

By: Professor Caroline Kennedy-Pipe and James I Rogers



A Royal Air Force Reaper RPAS (Remotely Piloted Air System) at Kandahar Airfield in Afghanistan (credit: Defence Imagery)

Headline news and contemporary popular culture reflect a fascination with the way Improvised Explosive Devices (IEDs) have transformed the nature of contemporary conflict. The public image is of brave men and women confronting and destroying primitive but lethal weapons, often laying down their lives to protect their comrades-in-arms or vulnerable citizens. This valiance in confronting these unpredictable weapons has been both highlighted in films such as *The Hurt Locker* and expressed through public campaigns such as those administered by 'Help for Heroes' to support those injured by IEDs.

So IEDs have occupied centre stage for over fifteen years, dominating military thinking and public policy over domestic security and counter-insurgency in particular. IEDs have proved to be a strategic as well as a tactical success for insurgents, denting Western confidence in the ability to pursue counter-insurgency within theatres of war and preventing effective 'hearts and minds' campaigns. But these weapons are important not just in recognised warzones. IEDs have become ubiquitous in a wide variety of conflicts of all sizes across the globe.

Roadside bombs, booby traps and improvised devices have of course been used in most theatres of war. Revolutionaries, terrorists and dissidents across the ages have all chosen to utilize IEDs to make political points whether to target politicians, to damage iconic buildings or to disrupt economic infrastructure. Yet while IEDs were in the past most certainly disruptive, they did not pose a sufficiently significant strategic threat

to provoke a fundamental shift in the Western way of war. However at the beginning of this century, IEDs did cause the campaigns in Iraq and Afghanistan to falter, raising the costs of war in terms of money and manpower. Throughout the 9/11 wars of Iraq and Afghanistan, IEDs have cost Western states considerable amounts of blood and treasure. The American military alone invested over \$62 billion on equipment to counter the IED threat between 2001 and 2011. Despite this investment, the IED threat to life continued as the drawdown took place. In 2011, according to [iCasualties.org](http://icasualties.org), IEDs contributed to over half of American military deaths in Afghanistan.

In short, IEDs proved to be a strategic as well as a tactical success for insurgents and these devices remain in the post 9/11 era, symbols of Western failure in Afghanistan, just as the Stinger missile became the icon of Soviet defeat in that country. IEDs and their effects underlined the futility of a long campaign (one of the longest in American history) that the United States and its allies were losing for a variety of reasons.

Countering the threat of IEDs has been and continues to be a challenge. The very nature of these devices allows for a persistent evolution and innovation. Where metal detectors once saved lives, they came to trigger the IED. When 'the bubble' allowed for a radius of protection, the IED grew bigger. As the wire trigger was cut, the key fob found its place. Once the key fob was jammed, the mobile phone was utilised.

In all, the battle to counter IEDs was and continues to be a long and deadly game of cat and mouse.

As the drawdown continues from Afghanistan it is time to take stock of the IED, a device which continues to evolve or be utilised by cunning and adaptable enemies.

We have recently witnessed IEDs hidden inside the holy book – the Koran, hidden to kill and maim troops; we have seen IEDs delivered via motorcycles as well as by push bikes, by animals, not to mention the ever present and increasing threats of the suicide bomber. Indeed, the current strategy of ISIL has seen the deployment of groups of suicide bombers in battle. The IED continues to evolve.

So - the Ubiquitous Weapon?

IEDs have long proliferated outside of Iraq and Afghanistan but there are some notable developments. The urban landscape is now one important theatre in which IEDs are increasingly deployed. As the astute commentator P.W. Singer states 'what has gone relatively unnoticed is that the number of IED attacks outside these two nations has doubled over the past three years. The first nine months of 2011 saw an average of 606 attacks per month in 99 countries'. North Africa, West African even European cities now face the threat of an IED in an urban context. David Kilcullen, has in his book 'Out of the Mountains' predicted that future war will be predominantly urban warfare and we can expect to see the sprawling urban cities as the new theatre of insurgency and counter insurgency.

Urban warfare is of course not in itself new. We need only think of some of the great battles of World War II and terrorist bomb attacks have long been urban as well as rural. Warrington (1993), New York (1993), Madrid (2004), London (2005) let alone the towns and villages of Northern Ireland all bear the scars of IED attacks. Certainly, we in the United Kingdom have been painfully aware of what havoc an explosion in an urban environment can inflict. As have those in Central and Latin America where it has become increasingly common for IEDs to be deployed in urban conflicts.

What is novel however and what our project at the University of Hull investigates is the proliferation of 'recreational drones' and the effect that such drones will have on urban conflicts in creating a new form of improvised explosive device. IEDs are now airborne and becoming increasingly so. Hence we are interested in Airborne Improvised Explosive Devices (AIEDs) or Drone IEDs.

The security threat posed by these so called 'recreational drones' (in their various forms) is becoming increasingly apparent within urban contexts. They are cheap and effective. Drones varying in price from £30 to £3000 are presenting a security threat in a number of ways.

A so-called 'atomic drone' made an appearance in Japan just a few weeks ago. This drone, carrying a vessel of radioactive sand from Fukushima, was able to be flown and land on the office roof of the Japanese Prime Minister where it sat radiating for up to a month. Although the Prime Minister was absent and the drone was discovered to be emitting only low levels of radiation,

it does not take a leap of imagination to consider what damage such a drone could do if packed with explosives or perhaps greater levels of radioactive material.



A Reaper UAV (Unmanned Aerial Vehicle) at Kandahar Airfield in Afghanistan (credit: Defence Imagery)

Drones already persistently trigger security alerts at nuclear power plants, cultural landmarks (like the Eiffel Tower) at military installations or public landmarks. As an example, a drone crashed in to the grounds of the White House.

Explosive drones are in some ways becoming a weapon of choice. In September 2011 the FBI arrested Rezwan Ferdaus, who had allegedly plotted to ram an explosives-packed, remote-controlled aircraft the size of a small car into the Pentagon. Thus, AIEDs or Drone IEDs have become an important step in the evolution of the IED.

Globally, IEDs are the weapon of choice for criminal gangs alongside terrorist groups and insurgents. Airborne IEDs offer the prized element of surprise and the potential to attack targets at some distance. But it is not just in the built environment that these familiar weapons will be deployed. There is already evidence that Drone IEDs are proliferating across the maritime environment utilised by so-called pirates and groups wishing to interfere with naval shipping traffic. So land, air and sea are now vulnerable and there is an increasing need to find ways of countering these devices.

UNIVERSITY OF Hull

For further information please contact:

Professor Caroline Kennedy-Pipe
C.Kennedy-Pipe@hull.ac.uk

James I. Rogers
J.Rogers@hull.ac.uk

www2.hull.ac.uk