Drohnen – internationale Texte und Artikel

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Sehr geehrte/r Leser/in,


Dem Einsatz von Drohnen scheinen kaum Grenzen gesetzt und eine neue weltweite konventionelle Aufrüstung von unbemannten Luftfahrzeugen steht bevor.

Notwendig erscheint eine intensivere internationale Debatte und Vernetzung zum Thema Drohnen.

Die vorliegende Broschüre soll einen Beitrag zu einem umfassenderen Überblick zur weltweiten Lage von Drohnen geben und Informationen zu einer besseren Vernetzung in diesem Themenkomplex zur Verfügung stellen. Schwerpunkte der Broschüre sollen im Wesentlichen zwei Punkte sein:

- erstens die horizontale und vertikale Proliferation von unbemannten Luftfahrzeugen und
- zweitens das Hinwirken auf ein Verbot bzw. eine Eindämmung von Drohnen.

Wir hoffen, dass diese Zusammenstellung für eine Intensivierung einer internationalen Debatte hilfreich ist.

Lucas Wirl / Julián Vásquez

Berlin, Dezember 2013
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Proliferation of Unmanned Aerial Vehicle (UAVs)

What are drones?

http://dronewars.net/aboutdrone/

January 2010

Unmanned aerial vehicles (UAVs), also known as drones, are aircraft either controlled by ‘pilots’ from the ground or increasingly, autonomously following a pre-programmed mission. (While there are dozens of different types of drones, they basically fall into two categories: those that are used for reconnaissance and surveillance purposes and those that are armed with missiles and bombs. The use of drones has grown quickly in recent years because unlike manned aircraft they can stay aloft for many hours (Zephyr a British drone under development has just broken the world record by flying for over 82 hours nonstop); they are much cheaper than military aircraft and they are flown remotely so there is no danger to the flight crew.

While the British and US Reaper and Predator drones are physically in Afghanistan and Iraq, control is via satellite from Nellis and Creech USAF base outside Las Vegas, Nevada. Ground crews launch drones from the conflict zone, then operation is handed over to controllers at video screens in specially designed trailers in the Nevada desert. One person ‘flies’ the drone, another operates and monitors the cameras and sensors, while a third person is in contact with the “customers”, ground troops and commanders in the war zone. While armed drones were first used in the Balkans war, their use has dramatically escalated in Afghanistan, Iraq and in the CIA’s undeclared war in Pakistan.

The Only Game in Town

The US has two separate ‘squadron’ of armed drones – one run by the US Air Force and one run by the CIA. Using drones, the USAF Air Force has increased the number of combat air patrols it can fly by 600 percent over the past six years; indeed at any time there are at least 36 American armed UAVS over Afghanistan and Iraq. It plans to increase this number to 50 by 2011. CIA Director Leon Panetta has recently said that drones are “the only game in town.” The CIA have been using drones in Pakistan and other countries to assassinate “terrorist leaders.” While this programme was initiated by the Bush Administration, it has increased under Obama and there have been 41 known drone strikes in Pakistan since Obama became President. Analysis by an American think tank The Brookings Institution on drone attacks in Pakistan has shown that for every militant leader killed, 10 civilians also have died.
Drones UK

The UK has several different types of armed and surveillance drones in Iraq and Afghanistan and others in the production or development stage. The UK began using armed drones in Afghanistan in Oct 2007 after purchasing three Reapers from General Atomics in 2007 at a cost of £6m each. The MoD confirmed in June 2008 that a British Reaper UAV had fired its weapons for the first time, but refused to give any details. In March 2009, the Daily Telegraph reported that British drones had been used ten times in armed strikes.

Watchkeeper

As well as armed drones, the UK has several types of surveillance drones, most notably Watchkeeper, a drone jointly produced by Israeli company Ebit and Thales UK. The UK is purchasing 54 Watchkeeper drones and ground stations at a cost of £860m. The first ten will be built in Israel and then production will transfer to a specially built facility in Leicester. Testing is taking place at Aberporth in Wales and Watchkeeper is due to enter service in 2010. There have recently been reports that Watchkeeper may be armed in the future.

Serious Concern

The UN’s Special Rapporteur on extrajudicial, summary or arbitrary executions, Philip Alston, has said that the use of drones is not combat as much as ‘targeted killing’. He has repeatedly tried to get the US to explain how they justifies the use of drones to target and kill individuals under international law. The US has so far refused to do so. In a report to the UN he has said the US government (and by implication the UK government) “should specify the bases for decisions to kill rather than capture particular individuals .... and should make public the number of civilians killed as a result of drone attacks, and the measures in place to prevent such casualties”.

A further question is the extent to which operators become trigger happy with remote controlled armaments, situated as they are in complete safety, distant from the conflict zone. Keith Shurtleff, an army chaplain and ethics instructor at Fort Jackson, South Carolina 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 very real danger of losing the deterrent that such horrors provide.”

Increased Surveillance

Military drone manufacturers are looking for civilian uses for remote sensing drones to expand their markets and this includes the use of drones for domestic surveillance. Drones will no doubt make possible the dramatic expansion of the surveillance state. With the convergence of other technologies it may even make possible machine recognition of faces, behaviours, and the monitoring of individual conversations. The sky, so to speak, is the limit.
Jürgen Altmann about Unmanned aerial vehicle (UAV)

http://www.irf.ac.at/index.php?option=com_content&task=view&id=314&Itemid=1

March 7, 2010

By Jürgen Altmann, researcher and lecturer at the University of Dortmund, is one of the founding members of the International Committee for Robot Arms Control. Since 2003 he is a deputy speaker of the Committee on Physics and Disarmament of Deutsche Physikalische Gesellschaft (DPG, the society of physicists in Germany) and currently directs the project on “Unmanned Armed Systems - Trends, Dangers and Preventive Arms Control” located at the Chair of Experimentelle Physik III at Technische Universität Dortmund.

How and why did you get interested in the field of military robots?

I have done physics-based research for disarmament since 25 years. One strand concerned automatic sensor systems for co-operative verification of disarmament and peace agreements. My second, more interdisciplinary, focus is on assessment of new military technologies under viewpoints of peace and international security, and possibilities of preventive arms control. In 2000-2001 the German Research Association Science, Disarmament and International Security (FONAS) did joint projects on preventive arms control. In that context I studied potential military uses of micro-systems technology (Altmann 2001). Already in that research I looked into the problem of military robots, then mostly small and very small ones. When I investigated military applications of nanotechnology, a very broad field, uses in uninhabited vehicles with sizes from large to extremely small were investigated (Altmann 2006). Limitations for such vehicles figured high in my recommendations for preventive arms control. Aware of the increasing number of countries developing and producing uninhabited air vehicles, of the large efforts for uninhabited ground and water vehicles, and of the rising trend to equip uninhabited vehicles with weapons, we proposed a research project which was granted in 2009.

Currently you are directing the project on “Unmanned Armed Systems - Trends, Dangers and Preventive Arms Control”. Could you elaborate on the focus of your research?

This project – funded by the German Foundation for Peace Research (DSF) for 1.5 years – has four goals:

1. Compile the status in research, development and deployment of uninhabited armed systems;
2. Describe the technical properties of uninhabited armed systems to be expected in the next twenty years with the approximate times of their introduction;
3. Assess the systems to be expected under criteria of preventive arms control;
4. Analyse limitation options and verification possibilities.

These goals (with main focus on uninhabited aerial vehicles, UAVs) will be pursued in interdisciplinary research with considerable scientific-technical content. The results are to be published in a monograph.

You are also one of the founding members of the International Committee for Robot Arms Control (ICRAC). What were your motivations to set up the Committee and what do you hope to achieve by it?
At present we are four scientists from various disciplines: robotics, philosophy, physics/peace research. We are worried by the accelerating trend to arm uninhabited military vehicles, by the high numbers of non-combatants killed in present US and UK remote-control attacks in Iraq, Afghanistan and Pakistan, and by the seriously discussed prospect that soon computers may decide, when and whom to kill. We see dangers for the laws of warfare – discrimination and proportionality demand assessment of a complex war situation which for the foreseeable future artificial-intelligence systems will likely not be able to make. When the US near-monopoly of armed UAVs will be broken, additional dangers can be foreseen: from the undermining of arms-control treaties via the destabilisation of the situation between potential adversaries to proliferation and to possible use by terrorists. Politically, the prospect of sending fewer human soldiers and using mostly uninhabited combat systems may raise the inclination to go to war for some states.

We hope to raise awareness of the dangers connected to armed uninhabited vehicles in the public as well as with decision makers. The goal is to prevent an unconstrained global arms race. For this, the important arms-producing states need to agree on mutual limitations with adequate verification mechanisms. Based on our founding statement, we want to develop concrete proposals for such limitations and hope that some states will take the initiative. For presenting and discussing concepts we plan to convene an international expert workshop on robot arms control in September 2010 in Berlin.

What are the recommendations of the Committee?

They are contained in its founding statement:

“Given the rapid pace of development of military robotics and the pressing dangers that these pose to peace and international security and to civilians in war, we call upon the international community to urgently commence a discussion about an arms control regime to reduce the threat posed by these systems.

We propose that this discussion should consider the following:

- Their potential to lower the threshold of armed conflict;
- The prohibition of the development, deployment and use of armed autonomous unmanned systems; machines should not be allowed to make the decision to kill people;
- Limitations on the range and weapons carried by “man in the loop” unmanned systems and on their deployment in postures threatening to other states;
- A ban on arming unmanned systems with nuclear weapons;
- The prohibition of the development, deployment and use of robot space weapons.”

The foundation of the ICRAC did produce considerable media interest. What kind of responses did the Committee receive from the international community and fellow researchers?

From governments, not many up to now. But committee members are regularly being invited to present their arguments to conferences, including ones organised by the military or for the military. Among the few other researchers worldwide who have written on potential problems from armed uninhabited vehicles we feel general support. This includes robot ethicists. The vast community of robotics and artificial-intelligence researchers has mostly not yet really taken up the problem of killing robots. We hope that this will change with a new robot-ethics book which covers military uses in three chapters (Capurru/Nagenborg 2009), with our upcoming workshop and related publications.
Where do you see the main challenges for the international community regarding the use of armed unmanned systems by the military. What are the specific challenges of autonomous systems as compared to current telerobotic systems?

The main challenge is in deciding whether the present trend should continue and expand to many more countries and to many more types of armed uninhabited vehicles (in the air, on and under water, on the ground, also in outer space), or whether efforts should be taken to constrain this arms race and limit the dangers connected to it. Here not only governments, but non-governmental organisations and the general public should become active.

Autonomous systems obviously would open many new possibilities for war by accident (possibly escalating up to nuclear war) and for violations of the international laws of warfare. A human decision in each single weapon use should be the minimum requirement.

Do you think the Missile Technology Control Regime could play a part in the non-proliferation of UAV technologies?

Yes, it does so already – its limitations concern UAVs (including cruise missiles) capable of carrying a payload of 500 kg over 300 km range. For UAV systems with autonomous flight control/navigation or beyond-visual-range remote control and aerosol-dispensing mechanisms, there is neither a payload nor a range threshold. These rules could be expanded beyond aerosol dispensing. However, one-sided export-control regimes such as the MTCR do not encompass all developer/producer/exporter countries, and they do not limit the armaments of the regime members themselves. Truly effective would be export controls embedded in comprehensive prohibitions valid for all relevant countries, that is, in arms control and disarmament treaties, as is the case with biological and chemical weapons. Limits on armed uninhabited vehicles will need to be more differentiated and pose some definitional issues, but with the understanding of states that such limits are in their enlightened national interest the detailed rules could be worked out. Some general ideas have been published by members of our Committee (Altmann 2009, Sparrow 2009).

Regarding international humanitarian law, would you think there is a need for additional legislation concerning the deployment of unmanned systems?

The biggest problem is posed by autonomous attack decisions. In principle, the requirements of discrimination and proportionality would suffice to rule this out for one to two decades because artificial intelligence will at least for this time not achieve the level of human reasoning – and this is the standard of international humanitarian law. However, it has to be feared that military reasons and political motives lead to autonomy in weapon use much earlier, thus an explicit legal requirement to have a human making each single weapon-release decision is required, I think. For remotely controlled systems a self-destruct mechanism in case of communication failure should be mandatory. Further rules will probably be needed – this should be the subject of legal research. Legal research would also be helpful in finding out whether video images as the sole real-time information are sufficient for compliance with the laws of armed conflict, and if specific rules are needed here.

In your work you have stressed the threats autonomous armed systems can pose to arms-control treaties and to international humanitarian law. What would be the most pressing problems at the moment?
Seen from today, with a detailed analysis still pending, armed uninhabited vehicles – autonomous or not – would undermine nuclear-reduction treaties (INF Treaty, START successor) if they were used as new nuclear-weapon carriers. The Treaty on Conventional Armed Forces in Europe would be endangered by armed ground vehicles outside of the Treaty definitions (of tanks or armoured combat vehicles) or by disagreement about which armed UAVs count as combat aircraft or attack helicopters (for some more information see Altmann 2009).

Most pressing are the issues of international humanitarian law. Already now remote-control UAV attacks in Iraq, Afghanistan, Pakistan – directed from thousands of kilometres away, based only on images from a video camera – lead to many civilian deaths, so that compliance with the requirements of discrimination and of proportionality is doubtful. With armed UAVs the only action possibility is to shoot; soldiers on site would have more possibilities to act – check identities, search for weapons, take people into custody.

Even more problems would be created by autonomous attack – delegation of the authority to select targets to computers. If such autonomous armed uninhabited vehicles will be introduced before one or two decades, one can expect a marked increase in civilian casualties.

This could be prevented by a prohibition of autonomous attack. At least as important are efforts to reduce the likelihood of war in the first place – with respect to the issue at hand by preventive arms control for armed uninhabited vehicles, on a more general level by general limitations of weapons and armed forces, combined with political measures of reducing confrontation.

As you noted, the use of unmanned systems can affect the decision to go to war. Do you think, with the possibility to wage war without putting one’s own troops at risk, one of the principles of just war theory - war being the last resort (ultima ratio) - might be challenged?

This is not my area of expertise, but the thought suggests itself.

Apart from questions regarding the right to go to war (ius ad bellum), there is also the question of military necessity of actions in an armed conflict. Without the “man in the loop”, and even if it is ensured that the target is a legitimate one, do you think autonomous systems should or could ever be entrusted with decisions as how, when and even if to attack such a target?

In a purely scientific view one can argue that autonomous systems could only be entrusted with such decisions if and when they had proven that they can assess complex situations in war at a level comparable to the one of a capable human commander. The slow speed of robotics/artificial-intelligence development during the last fifty years and the scepticism of credible roboticists about progress in the coming decades lead me to the conclusion that this requirement will likely not be fulfilled in the next one or two decades. This conclusion is corroborated by the time frame envisaged for realisation of the “ultimate goal of the RoboCup Initiative”, namely a team of humanoid robot soccer players winning against the World-Cup winner, which is “mid-21st century”. If at some future time robotic systems consistently demonstrated better performance than humans, then one could argue that IHL and the ethics of war would even demand replacing humans.

However, robots/artificial intelligence at or beyond the human level would raise fundamental ethical questions much beyond war and could bring existential dangers. Consideration of the interests of humankind and the precautionary principle could well lead to a rational decision for a general prohibition of the development of such systems. Ensuring compliance with such wide-ranging rules –
similar ones will probably also be required with some future developments in nanotechnology – may
need a transformation of the international system: moving away from trying to provide security by
national armed forces to a system with a democratically controlled supranational authority with a
monopoly of legitimate violence. Otherwise perceived military necessities and military resistance
against far-reaching inspection rights could prevent nations from agreeing on strong limits on
research and development, even though highest human interests would demand them.

In the discussion of the NATO air strike in Afghanistan near Kunduz in September 2009, it has been
brought forward that the use of UAVs might have helped to prevent the amount of civilian casualties.
Do you think the limited use of UAVs might actually increase the battlefield awareness of soldiers and
eventually could help to achieve proportionality and target discrimination on a higher level?

In principle it could. Unfortunately not all details of that attack are available. From media accounts it
seems that the commanding officer consciously decided to have the two stolen fuel trucks bombed
together with all people surrounding them, despite several offers of the bomber pilots to first overfly
the scene to scare people away. So in this case the use of armed UAVs would probably not have
made a difference.

Generally, having a weapon at hand where a UAV is observing could serve for more precise targeting
and for reaction to short-term changes on site. But this could in principle also be provided by piloted
aircraft. Video observation from very far away brings the possibility of misjudgements as many
incidences of killing the wrong persons in Afghanistan and Pakistan demonstrate. But pilots on board
aircraft have limited sensory input, too.

A final problem is that the awareness is only guaranteed in a very asymmetric situation: when one
side has UAVs available while the other does not. The “fog of war” would be much thicker if both
sides possess (armed) UAVs, jam each other’s communication links etc.

In the last years you also have worked on projects concerning non-lethal / less-lethal weapon systems
(e.g. acoustic weapons, a millimetre-wave skin-heating weapon). Where do you see the potential and
the challenges of these systems, especially if they are mounted on autonomous weapon platforms?

Acoustic weapons do not really exist. An existing long-distance loudspeaker system (the so-called
Long Range Acoustic Device from the USA) can be turned to higher intensity which would result in
permanent hearing damage if unprotected persons are exposed at distances below, say, 50 m for
longer than a few seconds (Altmann 2008). This demonstrates the main problem with acoustic
weapons in the audio range: The transition from annoying or producing ear pain to lasting damage is
very fast. (Infrasound, on the other hand, has no relevant effect and is difficult to produce in high
intensities.) So if real acoustic weapons were deployed on UAV and used to attack a crowd, mass
incidence of permanent hearing damage would be the probable outcome.

Concerning millimetre-wave weapons for producing pain by skin heating, the existing U.S. Active
Denial System (with 500 to 700 m range, tested but not yet deployed) is very big, requiring a medium
truck (Altmann 2008). Research is underway to develop an even stronger system to be carried on
aircraft – it is doubtful if that would be used without pilots and operators on board. If so, the general
problems of applying force over a distance, not being on the scene, would be aggravated. The same
would hold if other “non-lethal” weapons were used from uninhabited (air, ground) vehicles, say,
tasers or, more traditionally, water cannons.
With “non-lethal” weapons, much depends on the scenario of use (armed conflict? peace-keeping operation? crowd? few criminals?), on the context and the general culture (democratic control of security forces?) in the respective society. One can suspect that putting them on uninhabited vehicles can increase, rather than decrease, the level of violence.

Extract from Human Rights Watch: Loosing Humanity – a case against killer robots

http://www.hrw.org/sites/default/files/reports/arms1112ForUpload_0_0.pdf

November, 2012

With the rapid development and proliferation of robotic weapons, machines are starting to take the place of humans on the battlefield. Some military and robotics experts have predicted that “killer robots”—fully autonomous weapons that could select and engage targets without human intervention—could be developed within 20 to 30 years. At present, military officials generally say that humans will retain some level of supervision over decisions to use lethal force, but their statements often leave open the possibility that robots could one day have the ability to make such choices on their own power. Human Rights Watch and Harvard Law School’s International Human Rights Clinic (IHRC) believe that such revolutionary weapons would not be consistent with international humanitarian law and would increase the risk of death or injury to civilians during armed conflict. A preemptive prohibition on their development and use is needed.

A relatively small community of specialists has hotly debated the benefits and dangers of fully autonomous weapons. Military personnel, scientists, ethicists, philosophers, and lawyers have contributed to the discussion. They have evaluated autonomous weapons from a range of perspectives, including military utility, cost, politics, and the ethics of delegating life-and-death decisions to a machine. According to Philip Alston, then UN special rapporteur on extrajudicial, summary or arbitrary executions, however, “the rapid growth of these technologies, especially those with lethal capacities and those with decreased levels of human control, raise serious concerns that have been almost entirely unexamined by human rights or humanitarian actors.”1 It is time for the broader public to consider the potential advantages and threats of fully autonomous weapons.

The primary concern of Human Rights Watch and IHRC is the impact fully autonomous weapons would have on the protection of civilians during times of war. This report analyzes whether the technology would comply with international humanitarian law and preserve other checks on the killing of civilians. It finds that fully autonomous weapons would not only be unable to meet legal standards but would also undermine essential non-legal safeguards for civilians. Our research and analysis strongly conclude that fully autonomous weapons should be banned and that governments should urgently pursue that end.

Definitions and Technology

Although experts debate the precise definition, robots are essentially machines that have the power to sense and act based on how they are programmed. They all possess some degree of autonomy, which means the ability of a machine to operate without human supervision. The exact level of
autonomy can vary greatly. Robotic weapons, which are unmanned, are often divided into three categories based on the amount of human involvement in their actions:

- **Human-in-the-Loop Weapons**: Robots that can select targets and deliver force only with a human command;
- **Human-on-the-Loop Weapons**: Robots that can select targets and deliver force under the oversight of a human operator who can override the robots’ actions; and
- **Human-out-of-the-Loop Weapons**: Robots that are capable of selecting targets and delivering force without any human input or interaction.

In this report, the terms “robot” and “robotic weapons” encompass all three types of unmanned weapons, in other words everything from remote-controlled drones to weapons with complete autonomy. The term “fully autonomous weapon” refers to both out-of-the-loop weapons and those that allow a human on the loop, but that are effectively out-of-the-loop weapons because the supervision is so limited. A range of other terms have been used to describe fully autonomous weapons, including “lethal autonomous robots” and “killer robots.”

Fully autonomous weapons, which are the focus of this report, do not yet exist, but technology is moving in the direction of their development and precursors are already in use. Many countries employ weapons defense systems that are programmed to respond automatically to threats from incoming munitions. Other precursors to fully autonomous weapons, either deployed or in development, have antipersonnel functions and are in some cases designed to be mobile and offensive weapons. Militaries value these weapons because they require less manpower, reduce the risks to their own soldiers, and can expedite response time. The examples described in this report show that a number of countries, most notably the United States, are coming close to producing the technology to make complete autonomy for robots a reality and have a strong interest in achieving this goal.

**Safeguards for Civilian Protection**

According to international law and best practices, states should evaluate new or modified weapons to ensure they do not violate the provisions of international humanitarian law, also called the laws of war. States should conduct weapons reviews at the earliest stages of development and continue them up through any production decision. Given military plans to move toward increasing autonomy for robots, states should now undertake formal assessments of the impacts of proposed fully autonomous weapons and technology that could lead to them even if not yet weaponized.

As this report shows, robots with complete autonomy would be incapable of meeting international humanitarian law standards. The rules of distinction, proportionality, and military necessity are especially important tools for protecting civilians from the effects of war, and fully autonomous weapons would not be able to abide by those rules. Roboticists have proposed different mechanisms to promote autonomous weapons’ compliance with these rules; options include developing an ability to process quantitative algorithms to analyze combat situations and “strong artificial intelligence (AI),” which would try to mimic human thought. But even with such compliance mechanisms, fully autonomous weapons would lack the human qualities necessary to meet the rules of international humanitarian law. These rules can be complex and entail subjective decision making, and their observance often requires human judgment. For example, distinguishing between a fearful civilian and a threatening enemy combatant requires a soldier to understand the intentions behind a
human’s actions, something a robot could not do. In addition, fully autonomous weapons would likely contravene the Martens Clause, which prohibits weapons that run counter to the “dictates of public conscience.”

By eliminating human involvement in the decision to use lethal force in armed conflict, fully autonomous weapons would undermine other, non-legal protections for civilians. First, robots would not be restrained by human emotions and the capacity for compassion, which can provide an important check on the killing of civilians. Emotionless robots could, therefore, serve as tools of repressive dictators seeking to crack down on their own people without fear their troops would turn on them. While proponents argue robots would be less apt to harm civilians as a result of fear or anger, emotions do not always lead to irrational killing. In fact, a person who identifies and empathizes with another human being, something a robot cannot do, will be more reluctant to harm that individual. Second, although relying on machines to fight war would reduce military casualties—a laudable goal—it would also make it easier for political leaders to resort to force since their own troops would not face death or injury. The likelihood of armed conflict could thus increase, while the burden of war would shift from combatants to civilians caught in the crossfire.

Finally, the use of fully autonomous weapons raises serious questions of accountability, which would erode another established tool for civilian protection. Given that such a robot could identify a target and launch an attack on its own power, it is unclear who should be held responsible for any unlawful actions it commits. Options include the military commander that deployed it, the programmer, the manufacturer, and the robot itself, but all are unsatisfactory. It would be difficult and arguably unfair to hold the first three actors liable, and the actor that actually committed the crime—the robot—would not be punishable. As a result, these options for accountability would fail to deter violations of international humanitarian law and to provide victims meaningful retributive justice.

**Horizontal Proliferation**

**India’s indigenous drones**

[http://www.himalmag.com/component/content/article/379.html](http://www.himalmag.com/component/content/article/379.html)

October 2010

By Semu Bhatt

Running into problems of supply even as the military establishment begins to import drone technology, India is working full speed to develop its own line of unmanned aerial vehicles.

In the last five years, India has accounted for seven percent of the world’s arms imports. To counter what they see as the rapidly transforming nature of ‘asymmetric’ as well as the standard strategic threats, the Indian armed forces are actively seeking to purchase the latest technologies and weaponry. Accordingly, the military has started a massive modernisation drive phased over the next 12 years at the cost of a whopping USD 200 billion. A large part of this is earmarked for augmenting India’s fleet of unmanned aerial vehicles or UAVs, commonly known as ‘drones’.
Since the intelligence failures that led to the 1999 Kargil conflict and the 2002 attack on the Parliament house in New Delhi, the Indian military inducted over 100 UAVs into its forces – mainly Israeli-built UAVs known as the Searcher and the Heron, used for intelligence, reconnaissance and surveillance (IRS). Evidently satisfied with their experience of drones, all three wings of the armed forces are now planning a major induction of UAVs, for which requests for information (RIF) were floated in last one year. There are multiple reasons behind this. First, technologically advanced militaries across the world have incorporated UAVs as a new critical component that can be used to track communications, enemy movement, real-time data transmission and detecting improvised explosive devices (IEDs). Some can also act as missiles for precision strikes on enemy targets. Further, UAVs allow for better manoeuvrability and eliminate the ‘G-force’ limitations that affect to piloted aircrafts. The absence of an onboard human crew also has its obvious advantages in cases of crashes over enemy territory. Apart from its military utility, UAVs are also in demand as they are cheaper than manned systems.

Second, in view of terrorist attacks, as in the case of the 2008 Mumbai attacks, the continued insurgency in Kashmir and heightened Naxalite activities, the top brass feels it crucial that the Indian armed forces strengthen their surveillance abilities across the western frontier, in the Maoist-affected states of central India and along India’s extensive coastline. Having received flak for an inept internal security apparatus, the government plans to strengthen such arrangements, and the use of drones has become a hallmark of anti-‘terrorist’ operations ever since the US began to use the technology in Afghanistan and Pakistan. Third, Pakistan is pushing to receive armed US Predator drones as part of its military-aid package from Washington, under the pretext of effective anti-extremist operations. Although US Undersecretary of Defence Michele Flournoy assured India in August that around 12 unarmed Shadow or Scan Eagle drones would be sold to Pakistan within a year, officials in Islamabad say they remain hopeful of getting the armed Predators in the near future. In the meantime, Pakistan is also jointly developing an armed drone with China. If Islamabad were to get an armed drone from any source, the UAV balance in Southasia would tilt against India as the latter currently lacks reusable armed drones like Predator.

In New Delhi, having understood the value of the UAVs on hand, the thrust is now to move towards the use of drones as weapons delivery vehicles. India has declared intentions for mass acquisition of what are known as Unmanned Combat Aerial Vehicles (UCAVs), to strengthen the armed forces in conventional wars; with a part of the military establishment (particularly the defence hawks) keen to gain UCAVs to make precision strikes on extremist training camps across the border. At present, India has less than five of such Harpy killer drones from Israel Aerospace Industry, but IAI has been informed that New Delhi expects at least 25 to 30 more of these within the next two years. These also include the advanced version of Harpy, named the Harop, which includes electro-optical sensors that enable them to hit even close radars that do not emit signals. Both Harpy and Harop are primarily focused suppressing enemy air defences. But Harpy and Harop drones destroy themselves along with the target, which is why they are called ‘kamikaze’, making them a costly investment. What India wants is reusable UCAVs that can replace manned fighter jets for dangerous medium and long-range bombing missions.

However, it will take some years before such acquisitions come through. This was evident from the lukewarm response to India’s RIF in June this year for a fleet of stealthy UCAVs. Most of the manufacturers shied away from responding, given that most of their research had not move beyond the prototype level, or they were bound by technology-transfer norms. The US, which is a leader is
UCAVs, is out of bounds due to the lack of outcome on technology-sharing agreements with India. Even after the signing of these agreements, transfer of sensitive technology from the US to India is doubtful given the negative reaction of Pakistan – at least, as long as Pakistani involvement is required in the US-led ‘war on terror’. Israel, on the other hand, poses no such obstacles.

With, without Israel

While there is widespread agreement within the Indian military about the growing importance of UAVs and UCAVs, there is a debate about spending billions of rupees on buying these from a single foreign source. Israel and the US came to a head in 2004 over an Israel-China Harpy deal; the US claimed that the Harpy contained US technology, and demanded Israel seize the Harpy fleet that China had sent for upgradation. (Eventually, Israel had to return the fleet to China without doing the required work.) Despite the deepening Indo-US defence ties, there is a thin possibility that the US might repeat the moves it made in 2004 in future upgradation of India’s Harpy fleet, especially if geopolitical compulsions make the US take cognisance of Pakistan’s concern over Indian killer drones. There are also sections that oppose spending so much money on foreign UAVs at a time when India’s own Defence Research and Development Organisation (DRDO) has shown the potential to develop indigenous drones.

For the moment, the Indian military seems to be splitting the difference, continuing to source UAVs from Israel while simultaneously increasing the focus on developing an indigenous alternative. Multiple government and private players are currently working on developing UAV systems. Not only do many see this as making economic sense, but there is also the fear of the possible blockage of sale of a certain type of unmanned aircraft – known as MALE, for medium-altitude, long-endurance – to India. Most observers agree such aircraft would be required to bring India’s UAV line up to the same level as the more advanced militaries, but such technology is susceptible to being blocked under the Missile Technology Control Regime (MTCR), a voluntary international convention in place since 1987. This places particular focus on unmanned delivery systems capable of delivering a payload of at least 500 kg to a distance of at least 300 km. India and Israel are unilateral adherents to MTCR, but not parties to it.

The DRDO, headquartered in Delhi and falling within India’s Ministry of Defence, has already developed two UAVs, known as Lakshya and Nishant, and is now working on an indigenous MALE drone Rustom. Built to the Indian Army’s specifications, the Nishant has completed both the development phase and a trials period successfully. This ‘multi-mission’ UAV is unique in that it has no wheels, and is designed in such a way as to eliminate the need for a runway – its launcher system can simply be mounted on a truck, and can be launched at intervals of less than half an hour. The Nishant can remain in the air for four and a half hours, flying at a maximum speed of 185 km/hr. A limited series of 12 Nishant UAVs is said to be planned for induction into the army soon. The Lakshya, on the other hand, is a pilotless target aircraft to tow flying targets, providing aerial target tracking and live-fire combat training.

Indian developers have been working with Israel Aerospace Industries to develop three UAVs, the Rustom MALE and the short-range Pawan and Gagan. Having cost some USD 100 million in research and development, the Rustom can fly at an altitude of 9000 metres or more for up to 24 hours. Its natural surveillance range of 250 km is extendable beyond 1000 km, given that it is capable of using satellite links to transmit data. Though not touted as such, the Rustom can also function as a killer drone. All three defence services have shown interest in acquiring the Rustom, with the army keen to
start using seven troops (six to eight UAVs each) of them. According to news reports, the Rustom has reached the government’s Cabinet Committee on Security for final financial approval. Its first prototype crashed during a test flight last year, but another is said to be ready for tests by the end of this year.

The Pawan is a short-range UAV developed at a cost of USD 33.2 million. Meant to equip Indian Army divisions, the craft will have the capability to engage in surveillance during the day and night, flying for around five hours with a range of 150 km. The Gagan, developed for some USD 55.5 million, is an advanced version of the Nishant, with a range of 250 km and an altitude capability of 6000 m. India’s Hindustan Aeronautics has also entered into joint development programmes with Israeli Aerospace Industries to develop Chetak helicopters into ship-borne UAVs, and the Indian Navy has placed an order for eight such machines. However, the programme is plagued by the lack of a correct landing and take-off system for moving platforms such as the decks of warships.

The latest reports indicate that the Indian Army is currently on the lookout for miniature UAVs as well, which can evade enemy radar, are easy to handle and can be launched without runways. The main aim is to use them for monitoring mountainous terrain, conflict zones and congested urban areas. However, it wants these so-called MAVs to serve a dual purpose, capable of carrying explosives and to act as killer drones for small but high-value targets. Currently, there are plans afoot to integrate MAVs up to the battalion level by the end of the 12th Five Year Plan (2012-17), with priority given to units deployed in Jammu & Kashmir and the Northeast. The air force has also issued requests for information on even smaller MAVs, those that weigh less than two kg and can fly for around 30 minutes at a stretch.

However, India’s most prized indigenous drone programme is the Autonomous Unmanned Research Aircraft (AURA), revealed in May. AURA is touted as the country’s first high-speed, stealthy UCAV, which will autonomously seek, identify and destroy targets with laser-guided weapons. A design is likely to be decided upon by 2011. The tepid response to RIF for UCAVs reinforced the view that transfer of this technology is fraught with problems, and pursuing an indigenous programme is the only way forward. AURA is also crucial for the fact that it will use artificial intelligence, and transfer of this technology from foreign source would not have been possible. There has been no indication from the Indian government so far that the programme will hire an international technology partner, but many manufacturers (including BAE Systems, Dassault and IAI) have already expressed their willingness to partner in an AURA programme.

The debate begins

In recent years, the relative ‘success’ of US drones against the Taliban and al-Qaeda along the Pakistan-Afghanistan border has left the Indian Army hoping to employ similar tactics in counter-terrorism and anti-insurgency operations. However, the intended use is strictly for intelligence, reconnaissance and surveillance purposes within the borders. Accordingly, MAVs are to be made available to the army’s special and paramilitary forces of the Army, which the brass is hoping will enhance ground knowledge along India’s land and maritime borders.

India’s UAV programme became an issue of public discourse when the Home Ministry ordered a trial run of an American T-MAV over the jungles of Bastar, in Chhattisgarh, in the aftermath of the Dantewada incident in which 76 security personnel were killed in a Maoist ambush on 6 April. The trial run began in the evening of 14 April and continued until late night, during which time the UAV
was checked for providing thermal images of movement on the ground as well as detection of IEDs and ammunition dumps. However, media reports said that, in certain cases of mine detection, the UAV could not pick up signals properly and only showed some disturbance on the surface. With intelligence-gathering a huge problem in the forest-covered Maoist strongholds of central India, the trial run was meant to gauge the possibility of using UAVs to forewarn troops about the exact locations and movement of the Maoist rebels. In June, media reports indicated that the central government had asked the National Technical Research Organisation (NTRO), a highly specialised technical intelligence-gathering agency that falls under India’s external intelligence agency, the Research and Analysis Wing, to deploy its six UAVs in these operations.

The trial run did not go as well as hoped, however. At an internal-security conference held in New Delhi on 28 July, a high-ranking official with the Bureau of Police Research and Development (BPRD) revealed that the security forces had not been able to acquire surveillance equipment that could penetrate the thick forest cover to give desired intelligence information. Meanwhile, the Chhattisgarh state government is said to be pushing to re-test UAVs after the monsoon this year, when the forest canopy will be even denser. In the meanwhile, the central government has decided to put on hold its move to deploy UAVs until the end of the year, given that the anti-Maoist operations slow down during the monsoons as dense forests make the movement of the security forces extremely difficult.

Still, the use of armed forces internally, unless as a last resort, is unpopular in Indian public and military circles. The deployment of armed forces not only brings with it the controversial Armed Forces Special Powers Act, but the armed forces are already overstretched with internal commitments in J&K and the Northeast. No wonder that the usually restrained chiefs of the armed forces were recently very opposed to Home Minister P Chidambaram’s statements about deployment of the armed forces in Maoist areas, as was Defence Minister A K Antony. The Defence Ministry, however, had offered no comment on the demand for the use of UAVs; but as India has no precedent for using air power for anything other than international warfare, the government will have to underline that the UAVs would be engaged only for intelligence-gathering.

The three-month controversy between the Home and Defence Ministries was put to a rest in June by the Cabinet Committee on Security, which decided against the deployment of armed forces in Maoist areas, limiting the role of the armed forces to training, rescue and relief. The air support was decided to be given to the security personnel only for logistic and evacuation purposes. However, with every major Maoist attack, there will almost certainly be renewed debate for the deployment of the armed forces. Recent media reports claimed that the air force has been given permission to fire in self-defence if its helicopters engaged on logistical missions are fired at by the Maoists. However, there are strict conditions that they can only use side-mounted machine guns in retaliation and not rockets or the integral guns. If any such use of force caused collateral damage, however, the Defence Ministry would become increasingly adamant with regards to non-deployment, for the fear of sullying its image. This would bring the two ministries in charge of country’s security into a heads-on collision.

Thus is a situation in which the Indian armed forces, in their bid to modernise, are spending billions to induct the latest in arms technology; while simultaneously, there is a clear mandate among them not to resort to killing Indian citizens. Despite the plan to equip the lowest levels with UAVs, there is currently no policy on using UAVs for internal deployment. But their quiet acquiescence to the
deployment of UAVs for surveillance against the Maoists shows their willingness to adopt newly acquired technology to enhance internal security. However, their vehement opposition to the deployment of the armed force units for counter-insurgency operations implies that they would be morally opposed to any manoeuvre involving killer drones within India itself. At a time when the 2 August incident of an unmanned US helicopter – which lost its link with ground operators due to a software malfunction, and entered restricted airspace around Washington, DC – is set to open further debate on the extent of autonomy given to UCAVs, the Indian establishment and media are yet to begin discussing the conditions, and legal and ethical consequences, of deploying unmanned aircraft within the country’s borders.

An extract from “NATO 2020: Assured Security; Dynamic Engagement”

Analysis and Recommendations of the Group of Experts on a New Strategic Concept for NATO

http://www.nato.int/cps/en/natolive/official_texts_63654.htm

May 20, 2012

[...] Recommendation

1. The new Strategic Concept should address, in addition to other priorities, the following conventional defence needs: [...] 
   ➢ Enhance maritime situational awareness. A new level of secure maritime situational awareness is called for by changing risks around the periphery of NATO and in the High North, Gulf, Indian Ocean and other areas. NATO should harmonize investments in such surveillance platforms as unmanned aerial vehicles, maritime patrol aircraft, land-based radars, surface and subsurface vessels, and robotic systems. NATO should also agree on specific surveillance mission areas that underpin Article 5, such as those related to illegal attacks on shipping, WMD proliferation and terrorist activities. [...] 

Pentagon lists 66 countries as eligible to buy US drones

http://www.reuters.com/article/2012/09/06/us-aircraft-usa-northrop-grumman-
idUSBRE88500B20120906

September 5, 2012

By Doug Palmer and Jim Wolf

WASHINGTON (Reuters) - As many as 66 countries would be eligible to buy U.S. drones under new Defense Department guidelines but Congress and the State Department, which have a final say, have not yet opened the spigots for exports, a senior Pentagon official said on Wednesday.
The 66 countries were listed in a Defense Department policy worked out last year to clear the way for wider overseas sales of unmanned aerial systems, as the Pentagon calls such drones, said Richard Genaille, deputy director of the Pentagon’s Defense Security Cooperation Agency. He did not name them.

"We don’t really have a comprehensive U.S. government policy" on such exports, he told an industry conference called ComDef 2012. "It hasn’t moved quite as fast as we would like, but we’re not giving up."

Northrop Grumman Corp chief executive Wes Bush on Wednesday praised the Obama administration for what he described as significant moves to boost arms exports, but voiced frustration at delays in codifying them in a new export policy.

"I wish we were further along in getting that done. It’s slow, it’s painful, but we’re doing the right things to move in that direction," Bush told Reuters.

U.S. arms makers are looking abroad to help offset Pentagon spending cuts spurred by U.S. deficit-reduction requirements.

Northrop Grumman’s ability to boost its overseas arms sales, which now account for less than 10 percent of its overall revenues, hinges largely on streamlined export controls, Bush said.

U.S. defense and high-technology exporters have long complained about the complex web of regulations governing exports of weapons and "dual-use" goods that have both civilian and military applications. They believe the rules disadvantage them versus foreign competitors.

**Global Hawk Planes**

Of particular concern to Northrop Grumman are restrictions on exports such as the company’s high-altitude Global Hawk surveillance planes.

The administration last year began informally consulting Congress on plans to sell Global Hawk to South Korea before withdrawing the proposed sale for reasons that have not been publicly disclosed.

Japan, Singapore and Australia also have shown interest in acquiring the aircraft, a Northrop Grumman spokeswoman told Reuters last year.

Bush said that failure to allow such exports could spark a repeat of the 1990s, when strict curbs on U.S. commercial satellite sales prompted other countries to develop rival hardware and software. Those efforts eventually eroded the market share of U.S. satellite producers from more than 70 percent to just around 25 percent.

"The consequences of the decisions that were made in the early '90s were devastating for the US industrial base, and ultimately did nothing to enhance security, and in fact, were detrimental to our security," he said.

**Export Controls**

The Obama administration, over the objections of some Republicans in Congress, is aiming to create a single list of items subject to export controls overseen by a single licensing agency, instead of the two separate lists now administered by the State Department and the Commerce Department.
Jim Hursch, director of the Defense Department's Defense Technology Security Administration, speaking at the ComDef event, said the administration was well into the overhaul but still had significant work to do.

Government agencies, as interim steps toward creating the single unified list, have worked their way through the 21 categories of the U.S. Munitions List administered by the State Department to see what items can be moved to the Commerce Department's Commercial List, Hursch said.

"We'll see what happens in November and what the victors of that election want to do to move forward on that," Hursch said.

Beth McCormick, deputy assistant secretary for defense trade and regional security, said she hoped the reforms would continue whether President Barack Obama is reelected on November 6 or Republican challenger Mitt Romney.

"Regardless of what happens in November, we should continue this work and bring it closure," McCormick said.

The Obama administration has already put proposed revisions to nine categories of the munitions lists out for public comment and faces some hard decisions moving ahead.

"There are some categories that by their basic nature are very, very difficult," including one that encompasses both night-vision technology and fire control, she said.

In deciding what items to move to the commercial list, "we obviously have to think about the type of technology that we use on the battlefield, where obviously the control of the night has been something that's been very, very important to us," McCormick said.

Kevin Wolf, assistant secretary of Commerce for export administration, said moving an item from the munitions list to the commercial list did not mean it was "decontrolled."

It does give the U.S. government more flexibility in allowing exports to close allies, while maintaining a strict arms embargo on other countries such as China, he said.

Are Iran's drones coordinating attacks in Syria?


September 18, 2012

By Hugh Macleod and Annasofie Flamand

A growing body of evidence suggests Iran has been supplying the Syrian regime with drones that are used to target attacks on rebels and civilians.

Or condoned widespread killings, torture, and unlawful arrests” during the first nine months of the Syrian uprising.
Those named should be investigated “for their command responsibility for crimes against humanity,” the report said.

From Tehran, with love

The alleged use of Iranian-supplied drones by the Syrian military appears to not be limited to Homs and Hama.

Analysing a video of a drone apparently flying over Damascus’ Kaf Batna suburb, David Cenciotti, editor of frequently cited aviation blog The Aviationist, told GlobalPost he believed the unmanned aircraft was also an Iranian-designed Mohajer 4.

Hezbollah, the Lebanese militant group, also armed and financed by Iran, has twice flown Iranian-supplied drones over Israel, first in November 2004 and again in April 2005, using what experts believe was either the Mirsad 1 or the Mohajer 4.

Another video on YouTube appears to show a drone flying over Damascus’ Arbeen suburb in January as the sound of gunfire rings out. Activists in the mountain town of Zabadani, near Syria’s border with Lebanon, also reported drones overhead being used to located positions of the rebel Free Syrian Army.

Cenciotti said he had positively identified an Iranian Pahpad drone in a video apparently flying over an airbase near Hama.

In late July, the Open Source Geo Intelligence blog posted satellite images acquired from GeoEye it said showed two Iranian Pahpad drones on the tarmac at the Shayrat airbase, between Homs and Hama.

All such drones are not armed with missiles, like many US drone types, but rather carry cameras and sensors that are used to locate enemy positions and intercept communications.

The Lebanese security source said intelligence showed drones were launched “from a military base between Hama and Homs” — two large cities that have been strongholds of the opposition — and that the drones were used to send coordinates of targets to rocket launchers and artillery on the ground, as well as intercept signals from satellite communication equipment used by activists after regular phone lines were cut.

“The drone sends the coordinates to mobile trucks, which send the information to engineers in Damascus who then pass it on to troops on the ground,” said the source.

White and Barrie both confirmed that at least in the case of Mohajer 4s, the on-board camera can relay images and coordinates in real time to ground troops, making them effective weapons.

“Mohajer 4 has a data link and has the ability to downlink imagery in real time. The imagery could be used to provide tactical intelligence to help with artillery spotting and firing to hit a target, such as a building,” said the IISS’s Barrie.

“Tactical UAVs provide the ability to see what’s going on over the hill in an area you can’t get people on the ground. They give you a persistent stare, to look down and get a view on ground you don’t control.”
With rebels fully in control of Baba Amr at the time of the February assault, the use of Iranian drones by the Assad military to spot targets would have been of clear military advantage.

Experts are divided, however, over whether Syria could have secured its drones from Iran before or after the March 15, 2011 outbreak of the uprising.

US diplomatic cables from December 2009, leaked to WikiLeaks, appear to show Syria was seeking UAV components, such as small engines and radio equipment, from a German firm. State Department officials considered this proliferation, as the material could be diverted to Syria’s Scientific Studies and Research Centre (SSRC), the entity responsible for Damascus’ WMD and ballistic missile programs.

A second leaked cable from the US embassy in Moscow dated September 2007 detailed Russia’s response to American concerns over the potential sale of Russia’s Danem UAV to Syria. The Russians insisted the drone was “designed solely for environmental purposes” and that Syria had not responded to the Russian offer and thus “no sale was envisioned.”

Though unable to say for sure, both analysts White and Barrie said it was most likely the Iranian drones were supplied to Syria after the outbreak of the uprising, as part of a concerted and on-going attempt by Tehran to bolster militarily its sole regional ally.

**No lone drones: Intelligence agencies busy in Syria**

During the Soviet era, Moscow supplied the regime of former Syrian President Hafez al-Assad with its large turbo jet-powered reconnaissance drone, the TU-143, but no contacts interviewed believe Russian drones are being deployed in the current Syrian conflict.

The Aviationist’s Cenciotti, however, said he believed Syria had acquired a drone fleet before the uprising, a position supported by a Western anti-proliferation official, who asked to remain anonymous.

Cenciotti said aviation experts believe Syria manufactures Iranian-designed drones domestically at the SSRC. Last month rebels in Aleppo claimed in a video posted to YouTube to have uncovered a regime workshop producing Iranian-designed drones.

Though the authenticity of the footage could not be verified, weapons experts agreed all drones shown in the workshop video were identical to Iranian designs and were in the process of being built.

Though the clip appears to show Iranian drones might be able to be built in Syria, some experts suggested the parts were more likely to have been shipped to Syria from Iran for assembling, rather than manufactured domestically.

“We saw high-tech Iranian arms, as well as Russian arms, used by the regime’s forces,” said Abu Ammar, a commander of an FSA unit who fought during the regime’s assault on Baba Amr. “The Iranian reconnaissance aircraft was constantly over Baba Amr’s sky. It gave the army coordinates and then the bombardment started.”

A second FSA commander, known as Abu Yazan, who fought with the Farouk Brigade in Homs, described being injured fighting last December after what he said was as a “glider” flying over his position. Drones are shaped very much like gliders.
“My mission was to stop Assad’s tanks crossing into Baba Amr. A glider appeared above us, filmed us and took our coordinates,” he told GlobalPost while recovering from his wounds in north Lebanon. “Then the rocket launcher started shooting at our position and I was injured.” Nine rebel soldiers were killed in the attack, said Abu Yazan.

Speaking to a reporter working with GlobalPost in Damascus, Abu Sadiq, a 45-year-old father of three who fled Homs’ Khaldiyye neighbourhood with his wife and children during February’s assault, said residents had begun to hear the noise of what they believed were drones overhead.

“The regime began to use small spy planes to target activists, the Free Syrian Army and field hospitals,” he said.

Iranian-supplied drones, however, are not the only UAVs prying from the skies over Syria’s conflict.

The Lebanese security source said the Syrian military had informed their Lebanese counterparts that American drones were flying over Syria’s northern borders and over Daraa in the far south, the first city to rise up and suffer a sustained assault by Assad’s forces.

On Feb. 17, NBC news quoted a US defense official saying “a good number” of US military and intelligence drones were monitoring the Syrian military’s attacks on opposition forces and civilians.

“We have also intercepted Israeli drones crossing through the Bekaa Valley to Syria,” said the security source. “It’s well known that all intelligence agencies are busy with Syria.

157 STC 12 E – Unmanned Aerial Vehicles: Opportunities and challenges for the Alliance.

http://www.nato-pa.int/default.asp?SHORTCUT=3024

November 20, 2012

Special report by Pierre Claude Nolin (Canada), Special Rapporteur of the Science and Technology Committee

Drone technology continues to evolve, transforming the way we fight wars, verify weapons stocks, enforce laws, and more. Over the next ten years, annual global spending on unmanned aerial vehicles (UAVs), commonly known as drones, is estimated to rise from US$ 5.9 billion to US$ 11.3 billion. While drones offer many advantages (they can, for instance, stay in the air for a very long time, increasing operational range and the duration of surveillance), they are not without their disadvantages and vulnerabilities. Not least, drones have catalysed intense ethical and legal debates, particularly with regard to their use outside zones of active combat. Beyond having a direct impact on operations, drones may also have wider strategic effects. Because drone use could reduce a state’s potential loss of life to zero, for instance, drones could strengthen states’ abilities to deter or compel potential adversaries. For this same reason, however, drones could also facilitate states’ entry into conflicts they would never have engaged in otherwise.

To help inform and encourage parliamentary debate on the impact of drone technology, this report examines UAV capabilities and roles, drone use in NATO-led operations, ethical and legal questions, and drones’ strategic impact.
Brazil leads the way on global commercial drone boom


January 6, 2013

By John Otis

They can monitor thousands of acres of Brazilian farmland and the border between the US and Mexico, but is the world ready for commercial drones?

Canada and Mexico. But only about a dozen of the nation’s police and fire departments have been authorized to use drones, Gielow said. The commercial use of UAVs in the United States is still illegal.

But all of this is about to change.

Under a law signed by President Obama in February, the Federal Aviation Administration must come up with new regulations to integrate UAVs into the nation’s airspace and provide guidelines for their use in law enforcement and commercial endeavors by September 2015.

“It could turn into a very big business,” said Patrick Egan, president of the Silicon Valley chapter of AUVSI, who used to photograph organic farms until he was grounded by the FAA for flying drones without a permit. “You can have actionable intelligence. Pictures that you took an hour ago can be immediately uploaded into a farmer’s email inbox.”

“What the opening of the civilian airspace will do to robotics is akin to what the internet did to desktop computing,” Singer predicts. “If you are a maker of small tactical surveillance drones in the US right now, your client pool numbers effectively one: the US military. But when the airspace opens up, you will have as many as 21,000 new clients — all the state and local police agencies that either have expensive manned aviation departments or can’t afford them.”

Yet on all sides of the political spectrum, the proliferation of cheap, easy-to-fly UAVs is sowing fears of police fishing expeditions and the prospect that the United States could turn into a “surveillance society.”

“All the pieces appear to be lining up for the eventual introduction of routine aerial surveillance in American life,” said a recent report on UAVs by the American Civil Liberties Union.

Indeed, the celebrity photo agency Splash News has already announced plans to deploy “flying paparazzi drones” to track the rich and famous from above. Even though the flights would be considered commercial — and therefore illegal — experts say the FAA lacks the capacity to track all unauthorized drones.

These developments could quickly produce a backlash, according to the right-wing pundit Charles Krauthammer. He told Fox News: “The first guy who uses a Second Amendment weapon to bring a drone down that’s been hovering over his house is going to be a folk hero in this country.”
Safety and security in Brazil

Yet as US involvement in the Iraq and Afghanistan conflicts winds down, the American UAV industry is looking for new ways to deploy unmanned aircraft at home and is closely watching developments overseas.

In Latin America, the nation that has done the most to open up its skies is Brazil. Not surprisingly, Brazil is now grappling with both the benefits and the Big Brother concerns brought on by drones.

In 2010, Brazil spent more than $350 million on 14 Israeli-made Heron UAVs for surveillance of the Amazon rainforest and border regions. In June, Bolivia’s top anti-drug official credited these UAVs for helping authorities detect 240 drug labs along the country’s frontier with Brazil.

Still, news of the purchase prompted an editorial cartoon in Israel’s Haaretz newspaper speculating that the drones could be used for more nefarious purposes. It shows a UAV hovering over a slum as a Brazilian policeman tells his Israeli colleague: “Now we can kill the poor in Brazil with the same efficiency you kill Palestinians.”

That has yet to happen, but Brazilian authorities were planning to use drones to monitor drug-dealing gangs in Rio de Janeiro’s violent slums ahead of the 2014 World Cup and the 2016 Summer Olympics which will be held in Rio.

“We believe the UAVs are going to help us save lives, despite the fact they could be downed by enemy fire from these criminal groups, some of which have heavy weapons and have even attacked our armor-plated helicopters,” Maj. Montenegro Magalhaes Neto, who heads the UAV program at the Military Engineering Institute in Rio, told the MercoPress news agency in September.

However, in a December interview with GlobalPost, Maj. Magalhaes walked back his earlier statement. He said that new laws from Brazil’s version of the FAA prohibit drone flights over urban areas and that UAVs, at least for now, would not monitor the slums.

In Sao Carlos, located just north of Sao Paulo and the home of AGX Tecnologias, Adriano Kancelkis bubbles over with enthusiasm for what he sees as a potential “green revolution” by using drones for so-called precision farming.

Just as more and more US farmers are using self-steered, GPS-guided tractors with inch-level accuracy, he says Brazilian farmers are turning to UAVs to cut costs and improve yields.

Like the United States, Brazil is an agricultural powerhouse and home to massive farms, some covering more than 100,000 acres. Instead of sending workers into the fields to spot infestations, flooding, or crooked corn rows, famers can buy or rent AGX’s Parrot and Parakeet drones that can immediately provide video and still photos to spot problems.

In his office, Kancelkis puts up color images on a computer screen and shows how they can be used to count orange trees and help growers estimate their output. The photos are far clearer than satellite images, which are sometimes obscured by cloud cover.

“In the future, I can’t imagine farming without drones,” Kancelkis says.
Next he puts up a photo showing how the course of a Brazilian river had been altered by illegal dredging for sand. The image was captured by an AGX drone used by the Environmental Police of Mato Grosso do Sul state and it helped officers track down the perpetrators, he said.

Still, Kancelkis is an odd mix of trendsetter, traditionalist, and worrywart.

Though fascinated by drones, he fears what could happen if the technology falls into the wrong hands. He is Brazil’s most high-profile advocate for commercializing unmanned aircraft, yet his office walls are decorated with photos of the Wright Brothers and Amelia Earhart. As for security at his own shop, one of the main lines of defense at the AGX drone factory is a growling guard dog.

An Integrative Approach to NATO and Unmanned Aerial Systems


April 3, 2013

Stephanie Baulig & Andrew Barr

As combat UAVs become a more common counterterrorism tool for the US military, NATO should consider the development of an Alliance-wide integrated drone network; such a framework would prove to be cost-effective and potentially unifying, while augmenting NATO’s limited engagement capabilities. This, however, should not replace conventional military technology.

At the end of 2012, US military forces were conducting an average of 33 unmanned aerial vehicle (UAV), or drone, strikes each month — nearly 10 percent in Afghanistan. These figures correspond with the estimated 7,000 UAVs in the US military arsenal; this in comparison to the 50 UAVs the Pentagon had in 1992. At present, only Israel, the United Kingdom, and the United States have engaged in unmanned strike operations and international forces, such as the International Security Assistance Force in Afghanistan, have also made use of these unmanned aerial systems (UAS). Now, renewed discussion of a German purchase of combat UAVs, as well as the push to create a European UAV, raise important questions about the future of European drone policy and the impact that such an arsenal could have on NATO operations; specifically the capabilities, flexibilities, and responsibilities of European states.

The European Drone proposition is the second attempt by the European Aeronautic, Defence & Space Co. (EAD) to initiate such a project (the first being scrapped last year a lack of funding). But with the support of France and Germany and more concrete military objectives, EAD’s push into the US and Israeli-dominated industry seems more likely. A principle motivation for the development of such a program is one that US policy makers find disconcerting; that of surpassing current US UAV


technology. According to Christian Schmidt, parliamentary state secretary for Germany's Ministry of Defence, the European system would have to have "more capability than current US systems" and would include communication functions that would allow for domestic flights and coordination with civil airliners. While such rhetoric might cause Europeans to wonder why such domestic functionalities are necessary, the EAD's efforts serve as an indicator of Europe's desire to match (or exceed) US operational capabilities and meet NATO's future demands without substantial US support. It may also signal a shifting attitude toward continued US power projection in Europe, and as Secretary Schmidt has observed, lead to greater European security independence. But whether such independence would be feasible and advisable is uncertain.

A European UAS would contribute substantially to the legitimization of US use of UAVs. Despite their effectiveness, their use has come under considerable scrutiny and criticism from the international community, including from Ben Emmerson, UN special rapporteur on counterterrorism and human rights, who began an investigation into the compatibility of drone warfare and international humanitarian and human rights law earlier this year. While the outcome of the investigation could have repercussions on the implementation of a European UAS, Europe's burgeoning interest contributes to the political calculus of the outcome. In essence, Europe's potential alignment with the United States, United Kingdom, and Israel UAV-user ‘bloc’ can add a degree of legitimacy to the international legal judgment regarding UAV use.

NATO's $1.7-billion purchase of five Northrup Grumman Block 40 Global Hawk UAS last year, and the test flight of a prototype of the Neuron, a European combat drone commissioned by Italy, Sweden, Spain, Switzerland, and Greece, also adds another dimension to Europe's emerging drone infrastructure. The development and expansion of Europe's core defence capabilities is ultimately in the interests of the United States; a developed European military cooperative framework, independent of NATO and the United States, grants the latter greater operational latitude by shifting some of responsibility to European defence.

The European push toward state-of-the-art UAV technology, needless to say, presents major questions for its application and demands a profound reflexion on the effect that such technology will have on the future of inter-Alliance relations. First, the technical-industrial advantage enjoyed by the United States and the United Kingdom will potentially lessen as European states embark on ambitious upgrades and acquisition projects. But competing with the United States and United Kingdom will require a large degree of cooperation between emerging UAV states; an emergence inevitably subject to the policies and actions of fellow Alliance members. Potential divisions aside, a new UAS structure would be a valuable and sustainable contribution to the strength of the Alliance.

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which will augmenting not only its technical capacity but also support the implementation of a well-balanced, well-regulated burden-sharing praxis. Indeed, through the introduction of such systems, cooperation within the Alliance can be fostered and promoted.

The implementation and integration of member-UAS into NATO's operational structure would require collaboration, joint-development in training programs and information sharing that would not only increase the cost-effectiveness of NATO initiatives, but also further bolster esprit de corps across the Alliance. The creation of an exclusive NATO UAV fleet that would work in tandem with member-owned forces also requires uniform training and technical commonality. Security concerns within such a common structure are likely to prove focal points of contention, and as such, the successful implementation of a joint UAS will depend on overcoming such barriers. While a complete operational standardization would be the most efficient in terms of training time and cost-effectiveness, the current stance of member states are, at present, unaccommodating to such an arrangement, and are likely to remain so. In light of this, the creation of a unique set of international standard operating procedures could allow contributing states to retain a degree of autonomy over their forces while still operating within international constraints. Another approach could aim to standardize specific components of UAV operations, specifically safety-override systems that could become increasingly important as domestic UAV use increases. Close cooperation in UAV development, through the exchange of technical and operational knowledge and scientific efforts focused on a singular UAS system, would be consistent with NATO public policy strategies and goals, targeting a greater investment and support of Alliance initiatives.

As powerful and efficient UAV technology is, it is vital to recognize its limitations and to not allow an emerging UAS framework to weaken or shift the emphasis away from the conventional forces upon which NATO ultimately relies. The controversy that has surrounded UAV use in the US is but a precursor to the discord that UAV production and use in Europe will precipitate. In NATO's intervention in Kosovo in 1999, its reliance on airpower as a singular means of coercive force was harshly criticized. During the intervention, as commentator Ralph Peters observed, "NATO chose not the instruments that might do the job, but the instrument of least risk."

Rather, UAV use should augment conventional force as a means of intelligence gathering or force projection in high-risk scenarios.

Finally, NATO's reliance on a contributional UAV framework requires stable funding, production and maintenance of member states' forces; changes in European governments can cause rapid changes to military budgets and production initiatives that could undermine the stability of such a trans-NATO force. While a basic international framework has been established through the 2007 UAV Systems Airworthiness Requirements (USAR) in regards to UAV design and airworthiness, some degree of third-party involvement at the initiation of production contracts is vital to ensure continuity from legislation to manufacture. This involvement would entirely depend upon the political and economic climate of the member state in question, but could range from initial NATO financial backing to the formation of transnational partnerships, which would reduce the likelihood of drastic changes in production quotas and funding. Whatever the strategy, if NATO is to rely on the UAVs of

9 Ralph Peters, 'The future of war/ Maclean’s, 26 April 1999, p. 40.
member states in any capacity, there must be the assurance that such arsenals are supported by the necessary training and maintenance, despite the fact that they might not constitute a state’s primary military force.

Though NATO and Europe are just starting to lay the groundwork for a transnational UAS structure, a great degree of caution and careful planning is vital to the successful implementation of such a controversial system. Additionally, as the UN investigates the implications of combat UAV use on international law, the willingness of some European states to participate might drastically change based on the UN's findings and subsequent efforts in oversight of UAV-led operations. While the impact of these findings remains to be seen, the fact remains that growing international UAV usage is a reality that NATO and the international community must prepare for, building on the foundations of the USAR and creating a broader framework for cohesion through interoperability.

Midshipman Andrew Barr (USA) is in the US Naval Reserve and studies at the University of Illinois at Urbana-Champaign in the Arms Control, Disarmament and International Security Program. He is currently studying at the Department of War Studies at King's College in London.

Oberleutnant Stephanie Baulig (Germany) is an officer in the Bundeswehr and is currently studying politics and social sciences at the University of the Federal Armed Forces in Munich, a student assistant for International Studies, and a certified translator.

The race is on: Manufacturer sets sights on market for armed drones

http://investigations.nbcnews.com/_news/2013/05/28/18472665-the-race-is-on-manufacturer-sets-sights-on-market-for-armed-drones

May 5, 2013

By Keir Simmons and Gil Aegerter, NBC News

On a sprawling complex just outside Pretoria, South Africa, a government-owned arms manufacturer is preparing to test an armed drone that it hopes to begin selling soon to governments around the world.

The company, Denel Dynamics, says the armed version of the Seeker 400, which will carry two laser-guided missiles, will enable so-called opportunistic targeting at a range of up to about 155 miles.

“These are not combat systems, they are foremost reconnaissance systems,” Sello Ntsihlele, executive manager of UAV systems for Denel, told NBC News. He added: “(But if) you speak to any general, show him the capability, he will tell you, ‘I want to have munitions.’”

The company’s move is but one signal that the era when only a small club of countries possessed weaponized drones is drawing to a close.

Critics say the coming proliferation of the lethal remote-controlled flying machines will forever change the face of counterterrorism operations and, eventually, warfare itself – and not for the better.
“The U.S. has set a moral precedent,” said Jenifer Gibson of the human rights group Reprieve. "A state can declare someone a terrorist and just go out and kill them."

Reprieve campaigns against what it calls illegal drone strikes.

Supporters of military drones argue that they are an essential tool against terrorists hiding in remote areas and that their ability to strike with precision minimizes civilian casualties. Reprieve rejects the notion that drones are precision weapons and claims many civilians have been killed.

Who has drones — and who wants them

Only three countries are known to currently operate armed unmanned aerial vehicles, or UAVs, as drones are technically known -- the U.S., the U.K. and Israel -- according to a recent report by the think tank RUSI. The report suggested there are only currently around 1,000 armed drones worldwide.

NBC's Keir Simmons reports on the United States' reluctance to share its drone strategy with other countries in the world.

But China also is believed to have developed weaponized drones; the U.S. has said it would arm drones operated by Italy; and France and Germany also have decided to acquire them, according to arms trade experts and published reports.

And according to Peter Singer, director of the Center for 21st Century Security and Intelligence at the Brookings Institute, at least 26 countries have surveillance drones of a size or type that have been or could be armed, and roughly 20 countries are trying to either develop or acquire weaponized drones.

So far, the United States is the only country known to have transferred armed drone technology -- and solely to Britain, which flies U.S.-built Predators in Afghanistan.

U.S. sales of drones, armed and unarmed, "are considered on a case-by-case basis, consistent with U.S. law, regulation and policy, as well as our international commitments, including under the multilateral nonproliferation regimes," a Pentagon spokesman said in an email to NBC News. A State Department spokesman declined to comment on the record.

U.S. reluctance to share its cutting-edge military drone technology outside a few trusted NATO partners like Britain and Italy is viewed as an opportunity by arms manufacturers like Denel Dynamics.

The company aims to be among the first suppliers of armed drones to market, if tests of the armed versions of the Seeker 400 -- expected to begin in “a month or two” and last up to six months, according to Ntsihlele -- are successful. South Africa would have to purchase the armed drones first before the company would begin marketing them elsewhere, but if that happens Denel sees opportunities for growth elsewhere, particularly in “Africa and the Middle East,” he said.

Ntsihlele declined to say how much the armed Seeker 400 will cost, but said it will be far cheaper than the Predator and Reaper, the armed drones used for anti-terrorism operations by the U.S. military in Afghanistan, Pakistan, Somalia and Yemen, which cost approximately $20 million and $56.5 million apiece, respectively. And unlike those UAVs, it would not require satellite technology, being controlled instead through “line of sight” communications. That limits its range but makes it potentially available to nations without sophisticated space-based guidance systems.
The drone market

President Barack Obama, in a speech last Thursday, said he would impose new limits on drone strikes against foreign terrorists in an attempt to reduce civilian casualties to near zero and ensure that only enemies who pose a “continuing, imminent threat” to the United States are targeted.

"What we are trying to do with our (anti-terror) strategy is turn it back over to the host country and local forces," the New York Times quoted the Pentagon’s top counterterrorism official Michael Sheehan as saying. "That is the future."

The sale of armed drones to other governments raises similarly thorny issues though.

There are no international treaties restricting sales of armed drones, only voluntary controls on exports. Beyond sanctions and embargoes governed by the Security Council, the United Nations does not regulate arms and arms-technology sales, although the Arms Trade Treaty approved in April by the General Assembly may change that if it is eventually ratified by enough nations.

In Denel’s case, Ntsihlele indicated that the South African government would limit sales only to governments that would be “accountable and responsible” and agree to “opportunistic” use of the weapons on justified targets. “That target could be a pirate, or could be a terrorist,” he said.

The company also provided this statement to NBC News: “All of our activities ... take place within the framework of decisions taken by international organs such as the United Nations, the policies of the South African government and the regulatory prescripts imposed by the National Conventional Arms Control Committee and the Directorate Conventional Arms Control,” referring to two South African government organizations.

Assuming it gets its product to market, Denel is expected to quickly encounter plenty of competition.

“To the extent that the U.S. backs off the armed drone business, it allows countries like China, in particular, to say they’ll fill the marketplace,” said Dennis Gormley, who teaches intelligence and military issues at the University of Pittsburgh’s Graduate School of Public and International Affairs.

China already has shown an armed drone resembling a smaller Reaper at an air show last fall, and photos surfaced on Chinese websites earlier this month showing what appeared to be an unmanned combat aerial vehicle known as the Lijan, or “Sharp Sword.” The Lijan closely resembles the U.S. Navy’s remote-controlled X-47B drone, which recently launched from an aircraft carrier for the first time.

Israel will also be a marketplace competitor. It is a leader in armed drones and is already considered the biggest exporter of unarmed drone technology.

Turkey also has developed a reconnaissance drone, the Anka, for spying on Kurdish insurgents. Last summer, the Turkish Defense Industry Executive Committee said that TAI, the company that builds the Anka, was starting research and development on an armed variant, the Anka +A.

Turkey had been intensely interested in buying armed drones from the U.S., said William Hartung, director of the arms and security project at the Center for International Policy. So far, the U.S. has resisted selling it such technology, despite its NATO membership, he said.

Iran also has made unsubstantiated claims to have armed drones.
Terrorism concerns

The spread of armed drone technology to volatile regions like the Middle East inevitably stirs concern that terrorists could obtain the airborne weapons. So far, the Lebanese militia group Hezbollah, considered a terrorist organization by the U.S., is the only group believed to possess the UAVs. It has flown several unarmed drones containing explosives over Israel and, in one case, apparently used an armed drone to attack an Israeli ship, according to published reports.

The possibility of using small drones as attack platforms was driven home by a video posted on YouTube in December by an anonymous group called Dangerous Information. It showed a small electric-powered drone equipped with a GoPro video camera and paintball gun, first flying through a neighborhood, then attacking human-figure targets in a field.

The development of smaller drones has been accompanied by new smaller munitions that don’t require the Predator’s 450-pound payload capacity. Denel’s Seeker 400, for example, will have a payload half that, according to a company brochure, but still be capable of carrying two laser-guided missiles.

“There is the development of smaller and smaller weapons, some of them specifically for UAVs,” said Philip Finnegan, director of corporate analysis for the Teal Group, which conducts market analysis in the aerospace and defense industry. “So they’ll be able to use smaller platforms.”

While armed drones appear certain to be added to more countries’ arsenals in the near future, analysts say they expect the military sector will remain a relatively small piece of the overall drone market for some time to come. A big reason for that is the restrained growth in defense budgets worldwide and cuts by the U.S. military in spending on drones, which also affect research and development.

“There is short-term pressure on the industry. ... It’s a combination of budgetary pressure and the withdrawals from Iraq and Afghanistan,” Finnegan said. “Longer term, the U.S. remains heavily committed to advanced UAV technology.”

And sales to smaller nations are likely to be slow due to the fact that even with prices falling, armed drones remain prohibitively expensive, Denel’s Ntsihele said, recounting conversations with prospective buyers.

"When they get to know the product, they get shocked,” he said.

Keir Simmons is a correspondent in NBC News’ London bureau; Gil Aegerter is an NBC News staff writer in Redmond, Wash.; NBC News’ Marc Smith and Robert Windrem also contributed reporting to this article.
Why Israel dominates global drone exports

http://qz.com/102200

July 10, 2013

By Josh Meyer

The biggest exporter of unmanned aerial vehicles, which are fast becoming essential to governments worldwide for both military and civilian uses, isn’t the United States, China or other major power. The big winner in this booming global market is Israel. And that creates a lot of geopolitical complications, for the obvious reasons.

Thanks to massive budget cuts and tanking economies, many Western governments, especially in Europe and the United States, are slashing defense spending and eliminating big-ticket weapons systems. Dozens of other countries, throughout Asia, the Middle East and Latin America, are spending more and more these days on their burgeoning militaries. But no matter their economic situation, the one thing they're all clamoring for is drones. Especially those made in a certain tiny Middle East country surrounded by lots of enemies.

Israel was recently anointed as the world’s largest exporter of the small surveillance planes, according to a major study by the Frost & Sullivan international business consulting firm. The handful of Israeli companies that manufacture the drones earned at least $4.6 billion in sales during the last eight years, Frost & Sullivan said in its report. That tally includes exports of the planes themselves and operating and communications systems and payloads. American defense companies probably manufacture more drones, but they send much of them to the US military and its close allies, Frost & Sullivan’s Eran Flumin told Quartz. Also, US restrictions limit the number of drones that American firms can export.

Israel doesn’t have as strict export curbs. And drone manufacturers like state-owned Israel Aerospace Industries as well as Elbit Systems and Aeronautics Defense Systems have been busy in recent years, Flumin says, expanding their geographic footprint and locking up lucrative new deals. The Frost & Sullivan report did not contain a comparable estimate for American exports for 2005 to 2012. But Flumin and analyst Yakov Baranes said Frost & Sullivan estimates that US companies exported less than $3 billion worth of similar products during that same time period.

Flumin and Baranes also noted that the nature of the drone business is cyclical, and that a recent drop in Israeli exports was more of a fluctuation than a trend. It is also based on a small number of large deals. For example, a major Israeli deal with India for UAV upgrades is worth another $958 million that will be reflected in future figures, they said.

Sure, drones—especially the armed military ones—are often criticized as being morally reprehensible, if not illegal. But the ones Israel exports are arguably one of Israel’s proudest accomplishments on the global commercial stage. More than half of those Israeli exports were to Europe, while a third went to Asia-Pacific countries including India and Azerbaijan. Another 11% went to Latin America, while 3.9% went to the United States and 1.5% to Africa. The top clients: the United Kingdom, India and Brazil. Many countries buy them for surveillance and other non-weaponized uses.

Some analysts predict a quadrupling of demand for military UAVs over the next decade, thanks to their success in wars in Iraq and Afghanistan and Israel’s use of them in many types of operations. Another analysis, issued last month by the Teal Group, predicts that the total worldwide UAV market
will more than double over the next decade from current expenditures of $5.2 billion annually to $11.6 billion, totaling just over $89 billion in the next 10 years.

Flumin, who heads Frost & Sullivan’s Israel operations, said Israel is well situated to cement its position as the lead exporter of drones for years to come. That’s in part because Israeli firms are aggressively marketing their drones, for myriad new military and civilian uses, in virtually every corner of the world. The Israeli firms are also leading the way in developing cutting-edge research and development, thanks to longstanding ties to Israel’s military, which has pioneered the use of the vehicles in war zones, conflict areas and for general reconnaissance.

Here’s just one of their newfangled uses under development: a large drone that can swoop in and rescue an injured soldier—or in a civilian application, a wounded hiker stuck in a remote canyon. Other drones will be able to take off vertically, eliminating the need for an airstrip, but without the bulky rotor blades that make helicopters unwieldy in tight quarters.

Israeli firms are also leading the way in developing payloads, or the gear carried within the drones. That includes extremely advanced surveillance cameras and sensors, vastly improved communications capabilities between drones and those operating them and other features that will widely expand the use of drones, especially for civilian uses like law enforcement, search and rescue and agriculture.

“Why Israel is so successful in exporting their drones is that they are optimizing the technology to allow them to be used for many different missions,” Flumin said. “You want to maximize the duration of the mission or the weight of the payload or have a better camera with higher resolution? Everything can be optimized as much as possible.”

But not everyone wants an Israeli drone—especially customers in the Middle East, where there’s a budding arms race over who can buy the most drones the fastest. Because of the growing fear of expanding regional unrest, “every large country in the region understands the need to acquire UAVs,” Frost & Sullivan said in another recent report. That is opening up some opportunities for American firms, which are aggressively lobbying Washington for permission to increase their export capabilities, especially as the Pentagon cuts military spending.

At the IDEX international defense trade show in Abu Dhabi in February, the United Arab Emirates announced it was buying an unspecified number of Predator surveillance drones from US firm General Atomics in a deal worth $196.57 million. Frost & Sullivan cited that as evidence that Washington was easing its stances on such exports. Gulf countries are looking for other manufacturers too, and China, Turkey and even Pakistan are working overtime to create drones that they can sell on the international market.

Meanwhile, Brazil and a host of other countries are developing their own drones to monitor borders and vast swaths of farmland. And three of Europe’s top military contractors last month urged the region’s governments to establish a joint program to develop drones of their own, to reduce reliance on Israeli and US manufacturers.
Challenges to peace and security in times of drones, robots and digital warfare

http://www.boell.de/de/node/277564

July 17, 2013

Noel Sharkey (professor of artificial intelligence and robotics) and Omid Nouripour (security policy spokesperson of the Alliance 90/The Greens).

Since the failure of the Bundeswehr’s controversial Euro Hawk project, Germany is now also experiencing a frank, public debate about drones. However, the discussion is still being shaped by day-to-day political considerations, while broader security aspects of the new weapons technology remain largely on the sidelines. The objective of the 14th Annual Foreign Policy Conference of the Heinrich Böll Foundation was to fill this gap. It not only examined the common fear of “killer robots”, but also the many ethical, international law and disarmament policy issues associated with the seemingly unstoppable technological development of unmanned warfare. The lively discussions between the policy experts and researchers from numerous countries conveyed a good impression of the complex issues that have arisen here. While the current practice of targeted killings by U.S. drones was met with nearly unanimous criticism, the ethical and international law dimensions of the growing automation of warfare proved controversial. The only possible conclusion was therefore that the debate is only just beginning – and not just in Germany.

Technology as a warmonger?

The U.S. “war on terror” has driven the evolution of combat drones from a futuristic concept to an almost everyday military resource within a few short years. 87 countries worldwide currently have – mainly unarmed – unmanned aerial vehicles in their arsenals. During the conference drones were repeatedly characterized as a “military revolution”, and this view was shared by Peter Singer in Washington, who took part via a videoconference link. Singer, an expert on modern military technology at the Brookings Institution, regards the development of drone technology to be in the same league as the invention of firearms and combat aircraft. Despite their great significance, Singer considers drones to be only a part of a much broader societal upheaval, however. Be it artificial intelligence, cyberspace or the biotechnical “enhancement” of humans, two aspects stood out in the areas he described: Technological development appears to be progressing at a pace that is making a concomitant adjustment of political and ethical frameworks increasingly difficult. According to Singer, the drone controversy that is only beginning to take shape is revolving around models that are already obsolete. Furthermore, the new systems are becoming increasingly autonomous. In the past, humans had been in the loop in central decision-making processes. With today’s combat drones, however, humans have been “demoted” to mere observers and triggers of predefined technical procedures (“on the loop”). Ultimately, fully automated weapons systems that identify their targets and decide on the use of lethal force solely on the basis of programmed algorithms are within the realm of possibility.

Peter Singer’s account of the enormous potential of new weapons technologies was seen by many as a list of horrors containing countless new threat scenarios. Presenter Sylke Tempel, editor-in-chief of Internationale Politik, raised the question of whether the new technological options also lower the threshold for their military deployment. Would military action against Taliban militants in Pakistan have even been conceivable without drones? Ralf Fücks, Co-President of the Heinrich Böll Foundation, pointed out the potential escalation dynamics of the new technologies that could lead to a swifter militarization of conflicts. The U.S. strategy expert Peter Dombrowski of the Naval War College in Newport, Rhode Island, was not able to follow these fears. He emphasized that in spite of everything, drones are still a tactical tool, and that their strategic importance should not be
overstated. The technological development in the U.S. is also embedded in democratic negotiation processes; decisions on war are therefore still political in nature. Marcel Dickow, technology and security expert of the German Institute for International and Security Affairs in Berlin, concurred with Dombrowski. While the armed services certainly appreciate drones, they are not seen as a panacea in Germany or elsewhere. Their deployment in Pakistan by the CIA was ultimately a covert operation for which other resources, such as missiles or special services, would also have been available. Omid Nouripour, security policy spokesperson of the Alliance 90/The Greens parliamentary group, was not convinced by this line of argumentation. Drones would already lower the threshold to war by helping prevent own losses. Politicians who would no longer face the prospect of coffins returning home could justify an operation more easily, Nouripour maintained.

The ethics of war in asymmetric conflicts

While the Greens had lost their “pacifist innocence” long ago and “for good reason”, as Ralf Fücks observed, military policy conferences such as this one were still not an everyday occurrence. Some participants noted that Germany as a whole may have deficits in this regard. Herfried Münkler, a political scientist at Berlin’s Humboldt University was introduced as one of the few German theorists of war – if not the only one. It is likely that Fücks was not the only participant to be mildly provoked by Münkler’s assertion that the controversial combat drones represent a positive development in weapons technology.

In the broad historical arc of his presentation, Münkler recalled that the philosopher Georg Wilhelm Friedrich Hegel once considered the revolutionary invention of the firearm as a progressive driving force in society. The aristocratic age’s central ideal of the “heroic individual” had faded because the new weapons required combatants to be integrated in a general force. An unintended consequence for the participating actors was also the accelerated emergence of the new bourgeois society, Münkler explained. Unlike Kant, who wanted to formulate a universal code of ethics for war that would be independent of such developments, Hegel considered the ethics of war to be a reflection of the values of a given society: The “heroic” society thus evolved into the modern “post-heroic” form, one in which suffering and loss would no longer be regarded as an expression of honor, but as an occasion for compensation claims, as Münkler pointedly put it.

In this light, the terrorist threat from radical non-state groups such as al-Qaeda must be understood as an asymmetric challenge to post-heroic society by “heroic communities”, he added. The advantage of superiority in weapons technology is shadowed here by a greater vulnerability to suicide bombers and other threats: post-heroic societies are neither willing nor able to sacrifice countless fighters of their own. In Münkler’s opinion, the arrival of the drone in the military arsenals of modern societies must be viewed in many ways as a suitable solution to this problem. Firstly, the enemy can be found and attacked effectively without risking the lives of one’s own soldiers; furthermore, the high accuracy of the new weapons keeps the number of civilian casualties – the “collateral damage” – from such operations relatively low.

Münkler succinctly rejected the moral condemnation of drone technology in the public debate (Jakob Augstein: “the cowardly weapon of the white man”: “Criticism of drones is an expression of the ethics of a pre-bourgeois society with heroic ideals in a nostalgic form.” Anyone who demands self-imposed limits in weapons technology in asymmetric conflicts for ethical reasons without considering the lack of limits of the adversary has not understood the “nature of battle”. From the ethical perspective in particular, the new technology must be seen as progress, compensating as it does for the cognitive shortcomings of soldiers by reducing bad decisions and the associated number of unwanted casualties. Münkler was also convinced that the high-casualty mass wars between states of the past have become unlikely because of the mutual vulnerability of post-heroic societies. The future will be marked by “surgical” operations. The ethics of war have evolved in parallel in the
Hegelian sense: The asymmetric conflicts of the present, which take place largely unnoticed by the public, have developed their own ethics of self-control and restraint. Drones and other automated weapons systems play an increasingly important role in this regard. Spectacular deployments such as the complex U.S. operation to kill Osama bin Laden are realized above all for their symbolic value, “but the machine takes care of the rest.”

While Münkler’s categorical defense of the drone was not shared by all conference participants, most experts on security policy and international law also reject their blanket condemnation for moral reasons. For many, drones were essentially military tools. Wolfgang Richter of the German Institute for International and Security Affairs — himself a retired colonel — was not the only participant to conceive of effective and legally compliant deployment scenarios in which the long observation times and greater accuracy of drones make them superior to conventional cruise missiles.

Armin Krishnan, military scholar at the University of Texas, saw the role of asymmetric conflicts highlighted by Münkler above all as a warning. The drone deployments in Pakistan, Somalia and Yemen were being run by the CIA, not by the U.S. military. This not only blurs the boundaries between war and peace, but also between combatants and civilians. Krishnan was more skeptical than Münkler of “shadow wars” of this kind for legal and ethical reasons, but he also anticipates them to become the dominant model of conflict. This highlighting of asymmetric conflicts did not remain uncontested. Richter warned of a dangerous dissolution of limits in the world of states and international law, as countries such as China or India could follow the American lead and launch their own drone campaigns in other countries. He reminded listeners of the current arms race in Asia and the numerous wars between states in the recent past. Symmetrical conflicts must not be underestimated as a serious threat to international security, Richter noted. Armed drone fleets can also be deployed in such wars, of course.

**International law also applies to shadow wars**

The “wars without a declaration of war” (Fücks) described by Münkler and Krishnan confronted the conference participants with the issue of the international legal legitimacy of targeted killings. Münkler insisted in his presentation that such operations should not be rejected per se on ethical grounds. Daniel Statman, professor of philosophy at Haifa University, underscored this argument. Like Münkler, he pointed out the reduced collateral damage arising from the targeted killing of precisely identified enemies. Especially in comparison to conventional military operations, in which enemy combatants are considered to be legitimate targets regardless of their individual guilt, targeted killings are preferable from an ethical perspective. According to Statman, the institutional control over such operations is much more stringent than for conventional deployments, in which the commanding officer usually makes life-or-death decisions on the spot. Danny Rothschild of the Interdisciplinary Center (IDC) in Herzliya, Israel, a retired general with over thirty years of military experience, confirmed this institutional regulation and explained that the authorization of targeted killings in Israel required a review process with up to six levels, in some cases extending up to the Prime Minister.

While the topic of the Israeli practice of targeted killings was only peripheral to the conference, the discussion of American drone strikes quickly revealed that many participants had serious doubts about their legitimacy in international law. The U.S. government’s apparent justification of the drone war following a long silence was criticized as a “tacit dilution” of international law criteria by Claus Kress, professor of criminal law and international law at the University of Cologne. Kress did not question the fundamental legitimacy of either the U.S. right to self-defense against “non-international armed” threats as defined by international law, or its claimed right to target and kill individual al-Qaeda “combatants” and “associated groups”. However, the interpretations of both
arguments had been “overstretched” by the United States in the “post-Afghan phase” of the war on terror at the very latest. The recognized “non-international armed conflict” in Afghanistan must remain an “emergency regime” under international law and may not be expanded on the basis of generalized justifications, Kress emphasized. Even many U.S. experts are convinced that the quasi-military threat from al-Qaeda is no longer so intense that it would justify further military action. To date, the U.S. has not provided a convincing justification of its expansion of targeted killings to Pakistan, Yemen and Somalia. A threat to American security comparable to 9/11 certainly does not emanate from these sovereign states, Kress maintained. Wolfgang Richter added that many drone strikes are covert operations that cannot be regarded as acts of war, and are thus subject to international human rights instruments. With this policy, the U.S. government had consciously entered a gray area in international law. Richter was convinced that the CIA’s targeted killings in Pakistan would thus be considered illegal under international law.

In addition to the dubious international expansion of the conflict originally limited to Afghanistan, the U.S. position on other principles of international law was also met with criticism. Richter doubted that the U.S. government went far enough in differentiating between combatants and non-combatants, or in applying the principle of proportionality in its operations. This was particularly true for “signature strikes”, in which suspects are selected as targets on the basis of uncertain factors. Daphne Eviatar of the U.S. NGO Human Rights First noted that international drone strikes by the U.S. had resulted in an estimated 4,700 fatalities. Were the supposedly legitimate targets indeed always “militants”, or could the victims have also included cooks or drivers? Do militant opponents of the government in Yemen truly pose a direct threat to American security? Were the available options to arrest suspects truly exhausted as an alternative to killing them by drone?

These unresolved issues prompted another one for many guests: Will it be necessary to update international law in the face of asymmetric conflicts and targeted killings? The international law experts in attendance did not see this as a fundamental necessity. Claus Kress referred to the model of the “non-international armed conflict” and the International Covenant on Civil and Political Rights, which cover both military and intelligence operations, in principle without regard for the weapons used. A statutory definition of the general principles of international law would perhaps be desirable, but difficult to enforce given the differences in international interests. Those wanting to legally contain the new conflicts would therefore have to make do with “second-best solutions” in the form of new informal standards, Kress explained. The customary international humanitarian law study of the International Committee of the Red Cross (ICRC) of 2005 is one such attempt to address the previously unresolved issues of non-international armed conflicts.

**Combat drones for the Bundeswehr?**

If drones are viewed merely as a military “tool”, then little would speak against equipping the Bundeswehr with them at first glance. Plans to that effect could be justified above all with the enhanced protection of the Bundeswehr’s own soldiers. The prominent role of drone operations in the American war on terror, however, has ensured that this argument will be met with suspicion. The Green MPs Omid Nouripour and Agnieszka Brugger put the negative position of their party primarily down to the lack of convincing deployment strategies. To date, the German government has not been able to adequately explain how the army would use combat drones. While Germany has so far rejected an American-style war on terror, treaty obligations could soften the Bundeswehr’s commitment in this regard, Brugger feared.

While the Bundeswehr had to cancel its participation in the conference at short notice, most experts were still in agreement that the deployment of combat drones should be rejected, and not solely because of their problematic use by the United States. Claus Kress expressed his belief that German policymakers would not condone unconstitutional operations, with or without combat drones.
Wolfgang Richter recalled the parliamentary approval requirement for military operations. The debate in Germany is currently “suffering” under the American drone war, which does not represent a “blueprint” for future German military missions. The lack of international legitimacy of a weapon cannot be inferred from its deployment in a manner contrary to international law. In summary, Richter noted that it would not be possible to reconcile a drone war of this kind with Germany’s political culture; it would clearly be unconstitutional and a parliamentary majority for such action would be highly unlikely.

Cyberspace: the 21st-century battleground

While the panel discussions of the conference revolved mainly around drone technology, Peter Singer asserted that the battlefield of the 21st century will be shifting increasingly into cyberspace. Already today, the role of the Internet in everyday life and for the military can hardly be overestimated. For example, the scope of international networking is reflected by the fact that even the U.S. government realizes 98% of its Internet communication over public networks. An inevitable side effect of this development is the vulnerability of critical infrastructure and networked weapons systems to hacking and tampering, Singer noted. Sandro Gaycken, IT expert at the Institute of Computer Science, Free University Berlin, explained that the purpose of such attacks could be to spy on an adversary or identify vulnerabilities for a conventional attack. Current operations of this kind are also a symbolic demonstration of one’s own strength. Especially in comparison to conventional military operations, the cost of cyber-warfare is negligible, Gaycken explained: the estimated cost of the Stuxnet attack on Iran’s nuclear facilities was a mere four million euros.

Ralf Fücks noted that the special nature of cyber-warfare raises its very own international legal issues. When malfunctions occur, are they due to system failures or attacks? How exactly can attacks be traced? When are governments responsible for attacks by non-state actors on their territory? When do states have the right to respond to cyber-attacks with conventional military strikes? According to Sandro Gaycken, the U.S. government has already announced a doctrine for such counterstrikes. It is not yet clear whether other states will follow suit, but any such response would be subject to particular pressure to explain the origin of the attacks.

To solve the problem of verification, Jürgen Altmann, physicist and peace researcher at TU Dortmund University, proposed the effective deployment of current governmental surveillance technologies. As long as such monitoring remains limited to the security aspect, Altman believed that it should not be categorically rejected as “anti-democratic”. Sandro Gaycken proposed starting with the costs and increasing the consequences of cyber-attacks for the attacker. States could also develop proprietary software and hardware within three to four years to effectively protect their security-relevant IT infrastructure against attacks for a modest investment.

“The robot is coming.”

In light of technological progress and increasing networking, the development of fully automatic weapons systems appears to be only a matter of time. Daniel Statman, professor of philosophy at Haifa University, did not consider this to be a fundamental problem. He argued that the use of fully automatic weapons systems should not be categorically rejected, considering the almost boundless confidence in effective civilian technologies such as GPS navigation. Future advances in programming would allow increasingly precise military operations while minimizing collateral damage. In addition, the deterrent effect of automatic systems should not be underestimated in scenarios such as border security. This fundamental confidence in the possibilities of technology was not shared by many conference guests. Jürgen Altmann criticized Statman for forgetting the resulting interactions in the international system, as these could lead to corresponding countermeasures, and ultimately a new arms race. Niklas Schörnig of the Peace Research Institute highlighted the vulnerability of highly
complex computer systems and the ease with which they can be manipulated. Statman’s deterrence argument, which was a surely unintentional reminder of the spring guns once deployed along the fortifications of the former inner-German border, was questioned by Daphne Eviatar, who noted that innocent adults or children could approach the automatically secured zones.

The participating experts focused the numerous objections to new “killer robots” on two key tenets of international humanitarian law: the distinction between civilians and combatants, and the principle of proportionality, which dictates the scope of a military response. Philipp Stroh of the Institute for Public, International and European Law of the Justus Liebig University in Giessen, noted that international humanitarian law is bound to evaluation to a particularly high degree. In reality, decisions about the use of lethal force are often highly complex and should therefore be made by well-trained and experienced military personnel. According to Stroh, autonomous weapons are not even remotely able to do so at present. Noel Sharkey, professor of artificial intelligence and robotics, University of Sheffield, agreed with this appraisal from the technological perspective. The abilities of autonomous weapons systems to identify legitimate targets are still very poor. To date, the principle of proportionality has played no role whatsoever in their development.

In the view of the international law experts Claus Kress and Wolfgang Richter, possible deployment scenarios for fully autonomous weapons are limited to a number of strictly defensive systems such as the Israeli Iron Dome missile shield, or to evacuated combat zones with clear military targets. Apart from that, Richter was convinced that the possible deployment of such systems would be limited to the lowest operational level. Peter Singer also doubted that the development of military technology would cross the “red line” – autonomous military robots have not been given serious consideration by U.S. political or military authorities to date. Other attending experts were not so sure. According to Sharkey, the transition to fully automatic weapons systems would not even require major advances in artificial intelligence, as he explained using the example of the Bundeswehr’s MANTIS targeting and interception system. Marcel Dickow was able to confirm from his own conversations with military leaders that the armed forces are currently deterred by a loss of control to machines. He nevertheless pointed out that some of the current weapons systems are already so advanced that their automatic deployment would be comparatively easy to implement, and could even be required by certain conditions. Even if a human should remain at the end of the decision-making chain, the system could significantly reduce or eliminate human discretion through automatic preliminary decisions.

A new arms race is looming

Would it be best to prohibit autonomous weapons immediately? Agnieszka Brugger, disarmament policy spokesperson of the Alliance 90/The Greens parliamentary group, considered this to be the best solution, given the presented issues. In the debate surrounding new weapons technologies, attention is rarely focused on the risk of unchecked proliferation among governmental and nongovernmental actors. Noel Sharkey also deemed it necessary to establish “red lines” now. The UN expert Christof Heyns has already initiated the debate on this issue, proposing an international moratorium [http://www.un.org/apps/news/story.asp?NewsID=45042#.UdlUtqxrmSo] on the development and deployment of lethal autonomous weapons systems. Jürgen Altmann referred to the international prohibition of biological and chemical weapons as a model for successful arms control. Such a moratorium could be enforced by the setting of strict standards by the UN, as well as practical measures such as the encrypted recording of electronic data of automatic weapons systems in combat situations. While this would not prevent violations, it would at least be possible to subsequently provide forensic proof thereof.

With regard to current combat drones, a number of panelists considered similarly strict regulation at the international level to be necessary. Omid Nouripour proposed that combat drones be declared
military systems, and as a minimum, to prohibit their use by intelligence agencies. However, experts such as Ambassador Rolf Nikel, the federal government commissioner for disarmament and arms control in the German Foreign Office, agreed that a prohibition of drones would be virtually impossible to enforce internationally. Nikel observed that past attempts at international arms control were successful only if states agreed that devices such as landmines or nuclear weapons were obsolete or overrated. Many states are presently convinced of the positive potential of drone technology. Thanks to their wide range of applications in the military and civilian sectors, the further development of the technology in terms of capability is virtually unstoppable. Nikel and others nevertheless considered quantitative arms control measures to be a promising approach. The German government therefore advocates the classification of drones as “aircraft” in the UN Register of Conventional Arms and the Conventional Forces in Europe Treaty (CFE). The establishment of an international panel of experts to set up guidelines and recommendations for the further development of new weapons technology proposed by UN expert Christof Heyns also met Nikel’s approval. The diplomat considered further-reaching endeavors, such as those called for by Agnieszka Brugger, as hopeless: the failure of ambitious international attempts at regulation could possibly throw efforts back “by years”.

Rolf Nikel’s skepticism about political advances toward a comprehensive international containment of new weapons technologies was shared by many international conference guests. Danny Rothschild left no doubt that the principle of self-defense would always have priority for Israel. Al-Qaeda would hardly comply with international agreements, and Rothschild therefore considered a voluntary ban on effective military technologies to be out of the question. While Yabin Liang of the Institute for International and Strategic Studies – who came to the conference from Beijing – described the Chinese drone program as a strategic response to comparable Western programs, he repeatedly emphasized that this was not the only field in which China intended to catch up technologically.

Open criticism or quiet diplomacy?

The United States could prove to be the biggest obstacle to the international regulation of new high-tech weapons. According to Micah Zenko of the Council on Foreign Relations (CFR), the political debate in Washington pertaining to armed drones revolves primarily around issues of military efficiency. In his meetings with members of Congress on Capitol Hill, Zenko had repeatedly encountered an astonishing lack of interest and even ignorance with regard to the attendant effects of the drone war and the future risks of the technology. Without the pressure of “respected voices” outside of Washington, this attitude is unlikely to change. Zenko described the fact that Europe – with the exception of Denmark and the Netherlands – had not taken a public stance in recent years against the controversial targeted killings by U.S. drones as “scandalous”.

Agnieszka Brugger directed Zenko’s criticism directly at the German government and its vague statements on U.S. drone policy. As a government representative, Rolf Nikel was not willing to simply accept this reproach, and assured the listeners that such issues are clearly addressed behind closed doors at the diplomatic level. U.S. President Obama’s recent drone policy course change was also a response to confidential criticism by his allies, said Nikel.

The opinion that diplomatic criticism need not be repeated in public was not shared by everyone. Europe’s silence could also be interpreted as tacit approval and lead to a long-term change of customary international law, warned Claus Kress. The German government should therefore consciously take advantage of parliamentary inquiries and similar opportunities to articulate its own point of view. Daphne Eviatar was also of the opinion that Germany and Europe could do much more in this regard. In Pakistan, for example, the U.S depends on the cooperation of the secret services. In future, Europeans would only be able to approve such cooperation publicly and under certain
conditions. The threat of limiting the efficiency of drone warfare would be perceived in Washington, while also providing effective arguments to the American campaign against the Obama administration’s drone policy.

Translation: John Hayduska

U.S. Congress Authorizes the Sale of 16 Drones to France for $1.5 Billion


July 27, 2013

On June 11th, the French Ministry of Defense announced that it intends to bring its defenses up-to-date by acquiring 12 medium altitude long endurance (MALE) surveillance drones. Following France’s announcement, the Defense Security Cooperation Agency (DSCA) notified Congress on June 27th about the proposed sale of UAV MQ-9 General Atomics Reaper drones.

In its proposal to Congress, the DSCA said it was “vital to the national interest of the United States to help France to develop and maintain a strong and immediate capacity defense.” According to the Pentagon, the potential sale would “enhance the intelligence, surveillance and reconnaissance (ISR) capability” of France’s military, thus greatly increasing the “interoperability between the U.S. and French military and peacekeeping forces.”

Although the proposal sent to Congress lists 16 drones for the sum of $1.5 billion, this is in fact an overestimate, as is often the case in arms deals, in order to allow a partner to order additional hardware without having to reapply to Congress. The initial acquisition project actually involves only 12 drones. The French government wants to deploy two drones by the end of the year in the Sahel, a region in north-central Africa, south of the Sahara Desert.

There is also some discrepancy regarding the price of the drones. The proposal to Congress, which cites a long list of equipment and related services, amounts to almost $94 million per aircraft, not counting the cost of the “francisation” of the devices. This estimate does not match the $874 million ($72.8 million per aircraft) price announced by Jean-Yves Le Drian, the French minister of defense, who insisted that he would not exceed the intended budget and that some equipment and services listed in the Pentagon’s proposal would not be bought.
EU Offers €100M to Prod UAV Program Launch

http://groups.yahoo.com/neo/groups/ENAAT/conversations/topics/2146

August 19, 2013

By Tom Kington

ROME — The European Union will offer a €100 million (US $132.7 million) incentive to European firms and governments to stop dithering and launch a joint UAV program, a senior EU source has told Defense News.

The cash offer, plus an offer of technical assistance, will be made to European defense ministers when they meet in September in the hope that a deal on a common medium-altitude, long-endurance (MALE) program can be reached during an EU defense summit in December. Heads of government will attend the summit.

“It is up to the states to decide, but we would envisage six to eight member states agreeing on a concrete program, possibly using the European Defense Agency as a base, with the EU supporting it financially and technically,” said the source.

The source said an unknown quantity of funding would be available for dual-use UAV work, but about €100 million would be specifically freed up for military UAV work.

The EU’s cash carrot to member states comes as governments waver over launching joint programs, despite repeated calls from national industries to do so, most recently the appeal made by Alenia Aermacchi, EADS and Dassault on the eve of the Paris Air Show.

Bilateral talks between the UK and France on a MALE program have stalled, while France has negotiated buying US Reapers, joining Italy and the UK who already fly the General Atomics drone. Israeli UAVs have also found a ready market in the EU.

“The French needed UAVs now, but could commit to a second-generation UAV for 2025, and we hear from EU capitals that jointness is becoming more necessary,” said the source.

At a July 24 press conference, the EU launched proposals it hoped would be adopted at the December summit that are aimed at giving the EU more military clout.

With EU defense spending falling from €251 billion in 2001 to €194 billion in 2010, with European research and development spending down 14 percent from 2005 to 2010, and with EU navies operating 16 types of frigates compared with one in the US, the EU said more cooperation is essential. It claimed it would work to simplify intra-EU procurement, promote dual-use technology research and ease the transfer of components across EU borders.

The source said he was not sure how concrete a declaration on UAVs might emerge from the December meeting, but added, “We want it to be the flagship of the EU defense effort.”

But, he said, “The initiative needs to come from the member states. We have put the proposal on the table. The money is there. ... Now the states need to come up with the program.”
The need to adhere to evolving EU standards on operating UAVs in European civilian airspace could favor the development of drones that do not feature proprietary US or Israeli technology, observers said, pointing to Germany’s decision in May to scrap its Euro Hawk program, which is based on the Northrop Grumman Global Hawk.

The program was canceled after €662 million was spent. It has been calculated an additional €600 million would be needed to license the UAV to fly in European airspace.

Northrop Grumman disputes the €600 million figure. Janis Pamiljans, sector vice president and general manager of Unmanned Systems, told the committee July 29 the cost will be no more than €193 million.

These issues were partly related to the US failing to provide sufficient details on the technology used on its drone. More money was also needed to develop an au-tenuous anti-collision system.

On Aug. 1, a German Bundestag committee looking into the Euro Hawk cancellation quizzed Defense Minister Thomas de Maizierè, and the dispute over the issue could rumble on as elections approach in September.

Discussions are also underway over how to use the signals intelligence systems developed for the UAV by EADS.

“This will push Germany to have a more positive view of EU programs, and it is an incentive for European industry and the EU to sit down together and work on the problem,” said the EU source.

Keen to avoid similar problems, General Atomics said at the Paris Air Show in June that it hopes to certify the UAV to EU and NATO standards, to “Europeanize” the Reaper, particularly as users bring their Reapers back from Afghanistan and seek to fly them at home. “We could work on inserting US or Israeli UAVs into European skies,” said the EU source, “but we need technical information from them, and that makes it difficult.”

The problem for European manufacturers is that no one knows yet what those protocols will be.

“Ir rntegration in civil airspace for military UAVs is crucial, but the standards are still fragmented,” said Jens Fehler, the principal UAV officer at the European Defense Agency, which has been working on protocols for UAV satellite links and midair avoidance.

“If you talk about platforms, you also need to talk about the operational environment; and that operational environment in Europe is for the moment predominantly organized on the national level.”

Ironically, Europe’s late arrival in the UAV market could prove an advantage if it can integrate pending protocols into developments.

“The development of technology needs to be in parallel with the development of standards,” Fehler said. “It is a chicken and egg situation because technological development can help shape standards, and without the technology you cannot validate standards.”

Fehler said it was risky to try to upgrade existing models to standards still being planned.

Andrew Chuter in London and Albrecht Müller in Bonn contributed to this report.
NATO wants EU countries to buy more drones

http://euobserver.com/defence/121506

September 19, 2013

BRUSSELS - Nato chief Anders Fogh Rasmussen wants EU countries to buy more drones, refuelling planes and naval radars.

The head of the military alliance is expected to call for the measures at a speech in the Carnegie Europe foundation in Brussels on Thursday (19 September).

"I believe that European nations can, and should, do more, to match America's commitment ... [and] help to rebalance Nato," he aims to say.

"I would like to see European allies playing their part to acquire more drones to improve surveillance. More large transport and air-to-air refuelling aircraft to enhance their ability to deploy on operations. And more upgraded radars on their ships so they can be integrated into our Nato missile defence," he plans to add.

Looking ahead to an EU summit on defence in December, he also plans to endorse European Commission ideas on how to create "a strong European defence industrial base."

He is to say "the European defence industry remains too national and too fragmented."

He also aims to urge EU leaders to "demonstrate strong political commitment" to spend more on defence when their economies recover from the crisis and "to assume more security responsibilities in Europe's neighbourhood."

The EU commission in July published a draft blueprint for EU defence co-operation.

It proposed a series of actions, including the creation of EU-level certification standards for military equipment, such as chemical and nuclear detection technology, airworthiness of aircraft and data encryption instruments.

It aims to crack down on state aid and other market distortions in the sector.

It intends to give more EU money to train defence sector workers and to fund research into military technology.

It wants EU countries to pool buying of military and commercial satellite technology.

It is also keen to launch an assessment of whether some kinds of assets, especially "dual-use" technology, which can be used in civilian or military missions, should be "directly purchased, owned and operated by the Union."

The commission paper said EU countries' total defence budgets have gone from €251 billion a year to €194 billion since 2001, while total EU military R&D spending is just €9 billion, seven times less than the US.

It noted that 80 percent of current defence spending is done at national level.
It also said the future of the 1.36 million people who work in member states' military-related companies is at risk unless Europe makes the sector more competitive.

Like Rasmussen, it noted that "the US is rebalancing its strategic focus towards Asia."

It added: "Europe must be able to decide and to act without depending on the capabilities of third parties. Security of supply, access to critical technologies and operational sovereignty are therefore crucial."

EU states urged to cooperate on drones, cyber defense

http://www.reuters.com/article/2013/10/15/net-us-eu-defence-idUSBRE99E00V20131015

October 15, 2013

By Adrian Croft

BRUSSELS (Reuters) - European Union states should work together in four areas of defense technology, including developing drones, the bloc's foreign policy chief said in a report on Tuesday.

In a report commissioned ahead of an EU summit in December, Catherine Ashton said European governments should commit to cooperative projects in drones, a new satellite communications system, cyber defense and plugging a shortfall in air tankers.

Though primarily a civilian organization, the EU plays a growing military and security role, ranging from an anti-piracy naval force off Somalia to training the army in Mali, and the December summit aims to strengthen that role.

Weaknesses in areas such as air-to-air refueling planes and surveillance drones were shown up during NATO's bombing campaign of Libya in 2011.

Ashton's report said drones would be increasingly important for both military and civilian uses such as border control and agriculture. The report said there was an urgent need to prepare a program for the next generation of Medium Altitude Long Endurance (MALE) drones.

Three European aerospace companies called on Europe in June to launch its own independent drone program to reduce reliance on foreign-made equipment.

France's Dassault Aviation, EADS Cassidian and Italy's Finmeccanica Alenia Aermacchi said they were ready to work together on a MALE drone program.

For now, the EU is not contemplating launching an ambitious pan-European drone program. But officials say the EU could fund the development of technologies useful in future drones and agree on rules for using drones in civilian airspace.

"We could start with a joint investment program in research," one EU official said.

On air-to-air refueling, Ashton's report said one goal for EU governments could be "the multinational acquisition of multi-role tanker/transport aircraft."
Ten European countries agreed in November last year to work together to boost their military air-to-air refueling capacity either by buying new tanker aircraft, leasing them or paying to borrow another country's tankers when not in use.

Ashton called for a European satellite communications system that could be used for both military and civilian purposes, to replace member states' existing military satellites whose operational life is due to end by 2025.

US: Reassess Targeted Killings in Yemen

Inquiry into 6 Airstrikes Finds Violations, Harm to Civilians


October 21, 2013

United States targeted airstrikes against alleged terrorists in Yemen have killed civilians in violation of international law, Human Rights Watch said in a report released today. The strikes, often using armed drones, are creating a public backlash that undermines US efforts against Al-Qaeda in the Arabian Peninsula (AQAP).

The 102-page report, “Between a Drone and Al-Qaeda: The Civilian Cost of US Targeted Killings in Yemen,” examines six US targeted killings in Yemen, one from 2009 and the rest from 2012-2013. Two of the attacks killed civilians indiscriminately in clear violation of the laws of war; the others may have targeted people who were not legitimate military objectives or caused disproportionate civilian deaths.

“The US says it is taking all possible precautions during targeted killings, but it has unlawfully killed civilians and struck questionable military targets in Yemen,” said Letta Tayler, senior terrorism and counterterrorism researcher at Human Rights Watch and the author of the report. “Yemenis told us that these strikes make them fear the US as much as they fear Al-Qaeda in the Arabian Peninsula.”

Human Rights Watch released “Between a Drone and Al-Qaeda” in a joint news conference on October 22, 2013, with Amnesty International, which issued its own report on US drone strikes in Pakistan.

During six weeks in Yemen in 2012-2013, Human Rights Watch researchers interviewed more than 90 people about the strikes including witnesses, relatives of those killed, lawyers, human rights defenders, and government officials. Human Rights Watch reviewed evidence including ordnance and videos from attack sites. Security concerns prevented visits to four of the attack areas.

With rare exceptions, the US government only acknowledges its role in targeted killings in general terms, refusing to take responsibility for individual strikes or provide casualty figures, including

12 http://www.hrw.org/middle-eastn-africa/yemen
13 http://hrw.org/reports/2013/10/22/between-drone-and-al-qaeda-0
14 http://www.hrw.org/bios/letta-tayler
civilians deaths. The Yemeni authorities have been almost as silent. Both governments declined comment on the six strikes that Human Rights Watch investigated.

President Barack Obama describes AQAP, which took responsibility for a botched suicide bombing attempt on a Detroit-bound passenger jet on Christmas Day 2009, as a key threat to US citizens.

The six strikes investigated by Human Rights Watch killed 82 people, at least 57 of them civilians. They include a US drone-assisted attack in September 2012 in Sarar, central Yemen, that unlawfully struck a passenger van, killing 12 civilians. Villagers who rushed to the scene found their relatives’ charred bodies dusted in flour and sugar that they were bringing home from a nearby market. The reported target of the strike, an alleged local AQAP leader, was nowhere near the vehicle.

“The bodies were charred like coal – I could not recognize the faces,” said Ahmad al-Sabooli, a 23-year-old farmer. He told Human Rights Watch that when he moved in closer, he realized that three of the bodies, including those of a woman with a young girl still in her lap, were his father, mother, and 10-year-old sister. “That is when I put my head in my hands and cried,” he said.

In December 2009, a US cruise missile strike on a Bedouin camp in the southern village of al-Majalah killed 14 alleged AQAP fighters and 41 civilians, two-thirds of them women and children. The attack involved cluster munitions – inherently indiscriminate weapons that pose unacceptable dangers to civilians.

In August 2012, a US drone attack killed three alleged AQAP members but also a cleric who preached against AQAP, and his cousin, a police officer. Relatives said the three suspects had sought out the cleric for a meeting three days after he denounced AQAP’s violent tactics, and that the cousin had come along to provide the cleric security.

During targeting operations, the US may be using an overly elastic definition of a fighter who may be lawfully attacked during an armed conflict, Human Rights Watch said. For example, a November 2012 drone strike in the military town of Beit al-Ahmar killed an alleged AQAP recruiter, but recruiting activities alone would not be sufficient grounds under the laws of war to target someone for attack.

The six strikes also did not meet US policy guidelines for targeted killings [5] that Obama disclosed in May 2013, Human Rights Watch said. Obama said the US conducts strikes only against individuals who pose an “imminent threat to the American people,” when there is a “near-certainty that no civilians will be killed or injured,” and when capture is not feasible. The strikes investigated by Human Rights Watch pre-date Obama’s disclosure of the policy guidelines, but the White House has said the rules either were either “already in place” or being “transitioned into place.”

Since the September 11, 2001 attacks, the US government has carried out hundreds of targeted killings in Pakistan, Yemen, and Somalia. In Yemen, the US is estimated to have conducted 81 targeted killing operations, one in 2002 and the rest since 2009. Research groups report that at least 473 people have been killed in these strikes, the majority of them combatants but many of them civilians.

Human Rights Watch assessed the six strikes’ compliance with international humanitarian law, or the laws of war, but the applicability of this body of law was not always clear. The Yemeni government is engaged in an armed conflict with AQAP. The US denies being a party to this fighting, claiming instead that it is in a global armed conflict with Al-Qaeda and “associated forces” such as AQAP.
However, the hostilities between the US and these groups do not appear to meet the intensity required under the laws of war to amount to an armed conflict.

If the war model does not apply, the US should adopt a law-enforcement approach under international human rights law in addressing armed militant groups such as Al-Qaeda and AQAP, Human Rights Watch said. Human rights law only permits the use of lethal force when strictly and directly necessary to save human life.

Human Rights Watch and Amnesty International are jointly calling on the US Congress to fully investigate the cases the two organizations have documented as well as other potentially unlawful strikes, and to disclose any evidence of human rights violations to the public. Those responsible for unlawful killings should be appropriately disciplined or prosecuted.

The Obama administration should provide its full legal rationale for targeted killings in Yemen and elsewhere. The Yemeni government should ensure that the US abides by international law when carrying out strikes on Yemeni soil.

“The US should investigate attacks that kill civilians and hold those responsible for violations to account,” Tayler said. “It’s long past time for the US to assess the legality of its targeted killings, as well as the broader impact of these strikes on civilians.”

"Will I be Next?" US Drone Strikes in Pakistan

http://www.amnestyusa.org/research/reports/will-i-be-next-us-drone-strikes-in-pakistan?page=show

October 22, 2013

I wasn’t scared of drones before, but now when they fly overhead I wonder, will I be next?
- Nabeela, eight-year-old granddaughter of US drone strike victim Mamana Bibi

On a sunny afternoon in October 2012, 68-year-old Mamana Bibi was killed in a drone strike that appears to have been aimed directly at her. Her grandchildren recounted in painful detail to Amnesty International the moment when Mamana Bibi, who was gathering vegetables in the family fields in Ghundi Kala village, northwest Pakistan, was blasted into pieces before their eyes. Nearly a year later, Mamana Bibi's family has yet to receive any acknowledgment that it was the US that killed her, let alone justice or compensation for her death.

Earlier, on 6 July 2012, 18 male laborers, including at least one boy, were killed in a series of US drone strikes in the remote village of Zowi Sidgi. Missiles first struck a tent in which some men had gathered for an evening meal after a hard day's work, and then struck those who came to help the injured from the first strike. Witnesses described a macabre scene of body parts and blood, panic and terror, as US drones continued to hover overhead.

The use of pilotless aircraft, commonly referred to as drones, for surveillance and so-called targeted killings by the USA has fast become one of the most controversial human rights issues in the world. In no place is this more apparent than in Pakistan.
The circumstances of civilian deaths from drone strikes in northwest Pakistan are disputed. The USA, which refuses to release detailed information about individual strikes, claims that its drone operations are based on reliable intelligence, are extremely accurate, and that the vast majority of people killed in such strikes are members of armed groups such as the Taliban and al-Qa'ida. Critics claim that drone strikes are much less discriminating, have resulted in hundreds of civilian deaths, some of which may amount to extrajudicial executions or war crimes, and foster animosity that increases recruitment into the very groups the USA seeks to eliminate.

According to NGO and Pakistan government sources the USA has launched some 330 to 374 drone strikes in Pakistan between 2004 and September 2013. Amnesty International is not in a position to endorse these figures, but according to these sources, between 400 and 900 civilians have been killed in these attacks and at least 600 people seriously injured.

**Focus of this report**

This report is not a comprehensive survey of US drone strikes in Pakistan; it is a qualitative assessment based on detailed field research into nine of the 45 reported strikes that occurred in Pakistan’s North Waziristan tribal agency between January 2012 and August 2013 (see Appendix) and a survey of publicly available information on all reported drone strikes in Pakistan over the same period.

An area bordering Afghanistan, North Waziristan is one of the seven tribal agencies that make up the Federally Administered Tribal Areas (Tribal Areas), a loosely-governed territory in northwest Pakistan that has been the focus of all US drone strikes in the country. Research was also carried out on the general impact of the US drone program on life in North Waziristan, as well as attacks by Pakistani forces and armed groups. The report highlights incidents in which men, women and children appear to have been unlawfully killed or injured. By examining these attacks in detail, Amnesty International seeks to shed light on a secretive program of surveillance and killings occurring in one of the most dangerous, neglected and inaccessible regions of the world.

**Arbitrary deprivation of life**

Because the US government refuses to provide even basic information on particular strikes, including the reasons for carrying them out, Amnesty International is unable to reach firm conclusions about the context in which the US drone attacks on Mamana Bibi and on the 18 laborers took place, and therefore their status under international law. However, based on its review of incidents over the last two years, Amnesty International is seriously concerned that these and other strikes have resulted in unlawful killings that may constitute extrajudicial executions or war crimes.

The prevailing secrecy surrounding drone strikes, restrictions on access to drone-affected areas, and the refusal of the US administration to explain the international legal basis for individual attacks raise concerns that other strikes in the Tribal Areas may have also violated human rights. This includes drone strikes before 2012, the period prior to the incidents documented in this report, when killings were more frequent and widespread across these areas.

Armed groups operating in North Waziristan have been responsible for unlawful killings and other abuses constituting war crimes and other crimes under international law in Pakistan, Afghanistan and elsewhere. Pakistan has a very poor record of bringing these perpetrators to justice in fair trials without recourse to the death penalty. Since the creation of Pakistan, North Waziristan and the rest
of the Tribal Areas have been neglected and under-developed, and their residents do not enjoy key human rights protections under Pakistani and international law.

**Obligation to investigate**

All states have a duty to take robust action to protect the life and physical integrity of people within their jurisdiction, and to bring to justice perpetrators of crimes under international law. But in doing so, these governments must respect their obligations under international human rights law and, in the exceptional situations where it applies, under international humanitarian law (also known as the laws of war).

Amnesty International calls on the USA to comply with its obligations under international law to ensure thorough, impartial, and independent investigations are conducted into the killings documented in this report. The USA should make public information it has about all drone strikes carried out in Pakistan. The US authorities should investigate all reports of civilian casualties from drone strikes. Where there is sufficient admissible evidence that individuals may be responsible for an unlawful killing or other serious human rights violation, the authorities must ensure they are brought to justice in fair trials without recourse to the death penalty. Victims of violations must be provided with compensation and meaningful access to full reparation including restitution, rehabilitation, satisfaction and guarantees of non-repetition.

Amnesty International is also extremely concerned about the failure of the Pakistani authorities to protect and enforce the rights of victims of drone strikes. Pakistan stands accused of a range of human rights failings: from the possible complicity of some organs or officials of the Pakistan state in unlawful killings resulting from the US drones program, to the failure to protect people in the Tribal Areas from unlawful drone strikes or to adequately assist victims of such strikes. Pakistan has a duty to independently and impartially investigate all drone strikes in the country and ensure access to justice and reparation for victims of violations.

Apart from Pakistan, other states, including Australia, Germany and the UK, appear to be providing intelligence and other assistance to the USA in carrying out drone strikes. In tackling threats from armed groups in the Tribal Areas, Pakistan, the USA and other states providing assistance must act in full conformity with their obligations under international human rights law and, where applicable, international humanitarian law. Secrecy, technology and an elastic interpretation of law and policy may have given the USA unrivalled access to one of the most remote and lawless parts of the world. But immediate security concerns, whether real or perceived, must not and cannot be addressed by trampling on the rights of people living in Pakistan’s tribal areas.
Confessions of a Drone Warrior


By Matthew Power

October 23, 2013

He was an experiment, really. One of the first recruits for a new kind of warfare in which men and machines merge. He flew multiple missions, but he never left his computer. He hunted top terrorists, saved lives, but always from afar. He stalked and killed countless people, but could not always tell you precisely what he was hitting. Meet the 21st-century American killing machine. who’s still utterly, terrifyingly human.

From the darkness of a box in the Nevada desert, he watched as three men trudged down a dirt road in Afghanistan. The box was kept cold—precisely sixty-eight degrees—and the only light inside came from the glow of monitors. The air smelled spectrally of stale sweat and cigarette smoke. On his console, the image showed the midwinter landscape of eastern Afghanistan’s Kunar Province—a palette of browns and grays, fields cut to stubble, dark forests climbing the rocky foothills of the Hindu Kush. He zoomed the camera in on the suspected insurgents, each dressed in traditional shalwar kameez, long shirts and baggy pants. He knew nothing else about them: not their names, not their thoughts, not the thousand mundane and profound details of their lives.

He was told that they were carrying rifles on their shoulders, but for all he knew, they were shepherd’s staffs. Still, the directive from somewhere above, a mysterious chain of command that led straight to his headset, was clear: confirmed weapons. He switched from the visible spectrum—the muted grays and browns of “day-TV”—to the sharp contrast of infrared, and the insurgents’ heat signatures stood out ghostly white against the cool black earth. A safety observer loomed behind him to make sure the “weapon release” was by the book. A long verbal checklist, his targeting laser locked on the two men walking in front. A countdown—three...two...one...—then the flat delivery of the phrase “missile off the rail.” Seventy-five hundred miles away, a Hellfire flared to life, detached from its mount, and reached supersonic speed in seconds.

It was quiet in the dark, cold box in the desert, except for the low hum of machines.

He kept the targeting laser trained on the two lead men and stared so intently that each individual pixel stood out, a glowing pointillist dot abstracted from the image it was meant to form. Time became almost ductile, the seconds stretched and slowed in a strange electronic limbo. As he watched the men walk, the one who had fallen behind seemed to hear something and broke into a run to catch up with the other two. Then, bright and silent as a camera flash, the screen lit up with white flame.

Airman First Class Brandon Bryant stared at the scene, unblinking in the white-hot clarity of infrared. He recalls it even now, years later, burned into his memory like a photo negative: “The smoke clears, and there’s pieces of the two guys around the crater. And there’s this guy over here, and he’s missing his right leg above his knee. He’s holding it, and he’s rolling around, and the blood is squirting out of his leg, and it’s hitting the ground, and it’s hot. His blood is hot. But when it hits the ground, it starts
to cool off; the pool cools fast. It took him a long time to die. I just watched him. I watched him become the same color as the ground he was lying on.”

That was Brandon Bryant’s first shot. It was early 2007, a few weeks after his twenty-first birthday, and Bryant was a remotely-piloted-aircraft sensor operator—a “sensor” for short—part of a U.S. Air Force squadron that flew Predator drones in the skies above Iraq and Afghanistan. Beginning in 2006, he worked in the windowless metal box of a Ground Control Station (GCS) at Nellis Air Force Base, a vast sprawl of tarmac and maintenance hangars at the edge of Las Vegas.

The airmen kept the control station dark so they could focus on controlling their MQ-1B Predators circling two miles above the Afghan countryside. Bryant sat in a padded cockpit chair. He had a wrestler’s compact build, a smooth-shaved head, and a piercing ice blue gaze frequently offset by a dimpled grin. As a sensor, his job was to work in tandem with the drone’s pilot, who sat in the chair next to him. While the pilot controlled the drone’s flight maneuvers, Bryant acted as the Predator’s eyes, focusing its array of cameras and aiming its targeting laser. When a Hellfire was launched, it was a joint operation: the pilot pulled a trigger, and Bryant was responsible for the missile’s “terminal guidance,” directing the high-explosive warhead by laser to its desired objective. Both men wore regulation green flight suits, an unironic Air Force nod to the continuity of military decorum in the age of drone warfare.

Since its inception, the drone program has been largely hidden, its operational details gathered piecemeal from heavily redacted classified reports or stage-managed media tours by military public-affairs flacks. Bryant is one of very few people with firsthand experience as an operator who has been willing to talk openly, to describe his experience from the inside. While Bryant considers leaks like Chelsea Manning and Edward Snowden heroes willing to sacrifice themselves for their principles, he’s cautious about discussing some of the details to which his top-secret clearance gave him access. Still, he is a curtain drawn back on the program that has killed thousands on our behalf.

Despite President Obama’s avowal earlier this year that he will curtail their use, drone strikes have continued apace in Pakistan, Yemen, and Afghanistan. With enormous potential growth and expenditures, drones will be a center of our policy for the foreseeable future. (By 2025, drones will be an $82 billion business, employing an additional 100,000 workers.) Most Americans—61 percent in the latest Pew survey—support the idea of military drones, a projection of American power that won’t risk American lives.

And yet the very idea of drones unsettles. They’re too easy a placeholder or avatar for all of our technological anxieties—the creeping sense that screens and cameras have taken some piece of our souls, that we’ve slipped into a dystopia of disconnection. Maybe it’s too soon to know what drones mean, what unconsidered moral and ethical burdens they carry. Even their shape is sinister: the blunt and featureless nose cone, like some eyeless creature that has evolved in darkness.

For Bryant, talking about them has become a sort of confessional catharsis, a means of processing the things he saw and did during his six years in the Air Force as an experimental test subject in an utterly new form of warfare.

Looking back, it was really little more than happenstance that had led him to that box in the desert. He’d been raised poor by his single mom, a public-school teacher in Missoula, Montana, and he struggled to afford tuition at the University of Montana. In the summer of 2005, after tagging along
with a buddy to the Army recruiting office, he wandered into the Air Force office next door. His friend got a bad feeling and bailed at the last minute, but Bryant had already signed his papers. In short order he was running around at Lackland Air Force Base during Warrior Week in the swelter of a Texas summer. He wasn’t much for military hierarchy, but he scored high on his aptitude tests and was shunted into intelligence, training to be an imagery analyst. He was told he would be like “the guys that give James Bond all the information that he needs to get the mission done.”

Most of the airmen in his intel class were funneled into the drone program, training at Creech Air Force Base in the sagebrush desert an hour north of Las Vegas. Bryant was told it was the largest group ever inducted. His sensor-operator course took ten weeks and led into “green flag” exercises, during which airmen piloted Predators and launched dummy Hellfires at a cardboard town mocked up in the middle of the desert. The missiles, packed with concrete, would punch through the derelict tanks and wrecked cars placed around the set. “It’s like playing Dungeons & Dragons,” says Bryant. “Roll a d20 to see if you hit your target.” His training inspector, watching over his shoulder, would count down to impact and say, “Splash! You killed everyone.”

Within a few months he “went off” to war, flying missions over Iraq at the height of the conflict’s deadliest period, even though he never left Nevada.

His opening day on the job was also his worst. The drone took off from Balad Air Base, fifty miles outside Baghdad in the Sunni Triangle. Bryant’s orders, delivered during a pre-shift mission briefing, were straightforward: a force-protection mission, acting as a “guardian angel” over a convoy of Humvees. He would search out IEDs, insurgent activity, and other threats. It was night in the U.S. and already daylight in Iraq when the convoy rolled out.

From 10,000 feet, Bryant scanned the road with infrared. Traffic was quiet. Everything normal. Then he spotted a strange circle, glowing faintly on the surface of the road. A common insurgent’s technique for laying IEDs is to douse a tire with gasoline, set it afire on a roadway, and dig up the softened tar beneath. The technique leaves a telltale heat signature, visible in infrared. Bryant, a fan of The Lord of the Rings, joked that it looked like the glowing Eye of Sauron.

Bryant pointed the spot out to the pilot, who agreed it looked like trouble. But when they tried to warn the convoy, they realized they couldn’t. The Humvees had activated their radio jammers to disrupt the cell-phone signals used to remotely detonate IEDs. The drone crew’s attempts at radio contact were as useless as shouting at the monitor. Brandon and his pilot patched in their flight supervisor to brainstorm a new way to reach them. They typed frantically back and forth in a group chat, a string of messages that soon included a cast of superiors in the U.S. and Iraq. Minutes passed, and the convoy rolled slowly toward the glowing circle. Bryant stared at the screen, heart pounding, scarcely breathing. The lead Humvee rolled across the eye. “Nothing happens,” says Bryant. “And we’re kind of like, maybe it was a mistake. Everyone’s like Whew, good on you for spotting it, but we’re glad that it wasn’t what you thought it was.” He remembers exhaling, feeling the nervous tension flow out of him.

“And the second vehicle comes along and boom…..”

A white flash of flame blossomed on the screen. Bryant was zoomed in as close as he could get, toggling his view between infrared and day-TV, watching in unblinking horror as the shredded Humvee burned. His headset exploded with panicked chatter from the ground in Iraq: What the fuck
happened? We've got guys down over here! Frantic soldiers milled around, trying to pull people out of the smoldering wreckage. The IED had been tripped by either a pressure plate or manual detonation; the radio jammers would have done nothing to prevent it. Three soldiers were severely wounded, and two were killed.

“I kind of finished the night numb,” Bryant says. “Then you just go home. No one talked about it. No one talked about how they felt after anything. It was like an unspoken agreement that you wouldn’t talk about your experiences.”

The pace of work in the box unraveled Bryant’s sense of time. He worked twelve-hour shifts, often overnight, six days a week. Both wars were going badly at the time, and the Air Force leaned heavily on its new drone fleet. A loaded Predator drone can stay aloft for eighteen hours, and the pilots and sensors were pushed to be as tireless as the technology they controlled. (Bryant claims he didn’t get to take leave for the first four years he served.)

Even the smell of that little shed in the desert got to Bryant. The hermetically sealed control center was almost constantly occupied—you couldn’t take a bathroom break without getting swapped out—and the atmosphere was suffused with traces of cigarette smoke and rank sweat that no amount of Febreze could mask. One bored pilot even calculated the number of farts each cockpit seat was likely to have absorbed.

Mostly the drone crews’ work was an endless loop of watching: scanning roads, circling compounds, tracking suspicious activity. If there was a “troops-in-contact” situation—a firefight, ground troops who call in a strike—Bryant’s Predator could be called to the scene in minutes with its deadly payload. But usually time passed in a haze of banal images of rooftops, walled courtyards, or traffic-snarled intersections.

Sitting in the darkness of the control station, Bryant watched people on the other side of the world go about their daily lives, completely unaware of his all-seeing presence wheeling in the sky above. If his mission was to monitor a high-value target, he might linger above a single house for weeks. It was a voyeuristic intimacy. He watched the targets drink tea with friends, play with their children, have sex with their wives on rooftops, writhing under blankets. There were soccer matches, and weddings too. He once watched a man walk out into a field and take a crap, which glowed white in infrared.

Bryant came up with little subterfuges to pass the long hours at the console: sneaking in junk food, mending his uniforms, swapping off twenty-minute naps with the pilot. He mastered reading novels while still monitoring the seven screens of his station, glancing up every minute or two before returning to the page. He constructed a darkly appropriate syllabus for his occupation. He read the dystopian sci-fi classic Ender’s Game, about children whose violent simulated games turn out to be actual warfare. Then came Asimov, Bryant pondering his Three Laws of Robotics in an age of Predators and Hellfires. A robot may not injure a human being....

Bryant took five shots in his first nine months on the job. After a strike he was tasked with lingering over a site for several haunting hours, conducting surveillance for an “after-action report.” He might watch people gather up the remains of those killed and carry them to the local cemetery or scrub the scene by dumping weapons into a river. Over Iraq he followed an insurgent commander as he drove through a crowded marketplace. The man parked in the middle of the street, opened his trunk, and pulled two girls out. “They were bound and gagged,” says Bryant. “He put them down on their knees,
executed them in the middle of the street, and left them there. People just watched it and didn’t do anything.” Another time, Bryant watched as a local official groveled in his own grave before being executed by two Taliban insurgents.

In the early months Bryant had found himself swept up by the Big Game excitement when someone in his squadron made “mind-blowingly awesome shots, situations where these guys were bad guys and needed to be taken out.” But a deep ambivalence about his work crept in. Often he’d think about what life must be like in those towns and villages his Predators glided over, like buzzards riding updrafts. How would he feel, living beneath the shadow of robotic surveillance? “Horrible,” he says now. But at first, he believed that the mission was vital, that drones were capable of limiting the suffering of war, of saving lives. When this notion conflicted with the things he witnessed in high resolution from two miles above, he tried to put it out of his mind. Over time he found that the job made him numb: a “zombie mode” he slipped into as easily as his flight suit.

Bryant’s second shot came a few weeks after targeting the three men on that dirt road in Kunar. He was paired with a pilot he didn’t much like, instructed to monitor a compound that intel told them contained a high-value individual—maybe a Taliban commander or Al Qaeda affiliate, nobody briefed him on the specifics. It was a typical Afghan mud-brick home, goats and cows milling around a central courtyard. They watched a corner of the compound’s main building, bored senseless for hours. They assumed the target was asleep.

Then the quiet ended. “We get this word that we’re gonna fire,” he says. “We’re gonna shoot and collapse the building. They’ve gotten intel that the guy is inside.” The drone crew received no further information, no details of who the target was or why he needed a Hellfire dropped on his roof.

Bryant’s laser hovered on the corner of the building. “Missile off the rail.” Nothing moved inside the compound but the eerily glowing cows and goats. Bryant zoned out at the pixels. Then, about six seconds before impact, he saw a hurried movement in the compound. “This figure runs around the corner, the outside, toward the front of the building. And it looked like a little kid to me. Like a little human person.”

Bryant stared at the screen, frozen. “There’s this giant flash, and all of a sudden there’s no person there.” He looked over at the pilot and asked, “Did that look like a child to you?” They typed a chat message to their screener, an intelligence observer who was watching the shot from “somewhere in the world”—maybe Bagram, maybe the Pentagon, Bryant had no idea—asking if a child had just run directly into the path of their shot.

“And he says, ‘Per the review, it’s a dog.’ ”

Bryant and the pilot replayed the shot, recorded on eight-millimeter tape. They watched it over and over, the figure darting around the corner. Bryant was certain it wasn’t a dog.

If they’d had a few more seconds’ warning, they could have aborted the shot, guided it by laser away from the compound. Bryant wouldn’t have cared about wasting a $95,000 Hellfire to avoid what he believed had happened. But as far as the official military version of events was concerned, nothing out of the ordinary had happened. The pilot “was the type of guy to not argue with command,” says Bryant. So the pilot’s after-action report stated that the building had been destroyed, the high-value target eliminated. The report made no mention of a dog or any other living thing. The child, if there had been a child, was an infrared ghost.
The closest Bryant ever got to “real” combat—the roadside bombs and mortar fire experienced by combat troops—was after volunteering to deploy to Iraq. He spent the scorching summer and fall of 2007 stationed at the airfield in Balad, flying Predators on base-defense missions—scanning the area for insurgents. Some troops thanked the drone crews for being “angels in the sky,” but more often they were the butt of jokes, mocked as “chair-borne rangers” who would “only earn a Purple Heart for burning themselves on a Hot Pocket.”

Bryant struggled to square the jokes with the scenes that unfolded on his monitors. On one shift, he was told by command that they needed coordinates on an insurgent training compound and asked him to spot it. There was a firing range, and he watched as a group of fighters all entered the same building. One of the issues with targeting insurgents was that they often traveled with their families, and there was no way to tell who exactly was in any given building. Bryant lasered the building as he was ordered. Moments later, smoke mushroomed high into the air, a blast wave leveling the entire compound. An F-16, using Bryant’s laser coordinates as guidance, had dropped a 1,000-pound bomb on the building—ten times the size of a Hellfire. “They didn’t actually tell us that they were gonna blow it up,” says Bryant. “We’re like, ‘Wow, that was nice of you to inform us of that.’”

In 2008, Bryant was transferred to a new post in “the shittiest place in the world,” a drone squadron out of Cannon Air Force Base in Clovis, New Mexico, where, Bryant says, “the air is not oxygen, it’s basically cow shit.” He continued as an operator for several more years, but his directive had changed. He was now mainly tracking high-value targets for the Joint Special Operations Command—the same secret-shrouded branch of the service that spearheaded the hunt for Osama bin Laden. “We were going after top dudes. They started showing us PowerPoint presentations on who these people are,” he says. “Why we’re after him, and what he did. I liked that. I liked being able to know shit like that.”

Bryant has never been philosophically opposed to the use of drones—he sees them as a tool, like any other, that can be used for good ends, citing their potential use to fight poachers, or to monitor forest fires. For him it’s about who controls them, and toward what ends. “It can’t be a small group of people deciding how they’re used,” he says. “There’s got to be transparency. People have to know how they’re being used so they’re used responsibly.”

Transparency has not been the defining feature of U.S. drone policy over the last decade. Even as Bryant was being trained to operate drones in our very public wars in Iraq and Afghanistan, a parallel and clandestine drone war was being waged in places like Pakistan, Yemen and Somalia. Since 2004, the CIA has carried out hundreds of strikes in Pakistani territory, cutting secret deals with Pakistani intelligence to operate a covert assassination program. Another covert CIA drone base was operated from Saudi Arabia, launching strikes against militants in the lawless and mountainous interior of Yemen. While Bryant never flew for the CIA itself, their drone operators were drawn directly from the Air Force ranks.

While stationed in Clovis, among the highest-value targets Bryant’s squadron hunted was Anwar al-Awlaki, the U.S.-born Yemeni imam and Al Qaeda recruiter. Al-Awlaki was ultimately killed by a CIA drone strike in Yemen in September 2011 (as was his 16-year-old son, Abdulrahman, a few weeks later). But Bryant claims his Air Force squadron “did most of the legwork” to pinpoint his location.

By 2011, Bryant had logged nearly 6,000 hours of flight time, flown hundreds of missions, targeted hundreds of enemies. He was in what he describes as “a fugue state of mind.” At the entrance to his
flight headquarters in Clovis, in front of a large bulletin board, plastered with photographs of targets like al-Awlaki, he looked up at the faces and asked: “What motherfucker’s gonna die today?”

It seemed like someone else’s voice was speaking, some dark alter ego. “I knew I had to get out.”

By the spring of 2011, almost six years after he’d signed on, Senior Airman Brandon Bryant left the Air Force, turning down a $109,000 bonus to keep flying. He was presented with a sort of scorecard covering his squadron’s missions. “They gave me a list of achievements,” he says. “Enemies killed, enemies captured, high-value targets killed or captured, stuff like that.” He called it his diploma. He hadn’t lased the target or pulled the trigger on all of the deaths tallied, but by flying in the missions he felt he had enabled them. “The number,” he says, “made me sick to my stomach.”

Total enemies killed in action: 1,626.

“One thing that hit me, after that first missile hit, I didn’t really talk to anyone for a couple weeks.” Bryant spoke to me while driving his beat-up black Dodge Neon in looping cursive circles around his hometown of Missoula. A yellow support-the-troops sticker on his bumper was obscured by a haze of road salt. The car’s interior was festooned with patches from the different units he’d served with; in the back seat was a military pack stuffed with equal parts dirty laundry and bug-out gear. The gray midwinter sky weighed on a procession of strip malls and big-box stores; the snowy crenellations of the Bitterroot Range stretched far away to the south. He stared ahead as though watching the scene of his shot on an endless loop. “I didn’t know what it meant to kill someone. And watching the aftermath, watching someone bleed out, because of something that I did?”

That night, on the drive home, he’d started sobbing. He pulled over and called his mother. “She just was like, ‘Everything will be okay,’ and I told her I killed someone, I killed people, and I don’t feel good about it. And she’s like, ‘Good, that’s how it should feel, you should never not feel that way.’ ”

Other members of his squadron had different reactions to their work. One sensor operator, whenever he made a kill, went home and chugged an entire bottle of whiskey. A female operator, after her first shot, refused to fire again even under the threat of court martial. Another pilot had nightmares after watching two headless bodies float down the Tigris. Bryant himself would have bizarre dreams where the characters from his favorite game, World of Warcraft, appeared in infrared.

By mid-2011, Bryant was back in Missoula, only now he felt angry, isolated, depressed. While getting a video game at a Best Buy, he showed his military ID with his credit card, and a teenage kid behind him in line spoke up. “He’s like, ‘Oh, you’re in the military; my brother, he’s a Marine, he’s killed like thirty-six dudes, and he tells me about it all the time.’ And I turn around and say, ‘If you fucking ever talk like this to me again, I will stab you. Don’t ever disrespect people’s deaths like that ever again.’ ”

The kid went pale, and Bryant took his game and left.

At the urging of a Vietnam veteran he met at the local VA office, Bryant finally went to see a therapist. After a few sessions, he just broke down: “I told her I wanted to be a hero, but I don’t feel like a hero. I wanted to do something good, but I feel like I just wasted the last six years of my life.”

She diagnosed him with post-traumatic stress disorder.

It was an unexpected diagnosis. For decades the model for understanding PTSD has been “fear conditioning”: quite literally the lasting psychological ramifications of mortal terror. But a term now
gaining wider acceptance is “moral injury.” It represents a tectonic realignment, a shift from
focusing on the violence that has been done to a person in wartime toward his feelings about what
he has done to others—or what he’s failed to do for them. The concept is attributed to the clinical
psychiatrist Jonathan Shay, who in his book Achilles in Vietnam traces the idea back as far as the
Trojan War. The mechanisms of death may change—as intimate as a bayonet or as removed as a
Hellfire—but the bloody facts, and their weight on the human conscience, remain the same. Bryant’s
diagnosis of PTSD fits neatly into this new understanding. It certainly made sense to Bryant. “I really
have no fear,” he says now. “It’s more like I’ve had a soul-crushing experience. An experience that I
thought I’d never have. I was never prepared to take a life.”

In 2011, Air Force psychologists completed a mental-health survey of 600 combat drone operators.
Forty-two percent of drone crews reported moderate to high stress, and 20 percent reported
emotional exhaustion or burnout. The study’s authors attributed their dire results, in part, to
“existential conflict.” A later study found that drone operators suffered from the same levels of
depression, anxiety, PTSD, alcohol abuse, and suicidal ideation as traditional combat aircrews. These
effects appeared to spike at the exact time of Bryant’s deployment, during the surge in Iraq.
(Chillingly, to mitigate these effects, researchers have proposed creating a Siri-like user interface, a
virtual copilot that anthropomorphizes the drone and lets crews shunt off the blame for whatever
happens. Siri, have those people killed.)

In the summer of 2012, Bryant rejoined the Air Force as a reservist, hoping to get into the famed
SERE program (Survival, Evasion, Resistance, Escape), where he would help train downed pilots to
survive behind enemy lines. After so much killing, he wanted to save people. But after a severe
concussion in a training accident, he dropped out and returned once more to Missoula. He walked
with a cane, had headaches and memory lapses, and fell into a black depression.

During the worst of it, Bryant would make the rounds of Missoula’s dozens of roughneck bars and
drink himself to blackout on whiskey and cokes, vanishing for days or weeks on end. Many of those
nights he would take his government-issued minus-forty-degree sleeping bag and pull into a parking
lot in the middle of town next to the Clark Fork river. There’s a small park with a wooden play
structure there, built to look like a dragon with slides and ladders descending from it. He would climb
to the little lookout deck at the top, blind drunk, and sleep there, night after night.

He doesn’t remember much of that hazy period last summer, but his mother, LanAnn, does. Several
times he had left a strange locked case sitting out on the kitchen table at her house, and she had put
it back in the closet. The third day she woke to find the case open, with a loaded Sig Sauer P226 semi-
automatic pistol lying out. Terrified that he might kill himself, she gave it to a friend with a locked gun
safe. She’d only told her son about it a week earlier. He had no memory of any of it.

“I really thought we were going to lose him,” LanAnn Bryant says now.

Something needed to change. Bryant hoped that by going to the press, people would understand
drone crews’ experience of war, that it was “more than just a video game” to them. In the fall, he
spoke to a reporter for the German newsweekly Der Spiegel. The story was translated into English,
and the British tabloid Daily Mail picked it up, posting it with the wildly inaccurate headline drone
operator followed orders to shoot a child…and decided he had to quit. The story went viral.
The backlash from the drone community was immediate and fierce. Within days, 157 people on Bryant’s Facebook page had de-friended him. “You are a piece of shit liar. Rot in hell,” wrote a former Air Force comrade. In a sort of exercise in digital self-flagellation, Bryant read thousands of Reddit comments about himself, many filled with blistering vitriol and recrimination. “I read every single one of them,” he says. “I was trying to just get used to the negative feelings.” The spectrum of critics ranged from those who considered drone warfare a crime against humanity to combat veterans who thought Bryant was a whiner. He’d had death threats as well—none he took seriously—and other people said he should be charged with treason and executed for speaking to the media. On the day of one of our interviews, The New York Times ran an article about the military’s research into PTSD among drone operators. I watched as he scanned a barrage of Facebook comments mocking the very idea that drone operators could suffer trauma:

—I broke a fucking nail on that last mission!
—Maybe they should wear seatbelts
—they can claim PTSD when they have to do “Body Collection & Identification”

And then Bryant waded in:

—I’m ashamed to have called any of you assholes brothers in arms.
—Combat is combat. Killing is killing. This isn’t a video game. How many of you have killed a group of people, watched as their bodies are picked up, watched the funeral, then killed them too?
—Yeah, it’s not the same as being on the ground. So fucking what? Until you know what it is like and can make an intelligent meaningful assessment, shut your goddamn fucking mouths before somebody shuts them for you.

Bryant’s defense—a virtual battle over an actual war—left him seething at his keyboard. He says that when flying missions, he sometimes felt himself merging with the technology, imagining himself as a robot, a zombie, a drone itself. Such abstractions don’t possess conscience or consciousness; drones don’t care what they mean, but Bryant most certainly does. Now he plans to study to be an EMT, maybe get work on an ambulance, finally be able to save people like he always wanted. He no longer has infrared dreams, no longer closes his eyes and sees those strange polarized shadows flit across them.

Bryant closed his laptop and went out into the yard, tossing a tennis ball to his enormous bounding Japanese mastiff. Fingers of snow extended down through the dark forests of the Bitterroot, and high white contrails in the big sky caught the late-afternoon sunlight. The landscape of western Montana, Bryant observed, bears a striking resemblance to the Hindu Kush of eastern Afghanistan—a place he’s seen only pixelated on a monitor. It was a cognitive dissonance he had often felt flying missions, as he tried to remind himself that the world was just as real when seen in a grainy image as with the naked eye, that despite being filtered through distance and technology, cause and effect still applied. This is the uncanny valley over which our drones circle. We look through them at the world, and ultimately stare back at ourselves.
Remote control war: Unmanned combat air vehicles in China, India, Iran, Israel, Russia and Turkey

http://www.openbriefing.org/thinktank/publications/remote-control-war/

September 20, 2013

By Rob O’Gorman and Chris Abbott

The introduction and development of unmanned aerial vehicles (UAVs) and unmanned combat air vehicles (UCAVs) by an increasing number of countries is creating both new opportunities and complex challenges.

From an Intelligence, Surveillance and Reconnaissance (ISR) perspective, drones provide a hitherto unimagined ability to observe in real-time the terrain over which one may conduct operations, plus the location and disposition of enemy troops and equipment. However, we are on the cusp of employing armed variants in far greater numbers, with software that is gradually taking the human decision-maker out of the loop. It is akin to the World War I transition of aircraft from purely observation roles to that of fighters and the revolution in aerial combat systems that followed.

The development of UCAVs has been possible because of three converging trends. First, aircraft have become increasingly autonomous, with computers taking over more of the targeting and weapons delivery functions. Second, missiles have become more sophisticated and capable of functions, such as target selection, which were previously carried out by the weapons platform. Third, new technologies have made UAVs capable of greater performance levels. Their increasing use is partly down to a fourth trend: vastly improved ISR capabilities (itself partly thanks to UAVs), which allow high-value targets to be tracked and targeted while potentially reducing civilian casualties and other collateral damage.

Not surprisingly, there are countless challenges associated with this phenomenon. Chief among these from a military standpoint is the development of sound operational doctrine in order to successfully integrate these systems’ capabilities. The speed with which drones are being developed is far surpassing the imaginations of military planners. When some of these first unmanned systems were used by US forces on the battlefield, impressed military decision-makers were criticised for acquiring a ‘looking down the soda straw’ perspective, whereby they favoured the images UAVs were returning at the expense of awareness of the wider battle space. This made them prone to imbalanced operational decisions. Since then, commanders have learnt how to better maintain situational awareness by viewing the capabilities of such platforms from a distance.

There are wider issues to consider though. Now that ‘drone strike’ has become a household term, a plethora of legal and ethical issues have rightly surfaced. Not least of all the fact that UCAVs are being used for missions that would not likely be approved if more traditional aircraft systems were being used. For example, it is hard to imagine the continued violation of Pakistani airspace by US bombers targeting remote villages in the northwest of the country. Somehow, the use of remotely-piloted systems has temporarily sidestepped international law. It is viewed as a grey area when, in fact, no such ambiguity really exists. They are weapons platforms. The location of the pilot and the type of platform used to deliver a missile should have no relevance to the legality of that strike.
Numerous other questions have arisen as the technology has outpaced our ability to control its use. Should we allow fully autonomous armed systems to be deployed? Do we need a proliferation control regime specifically for armed drones? What impacts do repeated attacks have on the psyche of targeted populations? Are drone pilots more or less likely to suffer from post-traumatic stress disorder than conventional pilots? While not within the scope of this study to address such wider issues, they bear mentioning from the outset.

Much of the debate over armed drones has focussed on their use by the United States. As the leading country in the development and use of UCAVs this is understandable. It has lowered the threshold for the use of lethal force and pushed back the limits of counter-terrorism efforts to include the targeted killing of its own citizens abroad. However, 75 other countries are known to have UAVs, with approximately 20 countries possessing armed drones (though estimates vary widely). Many of these countries warrant closer attention; after all, a risky precedent has been set.

This study focusses on six of these countries: China, India, Iran, Israel, Russia and Turkey. It identifies the UAVs in use by each state (see Annex A) and examines in more detail the UCAVs they have in their inventories (see Annex B). In doing so, Open Briefing has identified at least 200 different UAVs in use or in development by the countries in question, with 29 of these being UCAVs. The likely future use of armed drones by each country is also assessed in light of current military doctrines and national security realities.

Some general findings are worth highlighting here. The vast majority of military UAVs in each country’s inventory are unarmed (used for ISR), though many of these can take various payload options, including missiles. In fact, UCAVs are being used to carry far heavier payloads than previously possible. China has the most diverse UCAV inventory, though Israel leads the way in terms of technology and export. All the countries studied are expanding their UCAV industries. Domestic manufacturers are preferred but countries are purchasing some modern drones from abroad. The proliferation of drones to state and non-state adversaries is leading several countries to seek to develop UAV countermeasures. Finally, with the development of loitering munitions and the retrofitting of legacy aircraft or development of new manned/unmanned systems, the lines between missiles and drones at one end and drones and aircraft at the other are increasingly blurred.

This study was commissioned by the Remote Control Project, a pilot project initiated by the Network for Social Change and hosted in London by Oxford Research Group. In undertaking this work, Open Briefing has drawn on a wide range of sources, including defence equipment exhibitions, defence company brochures, foreign media, defence news, military reference books, NGO databases and military forums.

It is clear that armed drones, their uses and their proliferation are issues that are widely misunderstood and surrounded by inaccuracies. This study is offered as one contribution to addressing that situation.
Drohnen drohen Lateinamerika

http://www.ag-friedensforschung.de/regionen/Lateinamerika/drohnen.html

18. November 2013

Von Harald Neuber *

Militärexperten erwarten Ausweitung des US-Einsatzes und warnen vor Konflikten

Washington denkt daran, seine Flotte unbemannter Flugkörper im Süden des Kontinents zu verstärken, um den schwindenden Einfluss dort zu kompensieren.


Die politische Brisanz dieser neuen Militärtechnologie, die sowohl zur Überwachung als auch als Angriffswaffe genutzt werden kann, wurde Ende 2009 deutlich, als Caracas das mit den USA alliierte Kolumbien bezichtigte, Spionagedrohnen im venezolanischen Luftraum eingesetzt zu haben.

**VERTICAL PROLIFERATION - AUTONOMOUS / AUTOMATIZATION / ROBOTIZATION**

**Killer robots instead of soldiers?**

http://www.dw.de/killer-robots-instead-of-soldiers/a-16826857

May 5, 2013

Increasingly, drones and robots are being used in combat to replace soldiers in high-risk situations. Some researchers and politicians are concerned that, in future, autonomous machines may reign over life and death.

A Pentagon video shows a fighter jet taking off from a US aircraft carrier. At first glance, the maneuver is unspectacular. A second glance, however, reveals a detail that is not necessarily conspicuous: The X-47B stealth fighter has no cockpit, it is an unmanned drone.

According to the US Navy, drone technology has reached another milestone with the first take-off of a drone the size of a fighter jet from an aircraft carrier. It is a further step toward increasingly independent unmanned weapons systems.

**Soldiers of the future**

More than 70 countries already use unmanned drones - aerial vehicles that are capable of gathering intelligence, or seeking and, if necessary, eliminating targets. At present, the latter decision is still made by human operators via remote control. Human decision-making, however, seems to be waning, while unmanned fighter robots act increasingly on their own. The pilotless aircraft can already be programmed to maneuver completely autonomously. The X-47B drone is still being tested, but once it is ready for action, the aircraft will be able to conduct missions largely autonomously and without human control.

So far, drones that act entirely on their own - and could be termed autonomous combat robots - do not yet exist. Human operators decide whether or not to attack. However, there is great concern that ”military pressure will finally lead to the introduction of autonomous systems,” says Jürgen Altmann. The physicist and peace researcher at Dortmund Technical University in Germany co-founded the International Committee for Robot Arms Control (ICRAC), an NGO that urges an international debate on combat robots, including clear rules to restrict their use.

**Robots never tire**
From a military point of view, the step toward mechanical soldiers is logical: remote controlled robots are tireless; they can conduct riskier maneuvers than human pilots, who always face the threat of being shot down. But, even remote control has its limitations: Communications between the system and the operator can take a few seconds that, in turn, can decide on a mission's success or failure.

According to a Pentagon strategy paper, the US is seeking increased autonomy for unmanned systems over the next 20 to 30 years. Altmann is convinced that the US is not the only country working on autonomous weapons systems. "Other arms producers will follow suit and at some point, part of the armed forces will be fully automated fighters."

To prevent an arms race, ICRAC and other international NGOs have launched a campaign that demands discouraging the development, production and use of autonomous combat robots: "Stop Killer Robots".

**Ban on killer robots**

A German Green party politician Agnieszka Brugger even advocates outlawing autonomous weapons systems. "We would be well-advised not to blindly go along with such armament dynamics, but instead to refocus on the risks inherent in the technology," she says. Combat robots cannot discern between enemy combatants and civilians - in a combat operation, they are not able to act according to international law. Agnieszka Brugger and Jürgen Altmann agree: replacing soldiers with machines in combat could also lead to a lowering of military leaders' threshold for violence.

"What we need is a global arms control system," Roderich Kiesewetter argues. The retired colonel and head of the German Armed Forces Reservists' Federation says, however, developments should also not be blocked completely. "We must assume there will be states that deliberately turn to fully automated combat technology," he says, stressing the importance of developing defense strategies against autonomous systems.

In Germany, operations involving autonomous combat robots are a long way off. Plans to adapt the US Global Hawk surveillance drone, re-named Euro Hawk for Europe's skies, have failed. A decision on the purchase of foreign drones - and arming them - has been postponed until after parliamentary elections in September.
PROJECT ACCOMPLISHMENTS SUMMARY
Cooperative Research and Development Agreement (#1714)
between Sandia National Labs and Northrop Grumman Systems Corporation


Note: This Project Accomplishments Summary will serve to meet the requirements for a final abstract and final report as specified in Article XI of the CRADA.

Title: Unmanned Air Vehicle (UAV) Ultra-Persistence Research

Final Abstract:

Sandia National Laboratories and Northrop Grumman Corporation Integrated Systems, Unmanned Systems (NGIS UMS) collaborated to further ultra-persistence technologies for unmanned air vehicles (UAVs). The greatest shortfalls in UAV capabilities have been repeatedly identified as 1) insufficient flight persistence or “hang time,” 2) marginal electrical power for running higher power avionics and payload systems, and 3) inadequate communications bandwidth and reach. NGIS UMS requested support from Sandia to develop an ultra-persistent propulsion and power system (UP3S) for potential incorporation into next generation UAV systems. The team members tried to determine which energy storage and power generation concepts could most effectively push UAV propulsion and electrical power capabilities to increase UAV sortie duration from days to months while increasing available electrical power at least two-fold.

Primary research and development areas that were pursued included these goals: perform general system engineering and integration analyses; develop initial thermal and electrical power estimates; provide mass, volume, dimensional, and balance estimates; conduct preliminary safety assessments; assess logistics support requirements; perform, preliminary assessments of any security and safeguards; evaluate options for removal, replacement, and disposition of materials; generally advance the potential of the UP3S concept.

The effort contrasted and compared eight heat sources technologies, three power conversion, two dual cycle propulsion system configurations, and a single electrical power generation scheme. Overall performance, specific power parameters, technical complexities, security, safety, and other operational features were successfully investigated. Large and medium sized UAV systems were envisioned and operational flight profiles were developed for each concept. Heat source creation and support challenges for domestic and expeditionary operations were considered. Fundamental cost driver analysis was also performed. System development plans were drafted in order to determine where the technological and programmatic critical paths lay.

As a result of this effort, UAVs were to be able to provide far more surveillance time and intelligence information per mission while reducing the high cost of support activities. This technology was intended to create unmatched global capabilities to observe and preempt terrorist and weapon of mass destruction (WMD) activities. Various DOE laboratory and contractor personnel and facilities could have been used to perform detailed engineering, fabrication, assembly and test operations including follow-on operational support. Unfortunately, none of the results will be used in the near-term or mid-term future. NGIS UMS and SNL felt that the technical goals for the project were accomplished. NGIS UMS was quite pleased with the results of analysis and design although it was
disappointing to all that the political realities would not allow use of the results. Technology and system designs evaluated under this CRADA had previously never been applied to unmanned air vehicles (UAVs). Based upon logistic support cost predictions, because the UAVs would not have had to refuel as often, forward basing support costs could have been reduced due to a decrease in the number and extent of support systems and personnel being required to operate UAVs in remote areas.

Basic application of the advanced propulsion and power approach is well understood and industry now understands the technical, safety, and political issues surrounding implementation of these strategies. However, the overall economic impact was not investigated. The results will not be applied/implemented. No near-term benefit to industry or the taxpayer will be encountered as a result of these studies.

Background:

The state of the art in unmanned flight systems prior to this effort was to depend entirely on hydrocarbon or hydrogen fuels for propulsion and electrical power creation. This leads operational units to be reliant on costly and fragile long haul fuel supply chains in order to accomplish their missions. This CRADA effort was instituted to learn whether it was possible to break expensive traditional logistical support constructs and create a propulsion and power configuration that would drastically increase operational performance and remove the primary logistical load on operational units thereby allowing them to focus their critical resources on providing “more tooth” and “less tail.” NGIS UMS and Sandia teamed to tackle this challenge since NGIS UMS had the industrial leadership position in unmanned flight systems while Sandia had extensive knowledge in the realm of alternative power technologies.

Description:

The purpose/objective of the project was to further ultra-persistence technologies for unmanned air vehicles (UAVs). The greatest shortfalls in UAV capabilities have been repeatedly identified as 1) insufficient flight persistence or “hang time,” 2) marginal electrical power for running higher power avionics and payload systems, and 3) inadequate communications bandwidth and reach. This effort was broken into four task areas: Task 1 - UP3S Systems Engineering Analyses, Task 2 - UP3S Project Planning, Task 3 - Briefing Support, and Task 4 - Interim and Final Reports.

Under task 1, Sandia conducted computer-based engineering and literature-based process analyses to meet the technical and programmatic requirements. Based on requirements and direction provided by NGIS UMS, Sandia performed focused studies to translate stated needs into conceptual designs and processes that could be transferred easily from Sandia to industry design and production personnel. Propulsion and power system topics included include fuel cycle analyses, scalability of systems, control systems, safety, security and safeguards analyses, electronic system survivability and hardness, decommissioning and disposal analyses, logistics support analyses including main operating base (MOB) issues, and life cycle cost analyses. Also, Sandia helped identify new processes, designs, hardware, software, safety, and reliability required for improved national UAV performance. Sandia assisted NGIS UMS to baseline at least one future UAV configuration with new energy and power systems to meet emerging U.S. military operational needs. Sandia conducted analyses at component and system-levels that emerged during the project. No physical asset testing or demonstrations was performed during this effort. Deliverables from Task 1 included the results of
the analyses and studies, including presentation materials. Under task 2, Sandia and NGIS UMS developed technology development requirements, projected costs, schedule, manpower, facilities, equipment, associated resources, key experiments, demonstrations, tests, and decisions, operational system modifications versus new system acquisition. Deliverables from task 2 included the results of the analyses and studies. Under task 3, Sandia helped the NGIS UMS UP3S team to develop and present briefing materials. Due to the nature of topical expertise required for the project and the dependence of NGIS UMS upon Sandia’s subject matter experts (SMEs), Sandia supported NGIS UMS in providing “tag team” briefings to Northrop Grumman Corporation (NGC) upper management and non-NGC entities (e.g. industry partners, government). NGIS UMS staff presented the materials that NGIS UMS developed and in which they had expertise; Sandia did the same for its materials. Finally, under task 4, Sandia provided progress reports to NGIS UMS at their request, using their format.

Upon completion of the CRADA, Sandia provided a final out-brief to NGIS UMS. Accomplishments: The effort concentrated on propulsion and power technologies that went well beyond existing hydrocarbon technologies. It contrasted and compared eight heat sources technologies, three power conversion, two dual cycle propulsion system configurations, and a single electrical power generation scheme. Overall performance, specific power parameters, technical complexities, security, safety, and other operational features were successfully investigated. Large and medium sized UAV systems were envisioned and operational flight profiles were developed for each concept. Heat source creation and support challenges for domestic and expeditionary operations were considered. Fundamental cost driver analysis was also performed. System development plans were drafted in order to determine where the technological and programmatic critical paths lay. NGIS UMS and SNL felt that the technical goals for the project were accomplished. NGIS UMS was quite pleased with the results of analysis and design although it was disappointing to all that the political realities would not allow use of the results.

Benefits to the Department of Energy:

This project was intended to support specific strategic Defense Programs R&D goals, core competencies, and plans at the DOE facilities if the results were to be implemented. This project focused on supporting Sandia’s Defense Systems and Assessments (DS&A) Strategic Management Unit (SMU) from the Integrated Military Systems (IMS) Center 5400 by promoting development of advanced propulsion and electric power generation for more electric unmanned aircraft (MEUA). Results were to be used in the next generation of unmanned air vehicles used for military and intelligence applications. Through these technologies, UAVs were to be able to provide far more surveillance time and intelligence information per mission while reducing the high cost of support activities. As investigation, development, and fielding of this new unmanned air vehicle (UAV) propulsion and power approach were to be achieved through the national labs, the United States would have created unmatched global capabilities to observe and preempt terrorist and weapon of mass destruction (WMD) activities. Various DOE laboratory and contractor personnel and facilities could have been used to perform detailed engineering, fabrication, assembly and test operations including follow-on operational support. None of the results are currently in use by DOE and it is doubtful that they will be used in the near-term or mid-term future. Currently, none of the results can be shared openly with the public due to national security constraints.

Economic Impact:
Technology and system designs evaluated under this CRADA have previously never been applied to unmanned air vehicles (UAVs). Use of these technologies would have provided system performance unparalleled by other existing technologies. Northrop Grumman and the U.S. military would have received new propulsion and power options that are not currently available. Based upon logistic support cost predictions, because the UAVs would not have had to refuel as often, forward basing support costs could have been reduced due to a decrease in the number and extent of support systems and personnel being required to operate UAVs in remote areas. Basic application of the advanced propulsion and power approach is well understood; however, the overall economic impact was not investigated due to termination of the effort. The results will not be applied/implemented. However, industry now understands the technical, safety, and political issues surrounding implementation of these strategies. Industry now knows how significantly aerial operations can be improved by using these propulsion and power approaches even though current political conditions will not allow use of the results. No near-term benefit to industry or the taxpayer will be encountered as a result of these studies.

Project Status:
Completed

Beyond Weapons: The Military’s Quest For Nuclear Power - Analysis


May 22, 2012

By Kelvin Wong / S. Rajaratnam School of International Studies (RSIS)

The military has always maintained an interest in the application of nuclear energy in its operations. In a bid to reduce logistical strain caused by power-hungry bases and vehicles operating over significant distances, some military forces have experimented with nuclear technology to seek potential solutions. However, it is unlikely that such concepts will become a mainstream reality.

In April 2012 American scientists unveiled a radical plan for advanced unmanned aerial vehicles (UAV) powered by ‘next generation concepts’. The proposal, titled ‘Unmanned Air Vehicle Ultra Persistence Research’ was jointly developed by Sandia National Laboratories – the US government’s principal nuclear research and development agency – and military contractor Northrop Grumman. The research team noted that the application of such persistent technologies to UAVs would dramatically extend flight times, as well as enable more powerful sensor and weapon systems to be fitted.

The proposal all but established that the team had been experimenting with nuclear propulsion concepts, especially when considering Sandia’s background and the research team’s concern over political sensitivities of nuclear power.
Nuclear power: more than destruction

Military exploitation of nuclear power has not always been limited to weapons of mass destruction and large naval platforms. As early as the 1940s, American scientists experimented with a salt-based nuclear reactor concept for civilian aircraft propulsion. However, early designs lacked durability and it was not till 1954 that a stable reactor was built at the Oak Ridge National Laboratory.

During the Cold War, both the United States and the Soviet Union experimented with nuclear technology for its military aircraft, with the same intention to develop intercontinental bombers capable of reaching virtually any target on the planet. American defence contractors at the behest of the United States Air Force (USAF) investigated the feasibility of nuclear powered military aircraft, which was never realised as a result of cost and technical limitations, as well as crew safety concerns. On the other side of the Bering Strait, the Soviet Union also pursued its own nuclear-powered aircraft development. Despite promising results from limited flight-testing, Soviet military interest in the nuclear-powered bomber soon faded in favour of more cost-effective ballistic missile systems.

There had also been an interest in the application of nuclear power for land-based forces during the same period. From early 1950 to late 1970 the US military had investigated the possibility of deploying smaller-scale and portable nuclear reactors in a bid to reduce logistical challenges imposed by energy-dependent vehicles and military bases. For example, a 1963 study submitted to the US Department of Defense (DOD) proposed the use of a small nuclear reactor as the power source for an energy depot.

The proposal, called the military compact reactor (MCR), was an attempt to solve the logistics problem of supplying fuel to military vehicles on the battlefield. While military vehicles could not derive power directly from the nuclear reactor, the MCR could provide power to produce synthetic fuel to replace conventional petroleum fuel. In addition to the MCR, US Army engineers had also successfully operated a series of compact nuclear reactors in remote military bases, and even considered the use of nuclear power overseas to provide uninterrupted power in the event that US bases were cut off from regular supply lines. However, further development of the MCR ceased due to the cost and technical limitations.

Other concepts had been more successful. From 1968 to 1975, the US Army operated a floating nuclear reactor which supplied electrical power in the Panama Canal Zone. Even though it proved its worth, the floating reactor eventually ceased operation due to high costs and the cancellation of the Army’s nuclear research programme.

Civilian and military nuclear incidents

Despite improvements in nuclear safety, public sentiment on nuclear power is generally unfavourable, particularly after a series of high-profile nuclear incidents over the years. Disasters like Chernobyl, Three Mile Island, and the recent Fukushima episodes have sorely demonstrated the perils of operating nuclear reactors, emanating be it from human error or natural calamities.

Military forces have also been stung by peacetime nuclear incidents. In March 2008, the American nuclear submarine USS Houston leaked minute amounts of radiation into Sasebo naval base while on a port call, triggering condemnation from Japanese citizens in the district. In the same year, the British nuclear submarine HMS Trafalgar leaked hundreds of litres of radioactive wastewater into a nearby river while docked at Devonport naval base, raising concerns from nuclear safety experts.
Mainstream nuclear power in the military?

Yet military scientists have not ceased to be tempted by the potential of nuclear power. In response to increasing oil prices and global supply uncertainties, and well-documented cases of logistical strain on forces operating in the Middle East in recent conflicts, the US Defense Advanced Research Projects Agency (DARPA) issued a proposal for innovative solutions in deployable compact nuclear reactors in 2010. In the proposal, DARPA outlined the need to reduce the logistical burden of supplying forward operating bases and forces without access to reliable fuel supply lines. The proposal also suggested that materials science have advanced to the stage where it might have a positive impact on deployable nuclear reactor research.

While recent developments suggest that nuclear power technology can potentially be employed in unmanned aircraft and on the ground, it is unlikely to have mainstream military utility. The Cold War period was an era when general attitudes towards nuclear energy were quite favourable, and military experimentation was only limited by funding and scientific expertise. In contrast, nuclear power today has become a hotly debated issue despite its importance in powering the economies of advanced nations today.

For the military, the problem with nuclear power is not just about cost and safety, but also of the nature of its operating environment. Deploying volatile nuclear reactors into harm’s way on the battlefield, where their destruction and sabotage are likely, should give military planners cause to pause.

Kelvin Wong is an Associate Research Fellow at the S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University. He is with the Military Studies Programme at the School’s constituent unit, the Institute of Defence and Strategic Studies.

Fight Begins Over Navy’s Armed Drone Program

http://www.nationaldefensemagazine.org/archive/2013/July/Pages/FightBeginsOverNavy%E2%80%99sArmedDroneProgram.aspx?PF=1

July 2013

By Valerie Insinna

Northrop Grumman’s X-47B unmanned aerial vehicle in May took off from the USS George H.W. Bush, circled back to the vessel and skidded its wheels across the flight deck before taking flight again. It was the first time a drone performed a touch-and-go landing aboard a moving aircraft carrier and a major step toward making UAVs a regular part of carrier operations.

With the demonstrator program ending this summer, the Navy is set to rev up the design phase for an armed, carrier-based unpiloted aircraft capable of gathering intelligence and launching attacks. While Northrop’s experience with the X-47B may give the company an edge, other contractors have designs in the works and are ready to start the competition.
After years of delays, the Navy plans this summer to release a request for proposals for the preliminary design phase for its unmanned carrier launched airborne surveillance and strike aircraft, called UCLASS. The final RFP is set to be issued in early spring 2014.

Naval Air Systems Command in its presolicitation said four defense contractors — Lockheed Martin, General Atomics, Boeing and Northrop Grumman — “have credible, existing, comprehensive UCLASS design solutions” that will be ready for Navy evaluation in the third quarter of fiscal year 2014. The service plans to issue four contracts of an unspecified value to those companies for the design phase.

Officials from those companies said they are all gearing up for battle.

The eight-to-10 month preliminary design phase will not eliminate any competitors but is intended for the Navy to “evaluate the technical maturity and progress of the designs,” said Bob Ruszkowski, Lockheed Martin’s director of UCLASS program development.

Draft specifications for UCLASS indicate that the final aircraft will have a “light strike capability,” but will primarily be used to autonomously conduct intelligence, reconnaissance and surveillance operations, Ruszkowski said.

“That provides some operational flexibility ... that right now you don’t necessarily have with land-based UAVs, where you might have to ask a host nation for permission to operate there,” he said.

Final requirements are still in the works, but preliminary specifications state that UCLASS should be able to carry weapons currently available to aircraft that fly from carriers, such as the 500-pound joint direct attack munition, Ruszkowski said.

It will be required to perform persistent coverage of a target at a distance of less than 1,000 nautical miles from the carrier, though the range of its strike capability will be farther than that, he added.

Ruszkowski said part of the challenge will be creating a drone that can integrate seamlessly with an aircraft carrier’s normal deck cycle — the schedule whereby aircraft are launched and are recovered on the ship’s flight deck. “That could be 12 hours or more for one aircraft away from the carrier,” he said.

The Navy also has set aerial refueling requirements for the aircraft. UCLASS must be refuelable while in flight, and the Navy would also like it to be able to deliver fuel to fighter jets, Ruszkowski said.

Lockheed Martin’s Skunk Works in April debuted a tailless flying wing UCLASS design, which will reuse hardware and software from the company’s F-35C Joint Strike Fighter and RQ-170 Sentinel unmanned aerial system.

“We have flown aircraft very similar to our flying wing design, including the Polecat demonstrator that we flew a few years ago ... which was a high altitude flying wing unmanned aircraft. We have a lot of experience with aircraft of this type,” Ruszkowski said.

Citing the ongoing nature of the competition, officials from General Atomics, Northrop Grumman and Boeing declined to give interviews regarding their offerings.

Lockheed Martin’s decision to reuse hardware from the Sentinel and Joint Strike Fighter is a smart one because affordability will be a key concern of the Navy going forward, said Phil Finnegan, director of corporate analysis at the Teal Group.
Lockheed is in the process of evaluating subcontractors and suppliers to become part of its UCLASS team, including for the engine and sensor systems. The company is considering using its electro-optical targeting system, or EOTS, a forward-looking infrared sensor used on the F-35, Ruszkowski said.

UCLASS will operate autonomously most of the time, but a pilot will control the aircraft during critical mission segments. Ultimately, Lockheed wants its design to allow one operator to fly as many as four aircraft at the same time, he said. “There’s going to be inherent systems aboard the aircraft and in the loop that will ensure safe separation” between the drones.

Lockheed Martin is taking an open architecture approach with the design so that the Navy can equip the drone with newer, more advanced hardware as needed.

Open architecture “has to be in the communications infrastructure within the aircraft, it has to be within the sensor backbone that’s within the aircraft and the central processing system,” Ruszkowski said. “So we’ll be able to rapidly integrate, for example, a new sensor.”

Analysts believe Northrop Grumman may already be ahead of the curve because of its work on the unmanned combat air system aircraft carrier demonstrator program, or UCAS-D.

The program was developed by the Navy to learn how to integrate an unmanned system on an aircraft carrier and prove that a drone could take off and land while the ship is in motion.

Northrop Grumman will likely use the X-47B aircraft flown for UCAS demonstrations as the basis for its final UCLASS design, Finnegan said.

The UCAS program hit several major milestones in May other than the touch-and-go landing. Northrop Grumman and the Navy accomplished the X-47B’s first catapult launch earlier that month.

The company also demonstrated an arrested landing — which is performed when the aircraft catches its hook on a heavy cable extended across the landing area, bringing it to a complete stop — onshore at Naval Air Station Patuxent River in Maryland.

Carrier-based arrested landings this summer will be the final demonstrations, said Carl Johnson, Northrop Grumman’s program manager for UCAS-D. The company is conducting additional shore-based arrestments and gathering data to prepare for the final leg of the program.

“Northrop is really the company to beat in part because of the work that it has been doing on this program,” said Finnegan. “Also, if you think more broadly, Northrop Grumman has a very strong position in the Navy” because of its experience building maritime equipment such as the Fire Scout, an unmanned helicopter that will be used by naval special operations forces.

Right now, Northrop Grumman has the advantage of being the only company that has landed a drone on a moving aircraft carrier, Finnegan said. Developing the UCAS has also given it experience working on preventing electromagnetic interference and corrosion resulting from the harsh maritime environment.

“This unmanned system is different from all of the systems that have been designed” before it, Johnson told National Defense. “Every other system knows where it’s taking off and landing,” but the X-47B has to be able to autonomously return to an aircraft carrier that has sailed away from its starting position.
The Navy’s specifications for UCLASS are different than what the company was required to achieve for the UCAS program, but “we believe that we have a very good understanding of the problems and solutions” going forward into the UCLASS program, Johnson said. He declined to elaborate.

Ruszkowski from Lockheed Martin downplayed the impact UCAS-D will have on the competition.

“The fact that Northrop does have this experience with the X-47 is good, but I don’t think it gives them an unfair advantage,” he said. But “if the roles were reversed, I would say certainly it’s an advantage to have the experience.”

In order to level the playing field, Northrop’s competitors will have access to some of the data from UCAS-D, Ruszkowski added, although the extent of that access is undetermined.

Like Lockheed Martin, General Atomics is reusing hardware and software from its other systems in order to cut down cost. The company will offer the Sea Avenger, a carrier-based aircraft derived from the Predator C Avenger.

General Atomics designed the Predator C while keeping in mind the Navy’s requirement for a carrier-based UAV, according to material released by the company. It incorporated features into the original design that would help the drone integrate onto an aircraft carrier, such as folding wings and an internal weapons bay.

The company conducted a wind tunnel test on a model of the Sea Avenger in 2011.

Of the competitors, Boeing has been the most reticent to release specific information about its proposal.

“Boeing will give the Navy a UCLASS platform that can provide a persistent ... [intelligence, surveillance and reconnaissance] and strike capability supporting 24/7 carrier operational coverage,” said Didi VanNierop, spokeswoman for Boeing Phantom Works.

Finnegan and other analysts believe the company will propose a design based on the Phantom Ray. That aircraft originated from Boeing’s X-45C prototype, a tailless flying wing developed for the UCAS-D competition but ultimately axed in favor of Northrop’s X-47B.

Boeing used internal funding to carry on development of the Phantom Ray, which made its first flight in April 2011 at Edwards Air Force Base in California.

Three years have passed since the Navy first requested information for UCLASS, but disagreements among Navy leadership surrounding the requirements delayed the program’s start. At issue was whether UCLASS should harness the latest, most advanced technology or the most affordable.

“As I understand it, there’s still a difference within the Navy over the requirements for the UCLASS,” Finnegan said. “To my understanding, it hasn’t been ironed out yet.”

The three-year delay gave contractors time to develop technology, but having draft specifications in hand only a few months before the start of the design phase doesn’t give companies a lot of time to adjust their concepts, Ruszkowski said.

“It puts us in a little bit of a difficult situation, but we’re managing,” he said. “It would have been better to have seen draft specifications a year ago instead of two months ago.”
Russia is developing its first long-range drone aircraft capable of conducting ground attack missions, but lags behind other militaries in building unmanned aerial combat vehicles, according to U.S. officials.

The new drone is being developed in secret and was first revealed in online images earlier this year.

U.S. officials familiar with intelligence reports said the drone is being called the Altius-M and work is being done at the Sokol Design Bureau in Tatarstan, a Russian republic.

Recent analysis of images of the propeller-driven aircraft indicates the drone will be a medium or high-altitude strike aircraft, based on its long wingspan and V-shaped tail, the officials said.

The aircraft appears similar to the U.S. MQ-9 Reaper missile-firing UAV.

The aircraft was disclosed in photographs during a February visit to Tatarstan by Russian Defense Minister Sergei Shoygu.

Photographs showed Shoygu standing next to a model of the new combat drone. The images later were removed from the Internet after publication, an indication the program remains one of Russia’s secret military programs.

The five-ton aircraft is scheduled for deployment by 2016 and the late development, compared to drone programs of other nations, highlights what U.S. officials see as a deficiency in Russian military efforts to develop both armed and reconnaissance drones.

Drone have emerged in recent years as a key element of what is known in U.S. defense parlance as the revolution in military affairs—using high-technology weapons and tactics for strategic advantage.

Disclosure of the new Russian unmanned combat aerial vehicle followed reports last month that Iran had supplied Russia with a copy of a U.S. drone obtained by Iran in 2012.

The U.S.-built ScanEagle drone was purchased by agents of Iran’s Islamic Revolutionary Guards Corps from an Afghan smuggler who stole it from a freight convoy, according to contractors in Afghanistan.

Iran also claims it downed a classified RQ-170 radar-evading stealth drone.

Officials said Russian drone capabilities lag behind those of others states as a result of the Russian military’s continued focus on manned, combat aircraft.

However, in recent years the Russians launched development of military drones.
Drone deficiencies were highlighted for Moscow’s forces during the 2008 war against the Republic of Georgia. During the conflict, most of its fleet of Soviet-era unmanned aircraft were unable to provide needed reconnaissance for Russian military forces, the officials said.

Currently, the majority of the Russian military’s drone forces include hand- or catapult-launched systems.

Russian drones displayed on state-run media have included reconnaissance drones conducting counterterrorism in Dagestan, during the 2012 APEC summit in Vladivostok and during counterterrorism exercises.

During the recent large-scale Zapad-2013 military exercises in Europe that drew protests from several Eastern European government who said the joint war games with Belarus were saber-rattling by Moscow, UAVs were shown providing video images of the battlefield. The drones were used for targeting data and helped guide live-fire strikes by aircraft and artillery during the exercises.

One current Russian military drone is a bat-winged Eleron-3 that has a range of just 15 miles.

The large-scale, short-notice nuclear and strategic forces exercises conducted by the Russians Oct. 30 involved a few small reconnaissance drones.

Russia abandoned development of its first unmanned combat aerial vehicle program last summer. The Russian aircraft manufacturer Mikoyan, maker of MiG jets, canceled a drone called Skat after six years of problems with its development.

However, Russia’s defense plan for 2020 calls for developing drones for the armed forces. A key indicator of advances in the program was the creation of a Russian government unmanned aerial vehicle center and regional branches. The Russian armed forces general staff also created a UAV directorate.

Currently, the sole modern drone in the Russian arsenal is an aircraft called Forpost that is a licensed version of the Israeli Searcher drone.

Russian President Vladimir Putin was asked in June about the use of U.S. drones to attack terrorists in Pakistan.

“A long time ago China invented gunpowder. No one could curb its dissemination. Later nuclear weapons appeared, and they also started to proliferate,” Putin said. “As for modern means of warfare, they are being improved and will continue to be improved. I doubt all this can be banned.”

Putin said he favored international controls on drones to limit collateral damage from strikes.

In contrast to Russia, the United States, China and Israel have robust drone programs, including both armed and unarmed systems.

China unveiled its armed UAV in November 2012 called the Wing Loong, built by the Aviation Industry Corporation of China, according to a forthcoming report by the congressional U.S.-China Economic and Security Review Commission. The report said China is seeking to export the drone to six nations in Asia and Africa.

Like the Altius-M mockup, the Wing Loong closely resembles Reaper.
U.S. Predator and Reaper drones have been leading the fight against international terrorism for the past decade. The attack aircraft are used widely by the U.S. military. The CIA in Pakistan and the Middle East also has been engaged in large-scale covert drone strikes on terrorists.

Today, terrorist leaders in Pakistan’s ungoverned Federally Administered Tribal Areas and the southern end of the Arabia peninsula who have become terrorized by the use of armed drone strikes. The sound of small propeller driven aircraft overhead is now causing terrorist leaders to cringe in fear, U.S. officials have said.

According to a report in Slate on the Russian drone, in addition to Sokol, a company in Russia called Tranzas is building a new UAV. The Tranzas drone is a small aircraft called Inokhodyets, or Wanderer, the news outlet reported Feb. 20 on its blog Future Tense.

**Chinese stealth drone takes first test flight**


November 22, 2013

Capabilities of aircraft are not known but flight underlines huge Chinese push to match Western military technology.

China has tested its first stealth combat drone, state media has said, citing online photos of an aircraft resembling a shrunken US B2 bomber and hailing the advance toward Western-level technology.

Photos and video of the tailless delta-wing drone flying were posted on the websites of People’s Daily and other Chinese media outlets on Friday. The location of the 20-minute flight made on Thursday was identified only as a southwestern China testing base.

The jet powered drone was identified as the Lijian, or "Sharp Sword," and is another step in China’s years-long military build-up, with its defence spending now the second highest in the world and growing by double-digit percentages each year.

"The successful flight shows the nation has again narrowed the air-power disparity between itself and Western nations," the China Daily newspaper said, adding the flight made China the "fourth power... capable of putting a stealth drone into the sky".

The aircraft is similar to the X-47B drone being tested by the US Navy for aircraft carrier operations, as well as France’s experimental Neuron project. Others have reported the drone is a reverse-engineered copy of Russia’s Mikoyan Skat unmanned aerial vehicle.

Potential uses of the aircraft range from conducting electronic surveillance to launching missile strikes. Some analysts have suggested the drone might someday be launched from China’s sole aircraft carrier, possibly to fly missions around China’s East China Sea and South China Sea island claims.
"This demonstrates the enormous investment that China is making toward building a world class level of military power," said Rick Fisher, a senior fellow at the US-based think tank International Assessment and Strategy Center.

This type of aircraft "will greatly complicate the defence " of other countries, including Japan and the US, he added.

The capabilities of the drone and two manned stealth fighters, the J-20 and J-31 that China is developing are not yet known, although China's arms industry is producing increasingly sophisticated weapons systems, including a large range of military drones.

However, China has had difficulty developing reliable, high-performance engines for its latest generation aircraft and observers on military websites said the Sharp Sword appeared to be equipped with Russian-made turbofan engines that reduced on its radar-evading ability.

The test flight comes weeks after Tokyo said a drone had flown near East China Sea islands claimed by both Tokyo and Beijing, increasing the tensions between the rivals up another notch.
Towards a ban on drones

CAMPAIGNS

Norwegian campaign gets underway

http://www.stopkillerrobots.org/2013/09/norwegian-campaign/

September 7, 2013

Interest in tackling fully autonomous weapons is growing in Norway with events in Oslo on 4 September, where campaigners outlined civil society concerns and called on the government and opposition parties to articulate their policy on banning the weapons.

More than 50 people attended a breakfast seminar on killer robots (drapsroboter in Norwegian) convened by the Norwegian Centre for Humanitarian Studies (NCHS) at the Peace Research Institute of Oslo (PRIO). Alexander Harang, director of campaign member Norges Fredslaget—Norway’s oldest and largest peace organization—told the audience that the campaign is needed because, unlike in other European nations such as Germany and the United Kingdom, fully autonomous weapons have yet to be discussed in the Norwegian parliament and politicians have yet to articulate their position on banning the weapons. Additionally, Norwegian diplomats have yet to provide the country’s views on fully autonomous weapons in international fora, such as the Human Rights Council discussion on 30 May 2013.

“We are supposed to be a humanitarian nation of peace” Harang noted as he emphasized the need for Norway express its views on this challenge and commit to work for a ban on fully autonomous weapons. Norway is a respected international leader in humanitarian disarmament, particularly through its central role in the creation of the 2008 Convention on Cluster Munitions and 1997 Mine Ban Treaty.

At the seminar, a postdoctoral fellow at the Norwegian Research Center for Computers and Law at the University of Oslo, Professor Tobias Mahler, said there is a need for much greater transparency with respect to the development of fully autonomous weapons, noting “we do not yet know how far advanced the military technology is, but when we see what is being put to use civilian use, we can assume that the military technology is step further.”

Harang also delivered a lecture at Bjørknes University College in Oslo, where the campaign’s message was enthusiastically received by students, who took all the materials provided for their outreach (bumper stickers, reports, brochures).

Norway’s 2013 parliamentary election will be held on Monday, 9 September.

For more information, see:
Building awareness in Sweden

http://www.stopkillerrobots.org/2013/10/sweden-outreach/

September 2013

A number of non-governmental organizations (NGOs) in Sweden including Civil Rights Defenders, Svenska Freds (Swedish Peace and Arbitration Society, SPAS), and the Women’s International League for Peace and Freedom (WILPF) Sweden are campaigning for the government to support the call to ban fully autonomous weapons or “killer robots,” known in Swedish as mördarrobotarna.

In a July 2013, the heads of WILPF Sweden and the Swedish Fellowship of Reconciliation (SweFOR) in a joint statement said that programming robots to detect, select and kill in conflict without human control would be to violate an ethical limit by handing over power to decide over human life to robots. They urged the government to support the call for a moratorium on fully autonomous weapons systems, noting “Sweden has the chance to take the lead and show the way.”

In September 2013, Ms. Jody Williams, who received the 1997 Nobel Peace Prize for her work campaigning to ban landmines, visited Stockholm where she met with these and other NGOs to discuss fully autonomous weapons among other issues. In a panel discussion, Williams and Ms. Madeleine Rees, Secretary-General of WILPF, discussed the new global civil society initiative to ensure that a human is always in control of battlefield decisions to target and use violent force. The Nobel Women’s Initiative, which Williams co-founded and chairs, is a founder of the Campaign to Stop Killer Robots and together with WILPF serves on its leadership Steering Committee.

Svenska Dagbladet, Dagens Nyheter, and other Swedish media outlets have covered the campaign’s call for a ban on fully autonomous weapons as well as the call for a moratorium by the UN Special Rapporteur on extrajudicial, summary or arbitrary executions.

Yet despite these activities and the media interest, the government of Sweden has not yet provided its view on the calls for a ban or moratorium on fully autonomous weapons. Officials have informed campaigners that the issue of fully autonomous weapons is so new that substantive policy has not been established yet and there is not a common view on the process most likely to advance international deliberation on this topic.

Sweden may soon be compelled to decide on both as it is already somewhat involved in efforts to address fully autonomous weapons internationally:
Sweden traditionally prepares the resolution on the work of the UN Special Rapporteur on extrajudicial, summary or arbitrary executions and it has indicated that the 2014 resolution to be put forward at the 26th session of the Human Rights Council will include operative paragraphs on the recommendations contained in the UN Rapporteur’s report on lethal autonomous robotics.

In the past Sweden has played a leadership role in the Convention on Conventional Weapons (CCW), but it is not yet known if Sweden will support a CCW mandate to discuss the international framework needed on fully autonomous weapons.

Now’s the time for Sweden’s decision-makers to consider and articulate Sweden’s views on the emerging issue of fully autonomous weapons.

For more information, see:

- Article by Svenska Freds on the Campaign to Stop Killer Robots (Sept. 2013) http://www.svenskafreds.se/pax/kampanj-ska-stoppa-mordarrobotar
- Joint statement by WILPF Sweden and the Swedish Fellowship of Reconciliation (SweFOR) (Jul. 2013) http://www.kyrkanstidning.se/debatt/satt-stopp-mordarrobotarna

Pakistan anti-drone protest fizzles out, but sparks strong emotion


October 10, 2012

By Suzanna Koster

Roadblocks didn’t stop anti-drone protesters from trying to make their voices heard.

MANZAI, Pakistan — Anti-drone protesters tried to conquer barbed wire, ditches, police squads, soldiers and shipping containers blocking the road to reach South Waziristan, the planned destination of a march Imran Khan kicked off in Islamabad on Saturday.

But Khan, the cricketer-turned-leader of his own political party, Movement for Justice, had decided not to visit South Waziristan after all. The army had reportedly warned him of possible attacks if he were to proceed.

“It is our constitutional right to go everywhere in Pakistan. Why aren’t you giving us our rights? You are violating our laws. We warn you to open this road,” one man shouted at police at one such barricade.

One container was pushed on its side, while another was pushed to the roadside.

In Manzai, near the border of South Waziristan, protesters conquered perhaps the last blockade of soldiers and barbed wire before the protest fizzled out. Ahmad Shah Mehsud, a 26-year-old mechanic, was one of the protesters from South Waziristan.
“What does America have to do with our country?” he asked, questioning CIA drone policy.

The majority of protesters went to the nearby town of Tank, where Khan held a rally.

A delegation of about 30 from the US peace organization Code Pink joined the protest against the CIA-led drone campaign in Pakistan. “It’s about murder,” said Tighe Barry, a member of Code Pink who took part in the protest.

 “[Pakistanis] don’t like to see their fellow brothers and sisters murdered by my rogue regime in Washington, DC as well as the warlord capitals by NATO in Europe,” Barry said.

Muhammad Anwar, a property dealer from South Waziristan, a former Taliban stronghold bordering Afghanistan, joined the protest, but he wondered if it mattered. It would not bring back his four sons, a brother, and the dozens of other family members who were killed by a drone attack during a funeral procession on June 23, 2009.

“I always drive slow,” he said. “Someone else wanted to take the wheel and speed up, but I refused. I called them twice to know where they were. We were about ten minutes behind another car with relatives.”

The drone killed 123 people in total, according to Anwar. News reports at the time mentioned other figures ranging from more than 60 to 83 killed. Anwar said that no terrorists were killed in that attack, just innocent people. Activists here say the large majority of victims of drone attacks are innocent.

Anwar said he sent a protest letter to the provincial governor and the political agent, or head, of South Waziristan, but he received no reply. The political agent was not available for comment. “We’re powerless,” Anwar said.

Nations agree to take on killer robots!

http://www.stopkillerrobots.org/2013/11/ccwmandate/

November 13, 2013

The Campaign to Stop Killer Robots welcomes the historic decision taken by nations today to begin international discussions on how to address the challenges posed by fully autonomous weapons. The agreement marks the beginning of a process that the campaign believes should lead to an international ban on these weapons to ensure there will always be meaningful human control over targeting decisions and the use of violent force.

At 4:47pm on Friday, 15 November 2013 at the United Nations in Geneva, states parties to the Convention on Conventional Weapons agreed to convene on 13-16 May 2014 for their first meeting to discuss questions related to “lethal autonomous weapons systems” also known as fully autonomous weapons or “killer robots.” These weapons have not yet been developed, but technology is moving rapidly toward increasing autonomy.
The Campaign to Stop Killer Robots believes that robotic weapons systems should not be making life and death decisions on the battlefield. That would be inherently wrong, morally and ethically. Fully autonomous weapons are likely to run afoul of international humanitarian law, and that there are serious technical, proliferation, societal, and other concerns that make a preemptive ban necessary.

A total of 117 states are party to the Convention on Conventional Weapons, including nations known to be advanced in developing autonomous weapons systems: United States, China, Israel, Russia, South Korea, and United Kingdom. Adopted in 1980, this framework convention contains five protocols, including Protocol I prohibiting non-detectable fragments, Protocol II prohibiting the use of air-dropped incendiary weapons in populated areas, and Protocol IV, which preemptively banned blinding lasers.

The agreement to begin work in the Convention on Conventional Weapons next year could lead to a future CCW Protocol VI prohibiting fully autonomous weapons.

The Campaign to Stop Killer Robots supports any action to urgently address fully autonomous weapons in any forum. The decision to begin work in the Convention on Conventional Weapons does not prevent work elsewhere, such as the Human Rights Council.

The agreement to begin an international process on these weapons comes just seven months after the launch of the Campaign to Stop Killer Robots, a global coalition of 45 non-governmental organizations in 22 countries that is coordinated by Mary Wareham of Human Rights Watch. The campaign calls for a pre-emptive and comprehensive ban on the development, production, and use of fully autonomous weapons.

The campaign is grateful to Ambassador Jean-Hugues Simon-Michel of France, President of the Convention on Conventional Weapons meeting, for his work to secure a mandate for action on fully autonomous weapons today.

Since the topic was first discussed at the Human Rights Council on 30 May 2013, more than 40 countries have spoken publicly on fully autonomous weapons: Algeria, Argentina, Australia, Austria, Belarus, Belgium, Brazil, Canada, China, Costa Rica, Cuba, Ecuador, Egypt, France, Germany, Ghana, Greece, Holy See, India, Indonesia, Iran, Ireland, Israel, Italy, Japan, Lithuania, Madagascar, Mexico, Morocco, Netherlands, New Zealand, Pakistan, Russia, Sierra Leone, Spain, South Africa, South Korea, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, and United States. All nations that have spoken out have expressed interest and concern at the challenges and dangers posed by fully autonomous weapons.

The Campaign to Stop Killer Robots urges nations to prepare for extensive and intensive work next year, both within the CCW and outside the CCW context. We urge states to develop national policies, and to respond to the call by UN Special Rapporteur on extrajudicial, summary or arbitrary executions Prof. Christof Heyns for national moratoria on fully autonomous weapons. We urge states to come back one year from now and agree to a new mandate to begin negotiations. The new process must be underscored by a sense of urgency.
Thousands protest against drone strikes in Peshawar


November 23, 2013

By Dawn.com

PESHAWAR: Thousands of demonstrators staged a protest against US drone strikes blocking a main road in Peshawar on Saturday and threatened to continue their demonstration until the attacks ended, whereas the provincial secretary information of the PTI announced the party would block Nato supply routes.

The protest was led by cricketer-turned-politician Imran Khan and his party, the Pakistan Tehrik-e-Insaf (PTI) along with their allies in the Khyber Pakhtunkhwa provincial government.

The Jamaat-i-Islami (JI) and Awami Jamhoori Ittehad (AJIP) also confirmed their participation.

"We will put pressure on America, and our protest will continue if drone attacks are not stopped," Khan told the protesters.

Provincial secretary information of PTI Ishtiaq Ormar announced that Nato supply containers to and from Afghanistan via Khyber Pakhtunkhwa would be stopped at the border points.

In a statement issued here Saturday, he said, “We by this step wanted to tell the world that we could do what we said and we could do anything for our people.”

Ormar said that PTI’s teams would stop Nato supply from entering into the borders of Khyber Pakhtunkhwa at any point including Khairabad, Charsadda, Bannu, Dera Ismail Khan and Hangu, while this blockade of Nato supply would continue till US stopped drone attacks and formally sought apology on human killings in Pakistan.

He said that American drone attacks were brutally extended to the settled areas of Khyber Pakhtunkhwa and if this was not noticed and properly reacted then such attacks could also be made at any other part of the country as well.

Earlier during the day, Khan called for a complete blockade of Nato convoys to Afghanistan to put pressure on the US to abandon its drone programme. “We will not allow Nato supplies to pass from Khyber Pakhtunkhwa and in any case will stop drone strikes,” Khan told the gathering.

“We are here to give a clear message that now Pakistanis cannot remain silent over drone attacks,” Shah Mehmood Qureshi, a senior member of the PTI, said in a speech to the protesters.

Party workers of the PTI and JI had arrived at Ring Road in the provincial capital from across the country. According to some estimates, around 10,000 people participated in Saturday’s protest. The protesters shouted anti-US slogans, such as “Down with America” and “Stop drone attacks.”

Strict security arrangements were put in place by the provincial government, including deployment of over 500 police personnel to ensure safety and order. Transporters were directed to use alternative routes.
“I am participating in today’s sit-in to convey a message to America that we hate them since they are killing our people in drone attacks,” said Hussain Shah, a 21-year-old university student. “America must stop drone attacks for peace in our country.”

The US Embassy in Islamabad declined to comment on the protest.

The protest comes only two days after a rare US drone strike outside of Pakistan’s remote tribal region killed six people, including senior commanders of the Haqqani network, at a seminary in Khyber Pakhtunkhwa’s Hangu district.

The attack outraged Pakistani officials, as did one on Nov 1 that killed the former leader of the Pakistani Taliban, Hakimullah Mehsud, a day before the Pakistani government said it was going to invite him to hold peace talks.

Khan earlier set a November 20 deadline for the halting of drone strikes and threatened to block Nato convoys in northwestern Khyber Pakhtunkhwa.

But on Saturday he said he will take the issue to the country’s top court and, if necessary, to the international court of justice.

Nato supplies were suspended Saturday because of the rally, which was held on same route used by Nato trucks.

Ring Road leads to Torkham, one of two border crossings used to ship supplies from Pakistan to Afghanistan, and is a key transit route to transport supplies to Nato troops in the war-torn country.

Tahir Khan, a government official at Torkham, says there is normally little Nato supply traffic on the route on Saturdays. Most trucks arrive at the border by Friday evening to clear customs.

‘Protests to continue until drone strikes stop’

PTI chief Imran Khan has been a vocal critic of US drone strikes, saying they violate Pakistan’s sovereignty.

Speaking to reporters earlier in Islamabad before heading to Peshawar for the demonstration, Khan said that the federal government was doing nothing on its part to stop drone attacks and the protest against the strikes would continue indefinitely.

Khan said that apart from issuing condemnation statements, nothing concrete had been done to put an effective stop to drone attacks.

He said that he had been protesting against drone attacks for the past nine years, but the government had yet to do anything about it.

Khan said Nato supplies would not be allowed to pass via KP, adding that the PTI-led government in the province possessed the mandate to block Nato supplies.

He moreover said PTI had promised to eradicate corruption from the country and it would fulfill its promise.
REGULATORY EFFORTS

UN launches inquiry into drone killings

http://www.bbc.co.uk/news/world-21176279?print=true

January 24, 2013

The UN is launching an inquiry into the impact on civilians of drone strikes and other targeted killings. There is a need for "accountability and reparation where things have gone badly wrong", the British lawyer heading the investigation told journalists.

Ben Emmerson QC, a UN special rapporteur, said the "exponential" rise of drone technology required a proper legal framework to be put into place.

The inquiry will study the impact of drone strikes in five places.

Twenty-five attacks will be examined - in Pakistan, Afghanistan, Yemen, the Palestinian territories and Somalia.

Mr Emmerson told journalists in London that the increasing use of drones "represents a real challenge to the framework of international law".

If unregulated, he said, the use of drones would continue to grow.

The inquiry will assess the extent of civilian casualties, the identity of militants targeted and the legality of strikes where there is no UN recognition of a conflict.

Defenders of drones say they minimise civilian casualties, but opponents say drone strikes can constitute extra-judicial killing and point to data suggesting hundreds of civilians have died in such strikes.

"War crime"

Drones - or unmanned aerial vehicles (UAVs) - have become an increasingly potent weapon for nations seeking to target militants but there is increasing controversy over their toll on civilians.

Between 2004 and 2013, CIA drone attacks in Pakistan killed up to 3,461 people - up to 891 of them civilians, according to research by the Bureau of Investigative Journalism.

The vast majority of the strikes were carried out under the administration of President Barack Obama, it said.

Some kinds of drone attacks - in particular "double tap" strikes where rescuers attending a first blast become victims of a second - could constitute a war crime, Mr Emmerson has previously said, according to the Guardian newspaper.

Addressing journalists on Thursday, he denied the inquiry was unfairly singling out the US and Israel, saying 51 states had the technology to use drones.
He said it was not a substitute for "effective, official and independent investigation" by states, and called for independent investigations where there was "plausible evidence of a war crime".

The inquiry will report to the UN General Assembly in the latter half of the year.

'Killer robots' pose threat to peace and should be banned, UN warned

http://www.theguardian.com/science/2013/may/29/killer-robots-ban-un-warning/print

May 29, 2013

By Ed Pilkington in New York

Human rights investigator Christof Heyns to call for moratorium on weapons that can kill targets without human involvement

Science fiction? 'Machines lack morality and mortality, and should not have life and death powers over humans', Heyns will say on Thursday. Photograph: Warner Bros

"Killer robots" that could attack targets autonomously without a human pulling the trigger pose a threat to international stability and should be banned before they come into existence, the United Nations will be told by its human rights investigator this week.

Christof Heyns, the UN special rapporteur on extrajudicial, summary or arbitrary executions, will address the UN Human Rights Council in Geneva on Thursday and call for a worldwide moratorium on what he calls "lethal autonomous robotics" – weapons systems that, once activated, can lock on and kill targets without further involvement of human handlers.

"Machines lack morality and mortality, and as a result should not have life and death powers over humans," Heyns will say.

Heyns's call for a moratorium draws the UN into the realms of sci-fi: fully autonomous weapons have not yet been developed, and exist only in the imaginations of military planners. However, experts in warfare technologies warn that the world's leading military powers are moving so rapidly in this direction that a pre-emptive ban is essential.

"States are working towards greater and greater autonomy in weapons, and the potential is there for such technologies to be developed in the next 10 or 20 years," said Bonnie Docherty of Harvard law school's International Human Rights Clinic, who co-authored a report on the subject with Human Rights Watch.

In his submission to the UN, Heyns points to the experience of drones. Unmanned aerial vehicles were intended initially only for surveillance, and their use for offensive purposes was prohibited, yet once strategists realised their perceived advantages as a means of carrying out targeted killings, all objections were swept out of the way.

Drone technology has already moved a step closer to a fully autonomous state in the form of the X-47B, a super-charged UAV developed by the US Navy that can fly itself, and which last week
completed the first takeoff from an aircraft carrier. The drone is billed as a non-combat craft, yet its design includes two weapons bays capable of carrying more than 4,000lbs.

Britain is developing its own next generation of drone, known as Taranis, that can be sent to tackle targets at long range and can defend itself from enemy aircraft. Like X-47B it has two in-built weapons bays, though is currently unarmed.

Apart from drones, several states are known to be actively exploring the possibility of autonomous weapons operating on the ground. South Korea has set up sentry robots known as SGR-1 along the Demilitarized Zone with North Korea that can detect people entering the zone through heat and motion sensors; though the sentry is currently configured so that it has to be operated by a human, it is reported to have an automatic mode, which, if deployed, would allow it to fire independently on intruders.

Steve Goose, Human Rights Watch's arms director, said it was undeniable that "modern militaries are looking to develop autonomous weapons. The question is how far that push for autonomy will go."

Given its dominance as the world’s leading military power, the US is likely to set the pace. According to Human Rights Watch, the Pentagon is spending about $6bn a year on research and development of unmanned systems, though in a directive adopted last November it said that fully autonomous weapons could only be used "to apply non-lethal, non-kinetic force, such as some forms of electronic attack".

The key issue identified by Heyns in his UN submission is whether future weapons systems will be allowed to make the decision to kill autonomously, without human intervention. In military jargon, there are those unmanned weapons where "humans are in the loop" – ie retain control over the weapon and ultimately pull the trigger – as opposed to the future potential for autonomous weapons where humans are "out of the loop" and the decision to attack is taken by the robot itself.

The possibility of "out of the loop" weapons raises a plethora of moral and legal issues, Heyns says. Most worrying, it could lead to increasing distance between those carrying out the attack and their targets: "In addition to being physically removed from the kinetic action, humans would also become more detached from decisions to kill – and their execution.

UK says killer robots will not meet requirements of international law

http://www.article36.org/weapons-review/uk-says-killer-robots-will-not-meet-requirements-of-international-law/

June 18, 2013

Alistair Burt, Minister for Counter Proliferation, responded to Nia Griffith MP, Vice Chair of the All Party Parliamentary Group on Weapons and Protection of Civilians

At a parliamentary debate called by Nia Griffith MP on 17 June the UK Minister for Counter Proliferation, Alistair Burt MP provided further information on British policy regarding fully autonomous weapons.
In response to Nia Griffith, who is Vice-Chair of the All Party Parliamentary Group on Weapons and Protection of Civilians, the Minister stressed that the UK does not possess fully autonomous weapon systems and has no intention of developing them.

In a significant statement, the Minister noted that by the UK Government’s interpretation existing international law applicable to weapons would prevent the development of fully autonomous weapons, which he agreed can be defined as weapons which, once activated, can select and engage targets without further human intervention.

“As I had the chance to read the hon. Lady’s speech before the debate, I noticed that she used the phrase “Furthermore, robots may never be able to meet the requirements of international humanitarian law”. She is absolutely correct; they will not. We cannot develop systems that would breach international humanitarian law, which is why we are not engaged in the development of such systems and why we believe that the existing systems of international law should prevent their development.”

By recognising that fully autonomous weapons “will not” be able to meet the requirements of international humanitarian law, this position provides a significantly stronger barrier to the development of fully autonomous weapons than the government’s previously stated position, presented at the UN Human Rights Council on 30 May, that existing IHL is sufficient to regulate the development and use of such weapons.

However, a certain ambiguity reappeared when the Minister noted later in the debate that:

“We think the Geneva conventions and additional protocols provide a sufficiently robust framework to regulate the development and use of these weapon systems.”

If ‘regulate’ in this context can be taken to mean ‘prohibit’ then these positions are coherent, The government should make whether it is saying that existing law prevents the development of fully autonomous weapons or whether it is saying that existing law is sufficient for regulating their development and use.

The government’s position in relation to the implementation of national moratorium as recommended in the recent report to the Human Rights Council by UN special rapporteur Christof Heyns also remains inconsistent with its national position, which it has now articulated very strongly:

“The United Kingdom, having made its own decision that it is not developing these weapons, believes that the basis of the legal system on weaponry is such as to prevent that development.”

Despite this strong rejection of fully autonomous weapons, the Minister noted that:

“The United Kingdom has unilaterally decided to put in place a restrictive policy whereby we have no plans at present to develop lethal autonomous robotics, but we do not intend to formalise that in a national moratorium.”

It would seem straightforward to move from such a strong national position to a formalised national moratorium and a leading role within an international process to prohibit such weapons. The government did not provide any reason as to why a moratorium would be inappropriate, other than to speculate on the level of support amongst other countries for such a course of action.

Whilst significant issues still require more detailed elaboration, Article 36 believes this parliamentary debate has been very valuable in prompting reflection and Ministerial scrutiny of UK policy on fully
autonomous weapons and narrowing down the areas on which further discussions should focus. It appears clear now that there will be scope for such discussions to take place with the UK and other states in the near future. Confirming the UK’s willingness to participate in such discussions, the Minister noted that:

“...we stand ready to participate in the international debate and we agree that the convention on certain conventional weapons seems the right place for this important issue.”

UN pushes hard for more transparency on drones

http://dronewars.net/2013/10/24/un-pushes-hard-for-more-transparency-on-drones/

October 24, 2013

By Chris Cole

Four important reports relating to the use of armed drones have been published over the past ten day. Two official reports by UN Special Rapporteurs examine the legal issues surrounding the use of armed drones. These were closely followed by a detailed report from Amnesty International on the impact of drones in Pakistan and a related report by Human Rights Watch on the impact of drones in Yemen. All four are important and worth reading in detail.

Here we focus on the two UN reports, particularly how they relate to the UK use of armed drones.

Christof Heyns, the UN Special Rapporteur on extrajudicial, summary or arbitrary executions, states that his report is aimed at “clarifying the application of [international Law] rules and to reiterate their authority, from the perspective of protection of the right to life.” In some ways, the 25-page report can be read as a direct challenge to the US use of drones for targeted killing in Pakistan, Yemen and elsewhere. Heyns challenges, for example, the US position, most apparent in the leaked DoJ White Paper, of a much broader concept of ‘imminence’ which would mean in effect that no immediate threat is necessary with regard to using lethal force under self-defence rules. Heyns states:

“The view that mere past involvement in planning attacks is sufficient to render an individual targetable even where there is no evidence of a specific and immediate attack distorts the requirements established in international human rights law. [Para. 37]

Heyns also argues forcefully that only a State’s highest authority can give permission to another State to use force on its territory and if that permission is withdrawn, such force must cease (see Para. 82-84). This is clearly a reference to arguments within the US that despite Pakistan Government announcements urging an end to US drone strikes, authority has previously been give or alternatively that secretly, Pakistan continues to give permission for the strikes through the ISI, the Pakistan security service.

Heyns also calls follow-up drone strikes, if aimed at the wounded, rescuers and medical personnel – dubbed as ‘double-tap’ strikes by the media – war crimes [Para. 73]. There have been reports that US have carried out such strikes in Pakistan and Yemen.
However Heyns does not just focus on the US use of drones for targeted killing in Pakistan but also raises the wider questions about drones and their challenge to international peace and security.

“The expansive use of armed drones by the first States to acquire them, if not challenged, can do structural damage to the cornerstones of international security and set precedents that undermine the protection of life across the globe in the longer term.” [Para. 16]

“Given that drones greatly reduce or eliminate the number of casualties on the side using them, the domestic constraints — political and otherwise — may be less restrictive than with the deployment of other types of armed force. This effect is enhanced by the relative ease with which the details about drone targeting can be withheld from the public eye and the potentially restraining influence of public concern. Such dynamics call for a heightened level of vigilance by the international community concerning the use of drones.” [Para. 18]

Heyns also challenges, as we have tried to do, the uncritical acceptance that drone are more precise than other weapons [Para. 75]. There is little if any empirical data in the public domain for such claims. This leads to the main thrust of Heyns’ report – the need for greater transparency on the use of drones – not just from the US but from all States using armed drones. Heyns says:

“The first step towards securing human rights in this context is transparency about the use of drones. A lack of appropriate transparency and accountability concerning the deployment of drones undermines the rule of law and may threaten international security. [Para. 96/7]

The second report, from UN Special Rapporteur on human rights and counter terrorism, Ben Emmerson, is an update on his inquiry on behalf of the UN into the use of drones in counter-terrorism operations, launched in January 2013. The inquiry was originally to be completed in time for the UN General Assembly this month but has taken longer than expected and this is therefore only an interim report with the complete findings now not expected to be presented until 2014.

While originally focusing on a sample of 25 ‘case studies’ of drone strikes, Emmerson says this has now been expanded to 33 case studies. This has unfortunately been misreported by several news outlets as the UN having found only 33 drone strikes that have killed civilians.

Like Heyns, Ben Emmerson examines the “principal areas of legal controversy” surrounding the use of armed drones, focusing on when an individual may or may not be targeted and whether the US can be said to be acting in self-defence.

The report also reviews briefly the use of armed drones – and reports of civilian casualties – in Afghanistan, Pakistan, Yemen, Libya, Iraq, Somalia and Gaza before examining how States investigate reports of civilian casualties.

Ben Emmerson met with senior MoD officials in Whitehall and the report contains some helpful information about the UK’s use of armed Reaper drones that clearly came from this contact.

With regard to weapon launches from Reapers and possible civilian casualties, the report states:

“The Ministry [of Defence] has informed the Special Rapporteur that, under operating procedures followed by the United Kingdom in Afghanistan, every remotely piloted aircraft weapons discharge is the subject of internal review involving the senior qualified weapons instructor. A mission report is prepared and is then reviewed by the most senior British officer at the Combined Air Operations
Centre in Afghanistan and his or her legal adviser. This includes a review of video footage and communications reports. If there is any indication of civilian casualties, the incident is referred to the Joint Incident Assessment Team at ISAF, whose personnel are independent of the chain of command involved in any strike. Individuals are presumed to be civilian for this purpose unless it can be established that they were directly involved in immediate attempts or plans to threaten the lives of ISAF personnel. [Para. 49]

Further:

“While Israel has sometimes invoked the principle of proportionality to justify civilian casualties sustained in the course of lethal counterterrorism operations in Gaza, the United Kingdom has specifically informed the Special Rapporteur that in making targeting decisions involving the use of remotely piloted aircraft in Afghanistan it does not authorize strikes on the basis that the infliction of civilian casualties would be proportionate to a high-value military target. It is the policy of the Ministry of Defence that weapons should not be discharged from any aerial platform unless there is a zero expectation of civilian casualties, and that any individual or location should be presumed to be civilian in nature unless there is clear evidence to the contrary. [Para. 74]

This is helpful to know and one wonders why the MoD has not stated this clearly and succinctly before.

The UK has acknowledged one UK drone strike in which Afghan civilians have been killed, but the government refuses to publish the investigation into the killings.

Like Christof Heyns, Ben Emmerson argues strongly for much greater transparency around the use of armed drones, especially incidents where there have been reports of harm to civilians. He states:

“Put simply, there is an onus on any State using lethal force to account for civilian casualties... Subject to redactions on grounds of national security, a full explanation should be made public in each case [of civilian casualties]. In the view of the Special Rapporteur, this obligation ought to be viewed as an inherent part of the State’s legal obligations of accountability under international humanitarian law and international human rights law.” [Para. 45]

Christof Heyns ends his report by urging civil society to “continue and, where possible, expand its assessment and monitoring of the use of drones.” We, if we may be so bold, in turn thank Mr Heyns and Mr Emmerson for their work and urge them too, to continue to hold States using armed drones to account.


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