terrorist leaders killed - a ratio of 50 civilians for every 'militant' losing life. [3]

Even assuming that the lower rates of civilian deaths are accurate, the frequency and unpredictable nature of drone attacks mean that civilian populations live in a constant climate of terror. Dr David Kilcullen, former Australian soldier who served in Iraq as a top adviser to US Commander General David Petraeus, called on the US House of Representatives' Armed Services Committee to stop drone attacks over Pakistan, as they are: 'deeply aggravating to the population'. In August 2009, Dr Mads Gilbert, a Norwegian doctor who had worked at Gaza City's main al-Shifa Hospital during the Israeli operation 'Cast Lead', reported: '[E]very night the Palestinians in Gaza relive their worst nightmares when they hear drones; it never stops and you are never sure if it is a surveillance drone or if it will launch a rocket attack. Even the sound of Gaza is frightful, the sound of the Israeli drones in the sky.'

The dehumanising impact of drones is not limited only to those killed and their families. The personnel operating drones using computers and joy sticks in their secure trailers are also suffering the effects of constant exposure to violence.

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CBS News reported that Predator drone operators in Southern California operating armed drones 7000 miles away over Iraq, were suffering similar psychological stresses to those seen in the battlefield. They can see the results of their attacks in vivid detail and then at the end of a shift go home to resume their lives with their families. [4] At the same time, D. Keith Shurtleff, an army chaplain and ethics instructor for the Soldier Support Institute at Fort Jackson in South Carolina (US), worries that: 'as

war becomes safer and easier, as soldiers are removed from the horrors of war and see the enemy not as humans but as blips on a screen, there is a very real danger of losing the deterrent that such horrors provide'. As Noel Sharkey, Professor of Artificial Intelligence and Robotics at the University of Sheffield highlights: 'The further away you are, the easier it is to kill...it's changing the nature of war dramatically' [5].

Above the law - the legality of drones

'Technology generally evolves much more quickly than the laws of war.' (P.W. Singer - Brookings Institution)

The legal issues raised by the use of armed drones are complex and a full exploration is beyond the scope of this introductory briefing. However, two of the key issues are the possibility that the Laws of War are being flouted in officially recognised war zones and that extra-judicial killing is taking places in those that are not.

The body of international law that governs conduct in war, enshrines within it the principle of distinction, which requires parties to the conflict to distinguish between combatants and civilians, and to ensure civilian immunity from acts of violence. [6] There is almost no information about civilian casualties from drone strikes in Iraq or Afghanistan, recognised war zones. However, given the evidence emerging from Pakistan on high civilian casualties from drone strikes, there is reason to ask whether this pattern is being repeated less visibly elsewhere.

The question of extra-judicial killing is creating vigorous debate amongst lawyers and human rights activists in the US and Pakistan. The US and Pakistan are not 'at war', yet individuals are being singled out for killing by the CIA in Pakistan, on the basis of being suspected terrorists, with no opportunity to defend themselves. This amounts to what international lawyers call 'state-sanctioned assassinations' and is being carried out by combat drones.

Philip Alston, the UN special rapporteur on extrajudicial, summary or arbitrary executions, has questioned the US government's use of armed drones in this way and indicated that it is likely that it violates international law.

In contrast to the US situation, the public debate on armed

Caught in the Hellfire

In August 2009, a drone strike killed Baitullah Mahsud, the Pakistani Taliban chief responsible for the assassination of former Prime Minister Benazir Bhutto. However, according to an analysis by the New America Foundation, a Washington based think tank, drone attacks had missed him at least 16 times in the preceding 14 months. An estimated 280 to 410 people died in those attacks, it said. About 150 to 175 were believed to be militants. The rest were listed as "other," many of them civilians.

drones in the UK is limited. In part this is due to a lack of available information because of restrictions imposed by 'security considerations'. The House of Commons Defence Committee questioned the Ministry of Defence (MoD) about the legality of using armed drones in Afghanistan in 2008, asking it to set out 'the broad ethical and legal issues which arise', and how it is seeking to address these. In its answer the MoD said that the UK Reaper drone operates to the same Rules of Engagement and complies with the Law of Armed Conflict, just as a manned fighter aircraft would. They argued further that Reaper drone operators have 'better communications and greater access to levels of supervision' than manned aircraft and that as a result 'ethical and legal issues are not currently seen as a critical issue' for armed drones.

The myth of effectiveness

'Standoff war using robotic technology is neither surgical, nor antiseptic, nor moral.' (Dave Webb - Professor of Engineering, Leeds Metropolitan University)

The increasing demand for and reliance on combat drones in war is described by defence experts as being based on their reputation for 'achieving information superiority, minimizing collateral damage, fighting effectively in urban areas against widely-dispersed forces, and striking autonomously and precisely'.

The British operated Reaper drone used in Afghanistan has been described by *The Telegraph's* defence correspondent Sean Rayment as the 'most risk-free form of combat to have been invented'. He quotes Squadron Leader Archie Brown recalling the first time a UK Reaper drone was used to kill: 'The crew went through the whole 'Kill Chain' process. That is 'find it, fix it, track it, target it and make the assessment'. The bomb had a successful effect. They [the Taliban] were exhibiting hostile intent and after the bomb was dropped they stopped exhibiting hostile intent. They had all been killed.'

In a similar vein, RAF Wing Commander Jules Ball talks of 'swift, discriminatory and assured precise attacks on critical targets.'

The excitement about the low-risk death dealing capability of drones in defence circles, allied to the view that attacks are precisely targeted and accurate, seems to overlook the fact that at least 1/3 of those killed are probably civilians.

They also overlook the fact that in this new era of 'network centric warfare', drones need a range of communication systems to be controlled and operated and are as vulnerable as the home computer to, for instance, loss of signal or a power surge. The nightmare scenario of an armed drone getting 'lost' or crashing is a real possibility and there have already been incidents in tests and on operations. Systems which depend on network technology are vulnerable to exploitation through, for example, hacking. The *Wall Street Journal* reported that insurgents in Iraq were able to use commercial software to hack into a drone's live video feed, allowing them to see what the military was seeing. An AOL news report in 2009 said that the Taliban and al-Qaeda had used \$26 commercial software to hack into live video feeds taken by US drones, thereby beating the high-tech systems at low cost.

Armed drones can only be of military advantage in places where the 'enemy' are technologically undeveloped, which usually means poor developing countries. However, this technological dominance in the use of armed drones will inevitably be short lived as the capability to detect and counter them advances. All the signs are there that military, technological, industrial and political interests are converging to fuel a space-age arms race that will steer 21st century history towards greater violence and fear and away from constructive, human-centred responses to the world's conflicts. In the case of the car bomber who tried to cause an explosion in Times Square, New York on 2 May, it is reported that the suspect said that he had witnessed the effects of US drone attacks in northwest Pakistan which had motivated him to want to strike back.

The idea that slick, new weapons will solve human conflict is an old and enduring myth. In truth, violence will not bring an end to violence.



'Allaw family house where 10 year old Mu'min 'Allaw was killed by an IDF drone-launched missile on January 5th, 2009.

Copyright 2009 Marc Garlasco/Human Rights Watch.

The UK and Drones

US-made Reaper drones started to be used by the UK Royal Air Force (RAF) in Afghanistan in 2007, and up to March 2010, had amassed 8,000 flight hours, providing twenty four hour coverage of the war zone. [7] Between May 2008 and April 2010 RAF operated Reaper drones have fired weapons on 84 occasions. The RAF currently has 5 Reapers and has plans for this capacity to double. [8] Armed Reaper drones are being operated over Afghanistan by a squadron of 90 RAF personnel from Creech airbase alongside United States Air Force (USAF) missions. A Reaper can carry and fire two 500lb laser-guided bombs, and four Hellfire missiles.

In a letter that the Fellowship of Reconciliation has seen from the MoD, drones are also being rented by the hour from Israel to support operations in Iraq and Afghanistan, pending the arrival of a British Watchkeeper drone which will come into operation later in 2010. The Watchkeeper drone has just started test flights over west Wales at ParcAberporth 'the centre of excellence for drone development' run by QintetiQ. British based arms manufacturers of armed drones expect profitable business in terms of MoD contracts and export sales. The Watchkeeper drone programme contract was awarded to U-TacS - a consortium of Elbit Systems (of Israel) and Thales UK (part of the French company). A newer drone called Mantis is being developed by BAE Systems UK, the largest arms manufacturer in the world.



The UK Watchkeeper drone is due to come into operation in 2010.

Picture taken from <http://tiny.cc/din33>

What can be done?

The escalating production and use of armed drones raises serious concerns for all people concerned to see an end to militarism and violent solutions to human conflict. The question is, what can you do?

1. Pray - individually, or with your church or community. You may like to use this briefing as the basis of a discussion and prayer time with others whom you meet with in fellowship.

2. Inform yourself - the 'Further Reading' section of this briefing lists a number of detailed articles, reports and websites that you can use to build your own knowledge and understanding of the topic.

3. Come to the Drones Conference - FoR is coordinating a day conference on drones in London on September 18th. We will have high level speakers, workshops and discussion about next steps for action. Put the date in your diary now! More information will be available via our website - www.for.org.uk

Further Reading

The New America Foundation website is updated regularly with research and statistics about casualties from drone strikes:

<http://counterterrorism.newamerica.net/drones>

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http://www.democracynow.org/2009/10/28/un_special_rapporteur_on_extrajudicial_killings

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- [4] Dave Webb, Loring Wirbel and Bill Sulzman (2010) 'From Space, No One Can Watch You Die' *Peace Review: A Journal of Social Justice*, Jan 2010, Vol. 22, Issue 1
- [5] Noel Sharkey cited in [4]
- [6] For the text of the Geneva Conventions and Protocols see: International Humanitarian Law - International Treaties and Documents, 'Geneva Conventions of 1949 and Additional Protocols', International Committee of the Red Cross, <http://www.icrc.org/ihl.nsf/CONVPRES?Openview>
- [7][8] Quoting Wing Commander Jules Ball see: Hoyle, Craig. (2010) 'RAF outlines Afghan experience with Reaper UAV' *Flight International*, flightglobal.com, 10/03/10.

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